Construction Monitoring Report No. 3

Sydney Metro West – Western Tunnelling Package

July 2023 to January 2024

ISSUE DATE: JUNE 2024

Document Details

Document Title	**Construction Monitoring Report No. 3**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Document Reference No.	**SMWSTWTP-GLO-1NL-EN-RPT-000006**
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	17/06/2024	Collation of Finalised Monitoring Reports	Snr Approvals Advisor

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TABLE OF CONTENTS

1 INTRODUCTION 4
1.1 Background 4
1.2 Project Description 4
1.3 Project Requirements 6
1.4 Summary of Works 6

2 SUMMARY OF RESULTS 8
2.1 Noise and Vibration 8
2.2 Surface Water Quality Summary 9
2.3 Groundwater Summary 9

ATTACHMENTS 11
Attachment A – Construction Noise and Vibration Monitoring Report 11
Attachment B – Surface Water Quality Monitoring Report 12
Attachment C – Groundwater Monitoring Report 13

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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 and Environment (DPE). 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.

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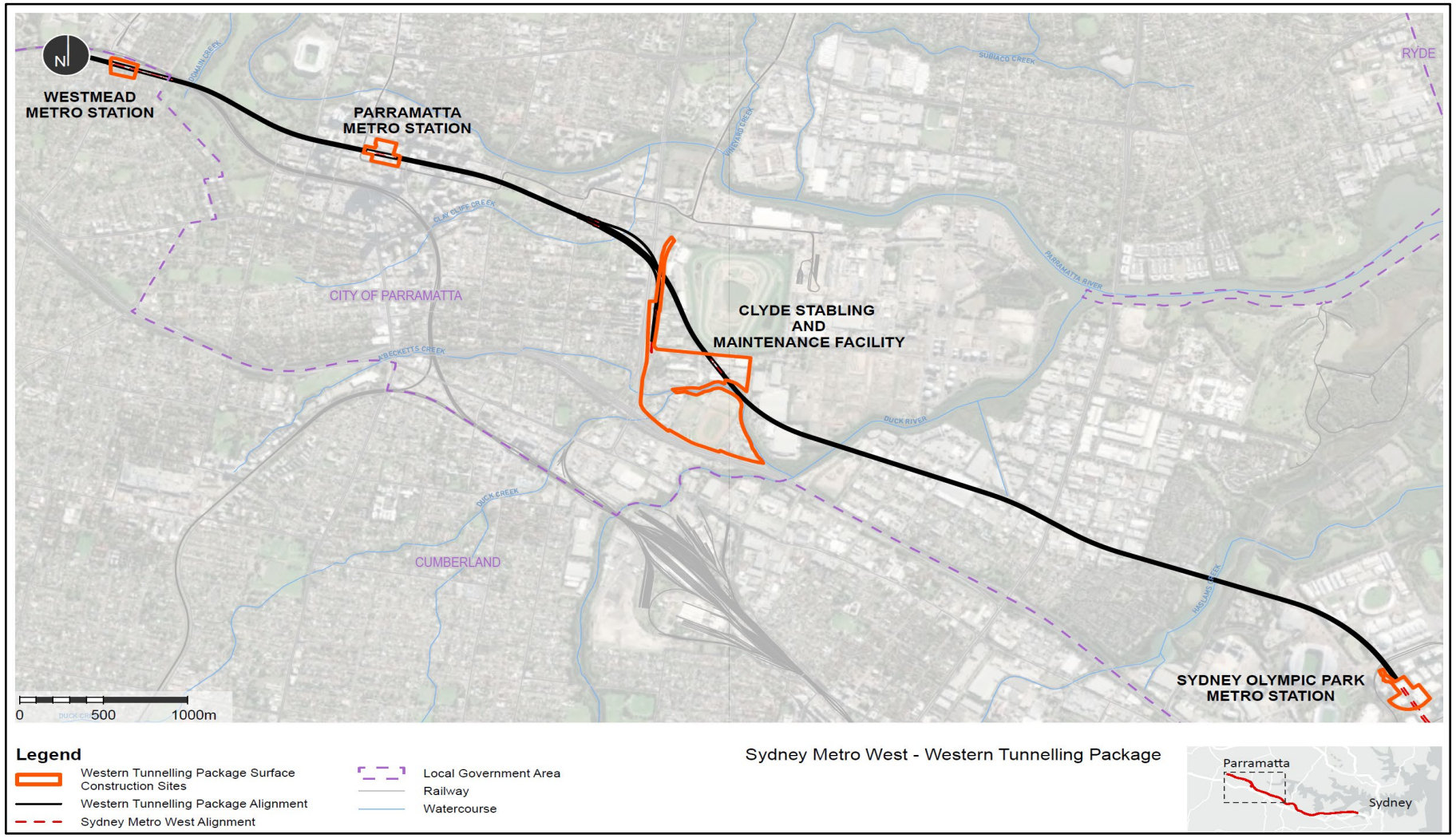

Figure 1 WTP Project Map Overview

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 19th July 2023 to 19th January 2024.

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
Westmead	• Protecting and/or relocating utilities • Establishing Water Treatment Plant • Establishing concrete slabs or piling platforms • Establishing spoil shed (structure) • Box Excavation Ground Support – Ground Anchors, Shotcrete & Rock Bolts • Box Excavation (from surface) • Box Excavation (with Hydraulic Hammers)

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	• Box Excavation (fully enclosed) • Box Excavation – rock bolting/shotcrete (with acoustic shed/cover) • Mined Tunnel Excavation • Delivery of Equipment & Spoil Haulage • General operation of ancillary facility • Gantry crane operation • Installation of Monitoring Equipment • Tunnel support activities
Parramatta	• Archaeological clearance • Removal and/or relocating utilities • Establishing Water Treatment Plant • Establishing concrete slabs or piling platforms and D-Wall Infrastructure – Approved Hours • D-Wall Infrastructure – OOHW 1 • Station Box D-Wall Excavation & Construction – Approved Hours • Station Box D-Reduced Fleet 1 • Station Box D-Reduced Fleet 2 • Station box pile break back/trim • FRP (Form, Reo & Pour) – Concrete Works Capping Beam • Box excavation Ground Support – Internal Struts & Waler Installation • Box Excavation to ~26m • Delivery of Equipment / General Truck Movements • General operation of ancillary facilities
Clyde Dive[1]	• Construction site establishment / Haul Roads • Piling • Bulk earthworks • Establishing concrete slabs/acoustic shed • Haul road FRP and hoarding installation • Decline structure construction (Piling) • Decline structure construction • Spur line and Junction excavation • General operation of ancillary facilities • Remediation of contaminated hotspots • Minor utilities relocations
Clyde MSF[1]	• Construction site establishment/demolition of structures • Remediation of contaminated hotspots • PASS treatment • Construction of ERSED controls including dewatering system • Bulk Earthworks • Drainage installation & combined services route • Utility trench and services corridor works • FRP works, Concrete works and retaining walls • Water conveyance structure – construction • Unwin Street Diversion – construction • Unwin Street Overpass (Piling, FRP, Earthworks, Heavy Lifting) • General operation of ancillary facility • Utility adjustment works • Clearing Vegetation • Ground Improvement work • General operation of ancillary facility
Rosehill[1]	• Diaphragm wall (D-wall) construction • Box excavation • FRP concrete work • Delivery of equipment

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	• TBM Construction • General operation of ancillary facility • Water discharge and construction/commissioning of the long-term water treatment plant
Sydney Olympic Park	• Construction Site Establishment • FRP Works • Nozzle Construction

[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

Noise and vibration monitoring between July 2023 to January 2024 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 monitoring period, there were a total of 255 attended monitoring sessions recorded. Of these, 206 monitoring events resulted in LAeq above the predicted noise levels (PNL). However, upon further analysis, it was found that the main cause of these events were due to higher than normal ambient noise levels typically attributed to public, road traffic and animal noises. Where the observed noise levels exceeded the predicted noise levels however, the mitigation measures emplaced remained appropriate for the observed noise levels in accordance with the Sydney Metro CNVS.

In addition to attended monitoring, unattended noise monitoring was also conducted during the reporting period. However, there were some gaps in the results due to equipment issues, such as breaks in power supply and breakdowns. Where these occurred, these have been documented in the Monitoring Report.

Unattended vibration monitoring resulted in just under 3000 exceedance triggers. Upon analysis, it was found most exceedances, were due to non-work-related activities such as rainfall or human interference.

The one instance where a vibration exceedance was identified was in the context of excavation works at Parramatta. Following identification of these exceedance events, the activities were immediately investigated to determine the cause of these events and to moderate construction activities if deemed necessary. In the majority of instances, 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 non-construction noise or vibration are not responsible for noise and vibration exceedances, investigations are undertaken to ensure consistency with plant and equipment

modelling, and appropriate mitigation measures implemented. Site teams are typically briefed via toolbox talks to ensure awareness of construction methodology and appropriate mitigation measures implemented.

Refer to Attachment A for the Construction Noise and Vibration Monitoring Report July 2023 to January 2024 (SMWSTWTP-GLO-1NL-NV-RPT-000003).

2.2 Surface Water Quality Summary

Surface Water Quality Monitoring between July 2023 to January 2024 was undertaken in accordance with the WTP Surface Water Quality Monitoring Program (SWQMoP).

In accordance with the recommendations of the SWQ Monitoring Report No.2, two additional sampling locations were added (those being SW10 and SW11 from April 2023 and June 2023 respectively. SW10 acts as an upstream sample location for the Westmead Construction Site whilst SW11 acts as a future downstream sampling point for the Parramatta construction site due to the realignment of the Parramatta water treatment plant discharge line that achieved construction completion during the reporting period. Sample location SW04 and SW05 were sampled in this monitoring period for consistency with previous monitoring rounds however they will be removed from the SWQMoP once the Parramatta water treatment plant is commissioned and operating.

Monitoring during the reporting period saw samples collected from a total of 11 sampling points across the project, against which chemical and physical properties were assessed (As per the NSW Water Quality Objectives and the Australian and New-Zealand Guidelines 2018). There were a total of 16 instances recorded, during which a downstream water parameter('s) was higher than the upstream sampling location. In all instances, these findings were inconclusive or directly correlated with external factors unrelated to WTP, such as recent rainfall or erosion sources, 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.

Refer to Attachment B for the Surface Water Quality Monitoring Report July 2023 to January 2024 (SMWSTWTP-GLO-1NL-EN-RPT-000011).

2.3 Groundwater Summary

Groundwater Monitoring for the reporting period of July 2023 to January 2024 was undertaken in accordance with the WTP Groundwater Monitoring Program (GMP).

The following results for the Water Treatment Plant discharges were concluded:

During the reporting period, 20 sampling events occurred at the Rosehill (16) and Westmead (4) Permanent Water Treatment Plant between July 2023 and January 2024. Each sampling event consisted of a pre-treatment and post-treatment sample, which were assessed against the discharge criteria stipulated in the Project EPL (21676).

Of the 20 sampling events undertaken during the reporting period, six returned elevated concentrations for the Rosehill Permanent Water Treatment Plant, including for hexavalent chromium, total and oxidised nitrogen, ammonia, and nitrogen. Investigations into these exceedances confirmed the cause as being attributed to:

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- maintenance and performance testing activities, which involve water being cycled through the treatment plant.
- Specific construction activities such as shot creting, were occurring and affecting the raw water being input.
- Errors with the testing process – With subsequent tests being compliant, thereby indicating that the observed exceedance was likely an anomaly resulting during the testing process.

Where these exceedances were observed, targeted testing was undertaken to first verify if the observed results were an anomaly or attributed to the testing process. After which, all discharge into stormwater was ceased until consecutive compliant results were obtained. Further, to ensure that there was no offsite impact to the environment, surface water sampling was undertaken monthly during the reporting period. Results collected from the designated upstream (SW08) and downstream (SW03) sampling points were consistent with historic sampling rounds indicating no potential impact.

All non-compliant treated water was collected in tanks for disposal offsite or re-treated.

The groundwater monitoring network constantly changes due works associated with delivering the WTP. Several groundwater monitoring wells (GWMW's) from the July 2022 baseline monitoring period for example, were inaccessible and/or destroyed. Alternative GWMWs installed as replacement GWMWs. Groundwater quality sampling was undertaken by suitably qualified personnel, in accordance with AS/NZS 5667.11:1998 and samples sent to NATA accredited laboratories for analysis of selected Chemicals of Potential Concern (CoPC).

The following results for groundwater level changes were concluded:

Comparison with the groundwater modelling drawdown predictions (after two (2) years - high case model) identified four reportable changes. However, compared to the AIP criteria, there are no reportable changes in groundwater level 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.

The following groundwater quality observations were made:

All reportable changes in groundwater quality, identified in either the July 2023 or October 2023 GME were assessed during additional trigger monitoring in November 2023 to confirm whether these exceedances are reportable changes in groundwater quality. Key reportable changes were observed for ammonia, salinity, nitrogen and reactive phosphorus, copper and pH. The results from the July 2023 monitoring event will continue to be monitored to determine if there are any exceedances against the performance criteria, and the findings reported in the next biannual Groundwater Monitoring Report.

Refer to Attachment C for the Groundwater Monitoring Report January – July 2023 (SMWSTWTP-GLO-1NL-EN-RPT-000012).

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ATTACHMENTS

Attachment A – Construction Noise and Vibration Monitoring Report

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Construction Noise and Vibration Monitoring Report

Sydney Metro West – Western Tunnelling Package

July 2023 to January 2024

ISSUE DATE: MAY 2024

Document Details

Document Title	**Noise and Vibration Monitoring Report**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Document Reference No.	**SMWSTWTP-GLO-1NL-NV-RPT-000003**
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	07/03/2024	First Draft	Scott Thomson	Hussain Nilar
Rev B	29/05/2024 05/06/2024	Response to AA and SM comments	Scott Thompson Kellie Hunt	Hussain Nilar

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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
CNVS	Sydney Metro Construction Noise and Vibration Standard
dBA	Decibel (A-weighted)
DNVIS	Detailed Noise and Vibration Impact Statement
DPHI	Department of Planning, Housing and Infrastructure (NSW)
DSI	Detailed Site Investigation
EIS	Environmental Impact Statement
EPL	Environmental Protection Licence
ER	Environmental Representative
GLC	Gamuda Laing O'Rourke Consortium
ICNG	Interim Construction Noise Guideline
MCoA	Minister's Conditions of Approval
MSF	Maintenance and Stabling Facility
NCA	Noise Catchment Area
NML	Noise Management Level
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
WTP	Sydney Metro West Western Tunnelling Package Works

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TABLE OF CONTENTS

1 INTRODUCTION 5
1.1 Project Description 5
1.2 Project Requirements 6
1.3 Endorsement and Publication 7

2 DESCRIPTION OF WORKS 8
2.1 Summary of works 8
2.2 Noise Management Objectives 9
2.3 Vibration Management Objectives 11

3 MONITORING METHODOLOGY 14
3.1 Overview 14
3.2 Monitoring Locations 16

4 RESULTS 17
4.1 Noise Monitoring 17
4.2 Ground borne Noise Monitoring 17
4.3 Vibration Monitoring 17
4.4 Complaints Monitoring 18

5 CONCLUSION 20

APPENDICES 21
Attachment 1 – Monitoring Locations 21
Attachment 2 – Noise Monitoring Summary 22
Attachment 3 – Real Time (Unattended) Monitoring Summary 42
Attachment 4 –Vibration Monitoring Summary 43
Attachment 5 –Calibration Certificates 44

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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 1is an overview map outlining the extent of the Project.

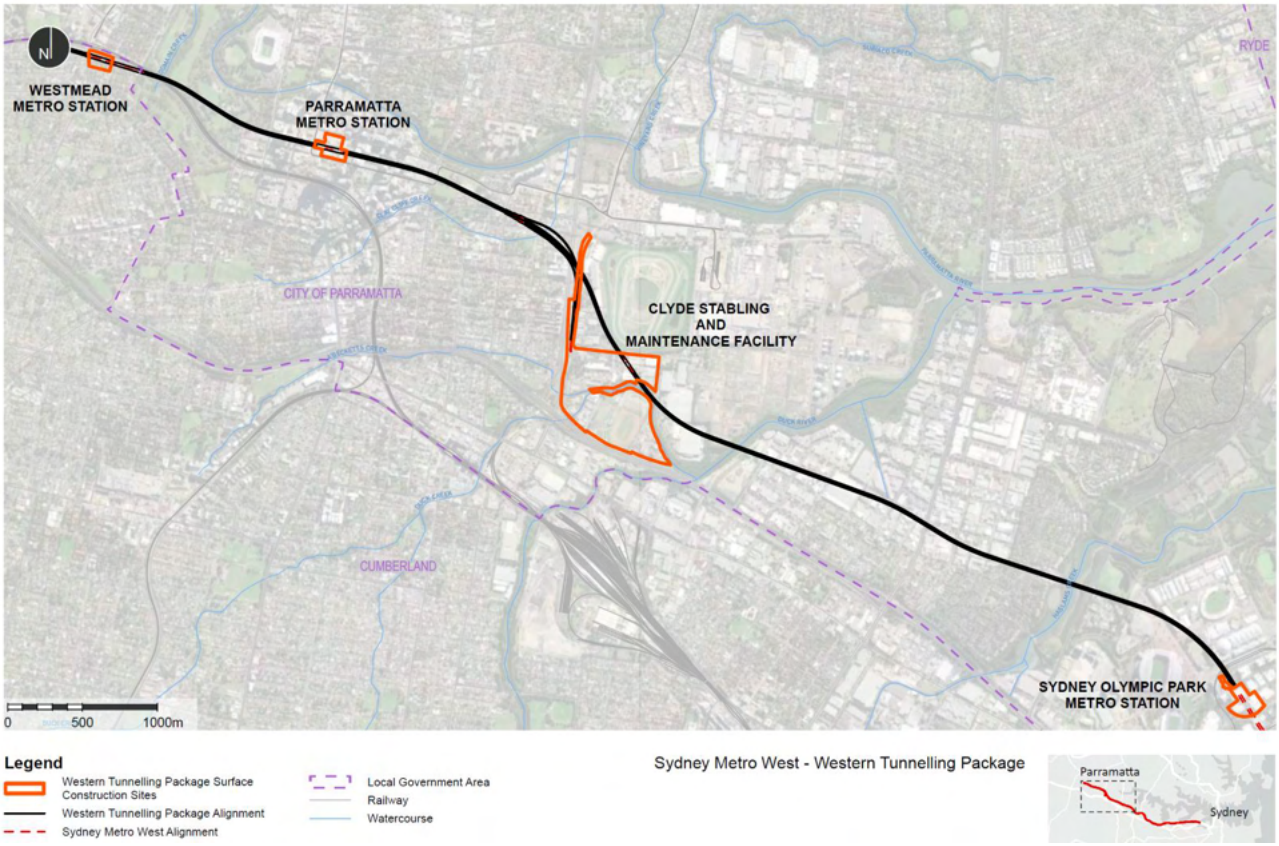

Figure 1 WTP Project Map Overview

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1.2 Project Requirements

The Noise and Vibration Monitoring Program (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 19th July 2023 to 19th January 2024.

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. d. The following compliance records would be kept by Principal Contractors: i. 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. 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.

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Reference	Requirement	Document Reference
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.
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 and relevant regulatory authorities for information. In line with MCoA B11(e), a copy of the Construction Monitoring Report will be published on the project website following submission to DPHI.

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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	• Protecting and/or relocating utilities (WM.04) • Establishing Water Treatment Plant (WTP) (WM.06) • Establishing concrete slabs or piling platforms (WM.08) • Establishing spoil shed (structure) (WM.10) • Box Excavation Ground Support – Ground Anchors, Shotcrete & Rock Bolts (WM.14) • Box Excavation (from surface) (WM.16a) • Box Excavation (with Hydraulic Hammers) (WM.16b) • Box Excavation (fully enclosed) (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) • General operation of ancillary facility (WM.21) • Gantry crane operation (WM.22) • 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 Water Treatment Plant (WTP) (PM.06) • Establishing concrete slabs or piling platforms and D-Wall Infrastructure – Approved Hours (PM.08a) • D-Wall Infrastructure – OOHW 1 (PM.08b) • Station Box D-Wall Excavation & Construction – Approved Hours (PM.09a) • Station Box D-Reduced Fleet 1 (PM.09b) • Station Box D-Reduced Fleet 2 (PM.09c) • Station box pile break back/trim (PM 10) • FRP (Form, Reo & Pour) – Concrete Works Capping Beam (PM.11) • Box excavation Ground Support – Internal Struts & Waler Installation (PM.14) • Box Excavation to ~26m (PM.15) • Delivery of Equipment / General Truck Movements (PM.16) • General operation of ancillary facilities (PM.18) • Installation of Monitoring Equipment (PM.22)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)

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SITE	CONSTRUCTION ACTIVTIES	EQUIPMENT LIST
Clyde Dive[1]	• Construction site establishment / Haul Roads (Cd.01a) • Bulk earthworks (CD.06) • Haul road FRP and hoarding installation (CD.07) • Decline structure construction (Piling) (CD.08a) • Decline structure construction (capping beam – 50% overlap with piling) (CD.08b) • Decline structure construction (10% overlap with capping beam) (CD.08c) • Spur line excavation (CD.09) • Junction excavation (CD.11) • 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) • 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) • Unwin Street Diversion – construction (MSF.09) • Unwin Street Overpass (Piling, FRP, Earthworks, Heavy Lifting) (MSF.12a) • General operation of ancillary facility (MSF.13) • Utility adjustment works (MSF.14) • Clearing Vegetation (MSF.16) • Ground Improvement work (MSF.16)	Plant and equipment consistent with modelling list of the WTP DNVIS (**Attachment 2 of DNVIS)**
Rosehill[1]	• Box excavation (RH.18) • FRP concrete work (RH.19) • Delivery of equipment (RH.20) • TBM Support and Spoil Handling • 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	• Construction Site Establishment (SOP.01)	Plant and equipment consistent with modelling list of the WTP DNVIS (Attachment 2 of DNVIS)

[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

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Impact Statement (EIS). A summary of the measured ambient and background noise levels (RBLs) are presented in Table 3 below.

Table 3 Summary of Project Noise Management Levels

LOCATION ID	NCA	RECEIVER TYPE	NOISE MANAGEMENT LEVEL LAeq (15minute) (dBA)				SLEEP DISTURBANCE SCREENING LEVEL (dBA)
			Approved Construction Hours (RBL +10dB)	Out of Hours (RBL +5dB)			
			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 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]

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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 are 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.

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 (eg operating theatres or laboratories)	Day or night-time	0.10	0.20

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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). Therefore, the un-reinforced or light framed structures vibration criteria are not required to be complied with. GLC however utilise more conservative criteria in SiteHive to provide greater capacity to respond to vibration intensive works, well before the cosmetic damage criteria are neared. I.e 2.5mm/s, 5mm/s or 7.5mm/s depending on project location and activities.

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

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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 (eg heritage listed buildings)	3	3 to 8	8 to 10	8	20

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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 and with a windscreen fitted, at a height of 1.2 to 1.5 metres above the ground.

Instantaneous noise levels for all noted noise emission sources (extraneous or otherwise), meteorological conditions (average and maximum wind speeds, temperature, precipitation, and cloud cover etc.) were recorded during all measurements. Relevant measurement parameters (i.e. Leq, Lmin, Lmax, L10 and L90) were recorded in dBA. All noise samples were recorded using the "fast" time response of the sound level meter.

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 (Leq, 15 minute 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 undertaken to avoid periods of heavy rain and wind speeds exceeding 5 m/s at the microphone. Any noise monitoring data impacted by extraneous weather conditions has been excluded from the report.

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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 by a trained 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 and with a windscreen fitted, at a height of 1.2 to 1.5 metres above the ground. Measurements were taken a minimum of 1 metre from walls or other reflective surfaces. Ground-borne noise monitoring was undertaken along site 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 dominate.

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 the 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 samples in day-time and night-time intervals at sensitive receivers for tunnelling works.

3.1.4 Sound Power Level Monitoring

Plant and equipment Sound Power Level (SWL) spot checks were undertaken during the reporting period. During the reporting period no equipment was suspected of having an exceedance and therefore no audit was conducted

3.1.5 Monitoring Equipment

All noise and vibration measurements were conducted by suitably experienced and qualified 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 not exceeding 2 years at the time of use. Calibration certificates can be found in attachment 5.

The equipment used for monitoring are as follows:

- Site Hive Hexanode Multi (real time noise monitor)

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- Rion NL-52 handheld noise monitor
- Omnidots SWARM V2.2cw vibration monitor
- SiteHive Hexanode Vibration monitor

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 and location of OOHW activities. Maps outlining the attended noise monitoring locations for the reporting period can be found in Attachment 1.

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4 RESULTS

4.1 Noise Monitoring

During the reporting period a total of 255 attended monitoring sessions were recorded. A total of 206 monitoring sessions were identified to be above the noise management levels (NML).

Of the 206 monitoring sessions identified to be above the NML, 128 sessions resulted LAeq above the predicted noise levels (PNL), however most of those were attributed to high ambient noise levels. 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 CNVS.

During the reporting period, unattended noise monitoring was also undertaken, and a summary of results have been included in Attachment 3. Note gaps in the unattended noise monitoring results were due to equipment issues such as breaks in power supply and breakdowns.

4.2 Ground borne Noise Monitoring

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 where permission was granted by residents. During the reporting timeframe, 6 monitoring sessions were undertaken for ground borne noise. All showed levels below NMLs presented in table 5 of this report.

Gaining permission to access properties from residents presented a significant barrier to monitoring. This was compounded by timing difficulties between vibration activities occurring and hours when access to properties to monitor was granted. As such, the project relied heavily on approximated ground borne noise level utilising methodologies described in *Monitoring ground-borne and structure-borne noise for management of construction impacts* (Anderson & Sburlati 2016) to estimate impact from works using vibration monitors.

Ground borne vibration monitoring results can be found in Attachment 2 – Table 2.4.

4.3 Vibration Monitoring

All vibration monitoring sessions during the reporting period were undertaken using real-time monitors that were located according to relevant site-specific activities. The monitors 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 road-header locations and permission from residents to install within habitable rooms.

GLC utilise a number of conservative vibration damage screening criteria depending on the location of works in proximity to different structures. GLC notes that the project does not have any structurally unsound or un-reinforced buildings and therefore is not required to utilise the more stringent criteria from DIN 4150-3. Instead, GLC are required to comply with BS 7385:1993 (Refer Section 6.3.2 of the NVMP Rev G). For most structures (deemed non-heritage or structurally sound) a vibration screening level of either 7.5mm/s or 5mm/s is selected, while at times a more conservative trigger level of 2.5mm/s is picked for some heritage structures such as during the D-wall construction. This allows GLC with greater capacity to identify activities which may exceed the BS 7385:1993 well before this criteria is met, and to review activities and work methodologies.

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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. Any time a trigger event/alert is received, activities are suspended until an investigation is completed by the GLC Environment and Construction teams. Construction methodology will be reviewed and AMMs implemented if necessary. Such measures would include but not be limited to a review or modification of excavation techniques and or equipment used. GLC notes that there has been no exceedance of the BS 7385:1993 criteria for structural or cosmetic damage observed.

4.3.1 Human comfort

Vibration levels relating to human comfort focused on mined tunnel works at the Westmead and Clyde Dive sites. DNVIS worst case modelling for TBM vibration effects showed no impact on receivers for the extend of excavation that occurred during the reporting period.

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

4.3.2 Vibration Events – Buildings and Structures

During the reporting period unattended vibration monitoring was undertaken. Just under 3000 vibration exceedance triggers were received during the reporting period. Following identification of these exceedance events, the activities were immediately investigated to determine the cause of these events and to moderate construction activities if deemed necessary. In the majority of instances, 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.

GLC also notes that that there were events in the vibration record where exceedances were observed during periods of construction. While GLC investigated the cause of the events as being unrelated to construction works, this conclusion is further supported by the fact the observed peaks are discontinuous, and instead momentary in nature. 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.

4.4 Complaints Monitoring

During the reporting period 4 monitoring sessions occurred as the result of a community complaint as required by the NVMoP. Attended monitoring results showed 4 sessions were compliant with implemented mitigation measures.

4.4.1 Complaints

- Community complaint 5126 was received the evening of 23/10/2023 via the community hotline. The complaint related to noise levels from an over-size over-mass (OSOM) plant demobilisation from the Westmead construction site. Works were compliant with the relevant

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OOHW permit requirements. Attended noise monitoring had been completed prior to the complaint being received and showed works were compliant with predicted levels and mitigation measures implemented.

- Community complaint 5186 was received the evening of 10/11/2023 via the community hotline. The complaint related to noise levels from Western D-wall excavation at the Parramatta construction site. Works were compliant with the relevant OOHW permit. Attended noise monitoring at the receiver was offered but they declined. Instead, noise monitoring was conducted adjacent to the property and were deemed compliant as works were not audible .
- Community complaint 5205 was received the morning of 15/11/2023 directly after GLC Place Manger phoned the resident to request access to the property for vibration monitoring for tunnelling works at Clyde Dive. The community member declined monitoring.
- Community complaint 5255 was received the afternoon of 5/12/2023 regarding tunnelling works occurring at the Clyde Dive construction site. The community member stated a member of the household with health issues was concerned about the tunnelling works which was affecting their sleep. The caller advised they personally were unable to hear any works. Monitoring at their residence was offered, but the community member declined monitoring.
- Complaints: 5029, 4844, and 5133 were shown not to be related to GLC works as no Project works were occurring in the respective areas when the complaints were made.
- Community complaint 5322 was received on the 18/01/2024 regarding heavy vehicles driving along Hawkesbury Road adjacent the Westmead construction site. Monitoring was offered and accepted. Monitoring occurred the following day at the intersection of Bailey Street. Attended monitoring showed works were compliant Hawkesbury Road.

Results of complaint noise monitoring can be found in Attachment 2 – Table 2.5.

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5 CONCLUSION

Noise and vibration monitoring undertaken on the WTP Project during the reporting period of 19 July 2023 to 19 January 2024 was 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 typically due to exogenous variables such as rainfall 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.

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APPENDICES

Attachment 1 – Monitoring Locations

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LEGEND

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

CLIENT
TfNSW

TITLE
Noise Monitoring from 19 July 2023 to 19 January 2024
Sydney Olympic Park Map

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

GAMUDA Australia

LAING O'ROURKE

DATE	20 MARCH 2024
PREPARED	ZA
REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 1 of 4

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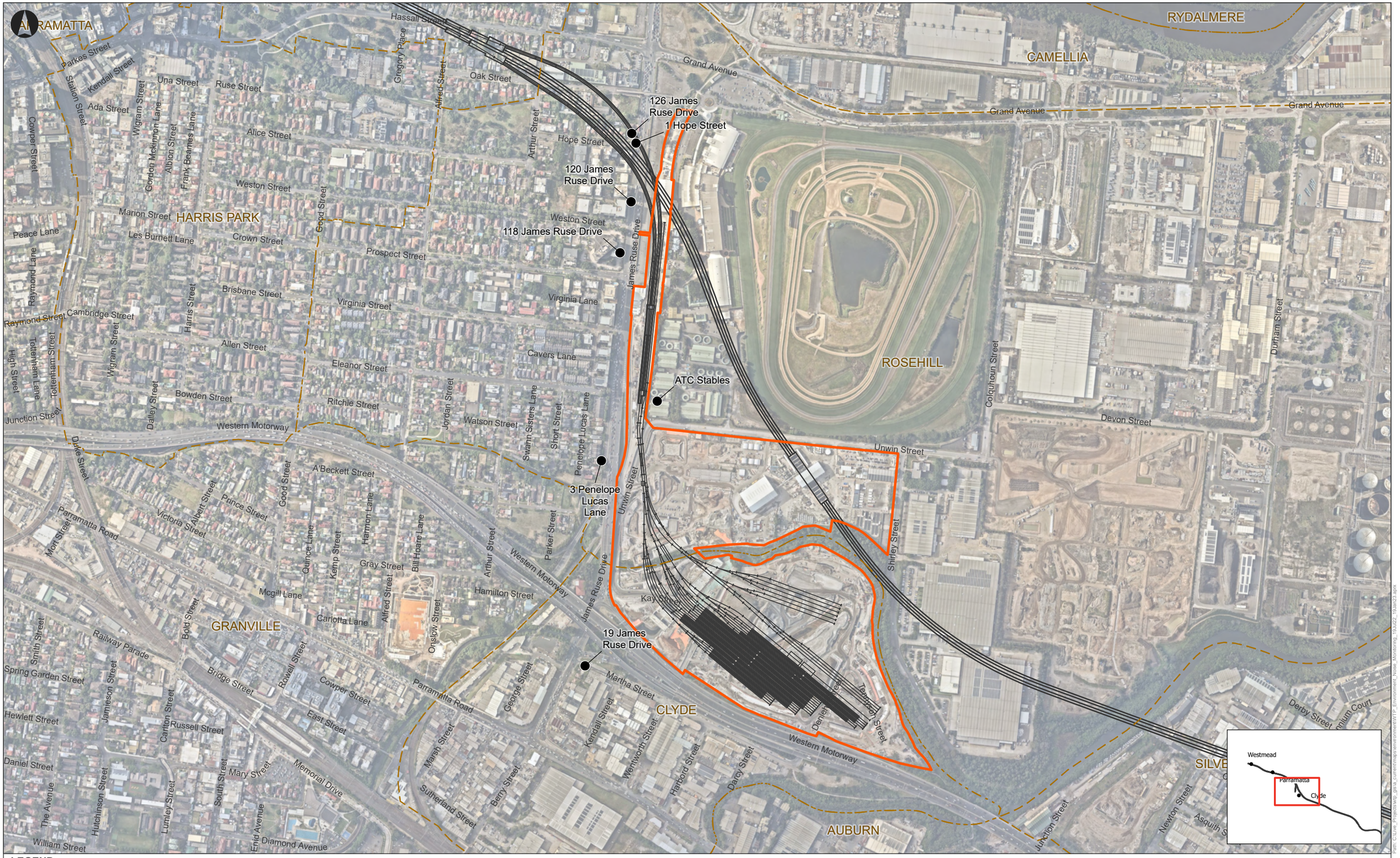

LEGEND

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

CLIENT
TfNSW

TITLE
Noise Monitoring from 19 July 2023 to 19 January 2024
Clyde Map

PROJECT
SMW WTP

0 60 120 240 360 480 Metres

SCALE: 1:8,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

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DATE	20 MARCH 2024
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SHEETS	SHEET 2 of 4

330 Church Street
96 Philip Street
52 George Street
46 George Street
48 George Street
100 George Street
76 Phillip Street
30 Charles Street
150 George Street
28 Charles Street
1 Barack Lane
81 George Street
91 George Street
22 Charles Street
25 Smith Street
45 Macquarie Street
169 Macquarie Street
109-113 George Street
6-10 Charles Street
PARRAMATTA
HARRIS PARK
Westmead
Parramatta
Clyde

LEGEND

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

CLIENT
TfNSW

TITLE
Noise Monitoring from 19 July 2023 to 19 January 2024
Parramatta Map

PROJECT
SMW WTP

0 20 40 80 120 160 Metres

SCALE: 1:3,000 (at A3)
PROJECTION: GDA2020 MGA Zone 56

GAMUDA Australia
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LEGEND

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

CLIENT
TfNSW

TITLE
Noise Monitoring from 19 July 2023 to 19 January 2024
Westmead Map

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

GAMUDA Australia

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PREPARED	ZA
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APPROVED	SM
REVISION	01
SHEETS	SHEET 4 of 4

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LEGEND

- Tunnel Alignment
- Approved Construction Boundary
- Suburb Boundary

CLIENT
TfNSW

TITLE
Vibration Monitoring from 19 July 2023 to 19 January 2024
Sydney Olympic Park Map

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

GAMUDA Australia

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LEGEND

- Vibration Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Suburb Boundary

CLIENT
TfNSW

TITLE
Vibration Monitoring from 19 July 2023 to 19 January 2024
Clyde Map

PROJECT
SMW WTP

0 60 120 240 360 480 Metres

SCALE: 1:8,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

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DATE	20 MARCH 2024
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REVIEW	SM
APPROVED	SM
REVISION	01
SHEETS	SHEET 2 of 4

LEGEND

- Vibration Monitoring Location
- Tunnel Alignment
- Approved Construction Boundary
- Suburb Boundary

CLIENT
TfNSW

TITLE
Vibration Monitoring from 19 July 2023 to 19 January 2024
Parramatta Map

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,500 (at A3)

PROJECTION: GDA2020 MGA Zone 56

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LEGEND

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

CLIENT
TfNSW

TITLE
Vibration Monitoring from 19 July 2023 to 19 January 2024 Westmead Map

PROJECT
SMW WTP

0 15 30 60 90 120 Metres

SCALE: 1:2,000 (at A3)

PROJECTION: GDA2020 MGA Zone 56

GAMUDA Australia

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SHEETS	SHEET 4 of 4

Attachment 2 – Noise Monitoring Summary

Table 2.1 – Results of attended noise monitoring where monitoring results were considered to be above Predicted Noise Level (PNL)

Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
19/07/2023	10:06:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	PARRA027 Stage 3 Phase 2	38	48	52.8	57.7	64.5	82.5	Monitoring distance to works: 300m Distance of monitor to receiver: 40m. Works not audible. Main source of noise: Traffic and Pedestrians. Result: Compliant.
19/07/2023	10:49:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA027 Stage 3 Phase 2	57	48	58.5	59.8	64.1	85.7	Monitoring distance to works: 80m. Monitoring distance to receiver:7m. Works audible 54-58dB, Traffic and Pedestrians effecting results. Result: compliant.
19/07/2023	7:33:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	WEST 058 A- Stage 3 Shotcreting	60	52	49.2	51.7	61.5	82	Monitoring distance to works: 50m. Distance of monitor to receiver: 10m. Works audible 51-55 dB. Main source of noise: traffic. Result: compliant with modelling and mitigation measures implemented
19/07/2023	7:55:00 PM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	WEST058A - stage 3 shotcreting	60	52	47.9	53.2	68.6	90.8	Monitoring distance to works: 50m. Distance of monitor to receiver: 10m. Works not audible. Main source of noise: traffic. Result: compliant with modelling and mitigation measures implemented
19/07/2023	8:14:00 PM	Westmead	NCA02 - 10-12 Hassall Street Westmead	WEST058A stage 3 shotcreting	60	52	50.1	53.1	63.6	84.3	Monitoring distance to works: 50m. Distance of monitor to receiver: 6m. Works audible 51-56dB. Main source of noise: traffic. Result: compliant with modelling and mitigation measures implemented
20/07/2023	10:08:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	PARRA027 Stage 3 Phase 2	38	48	52.2	54.2	56.6	70.6	Monitoring distance to source 330m. Works not audible. Result: Compliant.
20/07/2023	10:49:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA027 Stage 3 Phase 2	57	55	54.5	56.1	62	79.8	Monitoring distance to source: 80m. Monitoring distance to receiver: 7m Works Audible 54-58dB. Traffic and pedestrians affecting monitoring. Results compliant.
24/07/2023	9:07:00 AM	Clyde Dive	NCA 07 - ATC Stables (at stables)	Hydro Blasting	70	60	55.3	65.7	70.5	86.3	Distance of monitor to works: 10m. Monitoring within receiver boundary. Main source of noise: hydro blasting. Monitoring effected by ATC works between 65-85dB. Without ATC works results will likely be below 70dB. Result: Compliant
24/07/2023	11:00:00 AM	Clyde MSF	NCA 07 - Freedman Training Stable	MSF Piling Breakback (MSF-09)	69	56	58.5	63.2	75.7	107.2	Elevated noise levels were due to environmental sources (road traffic). Works are considered to be compliant
24/07/2023	1:00:00 PM	Clyde MSF	NCA 07 - 3 Penelope Lucas Ln	MSF Piling Breakback (MSF-09)	66	56	60.3	65.3	76	95.1	Majority of elevated noise levels are form environmental sources (road traffic). Works are considered to be compliant
26/07/2023	7:02:00 PM	Westmead	NCA 03 - 156 Hawkesbury Road, Westmead	Crane operations	52	52	50	61	65	80	Construction momentarily audible, banging of metal audible at times not monitored in isolation 51db with light traffic. Traffic dominated. Result: compliant
27/07/2023	9:07:00 PM	Clyde Dive	NCA 04 - 120 James Ruse Drive	Horizontal tunnelling	40	53	60	68	76	85	No works were audible from location, traffic on JRD continued to dominate. Result: Compliant
27/07/2023	9:28:00 PM	Clyde Dive	NCA 04 - 118 James Ruse Drive	Horizontal tunnelling	35	53	58	63	73	84	Works were inaudible, traffic on JRD dominated, during breaks in traffic still inaudible Result: Compliant
27/07/2023	10:00:00 PM	Clyde Dive	NCA 04 - 118 James Ruse Drive	Horizontal tunnelling	35	46	60	65	73	83	Works inaudible, traffic dominated on JRD. Result: Compliant
27/07/2023	10:18:00 PM	Clyde Dive	NCA 04 - 120 James Ruse Drive	Horizontal tunnelling	40	46	63	69	77	87	Works inaudible during breaks in traffic, JRD dominated Result: Compliant
29/07/2023	8:00:00 AM	Westmead	NCA03 - 156-152 Hawkesbury Rd Westmead	Fan and general site construction works	52	52	50	53	66	83	Traffic dominated and during quiet periods, fan not audible. Result: Compliant.
31/07/2023	6:59:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA-027 Stage 2	57	55	56.2	59.7	65	81.8	Monitoring distance to source: 50m. Distance of monitor to receiver: 5m. Main source of noise: traffic and pedestrians(60-73dB). Works only partially audible at intermittent timings(57dB). Result: compliant

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
31/07/2023	7:40:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	PARRA 027 stage 2	38	58	54.6	56.2	60.1	83.1	Monitoring distance to source: 330m. Monitoring distance to receiver: 10m. Works not audible. Main source of noise: pedestrians and traffic. Result: compliant.
31/07/2023	10:15:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	PARRA 027 Stage 3 Phase 2	38	48	49.5	51.7	56.4	74.9	Monitoring distance to work:330m monitoring distance to receiver: 10m. Works not audible. Main source of noise: pedestrians and traffic. Result: compliant.
31/07/2023	11:04:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA 027 Stage 3 Phase 2	57	55	60	61.1	63.3	80	Monitoring distance to works 40m. Distance of monitor to receiver: 5m. Works partially audible at times given section of box works. Main source of noise: pedestrians and traffic. Result: compliant.
31/07/2023	11:47:00 PM	Westmead	NCA02 - 10-12 Hassall Street Westmead	WEST57A - bolting	52	42	49.3	50.3	59.9	82.8	Monitoring distance to source: 20m. Distance of monitor to receiver 7m. Works audible at 50dB. Main source of noise: trains traffic, and bats. Result: compliant.
1/08/2023	10:10:00 AM	Parramatta	NCA 03 - 330 Church Street	PARRA-027- Parramatta D-Wall Works	32	63	59.5	61.1	66.4	81.1	While Laeq was above NML, this is due to ambient noise near the receiver and not site works, which were inaudible for the duration of the monitoring period. Result: Works compliant
1/08/2023	6:51:00 PM	Parramatta	NCA 03 - 48 George Street	Parramatta D-Wall Work, Parramatta Gate 1 Archaeology & Conduit Installations	64	70	52.7	57.2	68.9	90.3	Compliance reached as site works were inaudible for entire time of monitoring. Result: Works compliant
1/08/2023	7:19:00 PM	Parramatta	NCA 03 - 330 Church Street	Parramatta D-Wall Work, Parramatta, Gate 1 Archaeology & Conduit Installations	32	58	62.3	63.5	64.3	74.8	Compliance reached as site works were inaudible for entire time of monitoring. Result: Works compliant
1/08/2023	9:41:00 PM	Parramatta	NCA 03 - 169 Macquarie Street, Parramatta	PARRA-027- Parramatta D-Wall Works	60	58	55.4	57.3	69.9	92.8	While site noise exceeded expected levels, they are still within the 0-10dB above NML range. Main source of noise: local traffic. Result: Works compliant
1/08/2023	10:34:00 PM	Parramatta	NCA 03 - 48 George Street	PARRA-027- Parramatta D-Wall Works, PARRA-065 Parramatta Gate 1 Archaeology & Conduit Installation	64	70	64.4	65.7	68.5	81.8	While site noise exceeded expected levels, they are still within the 0-10dB above NML range. Main source of noise: local traffic. Result: Works compliant
1/08/2023	10:57:00 PM	Parramatta	NCA 03 - 169 Macquarie Street, Parramatta	PARRA-027- Parramatta D-Wall Works	55	48	58.7	60.6	63.9	81	Main source of noise: local traffic. Result: Works compliant
1/08/2023	12:14:00 PM	Parramatta	NCA 03 - 52 George Street	Saw cutting and general construction activities	70	70	61.5	66.3	72	84.7	George St traffic dominated. Street sweeper audible while cleaning in front of gate 1. 20m from gate 1 5m from the receiver. Result: Noise level of works compliant
2/08/2023	2:30:00 PM	Westmead	NCA 02 23-25 Hassall Street	Monitoring Box Excavation Fan Generator	53.9	59	48.4	5.4	57	74.3	Generic ambient noise of distant traffic, trains and planes and ongoing general construction and box excavation works within the part completed acoustic shed. noise blankets secured to shed frame on fan generator/compressor. Works below NML
2/08/2023	4:07:00 PM	Westmead	NCA 02 23-25 Hassall Street	Tunnel Extraction Fan Compressor 100% output	53.9	59	50.5	53.6	58.6	77.8	monitoring undertaken across the road on Bailey st. approx. 20m from site boundary facing the direction of the compressor's installations. noise blankets have been secured around the east, south and west facades of the shed. Occasional traffic and plant movement amongst ambient noise.
2/08/2023	4:25:00 PM	Westmead	NCA02 13-17 Bailey St Accurate	Monitor Box Tunnelling extraction fan compressor and generator at 100% output	50.2	59	49.6	52.6	59.9	74.8	Monitor was positioned on the grass verge on the corner facing the southeast corner and box excavation fan compressor and generator. Traffic on Hassall St & and Alexandra Ave dominated. with occasional haulage entering through the site. Works below NML without external noise. Result compliant
2/08/2023	4:42:00 PM	Westmead	10-12 Hassall Street, Westmead	Tunnel Extraction Fan compressor and Generator 100% output while tunnelling works and site works halted	50.2	59	52.9	56.7	66.8	91	Noise dominated by Traffic on Hassall st and Alexandra ave. for the first 7mins Fan was running at 100%, then it was switched off and other construction site works recommenced including box rock hammering and plant movements. Works compliant

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
4/08/2023	5:38:00 AM	Westmead	NCA02-26-30 Bailey Street, Westmead	Compressor as part of generator for extraction fan tunnel works	53.9	42	47.8	49.2	54.5	71.2	Throughout the whole survey a continual hiss whistle hum noise coming from the compressor generator, which was overtaken by multiple loud morning bird calls and bat screeching. Occasional car passes on Bailey At and more distant traffic on Hassall St, Hawkesbury Rd and Alexadra Ave. Works compliant with PNL if external noise factors removed.
7/08/2023	1:55:00 PM	Westmead	NCA03 - 156-152 Hawkesbury Rd Westmead	Saw cutting pavement	71	55	52.5	58.5	72.3	85.3	Most noise dominated by heavy traffic on Hawkesbury Rd. Some loud peaks from the saw cutter cutting hard sections. Works compliant
8/08/2023	7:04:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	PARRA-027 Stage 2	36	58	56.2	59.6	65.3	79.4	Monitoring distance to source 300m. Distance of monitor to receiver: 10m. Main source of noise: pedestrians and music at restaurants. Works not audible. Works Compliant
9/08/2023	9:41:00 PM	Parramatta	NCA 03 - 30 Charles street	PARRA 036 - survey	63	48	54	58.2	66.8	84.3	Monitoring distance to source: 20m distance of monitor to receiver 3m. No saw cutting. Survey works only (hand tools) works not audible. Works compliant.
9/08/2023	10:05:00 PM	Parramatta	NCA 03 - 30 Charles street	PARRA036 survey	63	48	53.7	57.3	65.5	82.8	Monitoring distance to source: 20m distance of monitor to receiver 3m. No saw cutting. Survey works only (hand tools) works not audible. Works compliant.
9/08/2023	7:13:00 PM	Westmead	NCA02 - 10-12 Hassall Street Westmead	WM.14 tunnel excavation	52	52	50.4	54.5	63.8	84.4	Monitoring distance to source 30m. Distance of monitor to receiver 5m. Main source of noise: traffic (60-70dB) works audible during breaks in traffic (50-55dB) Works Compliant
9/08/2023	7:34:00 PM	Westmead	NCA 02 23-25 Hassall Street	MW14 horizontal tunnelling	52	52	50.9	54.9	60.9	75.3	Monitoring distance to source: 50m. Distance of monitor to receiver: 10m. Main source of noise: traffic. Works audible during breaks in traffic (51-55dB) Works Compliant
9/08/2023	10:54:00 PM	Westmead	NCA 02 23-25 Hassall Street	MW.18 Tunnel excavation	52	42	48.3	53.6	58.9	76.8	Monitoring distance to works: 50m. Distance of monitor to receiver: 10m. Works audible during breaks in traffic (51-55dB) traffic also noticeable with car passing 20-30 seconds. Works Compliant
9/08/2023	11:11:00 PM	Westmead	NCA02 - 10-12 Hassall Street Westmead	MW.18 tunnel excavation	52	42	47	51.6	65.5	80.9	Monitoring distance to source: 30m. Distance of monitor to receiver: 7m. Works audible but within modelled levels in DNVIS MW.18. Trains and traffic also audible. Works compliant
10/08/2023	10:08:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	PARRA027 stage 3 phase 2	36	48	55.7	58.1	61.1	78.2	Monitoring distance to source: 300m. Distance of monitor to receiver: 10m. Works not audible. Result: Works compliant
10/08/2023	10:51:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA027 - stage 3 phase 2	57	55	56.9	60.5	64.3	79	Monitoring distance to source 50m. Distance of monitor to receiver5m. Works audible 55-60dB. Main source of noise traffic and wind. UWS closed. Works compliant
14/08/2023	8:50:00 PM	Parramatta	NCA 03 - 30 Charles street	Sawcutting and rock hammering section 4 in front of barrack lane	58	58	52	54	63	74	Sawcutting audible 54db however stormwater was audible. Traffic dominated noise levels, with water on the road and raining, noise volumes were amplified. Works compliant
14/08/2023	9:10:00 PM	Parramatta	NCA 03 - 22 Charles Street, Parramatta	Sawcutting on George st section 4 raining	58	58	54	56	62	75	Construction barely audible, rock hammering with light traffic at 58db, wet roads amplified noise levels, saw cutting was not audible. Works compliant
15/08/2023	10:45:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 3 NDD	50	48	49	50	56	70	Vac truck audible slightly, compliant with predicted noise level, at 50db, adequate attenuation set up. Traffic dominated noise levels. Works compliant
15/08/2023	10:01:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	Tunnel works Westmead	47.2	42	51	52	62	82	Construction barely audible, traffic dominant source. Works compliant
18/08/2023	2:20:00 PM	Westmead	10-12 Hassall Street, Westmead	WM019. Spoil haulage _ entry to site on Hassall st	57.4	59	54.5	57.1	69.7	85.5	Monitored positioned outside 10-12 Hassall st. 20m from eatern site entrance. 4 empty haulage trucks (WM.019) passed during the assessment averaging around 82-85db for Maximum 5 seconds each. Sound reduced to 65db when entering the site. Noise dominated by traffic on Hassall st and Alexandra ave. Works compliant
21/08/2023	12:22:00 AM	Clyde MSF	NCA 07 - 19 James Ruse Drive	Clyde MSF OOHW 036 - road cleaning works on Wentworth St.	40	46	46.7	51.8	60.4	75.9	Noise dominated by traffic on JRD, M4 and slip road. During more ambient times although there was always at least a vehicle passing within proximity to the monitor device, a light hum could be heard, this was identified to come from a compressor between buildings on Martha St. Works compliant

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							L_{Amin}	L90	L_{Aeq}	L_{max}	
22/08/2023	10:31:00 PM	Clyde MSF	NCA 07 - 19 James Ruse Drive	MSF OOHW 036 Wentworth St roads and pathway cleaning	40	46	52.8	57.2	64	77.5	MSF 036 night works on Wentworth Rd use of sweeper, water cart and vacuum truck underneath carriageway overpass. 150m from receiver. Traffic on JRD, M4 and slip road dominated making it difficult to hear any works. At quieter point a feint hum from the vac truck could be heard amongst traffic. Works compliant
22/08/2023	8:56:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	Section 3 saw cutting George st gate 2	57	58	53.9	57	60.9	77.7	Noise dominated by restaurant and bar public chatter, music, plates and drinks clunking. slight breeze. No construction work heard from location. Works compliant
22/08/2023	11:51:00 PM	Parramatta	NCA 03 - 330 Church Street, Parramatta	D wall excavating using hydraulic cutters	48	38	46.7	48.9	53.4	67.4	Monitored dominated by music from restaurants Bay vista on church St. At quieter points between songs, a hum can be heard in the direction of the site, however occasional other hum included could be from restaurant rooftops. Some light traffic passes. Works compliant
23/08/2023	6:00:00 PM	Westmead	10-12 Hassall Street, Westmead	WM.18 Mining tunnel works	47.3	52	49.5	53.8	63.4	76.6	Monitor 20m from acoustic shed box eastern wall. Noise dominated by traffic and public transport. Bats and aeroplane heard occasionally. Hard to monitor the site works, but generally nothing can be heard other than a light hiss from the compressor. Works compliant
23/08/2023	10:40:00 PM	Westmead	10-12 Hassall Street, Westmead	WM.18 tunnel works	47.3	42	47.5	49.7	59	75.1	WM18 tunnel works were monitored. Overall noise was ambient with sound of conversations from balcony behind monitor. Works at 9-12 Alexander ave for Telstra. And the hiss from the compressor on site. Works compliant
23/08/2023	11:10:00 PM	Westmead	NCA 02 23-25 Hassall Street	WM18 Tunnel works	65.8	42	50.4	51.8	57.6	77.7	Not much traffic but occasional pass and train pass. Tunnel works can be heard as hums and hissing around 51-53db Works compliant, with appropriate AMMs applied
24/08/2023	8:37:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 5 Stage 1 Saw cutting at heritage tree	64	58	52.1	56.4	64.4	85.1	Works only commenced halfway through monitoring. Generally noise dominated by traffic on intersection of Charles st and George st. With frequent pedestrian traffic as well. In quieter period cutting could be heard around 62db but still amongst other noise sources closer to monitor. Works compliant
24/08/2023	10:14:00 PM	Parramatta	NCA-03 - Westen Sydney University - 169 Macquarie Street, Parramatta	Stage 3 phase 1 D wall works	61	55	52.5	54.1	61.1	80.4	D wall works stage 3 phase 1. Only works of idle engines could be heard from the site for the first half of monitoring. Mainly noise dominated by pedestrian passes in front of monitor. Plant movement in particular the crane moving to work location increased noise levels for a short period of time. Works compliant
24/08/2023	11:14:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	WM 18 Tunnel excavation works	47.8	42	48.5	49.7	51.5	67	WM 18 tunnel works. Works should of included shotcreting and rock bolting with the scrubber being heard. The compressor mainly was continuous with occasional restart. A tumble-dryer on someone's balcony was constant throughout spiking the noise level when clothes hit the drum Works compliant
24/08/2023	11:40:00 PM	Westmead	NCA03 - 156-152 Hawkesbury Rd Westmead	WM18 Tunnel Works	47.4	42	43.7	45.3	58.9	80.6	WM18 Tunnel works which at the time should be scrubber, end of shotcreting and rock bolting. When ambient works could be heard around 44-47db. Traffic was much louder from Hawkesbury and Alexandra. Works compliant
28/08/2023	8:05:00 PM	Parramatta	NCA03 - 6-10 Charles St, Parramatta	Section 6: Stage 2 - NDD and Pavement Removal	58	58	52.4	54.5	63.8	78.8	Construction works inaudible. Main sources of noise came from traffic along Charles St and traffic noises in adjacent streets. Works compliant
28/08/2023	9:34:00 PM	Parramatta	NCA 03 - 96 Philip Street, Parramatta	NCA 03 WTP discharge line, section 46 stage 1 pavement saw cutting	60	58	49.3	51.9	61.2	75	although the predicted noise level is 60dBA, and LAeq is 61.2, the measurement is compliant as pedestrians and traffic were the dominant noise sources throughout the attended measurement. Works compliant
29/08/2023	8:00:00 PM	Westmead	NCA 02 - 25 Hassal Street, Westmead	WEST-072	58	55	47.9	50.1	58.6	79.1	Works in line with Predicted noise levels. Works compliant
29/08/2023	9:02:00 PM	Parramatta	NCA 03 - 96 Phillip Street	Parramatta OOHW036 - WTP Water Discharge Line	60	58	49.3	52.4	61.3	72.2	Works in line with Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented. Works compliant
29/08/2023	9:25:00 PM	Parramatta	NCA 03 - 109 George Street	Parramatta OOHW036 - WTP Water Discharge Line	64	58	49.5	53.1	65.7	85.2	Works below Predicted noise levels. External noise raising LAeq Result: Compliant with modelling and mitigation measures implemented
30/08/2023	8:20:00 AM	Westmead	NCA 02 - 10 Hassal Street, Westmead	WEST-058B	51	52	48	50.1	63.4	79.4	LAeq was higher than predicted levels and NML. However this is due to environmental noises such as traffic, trains, and passing aircraft. Recorded site works noise levels were below NML. Works compliant
30/08/2023	8:46:00 AM	Parramatta	NCA 03 - 169 Macquarie Street, Parramatta	PARRA-036	55	55	57.5	58.7	63.1	82.1	Although LAeq is above predicted value, the exceedance was caused by traffic and not site works. Works compliant

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							L_{Amin}	L90	L_{Aeq}	L_{max}	
30/08/2023	10:00:00 AM	Westmead	NCA 02 - 25 Hassal Street, Westmead	WEST-058B	56	51	48.6	50.4	56.1	79	Although LAeq is above predicted value, the exceedance was caused by traffic and not site works. Works compliant
30/08/2023	10:20:00 AM	Westmead	NCA 02 - 10 Hassal Street, Westmead	WEST-058B	59	52	46.7	49.4	59.2	75.2	Although LAeq is above predicted value, the exceedance was caused by traffic and not site works. Works compliant
31/08/2023	9:12:00 AM	Parramatta	NCA 03 - 109 George Street	PARRA-036 - NDD	57	58	50	54.7	63.7	88.2	Although LAeq is above predicted value, the exceedance was caused by traffic and not site works. Works compliant
31/08/2023	9:46:00 AM	Parramatta	NCA 03 - 76 Phillip Street	PARRA-036	55	58	49.6	53.3	62.5	87.7	Although LAeq is above predicted value, the exceedance was caused by traffic and not site works. Works compliant
31/08/2023	10:33:00 PM	Parramatta	NCA 03 - 330 Church Street	Parramatta OOHW036 - WTP Water Discharge Line	57	58	58	59.4	61.2	73.1	Although LAeq is above predicted value, the exceedance was caused by ambient noise and not site works. Works compliant
31/08/2023	11:00:00 PM	Parramatta	NCA 03 - 169 Macquarie Street, Parramatta	PARRA-027	61	55	59.9	61.4	63.8	79.3	Although LAeq is above predicted value, the exceedances was caused by traffic and not site works. Works compliant
3/09/2023	9:00:00 AM	Clyde MSF	NCA 07 - 19 James Ruse Drive	Pipe welding works - Section 2	36	46	-	57.2	68.8	84.1	Construction works were inaudible. Main source of noise: local traffic. Works compliant
3/09/2023	9:45:00 AM	Clyde MSF	NCA 07 - 19 James Ruse Drive	Pipe welding	36	46	-	58.4	69.2	27.2	Measurement compliant due to construction noise being inaudible. Main source of noise: local traffic. Works compliant
4/09/2023	6:22:00 AM	Clyde MSF	NCA 07 - 19 James Ruse Drive	Utility installation, Section 2	44	46	-	66.8	71.8	83.3	Works being undertaken in Section 2 of the utility corridor. Works approximately 540m from the monitoring location. Construction noise inaudible. Traffic the dominant noise source. Works are compliant
7/09/2023	9:44:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 4 Stage 1 - Sawcutting	53	58	52	55.4	62.8	79.4	Distance from monitoring to source - 120m Distance from monitoring to receiver - 20m Works compliant, mitigation measures implemented. Construction works inaudible.
7/09/2023	8:33:00 PM	Westmead	NCA 02 - 154 Hawkesbury Street, Westmead	WM18 - Cutting	47	53	46.9	51.6	66.4	81.7	Distance of monitor to source - 70m Distance of monitor to receiver - 10m Main source of noise – traffic. Construction works not audible - works compliant
8/09/2023	6:28:00 AM	Clyde MSF	NCA 07 - 19 James Ruse Drive	Section 2 and Section 6 utility installation works	44	46	-	65.2	70.3	82	The works are considered compliant. Works were inaudible with traffic from James Ruse Drive and the M4 being the dominant noise sources.
11/09/2023	10:27:00 PM	Parramatta	NCA 03 - 30 Charles street	HDD at section 5 Pit 5	51	48	49	53	60	73	Smokey weather works started very late, barely audible, beeper from pedestrian crossing bugged continuing to compromise monitoring data Works not audible. Works compliant
14/09/2023	10:00:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 5 - opening trench	48	48	54	58	71	90	Works were not audible, traffic on George st Charles St intersection was unusually quite busy. Pedestrian crossing beeping was extra loud today too. Works compliant
18/09/2023	9:00:00 PM	Parramatta	NCA 03 - 76 Phillip St parramatta	Section 5 Stage 2	55	58	50.8	53	59.6	74.8	Predominant source of noise as traffic. Distance from source 150m, distance from monitoring location: 2m. works inaudible. Works compliant
18/09/2023	9:28:00 PM	Parramatta	NCA 03 - 30 Charles street	Heritage NDD	56	48	51	52.9	57.2	86.8	Noise monitor was set 2 m away from the 30 Charles building, construction noises were not audible during the attended monitoring. Traffic was the dominant noise source during the monitoring. Works compliant
18/09/2023	10:11:00 PM	Parramatta	NCA 03 - 22 Charles Street, Parramatta	Section 5 Stage 2 NDD Heritage	53	48	48	50.8	59	75.3	Monitoring distance from source: 120m Monitoring distance from receiver: 2m Predominant noise was traffic with low hum of vac truck heard at around 51dB Works compliant
18/09/2023	10:39:00 PM	Parramatta	NCA 03 - 76 Phillip St parramatta	Section 5 Stage 2 NDD	55	48	48.3	49.6	58.9	82.6	Works compliant Dominant noise sources exceeding 60dB include traffic on Phillip St and pedestrian activity. Distance from monitoring location to source: 120m Distance of monitoring location to receiver: 2m. Works compliant (vac truck for NDD didn't exceed 52dB which is under the PNL of 55dB).
19/09/2023	8:48:00 PM	Parramatta	NCA 03 - 96 Philip Street, Parramatta	Section 6 Stage 1 Sawcutting	60	58	49.3	52.6	62.4	84.5	Distance from monitoring location to source: 120m Distance from monitoring location to receiver: 5m. Works compliant (dominant noise sources were traffic with construction works inaudible)

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20/09/2023	7:24:00 PM	Westmead	10-12 Hassall Street, Westmead	Compressor	47.4	52	46.8	49.8	58.8	80.1	Dominant sources of noise as traffic on Hassall St and Alexandra Ave. compressor only heard when isolated from other noises - lowest at 47.4. Distance from monitoring location to receiver: 5m Distance from monitoring location to source: 80m Works compliant (dominant noise sources as traffic)
20/09/2023	7:25:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	Compressor	47.8	52	48.5	49.7	56	74.1	Distance from source 30m Distance from receiver 10-20m Compressor is slightly audible, major noise sources were traffic and pedestrians. Works complaint
21/09/2023	6:28:00 PM	Westmead	152 Hawkesbury Rd	CT bolt installation west	52	52	48.5	54.8	73.9	102.7	Construction works inaudible from monitoring location. Distance from monitoring location to source: 50m Distance of monitoring location from receiver: 15m Dominant source of noise as traffic and ambulance sirens. Works compliant
21/09/2023	6:29:00 PM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	Stage 1 - West of Box CT Bolt Installation	64	52	51.1	56	74.9	100.1	Distance from source: 40m Distance from receiver: 10m Heavy traffic during monitoring period. Works not audible over traffic. Works compliant
26/09/2023	9:54:00 PM	Westmead	152 Hawkesbury Rd	WM17a Tunnel Support Works (SHOTCRETE & ROCKBOLTING) WEST	52	52	44	49	63.6	84.5	5m from sensitive receiver in front of hedge. 30m from site works 20m deep inside the acoustic shed and behind site hoarding Noise dominated by traffic passing on Hawkesbury road and intersection with Alexandra Ave. Works heard in ambient moments around 45-48db, as a distant rumble . Noise - works compliant
27/09/2023	9:19:00 PM	Rosehill	NCA 07 - Stables	RH003A FRP crane lift hi tec yard, mechanical workshop prepping TBM for thrust frame. Head. Water treatment plant and compressor	48	60	48.3	50.2	54.5	77.5	25m from receiver ground level 20m from site boundary 50m from mechanical workshop and 100m from water treatment plant compressor. Crane 120m Works dominated by compressor fan located near water treatment plant. Works are 6.5 dB above PNL (48) but still below 5.5db below NML 60 for ATC. Works compliant
27/09/2023	7:53:00 PM	Westmead	NCA02 - 13-17 Bailey Street, Westmead	WM17 & WM18 - Tunnel Support works & Tunnelling works	58.2	52	49.8	51.9	58.9	73.1	10m from receiver ground level 20m from site boundary 60m from shed uncladded where noise source from tunnelling. 50m from compressor on the surface with noise blankets Works consistently heard as a hiss from the compressor releasing air, a low rumble roar noise coming from the open section of the acoustic shed . Assessed as cumulative Works of tunnel support and tunnelling. Equipment being used at the time included EWP, mesh installation, agitator, scrubber and header. Works compliant
28/09/2023	10:06:00 PM	Rosehill	NCA 07 - Stables	RH003A - Water Treatment Plant	48	60	49.7	51.9	61.8	81.7	30m from receiver 20m from site hoarding 100m from water treatment plant. Site work noise minimal, only audible as electrical fan hum and compressor. Noise is continuous and below the NML, works above PNL, however likely cause by echo from heritage wall and ongoing unavoidable noise pollution from James Ruse Drive. Site hoarding providing attenuation for fan and compressor. Works Compliant
5/10/2023	7:32:00 PM	Westmead	152 Hawkesbury Rd	WM17 Tunnel Support Works - WEST74A (Zones 4-6)	64	52	47.3	52.1	64.7	86.3	Distance from monitoring location to source: 60m Distance from monitoring location to receiver: 10m Traffic and pedestrian activity as dominant noise source. Whirring noise heard (difficult to deduce if train or rock bolting but was under PNL at 51.8dB). Result: Works compliant
5/10/2023	7:56:00 PM	Westmead	10-12 Hassall Street, Westmead	WM18 Tunnelling Works	52.1	52	46.3	49.9	59.7	79.1	Distance from monitoring location to source: 70m Distance from monitoring location to receiver: 5m Traffic as the dominant noise source and compressor could be heard when traffic noise stopped. Tunnelling works in the east inaudible from monitoring location. Result: Works compliant
11/10/2023	9:40:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA027	60	55	58.4	63.3	67.2	93.6	Elevated noise levels were due to environmental sources, site works were primarily inaudible during monitoring and thus works compliant
11/10/2023	9:40:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA-027 D-Wall Works	61	55	58.4	63.3	67.2	93.6	Elevated LAeq was due to environmental sources (Parramatta Lanes, and traffic). Works were compliant.
13/10/2023	2:28:00 PM	Westmead	10-12 Hassall Street, Westmead	I&M works (right at source - no attenuation)	70.6	59	67.5	75.8	78.6	93.6	At start of monitoring, NDD was on and off due to delay in works. Was notified by team that they would be packing up in 15 minutes and was communicated to team to have better set up of noise mats upon recommencement of works tomorrow. Location of monitoring was partially attenuated by noise mats, with open edge on side closest to 10-12 Hassall St driveway, but there were no apartments directly behind this gap. A spot check later revealed that the other side of the 10-12 Hassall St driveway was 72.8 with NDD and drill engine idling. Session effected by noise from local traffic and residents. While above PNL – still compliant with mitigation measures put in place as per OOHW permit.

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
19/10/2023	3:35:00 PM	Parramatta	NCA 03 - 25 Smith St Parramatta	Sheet piling	70	70	55.2	59.1	70.3	83.5	Sheet piling activities completed by 10th minute. Works below PNL if environmental factors removed. Works compliant.
23/10/2023	8:02:00 PM	Westmead	NCA 02 23-25 Hassall Street	Compressor	50	52	42	44	52	66	Compressor audible at times -49-51db with other noise factors present (residential, traffic). Works were compliant.
23/10/2023	10:51:00 PM	Westmead	NCA 02 23-25 Hassall Street	WM Compressor	50	42	42	51	53	65	works were compliant. noise dominated by external factors.
24/10/2023	6:47:00 PM	Parramatta	NCA 03 -169 Macquarie St, Parramatta	parra074 135T crane installation	47	55	60	61	67	84	Installation of crane was not audible for the duration of the monitoring session. Noise dominated activities were from traffic and pedestrians. Works – compliant
24/10/2023	8:14:00 PM	Westmead	NCA 02 23-25 Hassall Street	Wm compressor	50	52	44	45	55	69	Compressor audible under PNL between 44-50. Other external factors caused spikes in noise levels. Compliant
24/10/2023	8:40:00 PM	Westmead	NCA02-26-30 Bailey Street, Westmead	Compressor wm	54	52	44	47	61	76	Compressor audible however compliant under PNL averaging at 50db. Compression brakes on agi delivering concrete - notified supervisor. Ambient and traffic noises dominate
24/10/2023	10:19:00 PM	Westmead	NCA 02 23-25 Hassall Street	wm - compressor	50	42	41	53	54	71	compressor was compliant. other dominating factors contributed to spikes in monitoring
30/10/2023	9:20:00 PM	Westmead	10-12 Hassall Street, Westmead	WEST058, WEST072, WEST74	43	42	57.3	59.3	61.8	77.3	Elevated noise levels due to Quickway works in the area, site works were inaudible for entire duration of monitoring period and thus works compliant.
30/10/2023	9:20:00 PM	Westmead	10-12 Hassall Street, Westmead	WEST058, WEST072, WEST74	43	42	57.5	59	61.6	72.6	Elevated noise levels due to Quickway works in the area, site works were inaudible for entire duration of monitoring period and thus works compliant.
31/10/2023	6:55:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA-077 Capping Beam Works	38	55	57.7	59.5	64	78.8	Works are compliant even though the LAeq is above the NML as elevated noise levels were due to environmental sources.
31/10/2023	9:45:00 PM	Westmead	31 Bailey Street, Westmead	WEST058, WEST072, WEST74	50	52	49.1	51.3	56	74.4	Works are compliant as elevated noise levels were due to environmental sources, site works were generally inaudible.
31/10/2023	10:05:00 PM	Westmead	31 Bailey Street, Westmead	WEST058, WEST072, WEST74	50	42	50.6	52.7	55.6	77.5	Works are compliant as elevated noise levels were due to environmental sources, site works were generally inaudible.
2/11/2023	6:45:00 PM	Parramatta	NCA 03 - 169 Macquarie St, Parramatta	PARRA-77 Eastern Capping Beam Excavation	38	55	58.3	59.9	63.6	74.5	noise exceedances originated from environmental sources, site works were inaudible most of the time and thus compliant.
2/11/2023	9:15:00 PM	Westmead	NCA02 - 4 Alexandra Ave - Westmead	WEST066A, WEST081A	45	52	44.5	48.9	63.6	86.3	elevated noise levels were due to environmental sources, works are compliant
7/11/2023	2:22:00 PM	Clyde MSF	NCA 07 - 19 James Ruse Drive	UST tank pull at MSF west	48	56	62.1	65.9	71.3	85	Monitoring Distance to source: 250m Distance of monitor to receiver: zero Receiver type: residential Main source of noise: traffic noise. Mitigation measures implemented: 3/1 respite time. Works compliant, although attended LAeq levels are above the predicted LAqe, the results are compliant as construction noise was not audible and the main noise source was traffic at James Ruse Dr.
8/11/2023	7:10:00 PM	Westmead	10-12 Hassall Street, Westmead	WEST58B and WEST58C	59	52	49	52.6	60.7	74.5	Distance from monitoring location to source: 80m Distance from monitoring location to receiver: 5m. GLC construction works - compressor and concrete agi idling/unloading on site on Eastern end of station box audible. Tunnel support works in enclosed shed not audible. Other dominant noise sources included traffic, pedestrian and resident activity. Result: works compliant
8/11/2023	7:41:00 PM	Westmead	NCA 02 23-25 Hassall Street	WEST58B and WEST58C, WM18	47.3	52	47.2	49.9	54.6	74.1	Distance from monitoring location to source: 100m Distance from monitoring location to receiver: 8m. GLC construction works - compressor audible. Concrete agi idling/unloading on site but not audible with compressor. Tunnel support works and tunnelling in Zones 1-3 operating in acoustic shed not audible. Other dominant noise sources included traffic on Hassall St and pedestrian activity. Result: works compliant under lowest PNL from WM18

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
8/11/2023	8:02:00 PM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	WM18 Roadheader 2	47.6	52	46.4	51.8	63	75.2	Distance from monitoring location to source: 20m Distance from monitoring location to receiver: 10m No GLC construction works (tunnelling works) audible from monitoring location. Dominant noise sources included traffic along Hawkesbury Rd and Alexandra Ave. Where ambient levels reached, this was still under the WM18 PNL. Result: works compliant (assessed under WM18)
8/11/2023	10:12:00 PM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	WM18 Roadheader 2	47.6	42	45.2	49.3	61.9	78.4	Distance from monitoring location to source: 50m Distance from monitoring location to receiver: 10m GLC construction works - with no traffic and almost complete ambience, slight whirring and beeping could be heard. However, whirring sound could have been attributed to train due to close proximity of the train line. Other dominant noise sources included traffic on Hawkesbury Road. Result: Works compliant (lowest reading at 45.2dB < 47.6 (PNL)
8/11/2023	10:33:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	WM18 Mined Tunnel Works - Roadheader #2 (Western station box excavation)	47.8	42	42	44.1	51.9	71.1	Distance from monitoring location to source: 50m Distance from monitoring location to receiver: 10m GLC construction works - compressor audible. Activities operating in the acoustic shed not audible. Works compliant
9/11/2023	9:57:00 PM	Parramatta	NCA 03 - Westen Sydney University - 169 Macquarie Street, Parramatta	PARRA072 stage 3 phase 2 stop end removing	57	48	54.6	56.3	61.4	81.8	Distance from monitoring location to source: 50m Distance from monitoring location to receiver: 10m GLC works of stop end removal process inaudible from monitoring location. Dominant noise sources included traffic on Smith St and high pedestrian activity (pedestrians talking, pulling trolleys, etc.). Also, low buzzing sound came from the sensitive receiver itself, producing levels around 56dB. Result: Works compliant (lowest reading at 54.6dB < 57dB (PNL))
9/11/2023	7:31:00 PM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	Rockbolting western tunnel face	47.6	52	49.2	53.3	63	75.7	Distance from monitoring location to receiver: 50m Distance from monitoring location to source: 10m GLC construction works inaudible from monitoring location. Dominant noise sources included traffic on Hawkesbury Road, residents in 26-30 Bailey St and pedestrian activity. Complete ambience difficult to achieve with proximity to intersection and train station. Results: Works compliant
9/11/2023	7:53:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	Rockbolting western tunnel face	47.8	47	44.7	46.7	55.2	74.3	Distance from monitoring location to receiver: 80m Distance from monitoring location to source: 8m. GLC construction works - compressor and low hum (most likely scrubber) audible from monitoring location. Compressor also heard expressing air (loud hiss) every 5-6 mins at around 56dB. Other dominant noise sources included traffic on Hawkesbury Road and Bailey St, and residents at 26-30 Bailey St. Results: Works compliant (lowest reading at 44.7dB < 47.8 (PNL))
13/11/2023	10:19:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	D-Wall west, crane	34	48	52	54.1	59.5	73	Distance from site: 150m Distance from receiver: receiver ground level, 5m Receiver type: residential. Works were non audible at the time of the attended measurement. Main source of noise is traffic, fan from adjacent building. Roadworks at the intersection of Macquarie and Smith St. may have resulted in more noise generation. Works are compliant as crane motor noise was non audible at the receiver and have not resulted in the elevation of noise levels.
14/11/2023	9:50:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	Western D-wall, crane tracking	34	48	52.3	54.4	59.5	75.7	Distance form works: 150m. Distance from receiver: 5m. Receiver type: residential. Works are compliant as the crane movement was non audible at the time of the measurement. Crane movement started at 9:55pm and ended at 9:58pm.
15/11/2023	10:10:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	Western D-Wall	48	34	44.2	46.2	51.4	68.9	Distance from activity: 200m. Distance from receiver:0m. Receiver type: residential. Measurement was recorded at the common area between room 1911 and 1912 facing the construction site. Window was open. Crane tracking occurred between min 4 and min 5 of the measurement. Works were audible at the time of the attended measurement however; traffic and train noises were the main sources of noise. Works are compliant.
11/12/2023	10:23:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	Box excavation works	57	48	51.4	53.9	59.7	78.2	GLC works of box excavation works inaudible from monitoring location. Dominant noise sources included traffic on Marsden St and Macquarie St intersection. Result: Works compliant (lowest reading at 54.6dB < 57dB (PNL). Distance from monitoring location to source: >100m Distance from monitoring location to receiver: 10m

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
12/12/2023	9:56:00 PM	Clyde MSF	NCA 07 - ATC Stables (at stables)	MSF52 Spoil Haulage from Parramatta	47	60	48.9	50.7	65.8	89.3	GLC construction works - machinery whirring from inside the Clyde MSF West site audible at around 50dB (multiple machinery in operation to produce compounded noise effect). GLC spoil truck from Parramatta observed travelling down Unwin St with maximum noise recorded at 88dBA (engine thrust). Other dominant noise sources attributed to traffic along Unwin St and hand tool sounds from inside the Rosehill Racecourse stables. Result: Works compliant (spoil handling works inside MSF site under PNL with machine whirring from multiple operations resulting in minimum reading of 48.9dBA). Distance from monitoring location to receiver: 20m Distance from monitoring location to source: >50m
17/01/2024	1:25:00 PM	Westmead	Westmead Public School	WM21	68	59	51.8	57.8	69.4	88.4	GLC construction works audible include activities inside the spoil shed with the roller doors open. Spoil loading (front end loader bucket making contact with truck body when unloading material) and reverse alarm of front end loader audible from monitoring location. Other dominant noise sources include traffic on Hawkesbury Road and gardening activities within Westmead Public School. At ambient conditions, other GLC operations (i.e. other surface ancillary facilities were not audible). Works compliant

Table 2.2 – Results of attended noise monitoring where monitoring results were above NML

Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
25/07/2023	7:00:00 PM	Westmead	NCA02 - 10-12 Hassall Street Westmead	Dozer tunnel support works	70	52	44	48	60	72	Dozer in operation, not audible, no shotcreting. Traffic on Hassall and planes over the top dominated all noise levels. Works compliant
25/07/2023	7:10:00 PM	Westmead	NCA02-26-30 Bailey Street, Westmead	Tunnel support works: mesh installation and shotcreting.	61	52	44.7	46.2	55.9	70.2	Construction noise was barely audible. Background noises from traffic and nearby buildings were more audible than construction noise. At minute 8, the monitoring was paused as a resident from 26-30 Bailey Street building approached for an enquiry. He was handed the community line card and was advised to call them immediately. Works compliant
25/07/2023	7:10:00 PM	Westmead	NCA02-26-30 Bailey Street, Westmead	Tunnel support works: mesh installation and shotcreting.	61	52	44.7	46.2	55.9	70.2	Construction noise was barely audible. Background noises from traffic and nearby buildings were more audible than construction noise. At minute 8, the monitoring was paused as a resident from 26-30 Bailey Street building approached for an enquiry. He was handed the community line card and was advised to call them immediately. result: Works compliant
1/08/2023	7:19:00 PM	Parramatta	NCA 03 - 330 Church Street	PARRA-027- Parramatta D-Wall Works	65	58	62.3	63.5	64.3	74.8	Compliance reached as site works were inaudible for entire time of monitoring. Result: Works compliant
2/08/2023	2:30:00 PM	Westmead	NCA 02 23-25 Hassall Street	Monitoring Box Excavation Fan Generator	53.9	59	48.4	54	57	74.3	Generic ambient noise of distant traffic, trains and planes and ongoing general construction and box excavation works within the part completed acoustic shed. noise blankets secured to shed frame on fan generator/compressor. Works compliant
7/08/2023	1:25:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	Saw cutting pavement	72.9	59	59.8	61.1	72.8	83.1	Saw cutter was in operation in 2 sections of the road. Moving more westward on bailey St adjacent to the site. On the other side of the road from the sensitive receiver. Other noises include occasional car pass cumulatively with water truck engine idling and general movements of ATF fencing and noise blanket mitigations. Works compliant
9/08/2023	1:36:00 PM	Westmead	NCA03 - 156-152 Hawkesbury Rd Westmead	WM.04 Saw cutting - ROL 2095620. Kerb Restoration	72.1	59	55.9	60.1	69.1	89.6	ROL layback works on Hawkesbury Rd. Saw cutting encapsulated by noise blanket cover ATF fencing. Monitor device positioned 20m from activity at 152 Hawkesbury Rd. 10m from sensitive receiver. Traffic dominated the noise with the Max being caused by passing trucks. Works compliant
10/08/2023	9:44:00 PM	Parramatta	NCA 03 - 80-100 George street	PARRA036 survey section 3	70	58	53.6	59.1	64.7	84	Monitoring distance to source: 5m. Distance of monitor to receiver: 5m. Works not audible. Main source of noise: traffic on JRD. Works compliant.
10/08/2023	3:29:00 PM	Westmead	NCA02 - 10-12 Hassall Street Westmead	Excavator hydraulic hammer for layback works on bailey st	73.5	59	58.5	61.5	65.9	89.1	Monitoring of hydraulic hammering and excavation works on Bailey st for laybacks. Excavator noise around 64db with some traffic and truck passes. Works compliant.

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							L_{min}	L90	L_{Aeq}	L_{max}	
15/08/2023	8:34:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	Sawcutting section 3	72	55	49	58	65	77	Construction audible, noise attenuation set up. Works compliant
15/08/2023	9:04:00 PM	Parramatta	NCA 03 - 80-100 George street	Sawcutting section 3	70	55	47	68	67	76	Works were audible however attenuation was set up well around works. Complaint high noise impact works.
16/08/2023	9:16:00 PM	Westmead	10-12 Hassall Street, Westmead	Line marking removal and stormwater drain works	73	52	51	57	70	82	Discharge line works + line marking works compliant. Traffic and trains dominated. Stormwater line works at 65- 67db, whilst line marking removal between 64-67db. Works compliant
16/08/2023	10:05:00 PM	Westmead	10-12 Hassall Street, Westmead	Discharge line on hassall st X Alexandria Avenue	73	42	60	62	67	78	Works were compliant under PNL 61-67db. Construction was dominated by traffic and trains. Works compliant
17/08/2023	10:40:00 PM	Parramatta	NCA 03 - Level 10 30 Charles Street	NDD on George st	70	48	53	54	57	74	Note: monitored from balcony directly facing George st works. Works compliant
21/08/2023	9:21:00 PM	Parramatta	NCA03 - 22 Charles Street, Parramatta	Discharge Line Installation Section 3 Saw Cutting	84	58	48.9	50.6	59.5	83.9	Noise was dominated by traffic at intersection of George St and Charles St, with a hum coming from a compressor across the street in the Meriton building. At moments of ambient noise, a distant sound of the saw cutting could be heard for the first half of the monitoring. during the monitoring I was notified the saw cutting works had stopped. There was no change to the monitoring values with or without. Works compliant.
23/08/2023	3:40:00 PM	Clyde Dive	NCA 07 - ATC Stables (at stables)	Dive Excavation - Dozer operations	70	60	56.2	59.3	65.6	76.8	Monitoring distance to source: 10m. Monitoring undertaken at receiver opposite dozer work area. Works within modelled levels. Double hoarding offers significant mitigation. Horses in walkers and passing show no sign of distress. No track slapping noticed. Reading affected by noise from stables - horses passing and walkers. Result: compliant with modelling and mitigation measures implemented. Works compliant
23/08/2023	9:00:00 PM	Parramatta	NCA03 - 22 Charles Street, Parramatta	Section 5 stage 1 saw cutting	64	58	48.5	52.6	62.2	78.1	Monitoring taken from the crossroads of George St and Charles St. Outside 103 George St. 100m from work location. Noise dominated by traffic and pedestrians using intersection. In ambient times saw cutting can be heard amongst other surrounding noises such as compressors and fans and beeps. At around 53db. Works compliant.
24/08/2023	8:37:00 PM	Parramatta	NCA 03 - 81 George Street	Section 5 Stage 1 Saw Cutting	83	70	50.4	54.3	79.7	89.7	Section 5 Stage 1 saw cutting on road 7m from 81 George Street. And 7m from heritage tree. Cut were then taken 10m from sensitive receiver and 5m from heritage tree. The works used sound barriers in a c shape and the PNL 83db was close to the actual noise level. Works compliant
28/08/2023	8:34:00 PM	Parramatta	NCA03 - 22 Charles Street, Parramatta	NCA 03 WTP discharge line, section 46 stage 1 pavement saw cutting	77	58	47.6	51.5	61.7	75.5	Background noises including pedestrians and traffic were the dominant noises during the measurement. Works compliant
28/08/2023	8:53:00 PM	Parramatta	NCA03 - 109-113 George St Parramatta	Section 6: Stage 1 - Saw cutting pavement	66	58	49.9	52.1	60.3	85.9	Ambient noise levels around 52dB. Site preparation works occurring along George St (Section 6) near the intersection with Charles St. Construction noise was inaudible from the monitoring location in the under-croft area near the building foyer. Monitoring location was chosen as this was directly under the apartment building closest to the construction site. Noise compliant with PNL at 64dB.
28/08/2023	9:08:00 PM	Parramatta	NCA 03 - 150 George Street, Parramatta	WTP discharge line section 6 stage 1 pavement saw cutting	84	70	59	63.6	77.7	84.9	150 George Street is the nearest receiver to saw cutting works, yet the measurement was compliant. Saw cutting noise was the dominant noise source throughout the measurement. Noise mats were erected around saw cutting works. Works compliant
28/08/2023	9:10:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 6: Stage 1 - Saw cutting pavement	69.4	58	54	59.6	69.4	86.9	Saw-cutting was the dominant noise source, along with ATF fences with noise blankets being moved along with the saw-cutting works. Noise mats in place, facing Charles St. Noise compliant with PNL at 81dB. Works compliant
28/08/2023	9:34:00 PM	Parramatta	NCA03 - 91 George St, Parramatta	Section 6: Stage 1 - Saw cutting pavement	83	70	50.2	55.1	75.2	84.5	Noise mats were placed around the saw-cutting in a horseshoe layout with three panels - the opening side was facing towards the western end of George St. It was decided this was the best orientation for noise mitigation to minimise impacts to residential sensitive receivers on Charles St. 91 George St is a commercial receiver and hence lower priority given to shield noise from here. Noise was compliant with a PNL of 83dB.

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							L_{min}	L90	L_{Aeq}	L_{max}	
28/08/2023	10:01:00 PM	Parramatta	NCA03 - 6-10 Charles St, Parramatta	Section 6 Stage 2 NDD and Pavement Removal	58	48	46.4	48	57.6	79.1	Works were compliant, traffic was the dominant audible noise during attended monitoring. Construction was not audible.
28/08/2023	10:15:00 PM	Parramatta	NCA03 - 22 Charles Street, Parramatta	Section 6: Stage 2 - NDD and Pavement Removal	73	48	51.4	54.6	64.1	80.7	Construction works on Section 6 at the corner of George St and Charles St were pavement removal works, involving a jackhammer to break up surface pavement. Works lasted more than 30 minutes and only pavement removal work data was captured, NDD works started later around 11pm. Works compliant
28/08/2023	10:30:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 6 Stage 2 â€“ NDD and Pavement Removal	79	48	49.2	53.4	59.2	75.8	Construction noise was audible, traffic and pedestrians noises contributed to noise measured values. Works compliant
28/08/2023	10:35:00 PM	Parramatta	NCA03 - 109-113 George St Parramatta	Section 6: Stage 2 - NDD and Pavement Removal	64	48	50.9	52.8	61	76.3	Monitoring taken at front of 109-113 facing George St (location slightly different to evening monitoring location, upon realisation that edge of premise was still part of the property. Construction works audible included pavement removal works, mainly the use of a jackhammer to break up the pavement at the surface. Noise blankets were in place to shield noise emanating to the eastern end of George St. Works compliant
29/08/2023	10:21:00 AM	Parramatta	NCA 03 - 22 Charles Street	Parramatta OOHW036 - WTP Water Discharge Line	74	58	49.9	55	61.4	79.4	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented
29/08/2023	10:41:00 AM	Parramatta	NCA 03 - 109 George Street	Parramatta OOHW036 - WTP Water Discharge Line	64	48	47.6	51.1	57.2	71	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented
29/08/2023	10:41:00 AM	Parramatta	NCA 03 - 30 Charles Street	Parramatta OOHW036 - WTP Water Discharge Line	76	58	51.9	54.3	61	89.3	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented
29/08/2023	8:24:00 PM	Parramatta	NCA 03 - 6-10 Charles Street	WEST-072	74	48	48.5	50.8	64.3	87.2	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented
29/08/2023	8:24:00 PM	Parramatta	NCA 03 - 22 Charles Street	Parramatta OOHW036 - WTP Water Discharge Line	77	58	51.5	55.3	64.6	76.2	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented
29/08/2023	8:44:00 PM	Parramatta	NCA 03 - 30 Charles Street	Parramatta OOHW036 - WTP Water Discharge Line	64	58	52.4	57.2	63.9	82.8	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented
5/09/2023	8:41:00 PM	Parramatta	28 Charles street Parramatta	PARRA036 section 6 saw cutting	81	58	56.7	62.8	77.6	98.4	Monitoring distance to source: 20m. Distance of monitor to receiver: 5m. Works audible but within modelled levels (75-82dB) mixer of open and closed windows at residential receiver. Noise Matts in place. Works compliant
5/09/2023	10:04:00 PM	Parramatta	NCA 03 - 30 Charles street	PARRA 036 section 6 stage 2	79	48	48.5	52	64.4	82.5	Monitoring distance to source: 13m. Distance of monitor to receiver 5m. Windows closed at receiver. Noise Matts installed. Works compliant with modelling and mitigation measures implemented
6/09/2023	10:52:00 PM	Parramatta	NCA 03 - 81 George Street	PARRA036 section 3	78	70	63.1	66.1	72.6	80.3	Monitoring distance to source 10m. Distance of monitor to receiver: 5m. Works audible but within modelled levels. Receiver closed. Works compliant
12/09/2023	9:30:00 PM	Parramatta	NCA 03 - 30 Charles street	NDD works section 6	79	58	53	55	67	81	Works were audible vac truck was in use temporarily, traffic dominated spikes. Works compliant
12/09/2023	10:02:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 6 NDD	79	48	68	73	74	81	Good noise attenuation set up. Vac truck works compliant. Good practises from TC, maintaining noise levels.
13/09/2023	9:35:00 PM	Parramatta	NCA 03 - 30 Charles street	NDD at section 5	79	58	54	57	61	70	NDD works audible but compliant. Traffic most audible.
18/09/2023	8:41:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 5 stage 1 saw cutting	64	58	50	52.6	59.1	76.6	Works compliant. Construction noise went off sometimes during the monitoring, traffic was the dominant noise source.
19/09/2023	8:45:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 6 Stage 1 - Saw Cutting	81	58	49.9	53.7	62.4	78.4	Distance from source: 30m Distance from receiver: <5m. Noise mostly due to traffic and pedestrians walking by talking. Works compliant

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
19/09/2023	9:21:00 PM	Parramatta	NCA03 - 109-113 George St Parramatta	Section 6 - Stage 2 NDD and Pavement Removal	64	58	51.9	54.5	62	85.8	Distance from source: 50m Distance from receivers <5m. Works barely audible for most of the monitoring. Predominantly noise was from traffic and pedestrians walking and talking Works compliant
19/09/2023	9:21:00 PM	Parramatta	NCA03 - 22 Charles Street, Parramatta	Section 6 Stage 1 Sawcutting	77	58	48.4	52.3	61.5	77.2	Saw cutting heard towards 10th minute mark with jackhammering at the start due to equipment not being available. Distance from monitoring location to source: 80m Distance from monitoring to receiver: 3m Result: compliant (saw cutting works at around 65dB with loudest at 67.2 due to cumulative impacts with traffic). Works compliant
19/09/2023	10:16:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 6 Stage 2 Pavement Removal	79	48	49.5	56.7	61.8	72.1	Distance from monitoring location to source: 100m Distance from monitoring location to receiver: 2m Result: compliant (pavement removal works with rock breaker under PNL). Other sources of noise included traffic. Works compliant
19/09/2023	10:17:00 PM	Parramatta	NCA 03 - 22 Charles Street, Parramatta	Section 6 - Stage 3 Reinstatement	74	48	49.7	54	63.8	80.3	Distance from source: 30m Distance from receiver <5m Audible works, but lower than PNL. Traffic and pedestrians also contributed to higher range of noise. Concrete slab was found underneath pavement and further rock breaking was required. Works compliant
21/09/2023	9:43:00 PM	Westmead	NCA02 - 1 Bailey St Westmead	Stage 1 - Site preparation and set-up	89	52	69.1	71.7	77.8	82.5	Distance from source: 5m Distance from receiver:5-10m. Works are clearly audible, but well below predicted noise level. Noise mats well set-up. Works compliant
21/09/2023	10:30:00 PM	Westmead	1-3 Park Parade, Westmead	Stage 1 - Site preparation & Set-up	68	51	46.5	48.7	57.8	72	Distance from source: 50-100m Distance from receiver: 10m. Works slightly audible. Well below predicted levels. Traffic and trains major noise sources. Works compliant
22/09/2023	11:49:00 AM	Clyde Dive	NCA 07 - ATC Stables (at stables)	Spoil load out Zone 3 - CD.08c	70	60	50.7	54.1	60.7	85.1	Monitoring Distance to source: 15m Distance of monitor to receiver: Monitoring at receiver type: special Main source of noise: GLC Works - ATC workers and horses also audible. Mitigation measures implemented: Site hoarding Works compliant with modelled levels in DNVIS and implemented mitigation measures.
25/09/2023	8:15:00 PM	Parramatta	NCA 03 - 22 Charles Street, Parramatta	Discharge Pipeline SECTION 6 Stage 3 Installation of pipeline and Reinstatement Surface	74	58	56.8	61	72.2	80.9	5m from receiver ground floor 25m from works Noise blanket ATF set up in a c shaped protecting receivers to the east. beginning of the monitoring traffic and pedestrian bleeper dominated. vac truck squawker was heard while reversing into positioned behind blankets. Once engine and cylinder were max for vac works, noise was continuous and dominant around 70-74db. I believe the sound was amplifying in the concave section of the adjacent building. After speaking the supervisor if it was possible to lower the output of the vac truck, he said it wouldn't be feasible. Works Compliant (PNL 74dBA)
25/09/2023	10:27:00 PM	Parramatta	NCA 03 - 30 Charles street	Section 6 stage 3	74	48	55	56.5	62.4	74.2	5m from receiver 60m from works General idling occurred from the vac truck. Halfway through monitoring. Vac truck cylinder increased revs and pressure for sucking and gurney. And were audible as a loud hum, was the dominant noise heard but below PNL. Works compliant
27/09/2023	8:15:00 PM	Westmead	NCA 02 23-25 Hassall Street	WM 17 & WM18 Tunnel Support Works & Tunnelling	61.9	52	50.8	51.9	56	74.2	10m from receiver ground floor. 20m from site boundary, 30m from compressor shed in noise blankets. 50m from open area of cladding in spoil shed. Works audible and the dominant noise, noise included hiss from. Air released from compressor, an electrical hum possibly from the compressor or within the acoustic shed works. A background roar or rumble heard possibly from the plant operating in the box. Traffic spikes produce a higher LAeq Works compliant and below PNL.
28/09/2023	6:15:00 PM	Westmead	10-12 Hassall Street, Westmead	WEST 084 Emergency surface water extraction from water treatment plant using a vac truck tanker with idle engine	70	52	54.4	56.1	63.5	78.9	10m from receiver ground level. 20m from site boundary with vac truck behind hoarding receiving water via gravity After 15min truck left site on Hassall st to bailey st. 65db amongst other traffic. Works compliant under existing OOHW and PNL
28/09/2023	7:45:00 PM	Westmead	NCA02 - 13-17 Bailey Street, Westmead	OOHW 084 emergency water etracting using Vac truck from water treatment plant	70	52	50.9		60.7	71.5	10m from receiver and 20m from site boundary, vac truck parked behind hoarding 25m from monitor. After 15min period vac truck engine started and the initial rev up the slope produced 70db for 1 sec. Down to 54db heading up the haulage route to Hawkesbury egress. Works compliant and below PNL almost equivalent to NML for evening period.
10/10/2023	10:30:00 AM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	I&M works with vacc truck	78	68	58.7	62.1	69.8	89.7	Idling traffic acted as noise attenuation. Idling traffic in front - sound levels around 64dB and with no traffic between source and monitoring location, works were around 68dB. Works compliant

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
11/10/2023	8:00:00 PM	Westmead	NCA02 - 154 Hawkesbury Road, Westmead	WEST - 74A , WEST 58C (Tunnel Support Works)	64	52	44.4	51.8	63.8	80.2	LAeq was within predicted limits however the majority of this noise originated from environmental sources, while site works were inaudible. Works compliant
11/10/2023	8:22:00 PM	Westmead	10-12 Hassall Street, Westmead	WEST - 74A , WEST 58C (Tunnel Support Works)	67	52	44.4	47.8	60.8	84.7	LAeq was within predicted limits however the majority of this noise originated from environmental sources, while site works were inaudible. Works compliant
12/10/2023	9:05:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA-072 OSOM Demobilisation	71	55	53.8	57	67.6	90	noise exceedances originated from environmental sources, site works were inaudible most of the time and thus compliant.
12/10/2023	10:25:00 PM	Westmead	NCA02 - 19 Hassall Street Westmead	WEST- 085 - Gantry Crane Operation	57	42	46	40.8	53.4	74.8	Crane usage inaudible during entire sampling period, elevated LAE is due to other site noise or environmental sources. It should be noted that the background level (LA min) is above the current NML. Works compliant
23/10/2023	6:15:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	Grabbing in front of site office	69	55	50	52	64	82	Grabbing was only slightly audible - diesel engine om crane -50-53db with low traffic on George st. Noise dominated by traffic. Works were compliant
23/10/2023	10:27:00 PM	Westmead	NCA02-26-30 Bailey Street, Westmead	WM - Compressor	53	42	43	48	50	71	compressor worked between 48 - 50dB. other noises dominated. Works compliant
24/10/2023	10:02:00 PM	Westmead	NCA02 - 26-30 Bailey Street Westmead	wm Compressor	54	42	42	52	51	69	compressor noise levels were compliant, other factors dominated spikes in monitoring. Works compliant
1/11/2023	1:30:00 PM	Clyde Dive	NCA 07 - ATC Stables (at stables)	New shale stockpiling area, equipment: 20T dozer.	65	60	52.6	56	61.5	80.6	Monitoring Distance to source: 20 Distance of monitor to receiver: zero. Receiver type: Stables. Main source of noise: stockpiling activity Mitigation measures implemented: 3/1 respite time. Horses starting training 2m away from the location of the attended measurement at 01:14 out of 15:00. Works compliant
9/11/2023	9:32:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA072 stage 3 phase 2 stop end removing	70	55	52.5	54.3	60.2	73.9	Distance from monitoring location to receiver: 10m Distance from monitoring location to source: >100m. GLC construction works - crane operations used in stop end removal inaudible. Only construction works audible included low hum coming from bentonite plant/desander and excavator tracking across western piling pad. Dominant noise sources included traffic on George St and pedestrian activity. 46 George St (language academy) seen to be closed with cleaner inside. Result: Works compliant (lowest reading at 52.5dB < PNL (70dB))
10/11/2023	10:41:00 AM	Westmead	152 Hawkesbury Rd	IM Extensometer installation. Stage 1 NDD Saw cutting	79	59	52.8	61.7	74.8	104.1	Distance from receiver 10m Distance from works 20m Works audible as saw cutting and generator. Saw cutting was undertaken within noise attenuation blankets and generator outside on adjacent Hawkesbury rd. Works compliant
21/11/2023	4:10:00 PM	Clyde Dive	NCA 07 - ATC Stables (at stables)	Saw cutting / Canopy Tubes	70	60	60.1	61.1	64.3	82.6	Monitoring Distance to source: 30m Distance of monitor to receiver: at receiver type: Special. Main source of noise: horses, Mitigation measures implemented: hoarding. Works compliant with modelling and mitigation measures implemented. Saw cutting trial not audible.
11/12/2023	9:31:00 PM	Parramatta	NCA 03 - 169 Macquarie St Parramatta	PARRA068 Box Excavation	65	55	54.1	55.4	59.1	84.1	GLC works of box excavation works inaudible from monitoring location. Dominant noise sources included traffic on Smith St and high pedestrian activity (pedestrians talking, rolling suitcases, etc.). Also, low buzzing sound came from the sensitive receiver itself, producing levels around 54dB. Result: Works compliant (lowest reading at 54.1dB < 65dB (PNL)) Distance from monitoring location to source: 50m Distance from monitoring location to receiver: 10m
11/12/2023	9:55:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	General works	72	55	58.3	60.8	63.6	80.1	GLC construction works skid steer in operation along weighbridge with site preparation occurring on eastern box excavation. Only construction works audible included squeaky tracks of skid-steer and mild collision with concrete block, however quickly rectified by night supervisor. Dominant noise sources attributed to traffic along George St and pedestrian activity. Also, low hum from bentonite plant/desander audible. Result: Works compliant (lowest reading at 58.3dB < 72dB (PNL). Distance from monitoring location to source: 30m Distance from monitoring location to receiver: 2m. Works compliant
11/12/2023	11:05:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	Box excavation works	69	55	62.2	63.5	65.4	77.2	Distance from monitoring location to source: 20m Distance from monitoring location to receiver: 2m Result: Works compliant

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
17/01/2024	11:26:00 AM	Westmead	10-12 Hassall Street, Westmead	WM.17a/b	68	59	50	54.9	67.5	86	Dominant noise sources were traffic including public vehicles, GLC street sweeper and truck and dogs. Ambient noise levels where site operations inside the shed could be heard ranged from 52-54dbA. At time of monitoring, roller door to spoil shed was open and activities included tunnel support works.
17/01/2024	11:51:00 AM	Westmead	10-12 Hassall Street, Westmead	WM17b, WM18, WM22	68	59	47.5	51.5	60.2	73	GLC construction noise sources audible included front end loader reversing (~55dB), gantry crane alarm faintly beeping. These were clearly audible when external sources of traffic and train station activity ceased. Monitoring undertaken at 10-12 Hassall St - closest sensitive receiver to the works, according to the DNVIS. Monitored for DNVIS scenario monitoring under WM17b, WM18 and WM22. Works compliant
19/01/2024	1:21:00 PM	Westmead	NCA02 Bailey St and Hawkesbury Road Intersection	CTMP	68	59	54.8	60.4	66.6	79.3	Distance from activity: 5m. Distance from receiver: 30m. Receiver type: residential. Measurement was recorded from pedestrian walkway at Hawkesbury Rd and Bailey St interchange adjacent to residential boundary. 2 road sweeper passes were observed within the 15 min period, vehicles were audible amongst other traffic sources. Works Compliant
19/01/2024	1:41:00 PM	Westmead	NCA02 Bailey St and Hawkesbury Road Intersection	CTMP	68	59	44.3	51.5	67.9	87.6	Distance from activity: 5m. Distance from receiver: 30m. Receiver type: residential. Measurement was recorded from pedestrian walkway at Hawkesbury Rd and Bailey St interchange adjacent to residential boundary. 1 Spoil truck passes & 1 Agi truck were observed within the 15 min period, vehicles were audible amongst other traffic sources. Works Compliant

Table 2.3 – Results of attended noise monitoring where results were below NML

Date	Time (hh:mm:ss)	Site	Monitoring Location	Construction Activity	Modelled Prediction (L_{Aeq})	Noise Management Level (NML)	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
19/07/2023	10:26:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA027 Stage 3 Phase 2	71	70	58	59.4	66.6	84.8	Monitoring distance to works: 30m. Monitoring Distance to Receiver:5m. Works compliant
20/07/2023	10:27:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARAA027 Stage 3 Phase 2	71	70	52	53.6	64.2	81.6	Monitoring distance to works: 30m Monitoring distance to receiver. works below NML. Works compliant
31/07/2023	7:17:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA027 Stage 2	68	70	48	51.2	64.2	82.3	Monitoring distance to source: 80m. Distance of monitor to receiver: 4m. Works partially audible during works(57-60dB) traffic main source of noise (65-80dB). Works compliant
31/07/2023	10:40:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA027 Stage 3 Phase 2	71	70	63.9	64.7	67.1	87.6	Distance of monitor to source: 30m. Distance of source to receiver: 35m. Works audible but within modelling and NML. Works compliant
1/08/2023	6:51:00 PM	Parramatta	NCA 03 - 48 George Street	Parramatta D-Wall Work, Parramatta. Gate 1 Archaeology & Conduit Installations	64	70	52.7	57.2	68.9	90.3	Compliance reached as site works were inaudible for entire time of monitoring. Result: Works compliant
1/08/2023	10:34:00 PM	Parramatta	NCA 03 - 48 George Street	PARRA-027- Parramatta D-Wall Works, PARRA-065 Parramatta Gate 1 Archaeology & Conduit Installation	64	70	64.4	65.7	68.5	81.8	While site noise exceeded expected levels, they are still within the 0-10dB above NML range. Main source of noise: local traffic. Result: Works compliant
2/08/2023	2:30:00 PM	Westmead	NCA 02 23-25 Hassall Street	Monitoring Box Excavation Fan Generator	53.9	59	48.4	5.4	57	74.3	Generic ambient noise of distant traffic, trains and planes and ongoing general construction and box excavation works within the part completed acoustic shed. noise blankets secured to shed frame on fan generator/compressor. Works compliant
2/08/2023	4:07:00 PM	Westmead	NCA 02 23-25 Hassall Street	Tunnel Extraction Fan Compressor 100% output	53.9	59	50.5	53.6	58.6	77.8	monitoring undertaken across the road on Bailey st. approx. 20m from site boundary facing the direction of the compressor's installations. noise blankets have been secured around the east, south and west facades of the shed. Occasional traffic and plant movement amongst ambient noise. Works compliant

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							L_{min}	L90	L_{Aeq}	L_{max}	
8/08/2023	7:35:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA-027 Stage 2	68	70	47.3	52.9	66.5	86.5	Monitoring distance to source: 80m. Distance of monitor to receiver: 5m. Works audible during breaks in traffic (51-53dB). Main source of noise: traffic. Works compliant
10/08/2023	8:26:00 PM	Parramatta	NCA 03 - 100 George street, parramatta	PARRA036 - Survey	84	70	51.1	57.5	66.8	90.2	100 George street: Distance of monitor to source: 10m. Distance of source to receiver: 40m. Works not audible. Main source of noise: traffic. Works compliant
10/08/2023	10:34:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	PARRA-027 stage 3 phase 2	71	70	61.1	62.3	67	80.8	Monitoring distance to source 50m. Distance of monitor to receiver: 5m. Works audible at 62dB. Works compliant
10/08/2023	11:11:00 PM	Parramatta	NCA 03 - 80-100 George street	PARRA036 section 3 survey.	84	70	58.1	59.3	62.2	80.4	Monitoring distance to source 7m. Distance of monitor to receiver: 15m. Works not audible at 60dB (traffic control & spray can). Traffic is main source of noise. Works compliant
14/08/2023	8:13:00 PM	Parramatta	NCA 03 - 100 George street, parramatta	Sawcutting section 4, raining	85	70	61	64	69	83	Works were audible, compliant under PNL, saw cutting audible at 69-71db, good attenuation set up. Rock hammering 70-72db, short while during saw cutting breaks. Works compliant
21/08/2023	8:09:00 PM	Parramatta	NCA 03 - 48 George street	Section 3 stage 2 NDD - Prepping for and saw cutting on intersection for George and smith st	70	70	46.7	48.8	63.1	84.3	Works were generally quiet during site set up on the George st and Smith St intersection. Traffic noise dominated with occasional aeroplane over pass. Truck carrying atf fencing and noise blankets loud for a 10seconds. Works compliant
21/08/2023	9:02:00 PM	Parramatta	NCA 03 - 100 George st, parramatta	Section 4 stage 2 NDD saw cutting and pothole works on George st	84	70	51.3	58.3	67.7	87.2	No lights on in the commercial building. Traffic dominated the noise at the beginning prior to work commencing. Continued saw cutting between 67-72db for the remainder. Noise blanket c-shape reduce noise impact on area whilst vac truck shield the open section of noise blanket atf fencing. Works compliant
21/08/2023	10:15:00 PM	Parramatta	NCA 03 - 30 Charles st	Section 4 stage 2 NDD on George st - smith st intersection	58	58	50.7	52.8	57.3	73.8	178 George st level 10 unit 1013 balcony facing works on George st. Sound echoes from below intersection. Ambient noise around 54db with continuous hum from works on Smith st and George st intersection. Other noises louder included rooftop air cons from adjacent building Lower than level 10. Shopping trolley collection Ute was the loudest noise. Works compliant
22/08/2023	8:20:00 PM	Parramatta	NCA 03 - 52 George Street	Parra 036 Section 3 saw cutting out side gate 1 on George St.	72	70	46.5	-	63.5	78.9	Saw cutting commenced on George St. for the first half the saw cutting was continuous between 67-72dB. Measures in place included C-shape noise blankets ATF fencing. The tactical positioning of the 3.5t excavator and vac truck shielded sound from the open section which provided sound measurements aligned with the PNL. Works compliant
23/08/2023	8:10:00 PM	Parramatta	81 George st	Section 5 stafe 1 saw cutting on George St	83	70	50.4	53.7	64.7	75.3	81 George st is 90m west of section 5 works. Noise barrier atf screen set up next to cut location and truck position Ed between receiver and work location. Works compliant
23/08/2023	8:35:00 PM	Parramatta	NCA03 - 22 Charles Street, Parramatta	Section 5 stage 1 saw cutting	63	58	29.1	33.2	39.1	58.6	Works below NML and PNL. Works compliant
23/08/2023	9:30:00 PM	Parramatta	NCA 03 - 6-10 Charles Street	Section 5 stage 1 saw cutting at 81 George St.	64	58	41.6	43.6	52.8	84.1	Monitor location on level 6 adjacent to apartment 611, with microphone pointing out grilled windows towards Charles st and Macquarie St intersection approximately 40m. Noise mainly ambient around 44db with the occasional car pass and pedestrian and other apartment noises. At no point could saw cutting be heard at 81 George Street. Works compliant
29/08/2023	10:03:00 PM	Parramatta	NCA 03 - 6-10 Charles Street	Parramatta OOHW036 - WTP Water Discharge Line	58	58	46.5	48.7	56.9	71.7	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented. Works compliant
30/08/2023	8:20:00 AM	Parramatta	NCA 03 -73 George Street	PARRA-036	78	70	56.3	58.7	65.9	85.1	Works below Predicted noise levels. Result: Compliant with modelling and mitigation measures implemented. Works compliant
6/09/2023	2:07:00 PM	Westmead	10-12 Hassall St Vibration Monitor	WM18 Tunnel Excavation	52.1	59	37.5	43.4	55.1	81.4	Noise levels dominated by ongoing people arguing on the second floor of apartment block and traffic on Alexandra Avenue and Hassall St. At ambient times noise dropped to low 40s dBA. And at no point could you hear any construction or mining sounds. Works compliant
6/09/2023	10:41:00 PM	Parramatta	NCA 03 - 100 George street, parramatta	PARRA036 core drilling	70	70	57.7	60.1	67.5	88.7	Monitoring distance to source: 40m. Distance of monitor to receiver 20m. Works audible but below management level. Works compliant.

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Date	Time (hh:mm:ss)	Site	Monitoring Location	Construction Activity	Modelled Prediction (L_{Aeq})	Noise Management Level (NML)	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
7/09/2023	9:17:00 PM	Parramatta	NCA 03 - 100 George street, parramatta	PARRA036 - section 4 stage 1 saw cutting	85	79	58.3	62.5	72.1	84.1	Monitoring distance to source/ 30m. Distance of monitor to receiver 30m. Main source of noise: saw cutting. Monitoring also affected by traffic. Works compliant
11/09/2023	12:50:00 PM	Clyde Dive	NCA 07 - ATC Stables (at stables)	Dive excavation - hammering.	70	60	48.9	52.9	57.8	79.1	Noise measurement taken 15m away from hammering works, monitoring at receiver, main source of noise: works, horses noises were also audible. hammering partially audible during breaks in other works. Hammering occurring 10m below ground level within dive. Results are compliant with modelling; measures are put in place. Works compliant
14/09/2023	8:41:00 PM	Parramatta	NCA03 - 81 George St	Removal of asphalt at section 5	70	70	49	51	61	78	General set up opening trench at section 5. Excavator moving asphalt and swapping attachments. All works under 70db compliant. Traffic did cause spikes. Works compliant
18/09/2023	8:35:00 PM	Parramatta	1 Barack Lane parramatta	Section 5 Stage 1 - Sawcutting	95	55	47.7	49.2	54.1	74.3	Sawcutting works audible until minute 5 at around 57dB. NDD works then audible at around minute 11. Other dominant noise sources include traffic and pedestrian movement along George St and Barack Lane. Distance from monitoring location to source: 80m Distance from monitoring location to receiver: 2m. Works compliant
18/09/2023	9:28:00 PM	Parramatta	NCA 03 - 110 George Street, Parramatta	Section 5 Stage 2 NDD and Pavement Removal	80	70	55.4	56.3	66.1	76.9	The monitor was set 20m away from works, construction noise went on and off during the monitoring. Construction noise was the dominant noise source during the attended monitoring. Works compliant
18/09/2023	9:30:00 PM	Parramatta	NCA 03 - 91 George St, Parramatta	Section 6 Stage 2 NDD	82	70	55.5	56.4	63.1	77.8	Monitoring distance from source: 60m Monitoring distance from receiver: 5m Vacuum truck operating. Works compliant
19/09/2023	9:47:00 PM	Parramatta	NCA 03 - 150 George Street, Parramatta	Section 6 - Stage 1 Saw cutting	84	70	49.8	54.6	68.5	85	Distance from source 5m Distance from receiver <5m Commercial building is closed. Works were audible but well below the predicted noise levels. Jack hammering and saw cutting took place simultaneously at some points. Works compliant
19/09/2023	9:48:00 PM	Parramatta	NCA 03 - 91 George St, Parramatta	Section 6 Stage 1 Sawcutting	83	70	46.1	48.5	61.2	77.2	Dominant construction noise sources included sawcutting and jackhammering. Sawcutting at loudest was 65.5. Distance from monitoring location to source: 80m Distance from monitoring location to receiver: 5m Result: compliant (sawcutting works didn't exceed 65.5 and other dominant sources of noise exceeding 60dB were traffic. Works compliant
25/09/2023	9:34:00 PM	Parramatta	46 George Street Parramatta	D-Wall Stage 3 Phase 1 Hydraulic Grabs and mechanical grabs	70	70	51.3	-	65.6	84.9	5m from receiver 30m from site boundary 100m from actual plant noise. No additional equipment planned to be used, 9-10pm maintenance in the form of changing cutter teeth and plant mechanical checks. 10pm onwards earthworks of grabbing material. Works Compliant.
25/09/2023	10:05:00 AM	Westmead	152 Hawkesbury Rd	Verification monitoring - I&M works	68	68	53.2	60.4	66.1	85.1	Works audible at around 65dB. Construction works included drilling (low hum/rumble with thumps felt under feet) and vac truck idling (low hum). Distance from monitoring location to source: 8m Distance from monitoring location to receiver: 10m works. Works compliant
25/09/2023	11:05:00 AM	Westmead	NCA 03 - 156 Hawkesbury Road, Westmead	Verification monitoring - I&M works	68	68	57	60.3	66.5	86	Drilling works included using auger drill and vac truck Distance from monitoring location to source: 10m Distance from monitoring to receiver: 8m. Works compliant
25/09/2023	11:22:00 AM	Westmead	NCA 02 - 154 Hawkesbury Street, Westmead	Verification monitoring - I&M works	68	68	57.5	59.7	67	81	Drilling works included drill auger and idling vac truck. Works compliant
27/09/2023	9:19:00 PM	Rosehill	NCA 07 - Stables	RH003A FRP crane lift hi tec yard, mechanical workshop prepping TBM for thrust frame. Head. Water treatment plant and compressor for air and water in box.	48	60	48.3	50.2	54.5	77.5	25m from receiver ground level 20m from site boundary 50m from mechanical workshop and 100m from water treatment plant compressor. Crane 120m Works dominated by compressor fan located near water treatment plant. Works are 6.5 dBA above PNL (48) but still below 5.5db below NML 60 for ATC. Works compliant
10/10/2023	10:08:00 AM	Westmead	NCA 03 - 156 Hawkesbury Road, Westmead	I&M works	78	68	57	60.4	67.7	88.1	Engine of auger/drill loudest GLC construction works. Banging to remove material produced peaks around 70dB. Difficult to isolate noise source from construction due to high traffic activity on Hawkesbury Rd and Alexandra Ave. Works compliant
24/10/2023	10:50:00 PM	Parramatta	NCA 03 - 46 George Street Parramatta	W D-Wall	65	70	41	49	57	73	D-Wall works were monitored from 46 George St to capture data closer to the works, works were not audible from nearest sensitive receiver. Works compliant

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Date	Time (hh:mm:ss)	Site	Monitoring Location	Construction Activity	Modelled Prediction (L_{Aeq})	Noise Management Level (NML)	Measured 15-minute Noise Levels – dBA				Notes
							L_{min}	L90	L_{Aeq}	L_{max}	
4/11/2023	7:00:00 AM	Parramatta	NCA 03 - 38-40 George St	PARRA 078 - Electrical Cable Pulling	70	70	51.8	53.7	59.8	77.5	Distance from receiver 5m, distance from site works 50m. Site works observed of electrical cable pulling, works inaudible. Noise levels dominated by traffic passes on George st. and other environmental factors. non-GLC works on church st heard as rock drilling from 7am. Works compliant and below PNL & NML. Works compliant
22/11/2023	5:13:00 AM	Parramatta	NCA 03 - 25 Smith St Parramatta	L5.3: Delivery and Unloading of Steel	70	70	-	-	56	-	Works were not audible, dominant noise source was from traffic. Works compliant
18/01/2024	6:00:00PM	Sydney Olympic Park	Herb Elliot Ave and Showground road,	Generator monitoring	37	48	43		48	63	LAeq: 48dB Noise contributors from traffic, pedestrians and cicadas, no other audible factors, compliant LAmax: 68dB (car passing by). LAmin: 43dB (no traffic, cicadas in background). Works compliant
18/01/2024	10:00:00PM	Sydney Olympic Park	Herb Elliot Ave and Showground road,	Generator monitoring	37	46	39		45	53	LAeq: 45dB Noise contributors from low traffic, occasional pedestrians and cicadas, no other audible factors, compliant LAmax: 53dB (car passing) LAmin: 39dB (no traffic, cicadas in background). Works compliant

Table 2.4 – Results of Ground borne noise monitoring

Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
27/07/2023	9:07:00 PM	Clyde Dive	NCA 04 - 120 James Ruse Drive	Ground borne noise monitoring	40	53	60	68	76	85	No works were audible from location, traffic on JRD continued to dominate. Result: Compliant
27/07/2023	10:18:00 PM	Clyde Dive	NCA 04 - 120 James Ruse Drive	Ground borne noise monitoring	40	46	63	69	77	87	Works inaudible during breaks in traffic, JRD dominated Result: Compliant
31/07/2023	1:16:00 PM	Clyde Dive	NCA 04 - 1 Hope street	Ground borne noise monitoring	40	40	27.5	31.5	36	58.3	Monitoring within receiver. Main source of noise: traffic on JRD. Ground borne noise not audible. Result: compliant
31/07/2023	1:45:00 PM	Clyde Dive	MCA04 - 126 James Ruse Drive	Ground Bourne noise monitoring	40	40	24.5	26.9	31.2	52.7	Monitoring at receiver. Main source of noise: traffic on James Ruse Drive. Potential Ground born noise from road header (27dB) not confirmed given low level and noise from James ruse drive. Result: compliant.

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Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
							L_{Amin}	L90	L_{Aeq}	L_{max}	
6/09/2023	2:04:00 PM	Westmead	9-12 Alexandra Avenue Vibration Monitor	WM 18 tunnel excavation	40	59	34.7	40.9	49.8	63.5	Traffic, trains and aeroplanes dominated the noise. However, a rumbling or distant plane noise can be heard from tunnel works. Current cut length is 34-35m. Compliant
6/09/2023	9:43:00 PM	Westmead	10-12 Hassall St Vibration Monitor	WM18 - tunnelling	49	52	38.4	57.7	54.3	71.8	Monitoring distance to source: 50m. Monitoring within receiver. Air borne noise from work not audible. Ground Bourne noise slightly audible. Delivery to site came during monitoring - audible for 4min. Result: works compliant with modelling and mitigation measures implemented.

Table 2.5 – Results of noise monitoring for complaints

Complaint ID	Date	Time (hh:mm)	Site	Monitoring Location	Construction Activity	Modelled Prediction (PNL) L_{Aeq}	Noise Management Level (NML) L_{Aeq}	Measured 15-minute Noise Levels – dBA				Notes
								L_{Amin}	L90	L_{Aeq}	L_{max}	
5126	23/10/2023	20:21:00 PM	Westmead	NCA 02 – 26-30 Bailey Street	Compressor tunnel support works + teledipper migrating	53	52	52	56	65	77	Compressor monitored compliant, tele dipper started to move down the haul road, very squeaky tracks for short period of time. main source of noise: local traffic. Result: Works compliant with modelling and mitigation measures.
5186	13/11/2023	10:19:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	D-Wall west, crane	34	48	52	54.1	59.5	73	Distance from site: 150m Distance from receiver: receiver ground level, 5m Receiver type: residential. Works were non audible at the time of the attended measurement. Main source of noise is traffic, fan from adjacent building. Roadworks at the intersection of Macquarie and Smith St. may have resulted in more noise generation. Works are compliant as crane motor noise was non audible at the receiver and have not resulted in the elevation of noise levels. Result: Works compliant
5186	14/11/2023	9:50:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	Western D-wall, crane tracking	34	48	52.3	54.4	59.5	75.7	Distance form works: 150m. Distance from receiver: 5m. Receiver type: residential. Works are compliant as the crane movement was non audible at the time of the measurement. Crane movement started at 9:55pm and ended at 9:58pm. Result: Works compliant
5186	15/11/2023	10:10:00 PM	Parramatta	NCA 03 - 45 Macquarie Street, Parramatta	Western D-Wall	48	34	44.2	46.2	51.4	68.9	Distance from activity: 200m. Distance from receiver:0m. Receiver type: residential. Measurement was recorded at the common area between room 1911 and 1912 facing the construction site. Window was open. Crane tracking occurred between min 4 and min 5 of the measurement. Works were audible at the time of the attended measurement however, traffic and train noises were the main sources of noise. Works are compliant. Result: Works compliant
5322	19/01/2024	1:41:00 PM	Westmead	NCA02 Bailey St and Hawkesbury Road Intersection	CTMP	69	59	44.3	51.5	67.9	87.6	Distance from activity: 5m Distance from receiver: 30m. Receiver type: residential. Measurement was recorded from pedestrian walkway at Hawkesbury Rd and Bailey St interchange adjacent to residential boundary. 1 Spoil truck passes & 1 Agi truck were observed within the 15 min period, vehicles were audible amongst other traffic sources. Works Compliant

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

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

Gamuda Laing O'Rourke

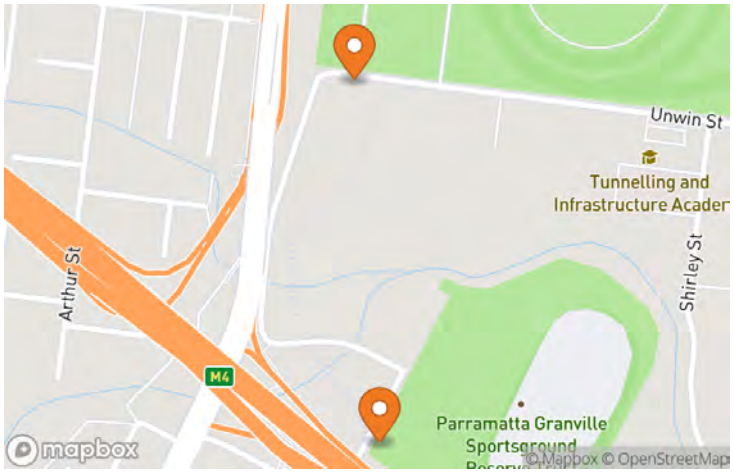
Sydney Metro West WTP MSF

Unattended Noise Monitoring 16Sep23_30Sep23 MSF

Monitoring Devices

Date Range 16 Sep 2023 - 30 Sep 2023

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



Noise Monitoring Statistics

Unwin Street, Rosehill

57 dB — DAY L_{Aeq}

51 dB — EVENING L_{Aeq}

53 dB — NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

60 dB — DAY L_{Aeq}

57 dB — EVENING L_{Aeq}

56 dB — NIGHT L_{Aeq}

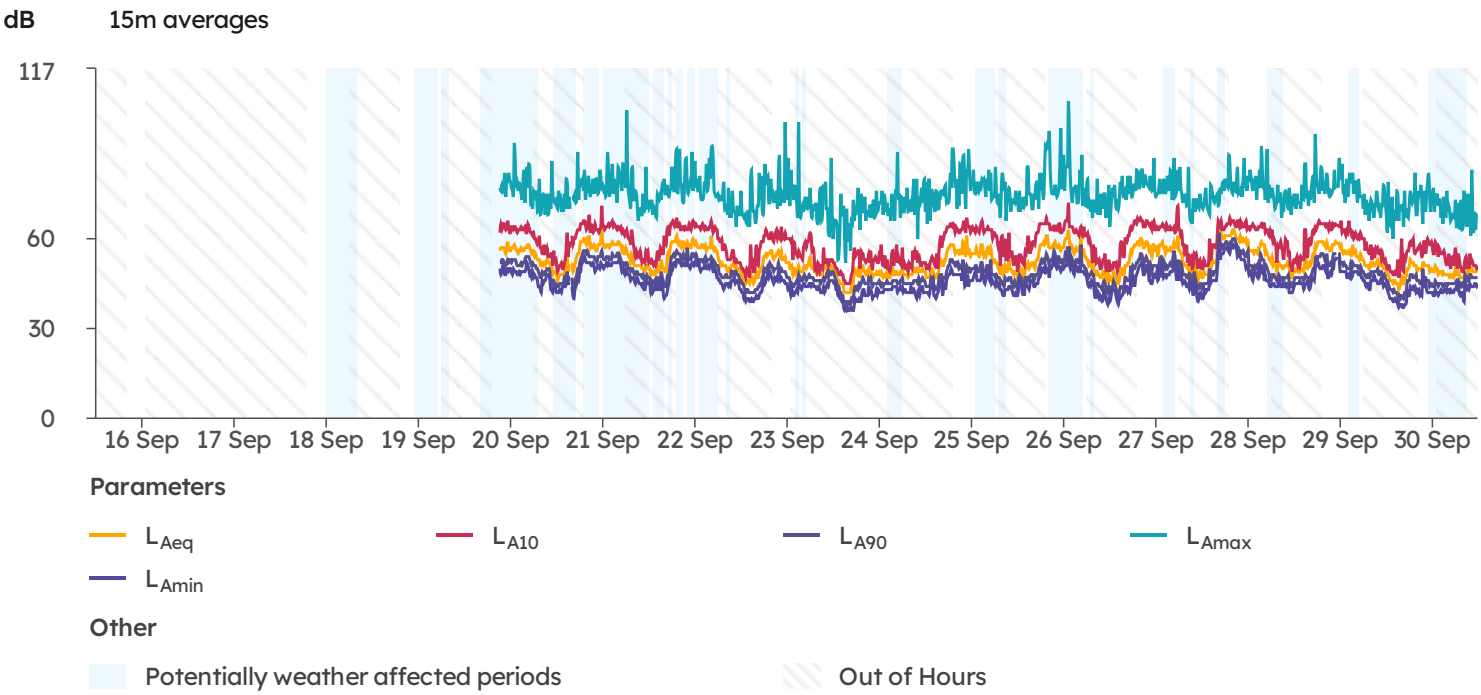
Average value across selected time period

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

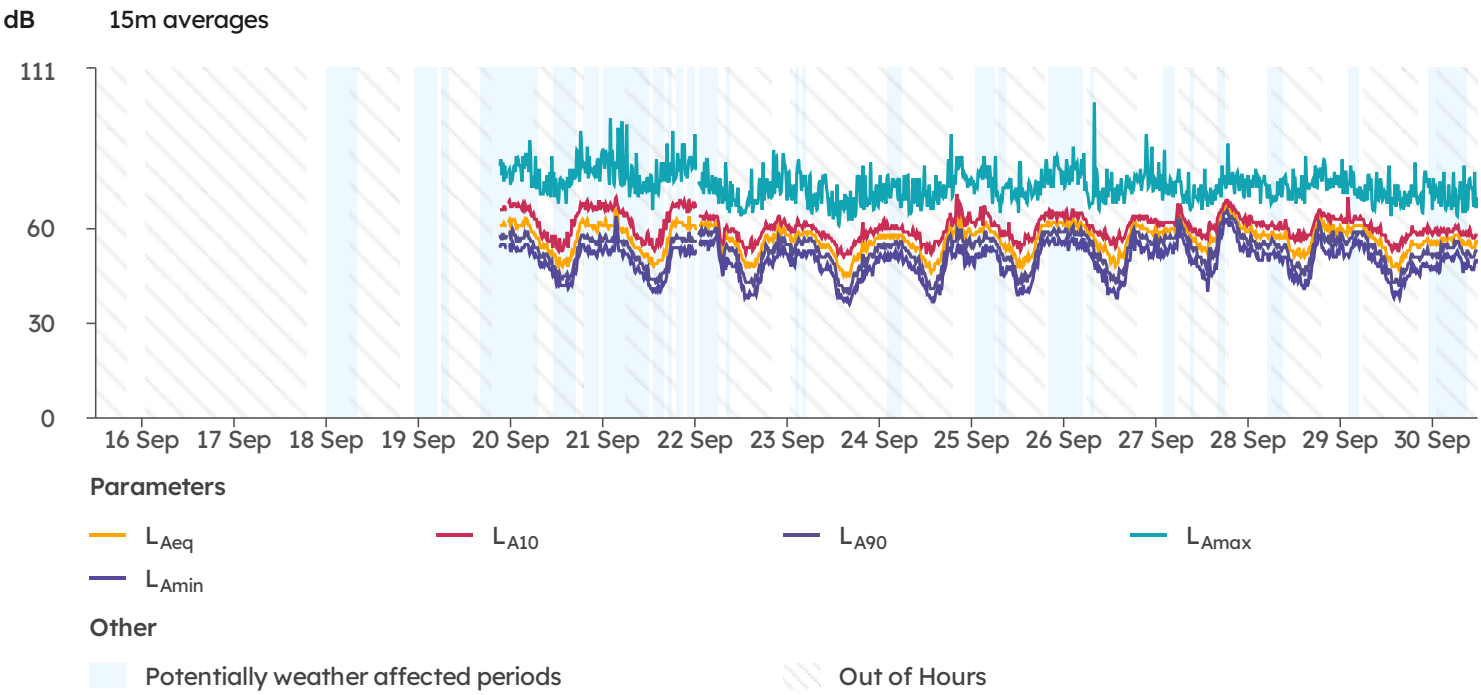
Unwin Street, Rosehill

16 Sep 2023 - 30 Sep 2023



Wentworth Street, Clyde

16 Sep 2023 - 30 Sep 2023



Gamuda Laing O'Rourke

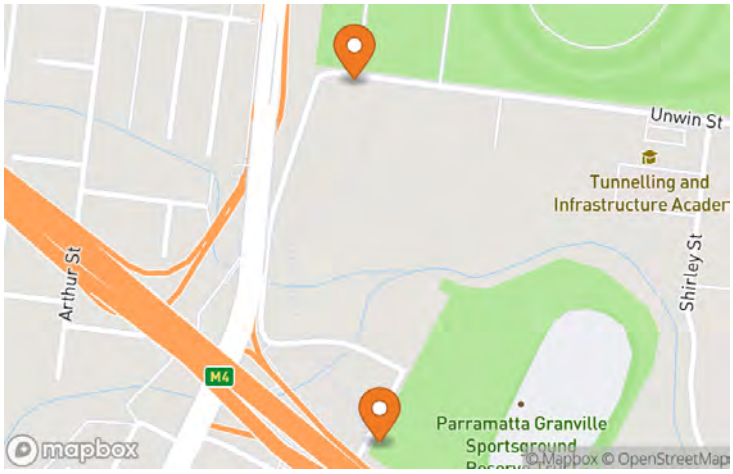
Sydney Metro West WTP MSF

Unattended Noise Monitoring 01Oct23_16Oct23 MSF

Monitoring Devices

Date Range 01 Oct 2023 - 16 Oct 2023

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



Noise Monitoring Statistics

Unwin Street, Rosehill

55 dB	DAY	L_{Aeq}
49 dB	EVENING	L_{Aeq}
50 dB	NIGHT	L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

58 dB	DAY	L_{Aeq}
54 dB	EVENING	L_{Aeq}
53 dB	NIGHT	L_{Aeq}

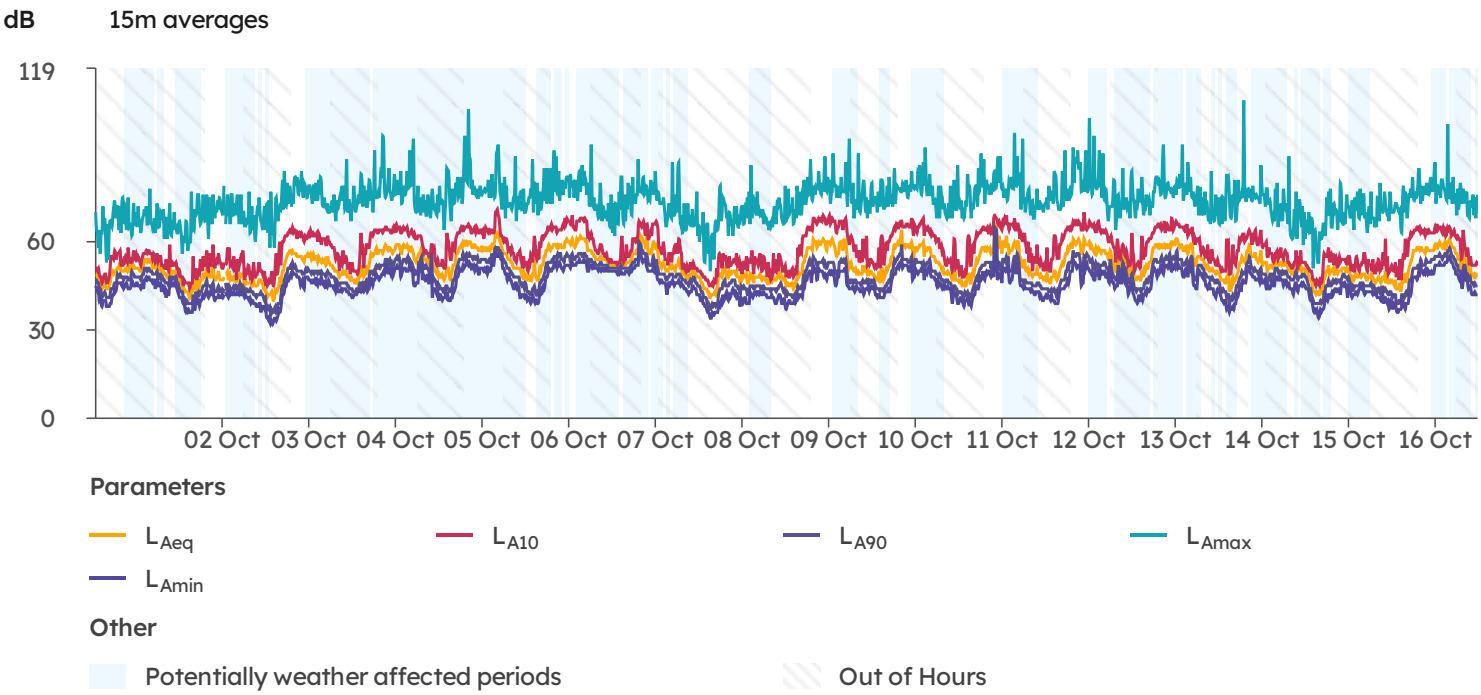
Average value across selected time period

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

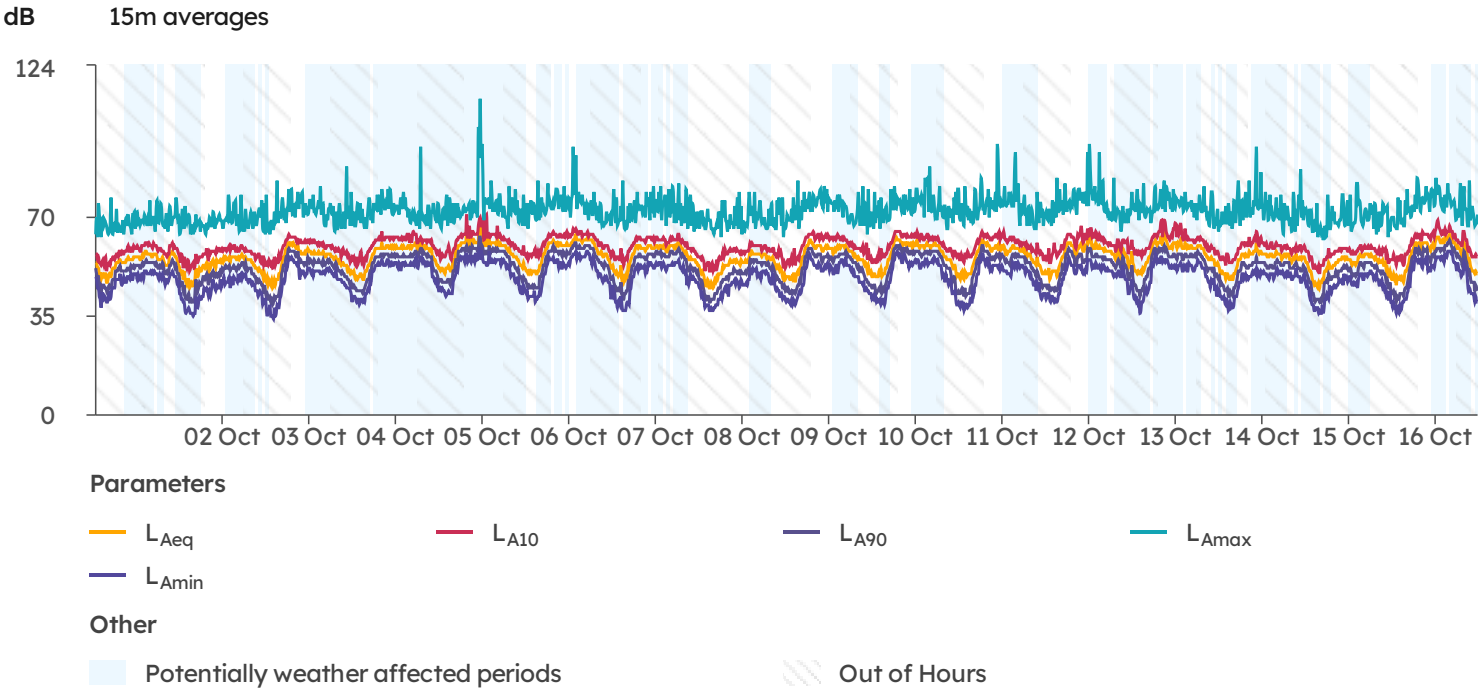
Unwin Street, Rosehill

01 Oct 2023 - 16 Oct 2023



Wentworth Street, Clyde

01 Oct 2023 - 16 Oct 2023



Gamuda Laing O'Rourke

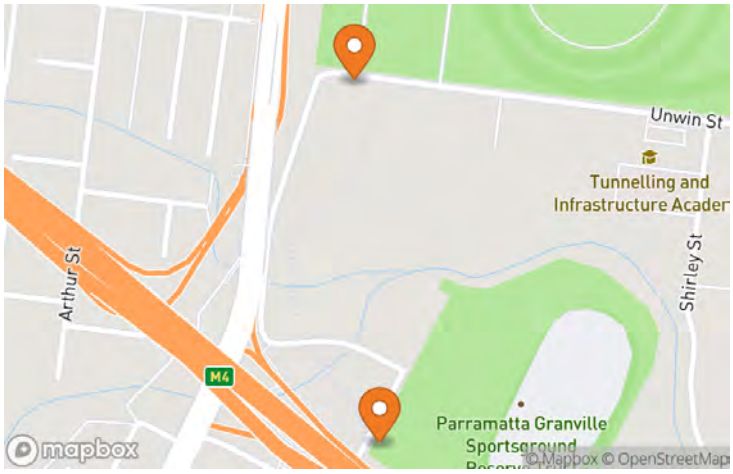
Sydney Metro West WTP MSF

Unattended Noise Monitoring 17Oct23_31Oct23 MSF

Monitoring Devices

Date Range 17 Oct 2023 - 31 Oct 2023

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



Noise Monitoring Statistics

Unwin Street, Rosehill

57 dB	DAY L_{Aeq}
51 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

Average value across selected time period

Wentworth Street, Clyde

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

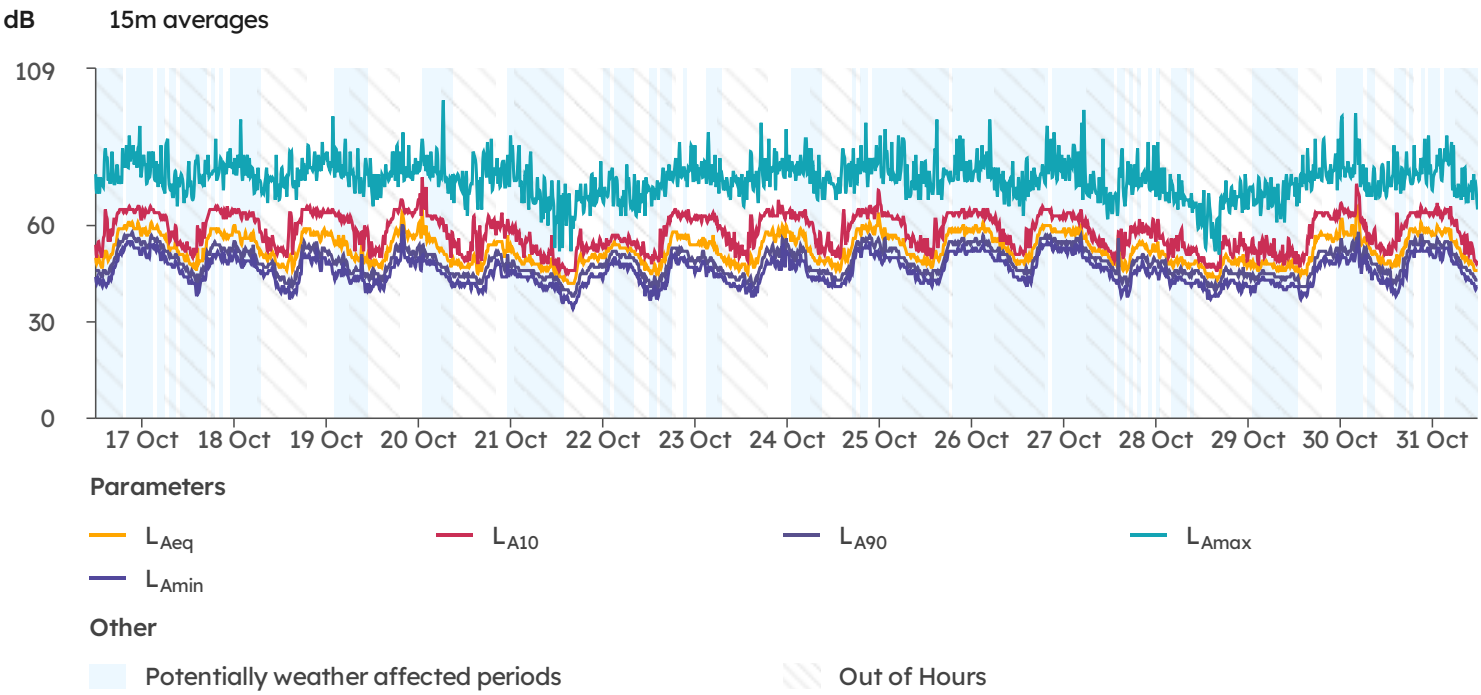
Average value across selected time period

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

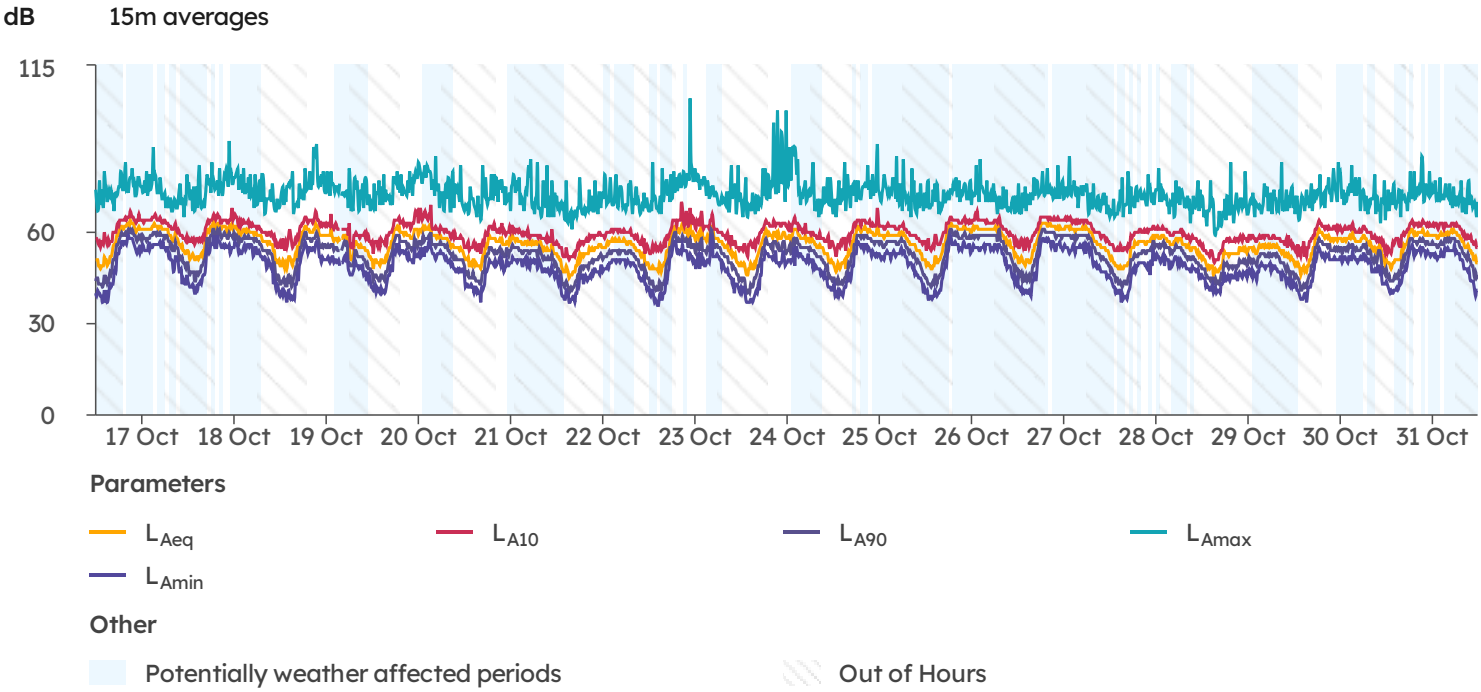
Unwin Street, Rosehill

17 Oct 2023 - 31 Oct 2023



Wentworth Street, Clyde

17 Oct 2023 - 31 Oct 2023



Gamuda Laing O'Rourke

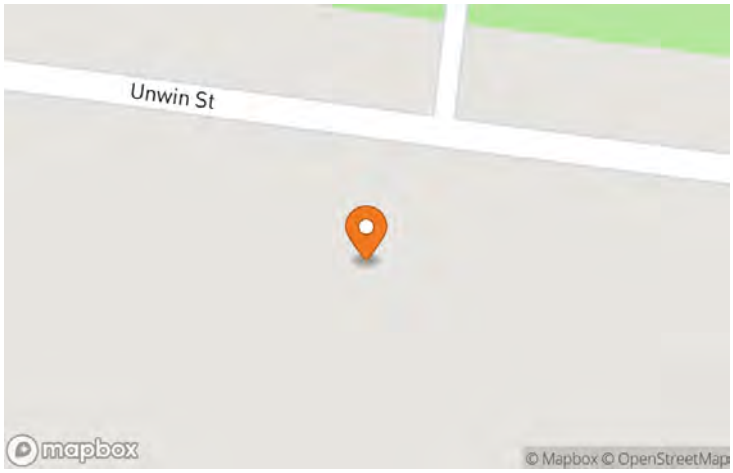
Sydney Metro West WTP MSF

Unattended Noise Monitoring 01Nov23_16Nov23 MSF

Monitoring Devices

Date Range 01 Nov 2023 - 16 Nov 2023

Device Serial	Monitoring Points
HEX-000025	Unwin Street, Rosehill



Noise Monitoring Statistics

Unwin Street, Rosehill

58 dB — DAY L_{Aeq}

47 dB — EVENING L_{Aeq}

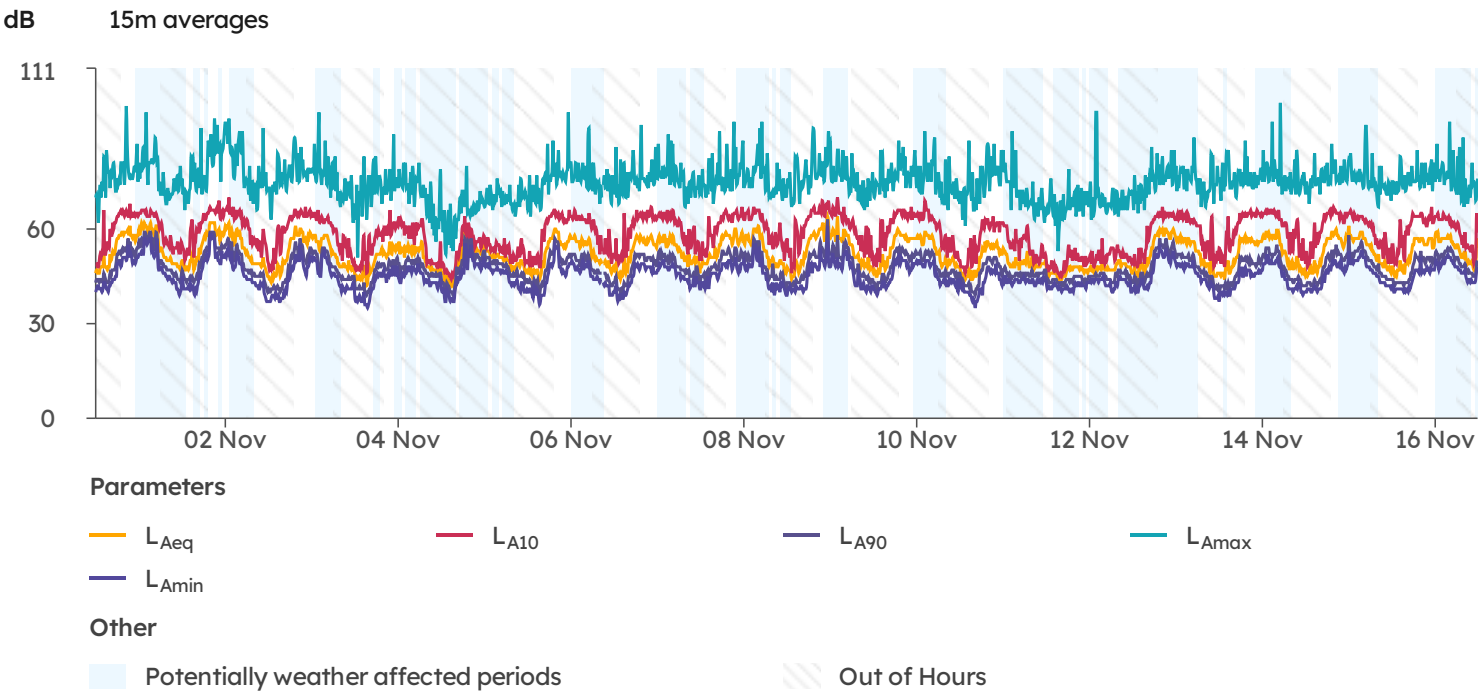
52 dB — NIGHT L_{Aeq}

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).

Unwin Street, Rosehill

01 Nov 2023 - 16 Nov 2023



Gamuda Laing O'Rourke

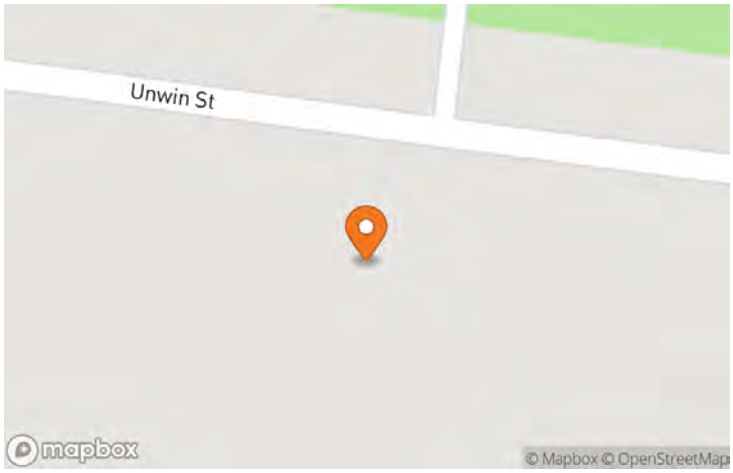
Sydney Metro West WTP MSF

Unattended Noise Monitoring 17Nov23_30Nov23 MSF

Monitoring Devices

Date Range 17 Nov 2023 - 30 Nov 2023

Device Serial	Monitoring Points
HEX-000025	Unwin Street, Rosehill



Noise Monitoring Statistics

Unwin Street, Rosehill

56 dB — DAY L_{Aeq}

51 dB — EVENING L_{Aeq}

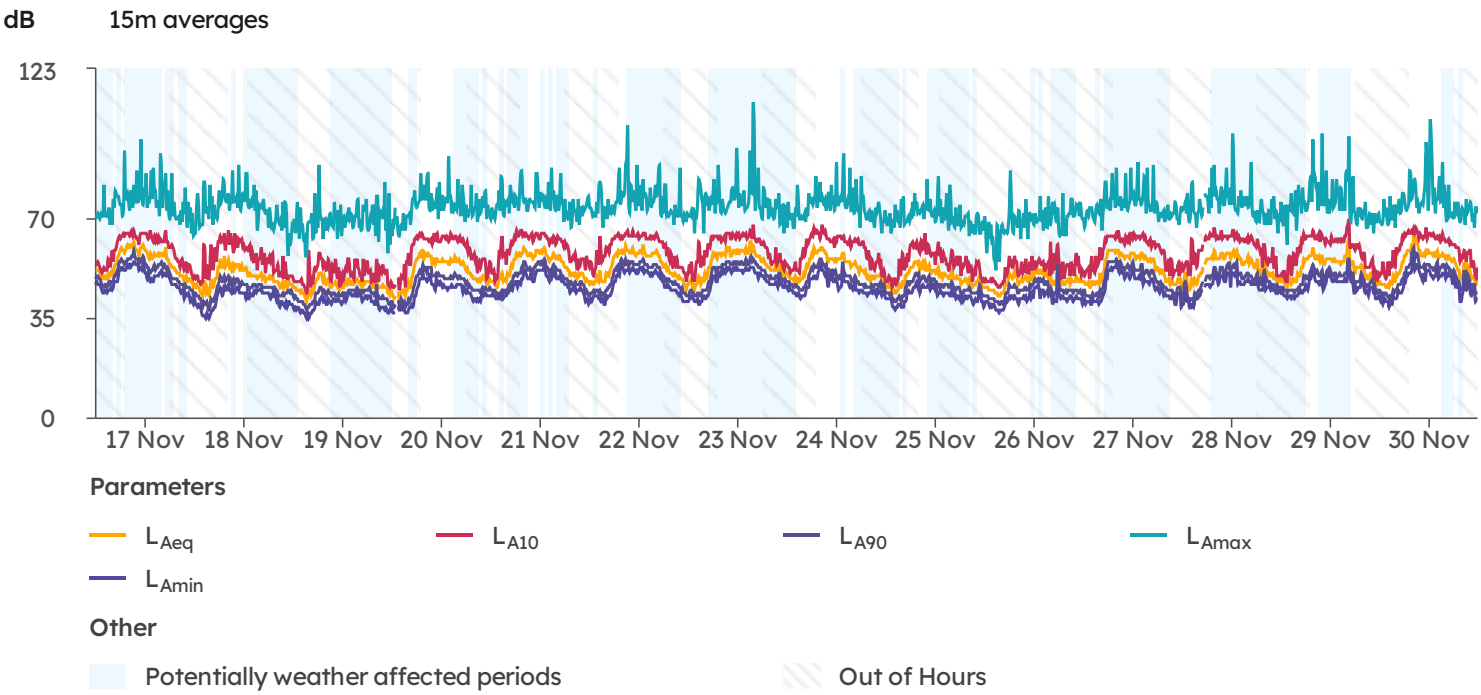
51 dB — NIGHT L_{Aeq}

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).

Unwin Street, Rosehill

17 Nov 2023 - 30 Nov 2023



Gamuda Laing O'Rourke

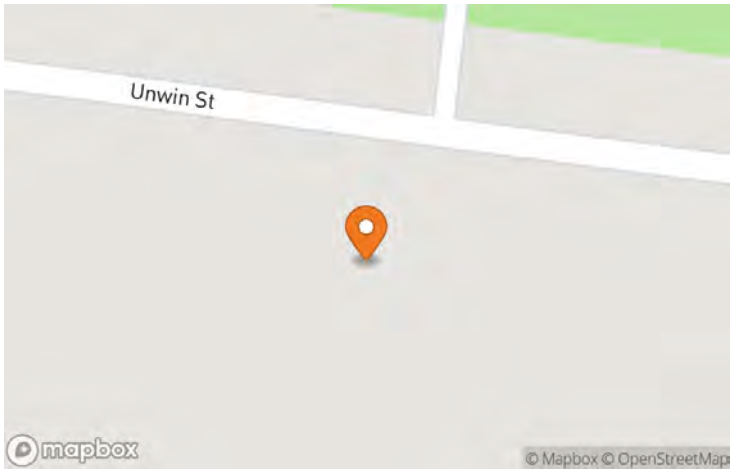
Sydney Metro West WTP MSF

Unattended Noise Monitoring 01Dec23_16Dec23 MSF

Monitoring Devices

Date Range 01 Dec 2023 - 16 Dec 2023

Device Serial	Monitoring Points
HEX-000025	Unwin Street, Rosehill



Noise Monitoring Statistics

Unwin Street, Rosehill

57 dB — DAY L_{Aeq}

48 dB — EVENING L_{Aeq}

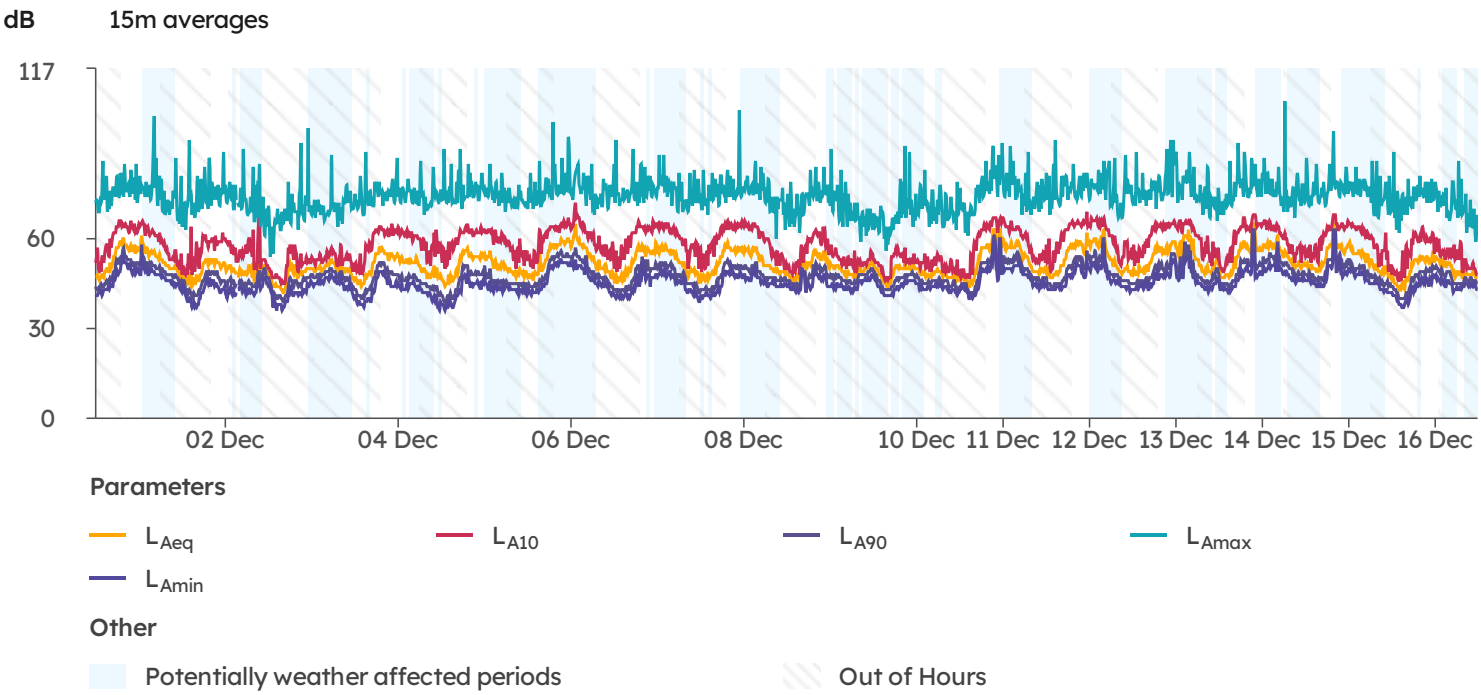
52 dB — NIGHT L_{Aeq}

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).

Unwin Street, Rosehill

01 Dec 2023 - 16 Dec 2023



Gamuda Laing O'Rourke

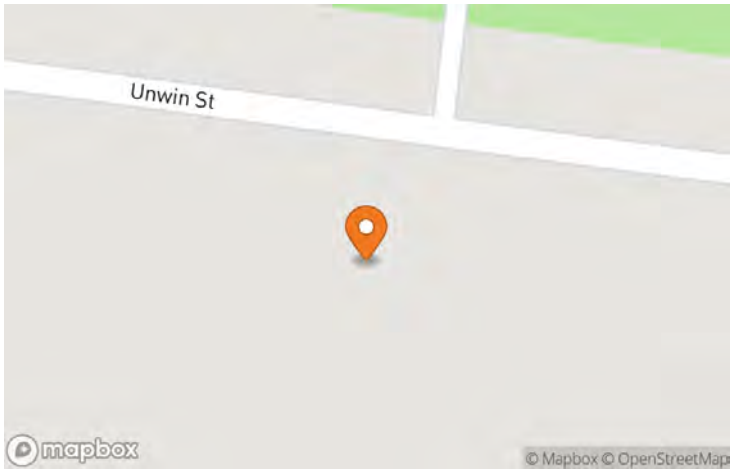
Sydney Metro West WTP MSF

Unattended Noise Monitoring 17Dec23_31Dec23 MSF

Monitoring Devices

Date Range 17 Dec 2023 - 31 Dec 2023

Device Serial	Monitoring Points
HEX-000025	Unwin Street, Rosehill



Noise Monitoring Statistics

Unwin Street, Rosehill

53 dB — DAY L_{Aeq}

50 dB — EVENING L_{Aeq}

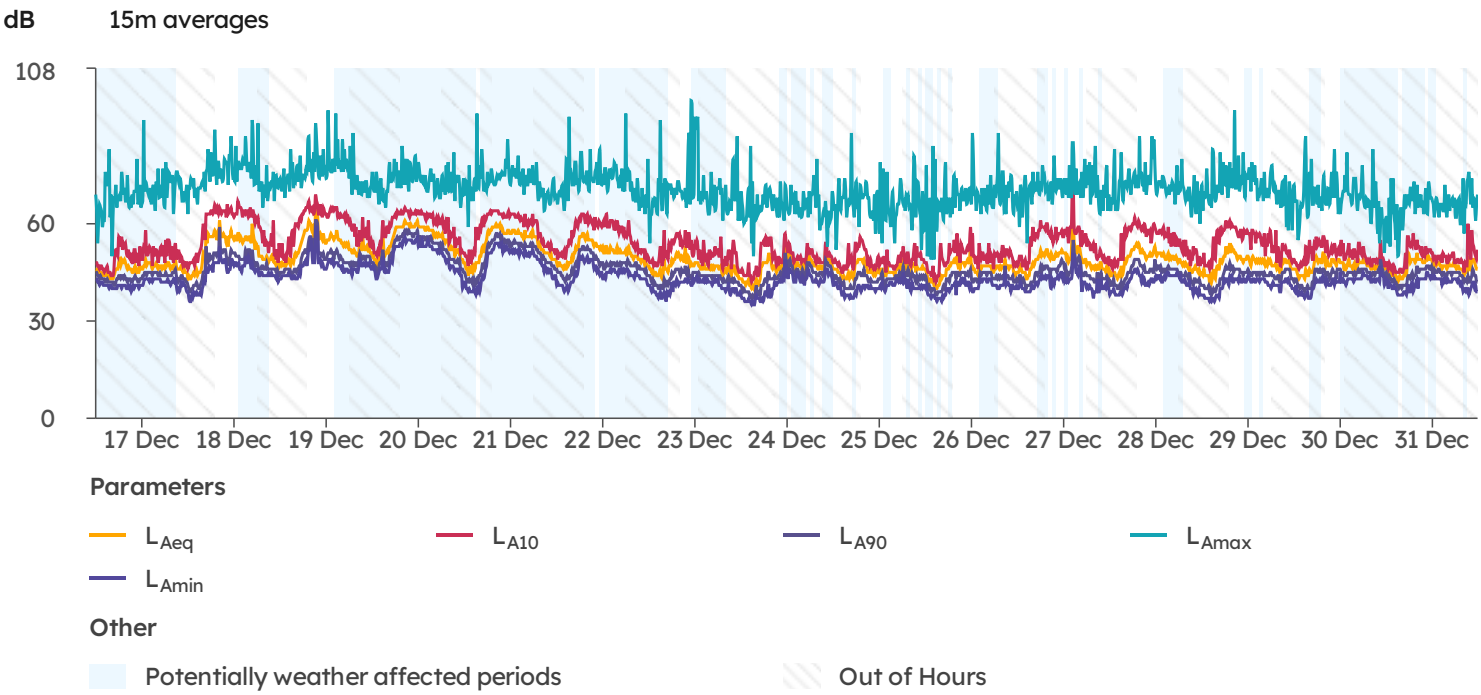
49 dB — NIGHT L_{Aeq}

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).

Unwin Street, Rosehill

17 Dec 2023 - 31 Dec 2023



Gamuda Laing O'Rourke

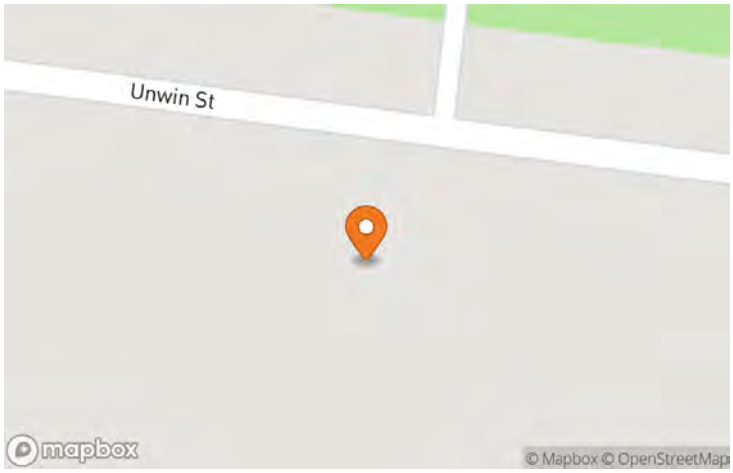
Sydney Metro West WTP MSF

Unattended Noise Monitoring 01Jan23_19Jan23 MSF

Monitoring Devices

Date Range 01 Jan 2024 - 19 Jan 2024

Device Serial	Monitoring Points
HEX-000025	Unwin Street, Rosehill



Noise Monitoring Statistics

Unwin Street, Rosehill

56 dB — DAY L_{Aeq}

51 dB — EVENING L_{Aeq}

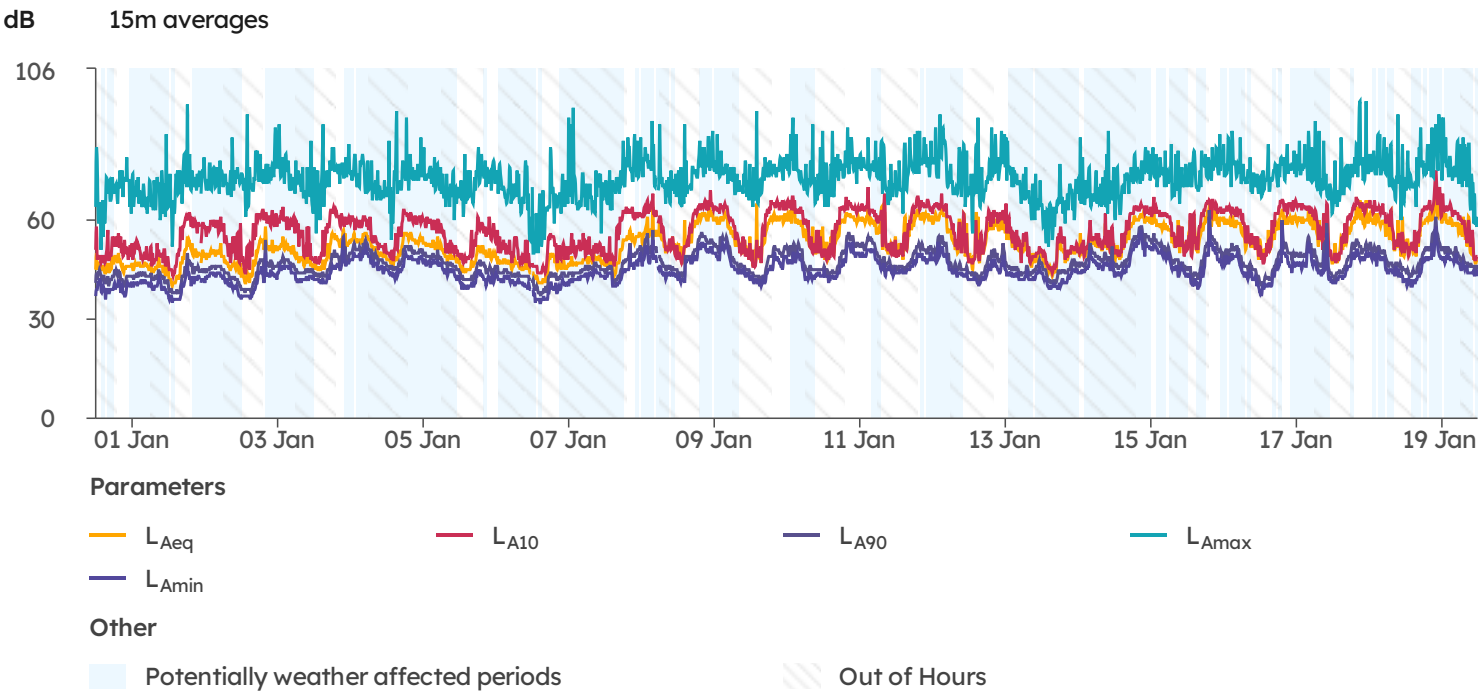
52 dB — NIGHT L_{Aeq}

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

Unwin Street, Rosehill **01 Jan 2024 - 19 Jan 2024**



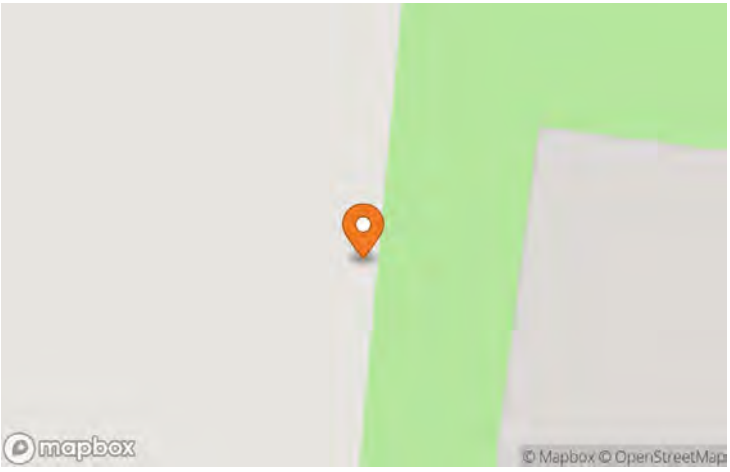
Gamuda Laing O'Rourke

Sydney Metro West WTP Clyde Dive

Monitoring Devices

Date Range 19 Jul 2023 - 31 Jul 2023

Device Serial	Monitoring Points
HEX-000025	Northern Hive



Noise Monitoring Statistics

Northern Hive

62 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

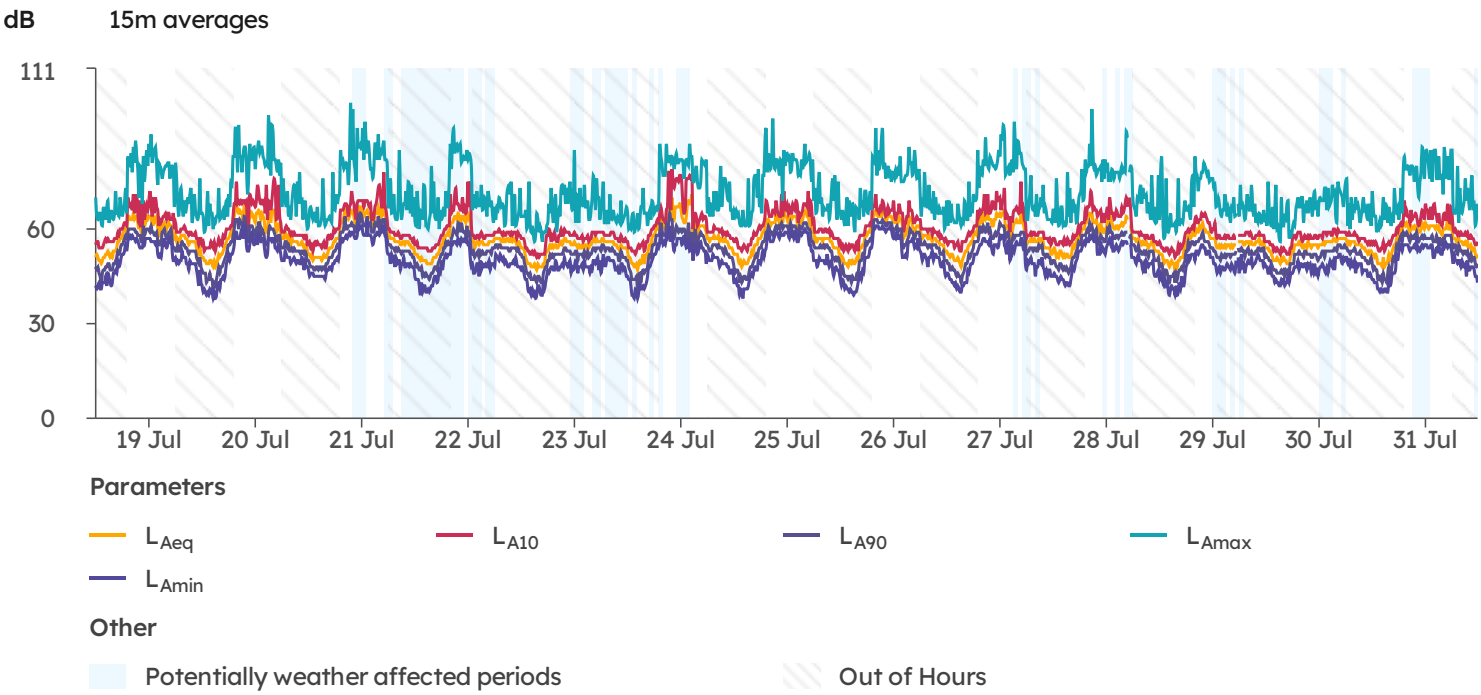
54 dB — NIGHT L_{Aeq}

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).

Northern Hive

19 Jul 2023 - 31 Jul 2023



Gamuda Laing O'Rourke

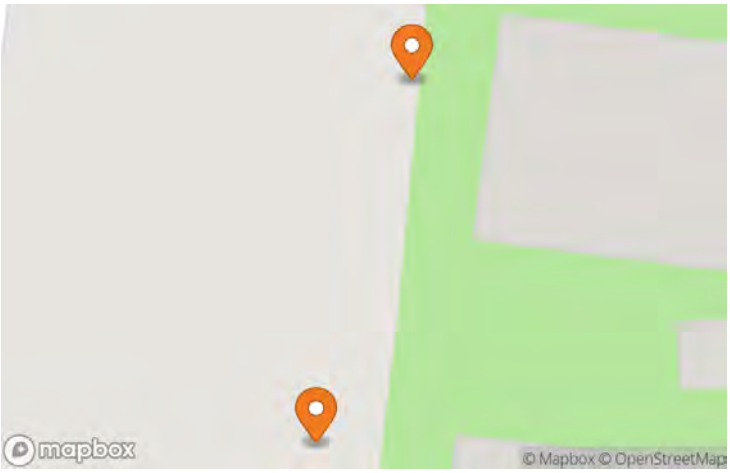
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 01AugJul23_16Aug23 Clyde Dive

Monitoring Devices

Date Range 01 Aug 2023 - 16 Aug 2023

Device Serial	Monitoring Points
HEX-000025	Northern Hive
HEX-000103	Central Hive



Noise Monitoring Statistics

Northern Hive

62 dB — DAY L_{Aeq}

53 dB — EVENING L_{Aeq}

54 dB — NIGHT L_{Aeq}

Average value across selected time period

Central Hive

61 dB — DAY L_{Aeq}

54 dB — EVENING L_{Aeq}

55 dB — NIGHT L_{Aeq}

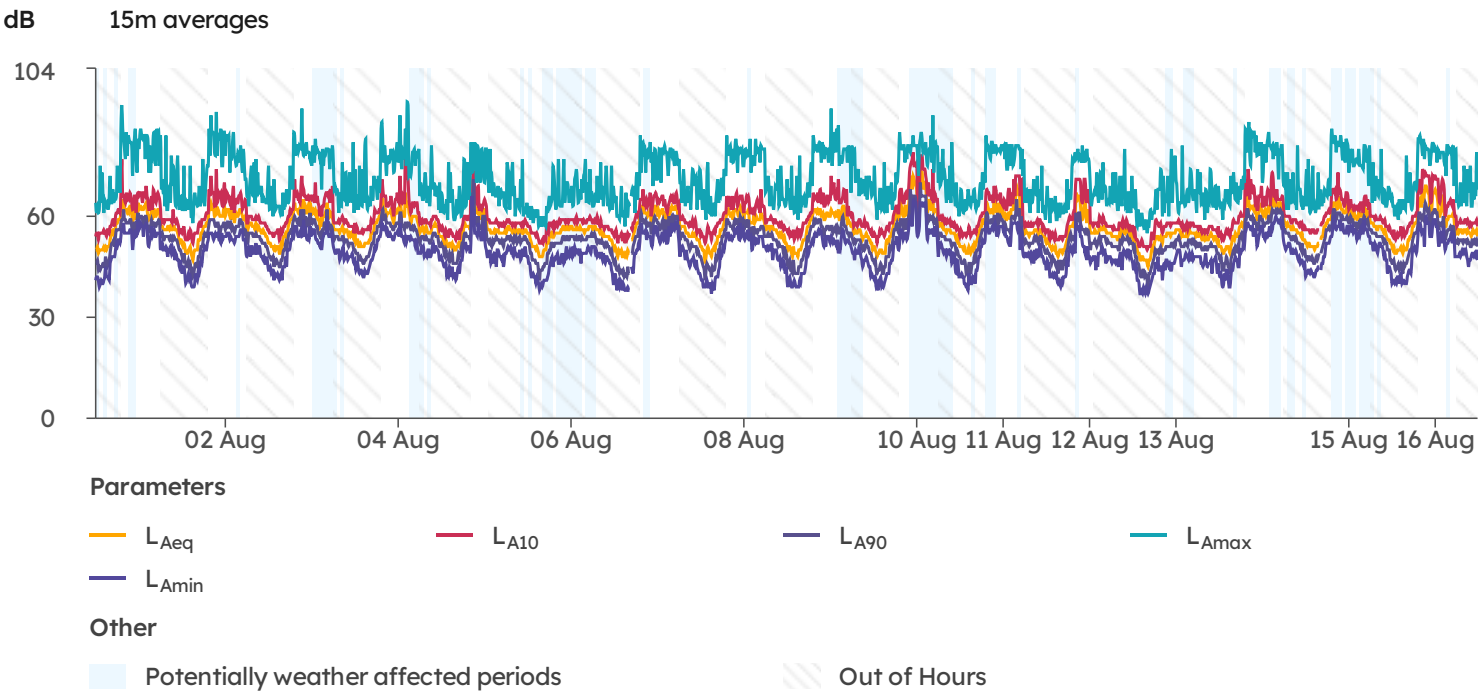
Average value across selected time period

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

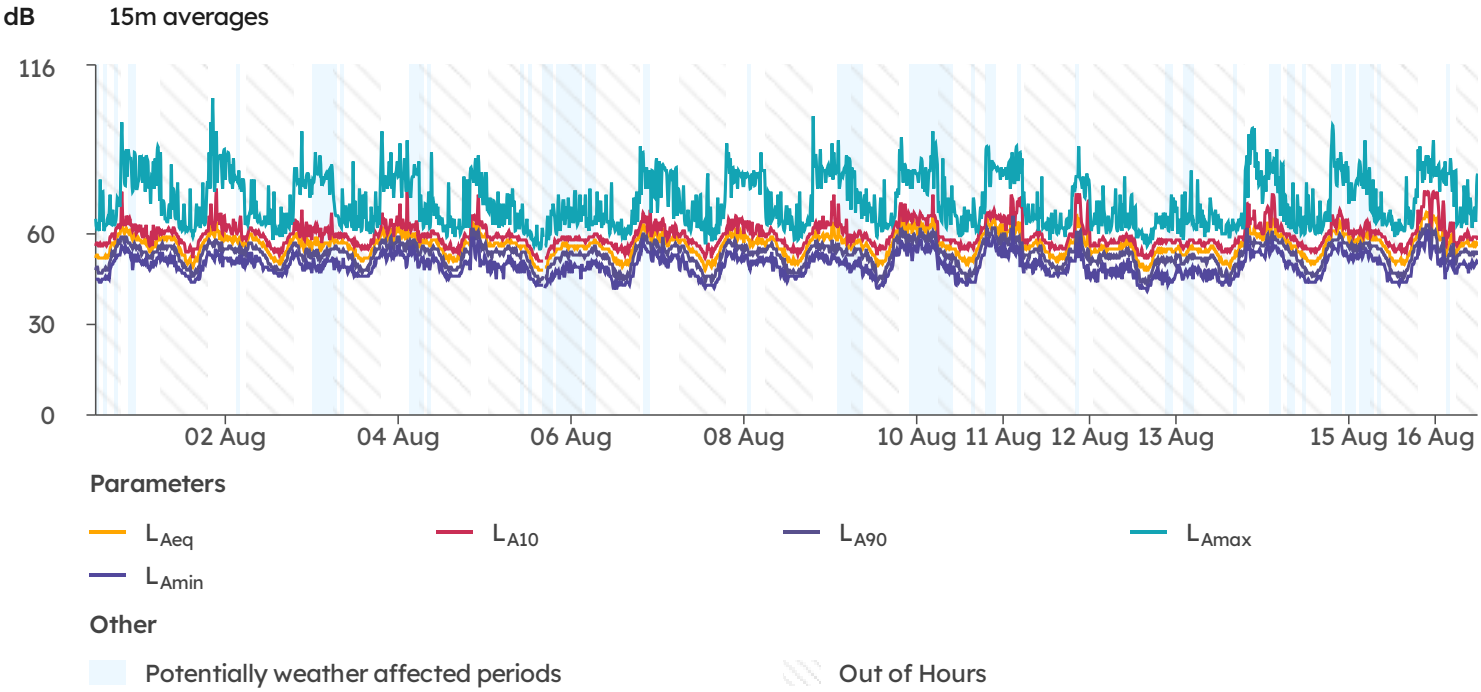
Northern Hive

01 Aug 2023 - 16 Aug 2023



Central Hive

01 Aug 2023 - 16 Aug 2023



Gamuda Laing O'Rourke

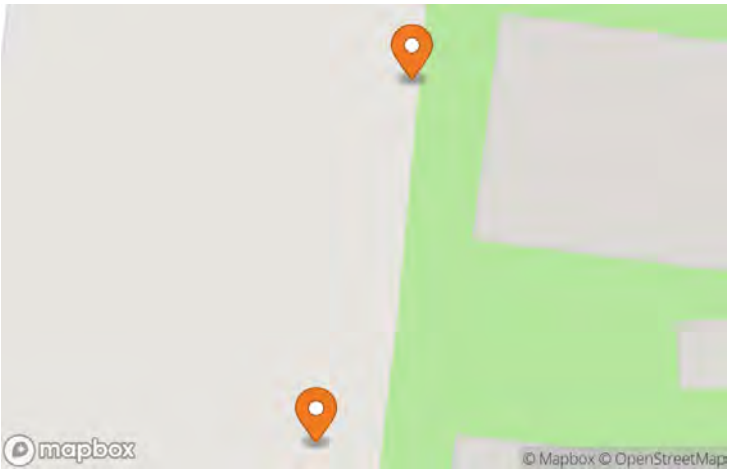
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 17AugJul23_31Aug23 Clyde Dive

Monitoring Devices

Date Range 17 Aug 2023 - 31 Aug 2023

Device Serial	Monitoring Points
HEX-000025	Northern Hive
HEX-000103	Central Hive



Noise Monitoring Statistics

Northern Hive

62 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

54 dB — NIGHT L_{Aeq}

Average value across selected time period

Central Hive

65 dB — DAY L_{Aeq}

58 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

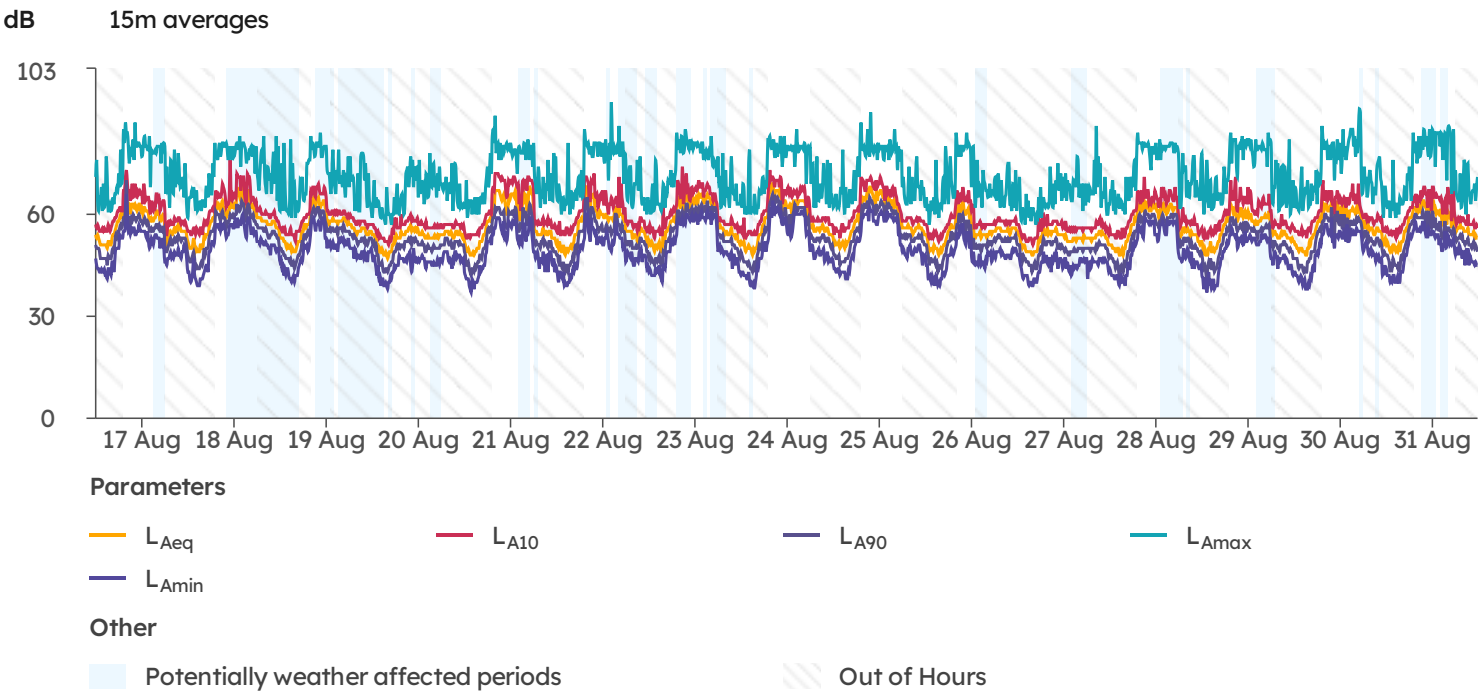
Average value across selected time period

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

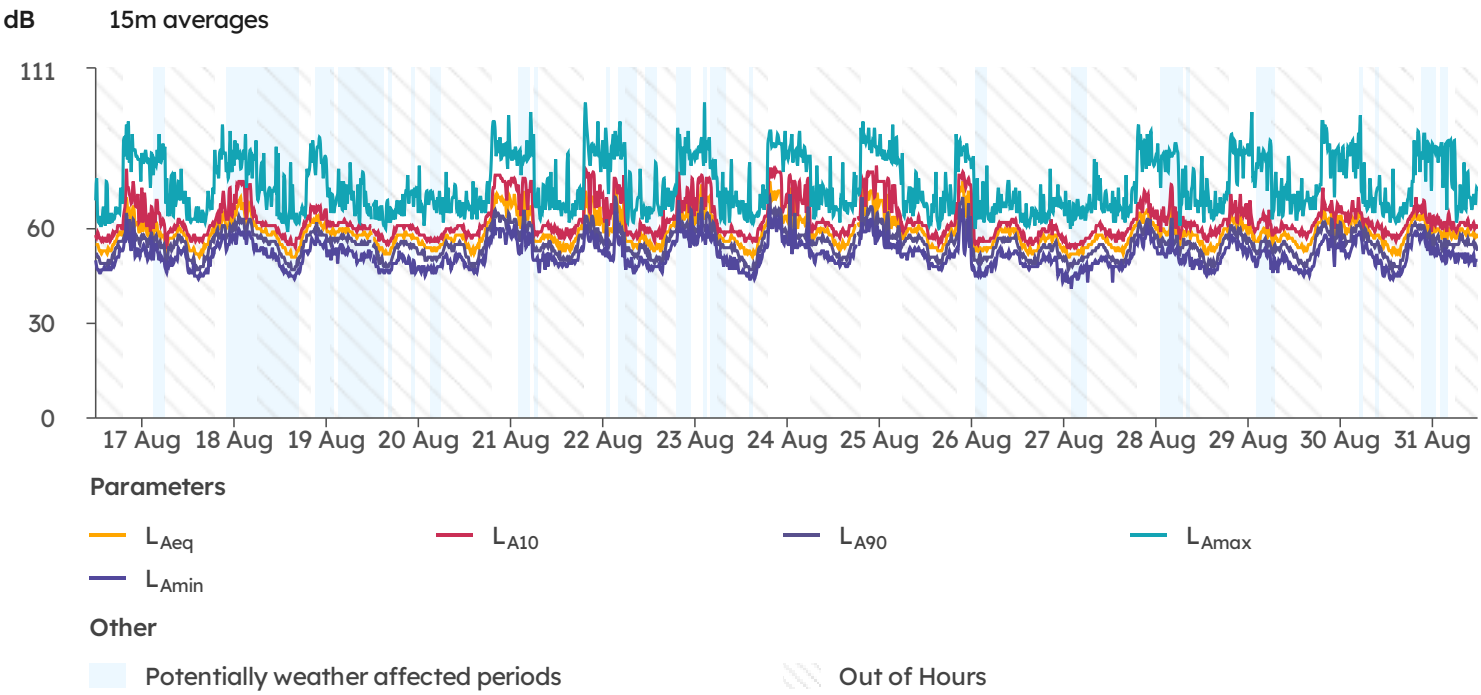
Northern Hive

17 Aug 2023 - 31 Aug 2023



Central Hive

17 Aug 2023 - 31 Aug 2023



Gamuda Laing O'Rourke

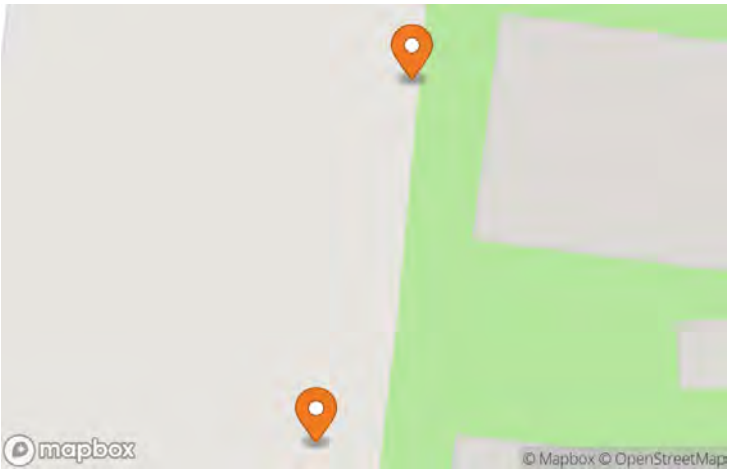
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 01Sep23_15Sep23 Clyde Dive

Monitoring Devices

Date Range 01 Sep 2023 - 15 Sep 2023

Device Serial	Monitoring Points
HEX-000025	Northern Hive
HEX-000103	Central Hive



Noise Monitoring Statistics

Northern Hive

63 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

56 dB — NIGHT L_{Aeq}

Average value across selected time period

Central Hive

63 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

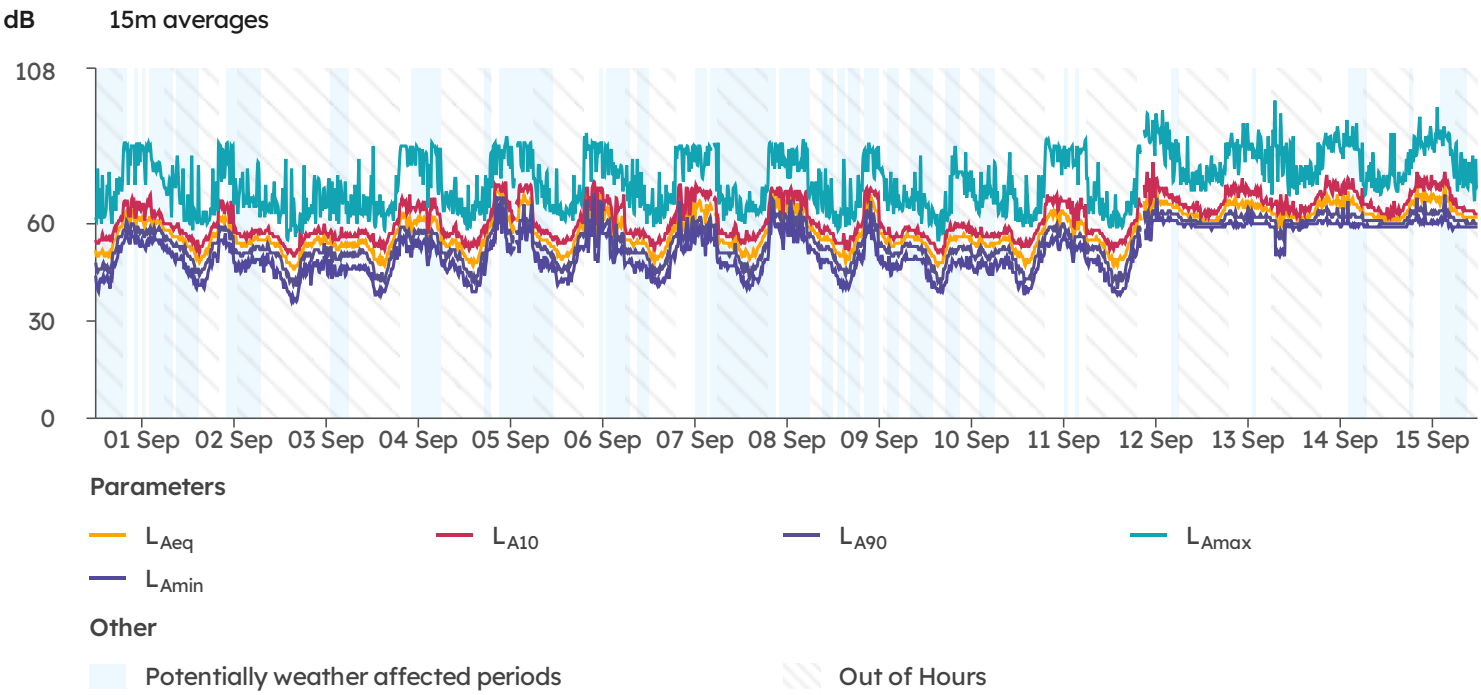
Average value across selected time period

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

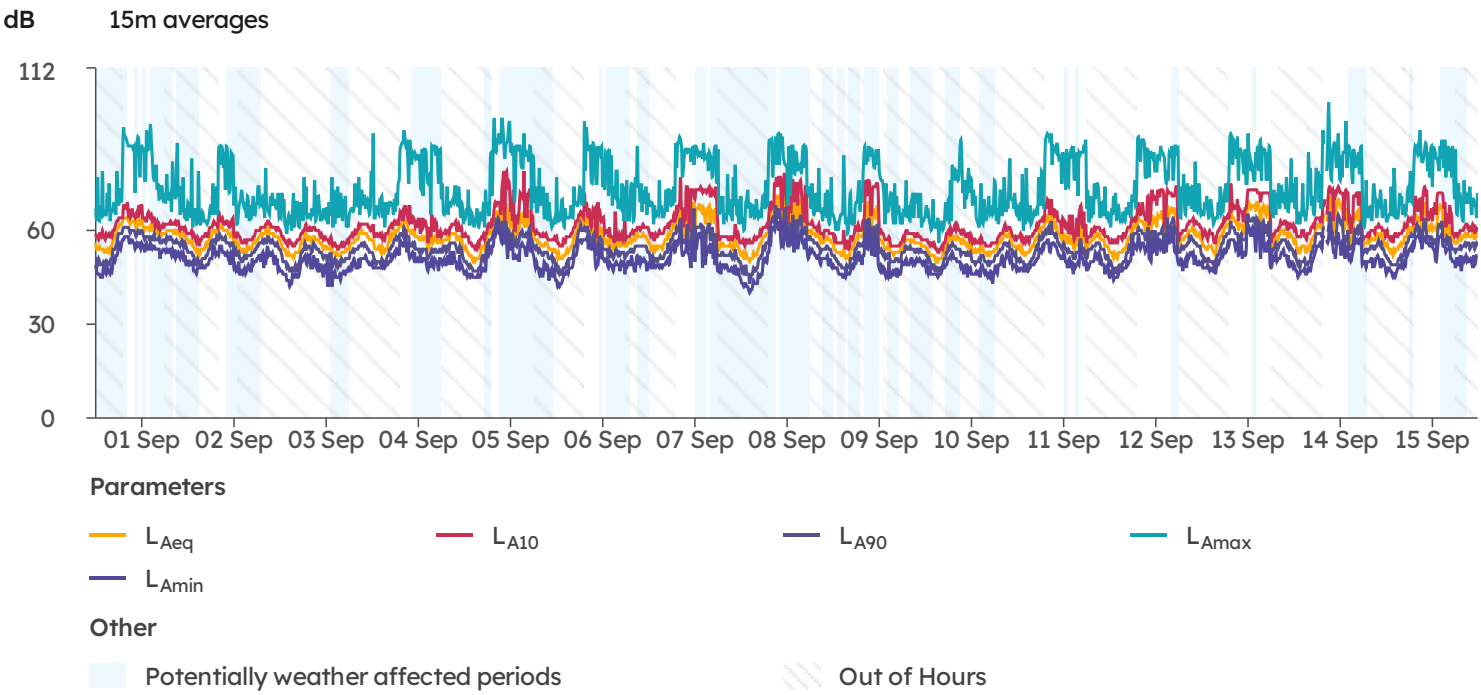
Northern Hive

01 Sep 2023 - 15 Sep 2023



Central Hive

01 Sep 2023 - 15 Sep 2023



Gamuda Laing O'Rourke

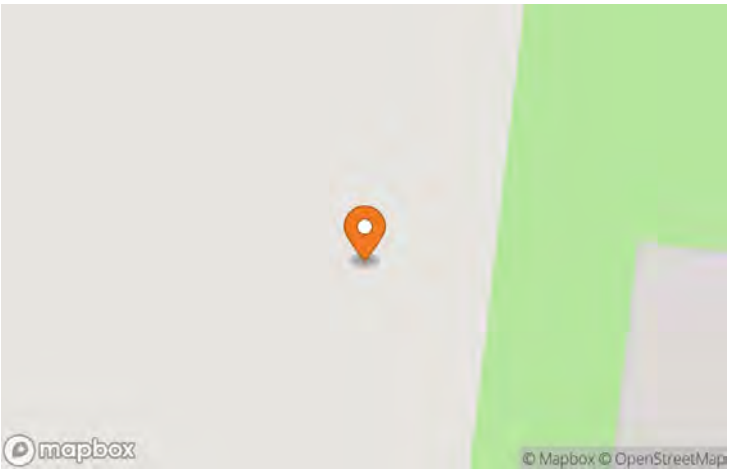
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 16Sep23_30Sep23 Clyde Dive

Monitoring Devices

Date Range 16 Sep 2023 - 30 Sep 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

65 dB — DAY L_{Aeq}

59 dB — EVENING L_{Aeq}

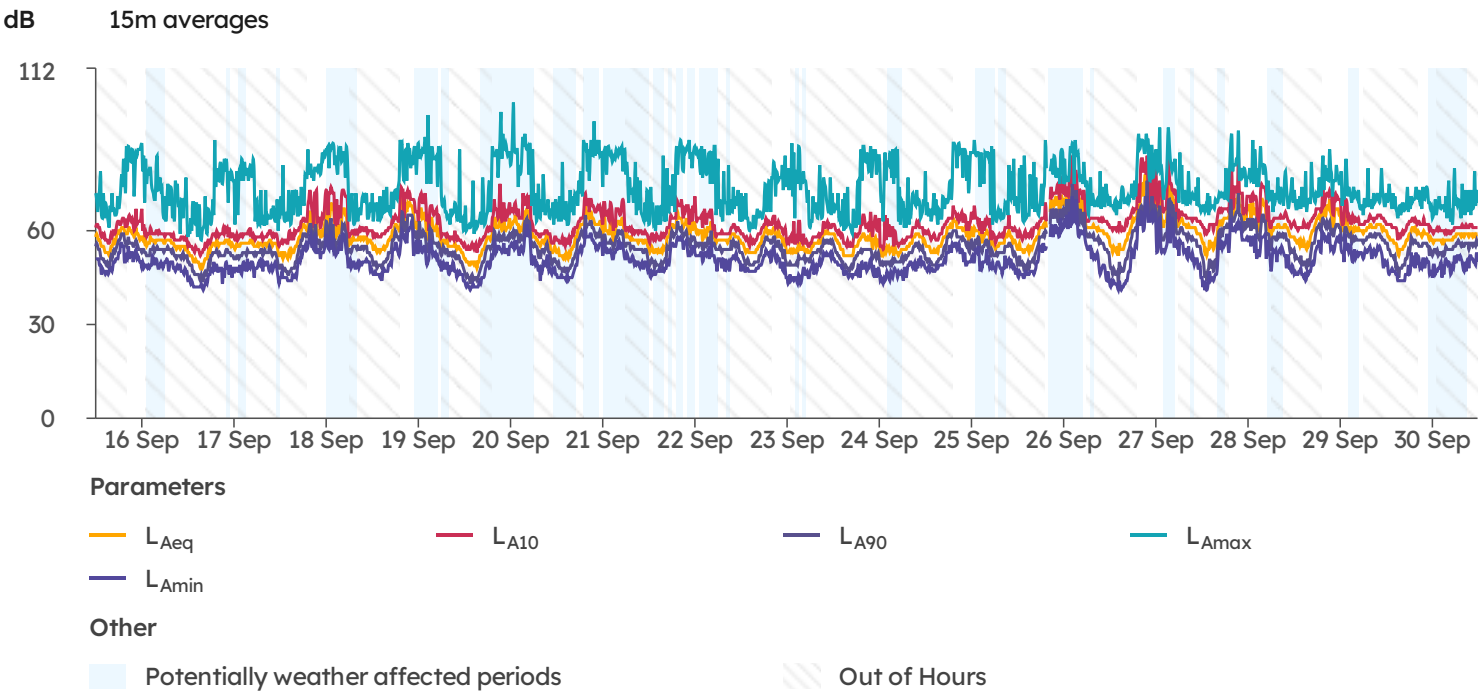
57 dB — NIGHT L_{Aeq}

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

Central Hive 16 Sep 2023 - 30 Sep 2023



Gamuda Laing O'Rourke

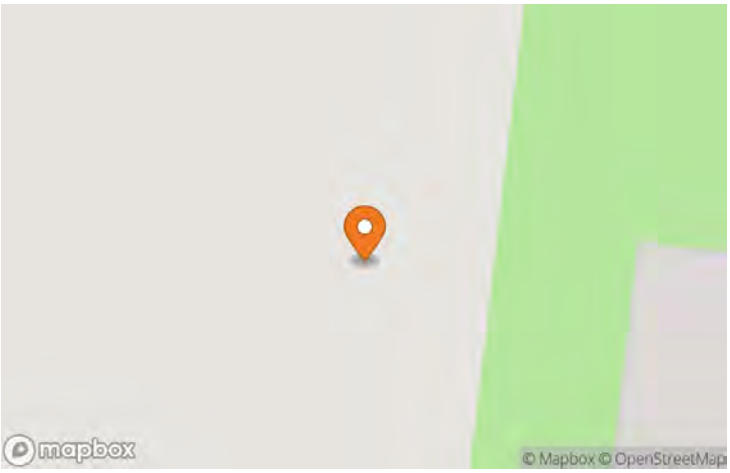
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 01Oct23_16Oct23 Clyde Dive

Monitoring Devices

Date Range 01 Oct 2023 - 16 Oct 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

68 dB — DAY L_{Aeq}

57 dB — EVENING L_{Aeq}

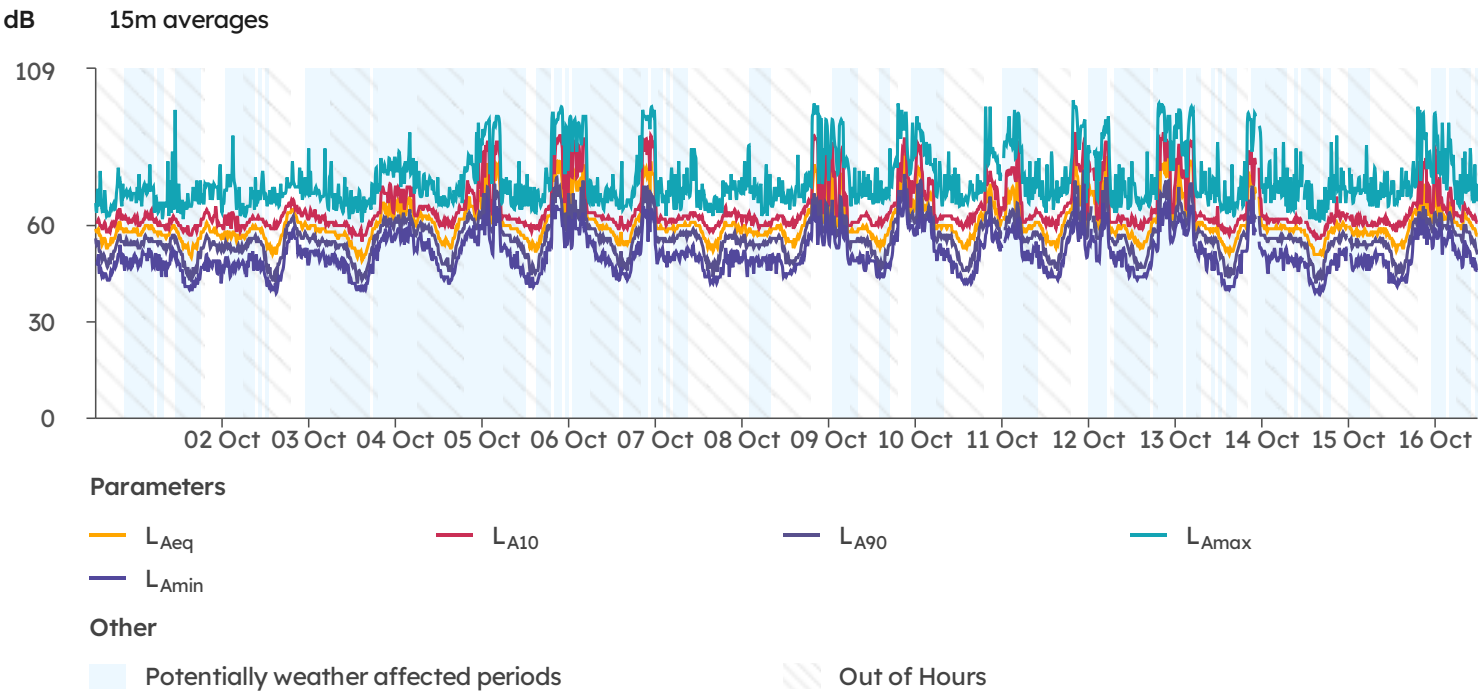
57 dB — NIGHT L_{Aeq}

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).

Central Hive

01 Oct 2023 - 16 Oct 2023



Gamuda Laing O'Rourke

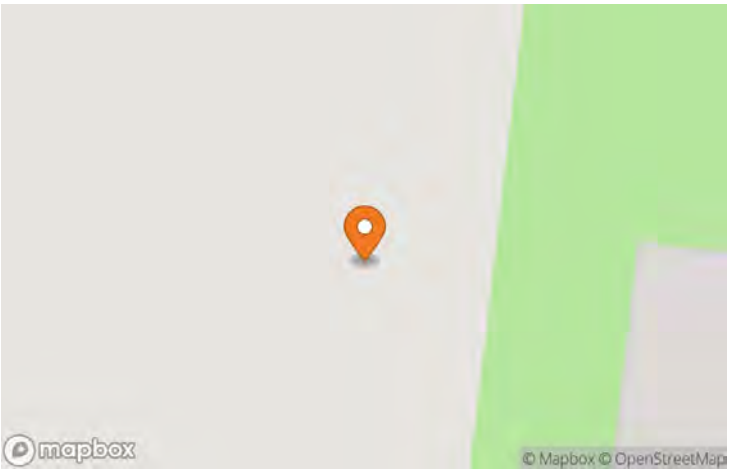
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 1Oct23_31Oct23 Clyde Dive

Monitoring Devices

Date Range 17 Oct 2023 - 31 Oct 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

67 dB — DAY L_{Aeq}

59 dB — EVENING L_{Aeq}

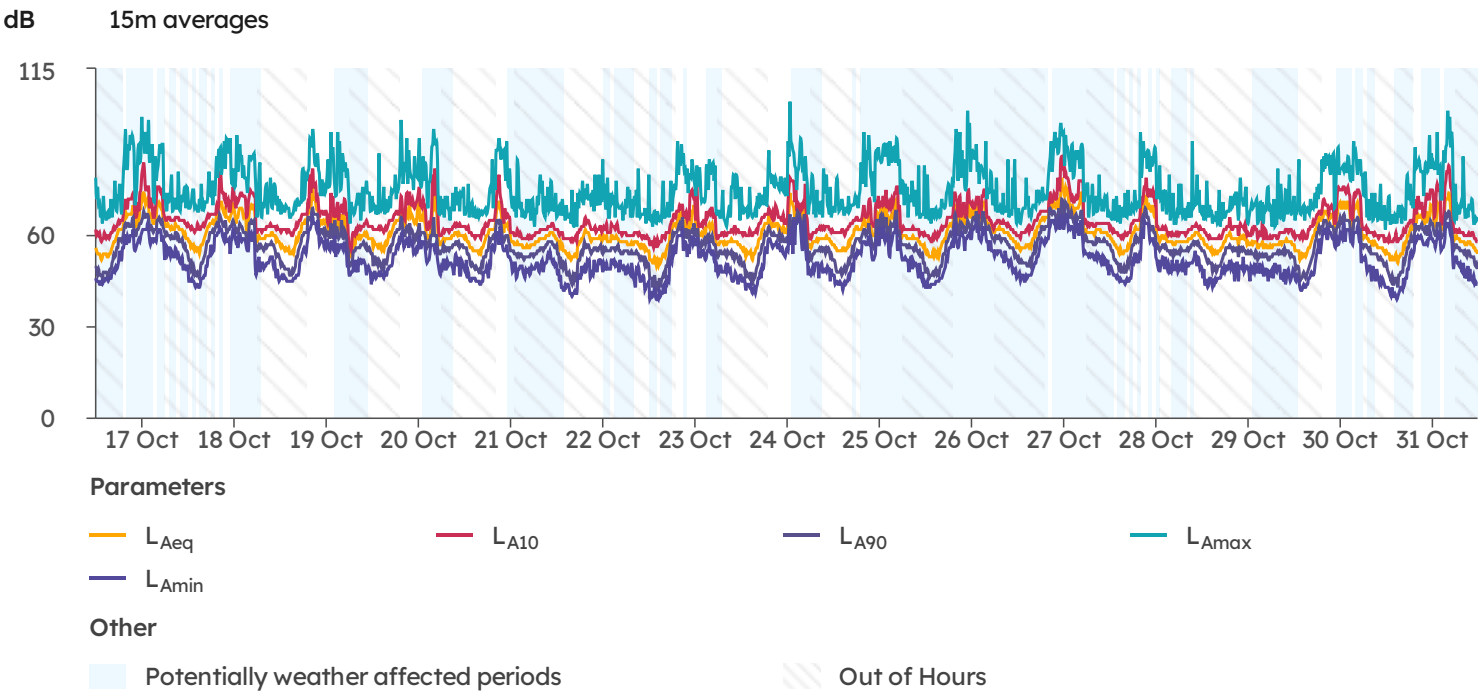
59 dB — NIGHT L_{Aeq}

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).

Central Hive

17 Oct 2023 - 31 Oct 2023



Gamuda Laing O'Rourke

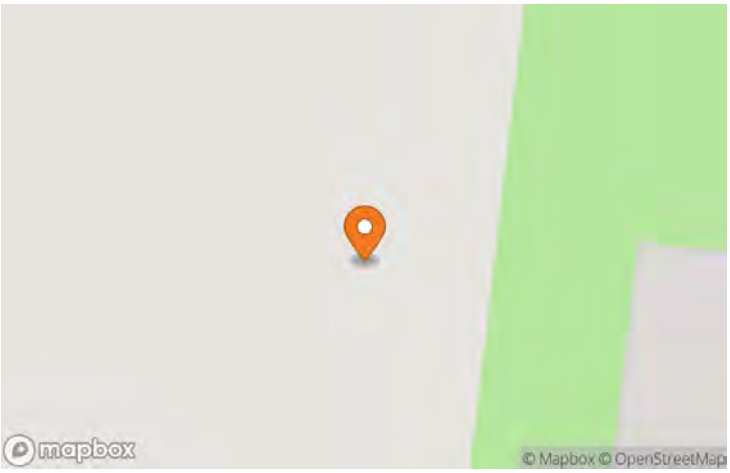
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 01Nov23_15Nov23 Clyde Dive

Monitoring Devices

Date Range 01 Nov 2023 - 15 Nov 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

67 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

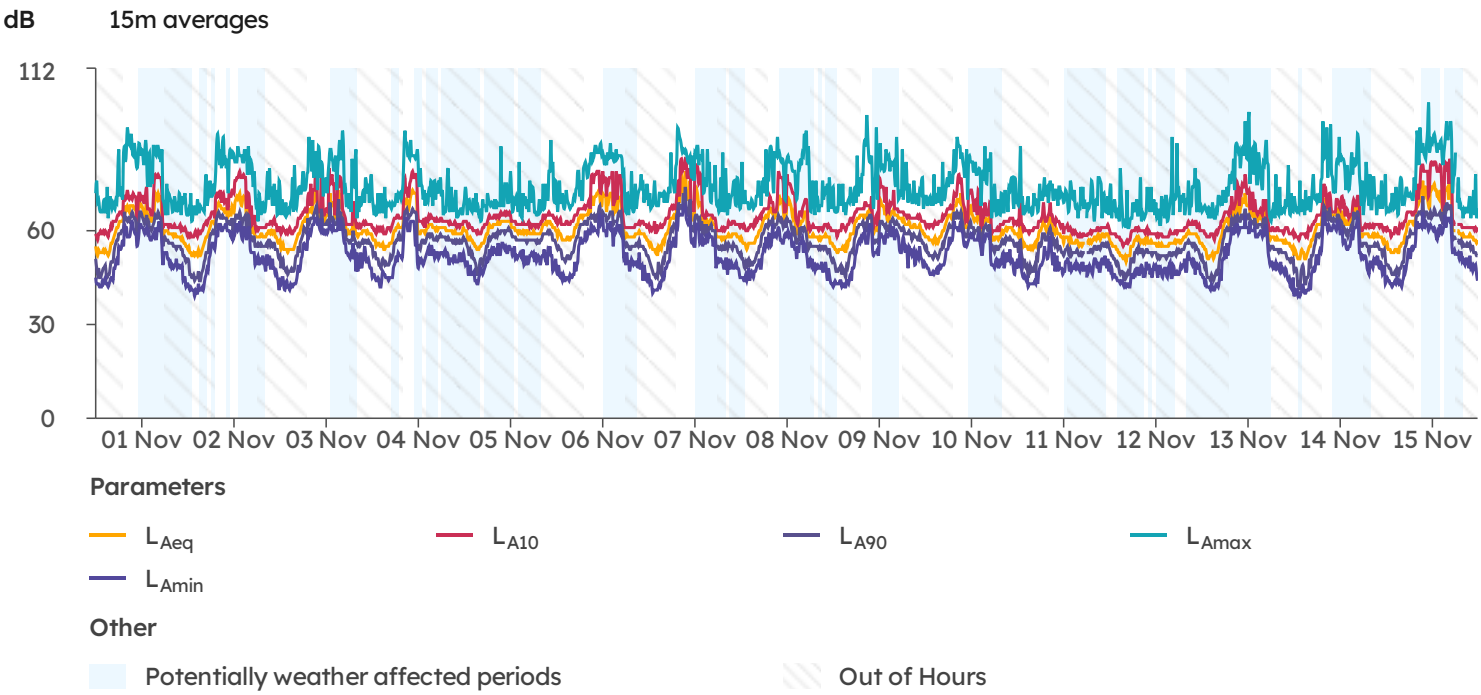
58 dB — NIGHT L_{Aeq}

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).

Central Hive

01 Nov 2023 - 15 Nov 2023



Gamuda Laing O'Rourke

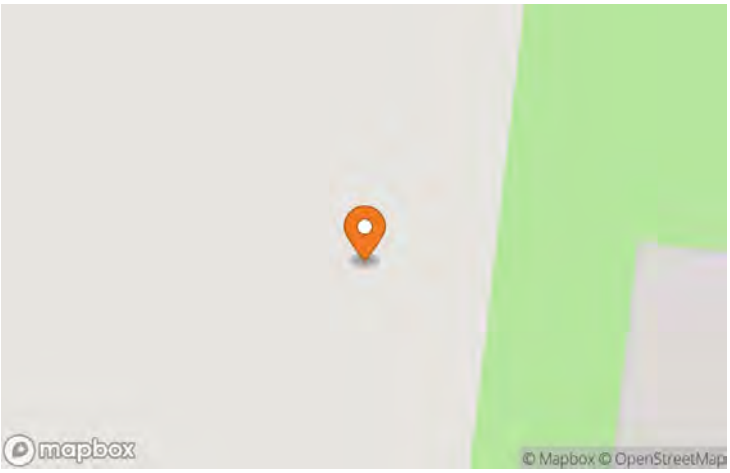
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 16Nov23_30Nov23 Clyde Dive

Monitoring Devices

Date Range 16 Nov 2023 - 30 Nov 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

66 dB — DAY L_{Aeq}

59 dB — EVENING L_{Aeq}

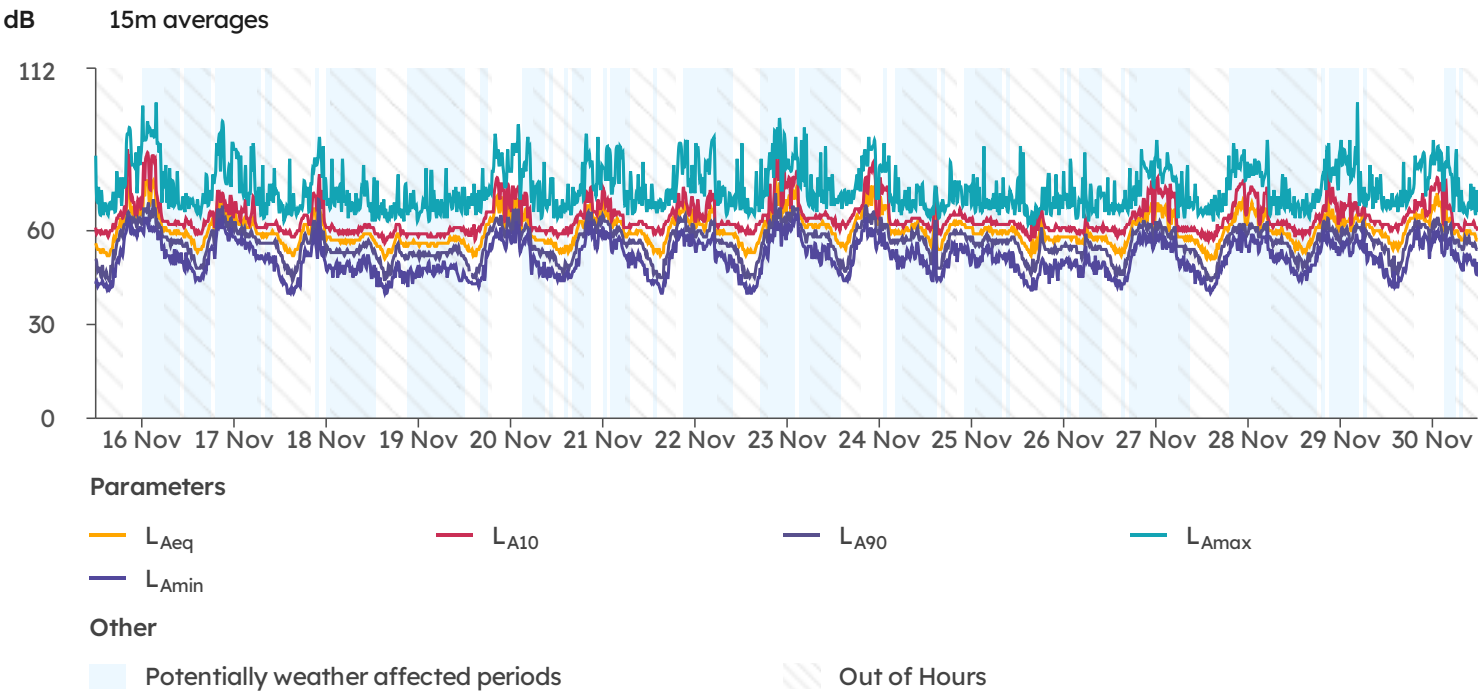
58 dB — NIGHT L_{Aeq}

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).

Central Hive

16 Nov 2023 - 30 Nov 2023



Gamuda Laing O'Rourke

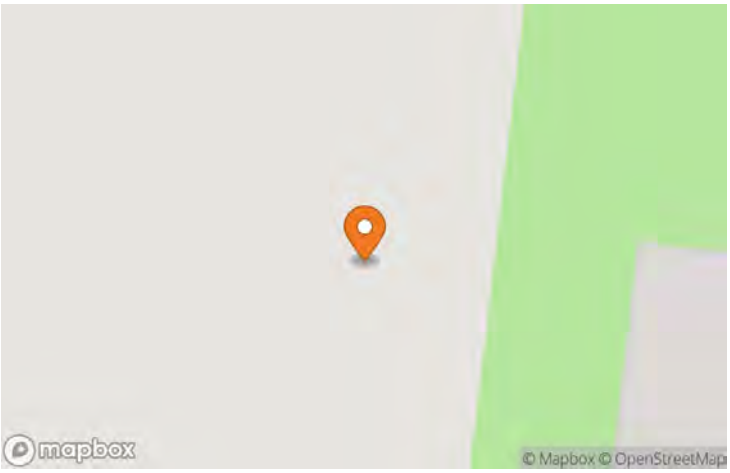
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 01Dec23_16Dec23 Clyde Dive

Monitoring Devices

Date Range 01 Dec 2023 - 16 Dec 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

68 dB — DAY L_{Aeq}

54 dB — EVENING L_{Aeq}

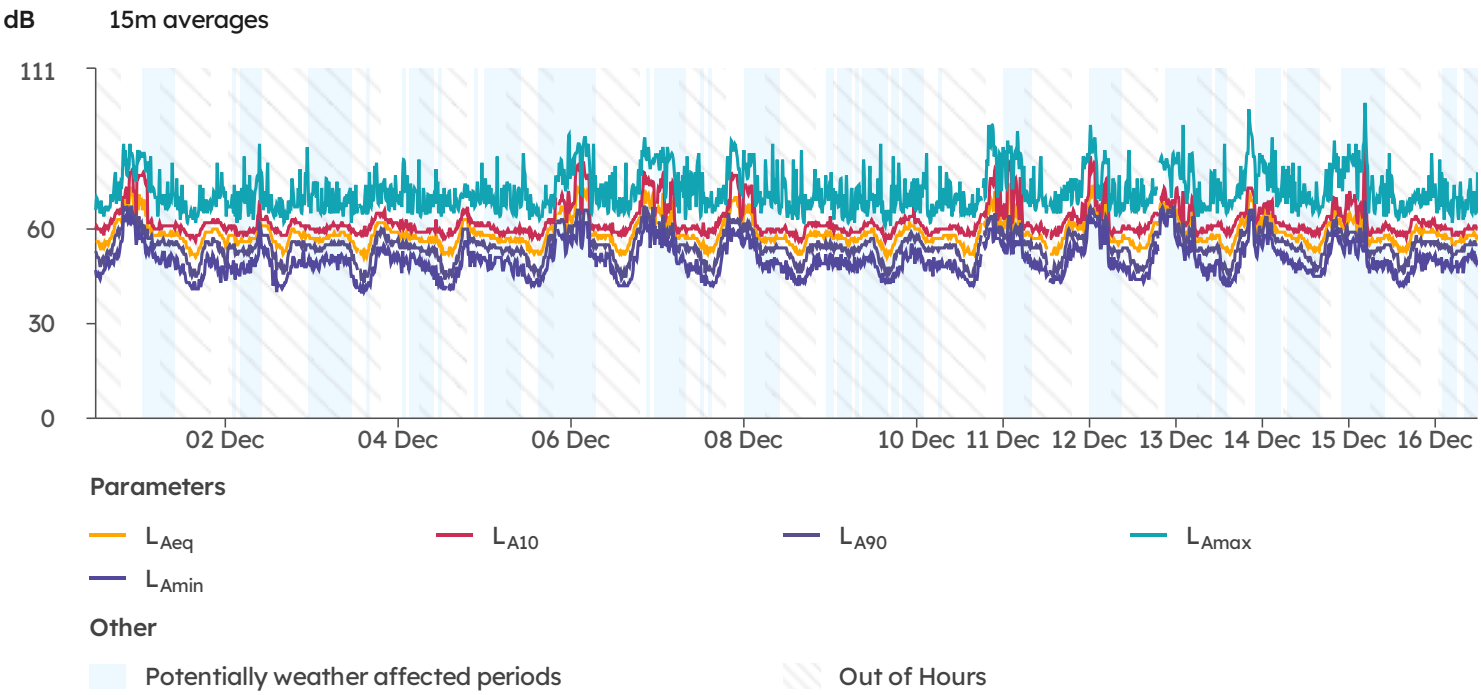
58 dB — NIGHT L_{Aeq}

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).

Central Hive

01 Dec 2023 - 16 Dec 2023



Gamuda Laing O'Rourke

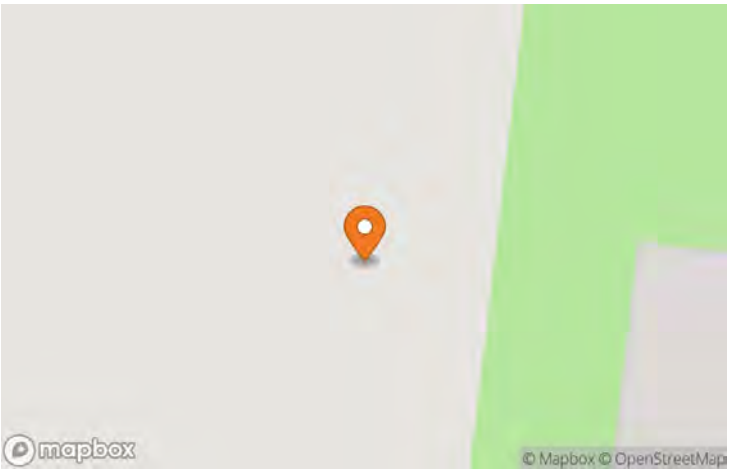
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 17Dec23_31Dec23 Clyde Dive

Monitoring Devices

Date Range 17 Dec 2023 - 31 Dec 2023

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

64 dB — DAY L_{Aeq}

58 dB — EVENING L_{Aeq}

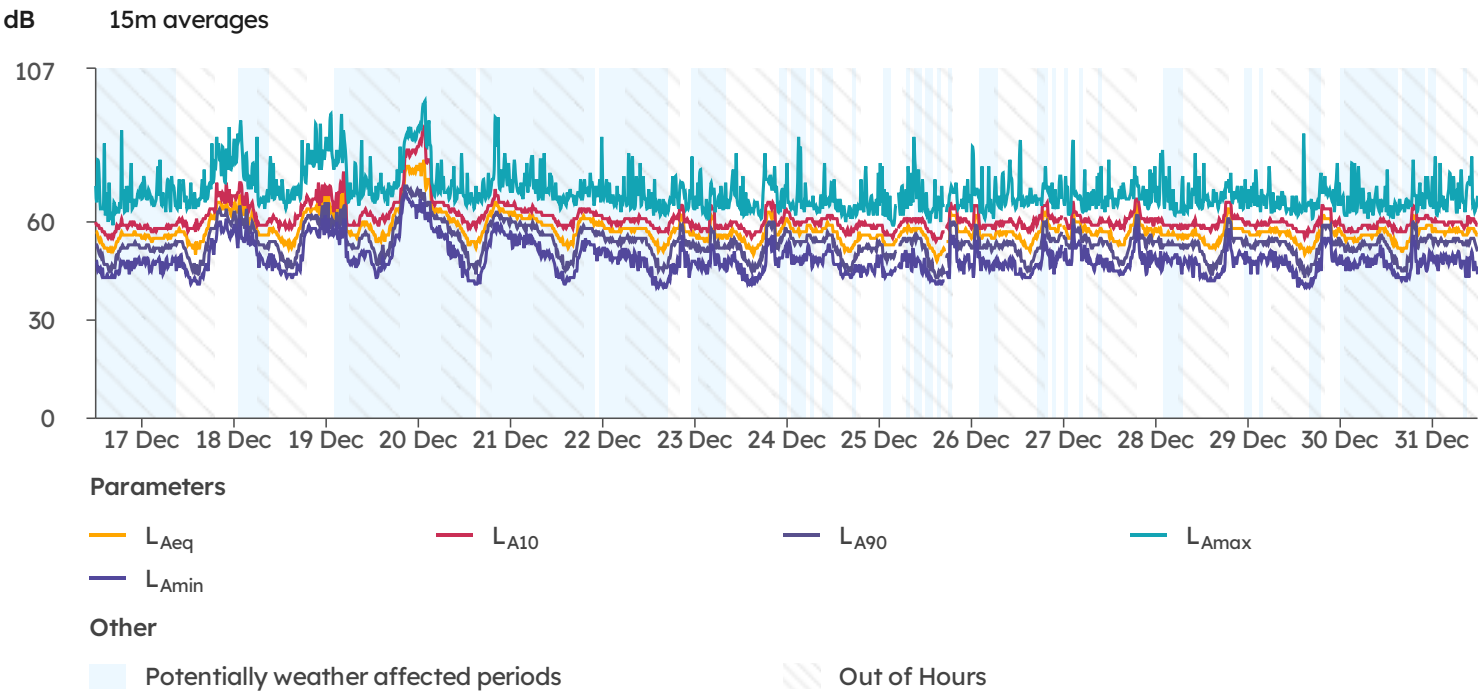
56 dB — NIGHT L_{Aeq}

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).

Central Hive

17 Dec 2023 - 31 Dec 2023



Gamuda Laing O'Rourke

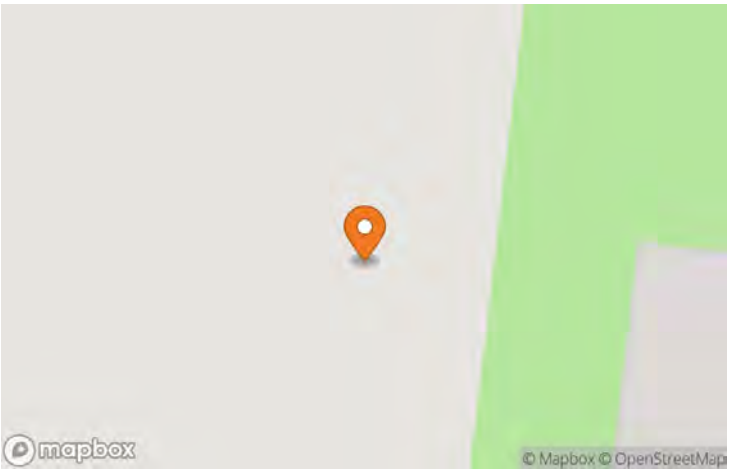
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 01Jan24_19Jan24 Clyde Dive

Monitoring Devices

Date Range 01 Jan 2024 - 19 Jan 2024

Device Serial	Monitoring Points
HEX-000103	Central Hive



Noise Monitoring Statistics

Central Hive

66 dB — DAY L_{Aeq}

54 dB — EVENING L_{Aeq}

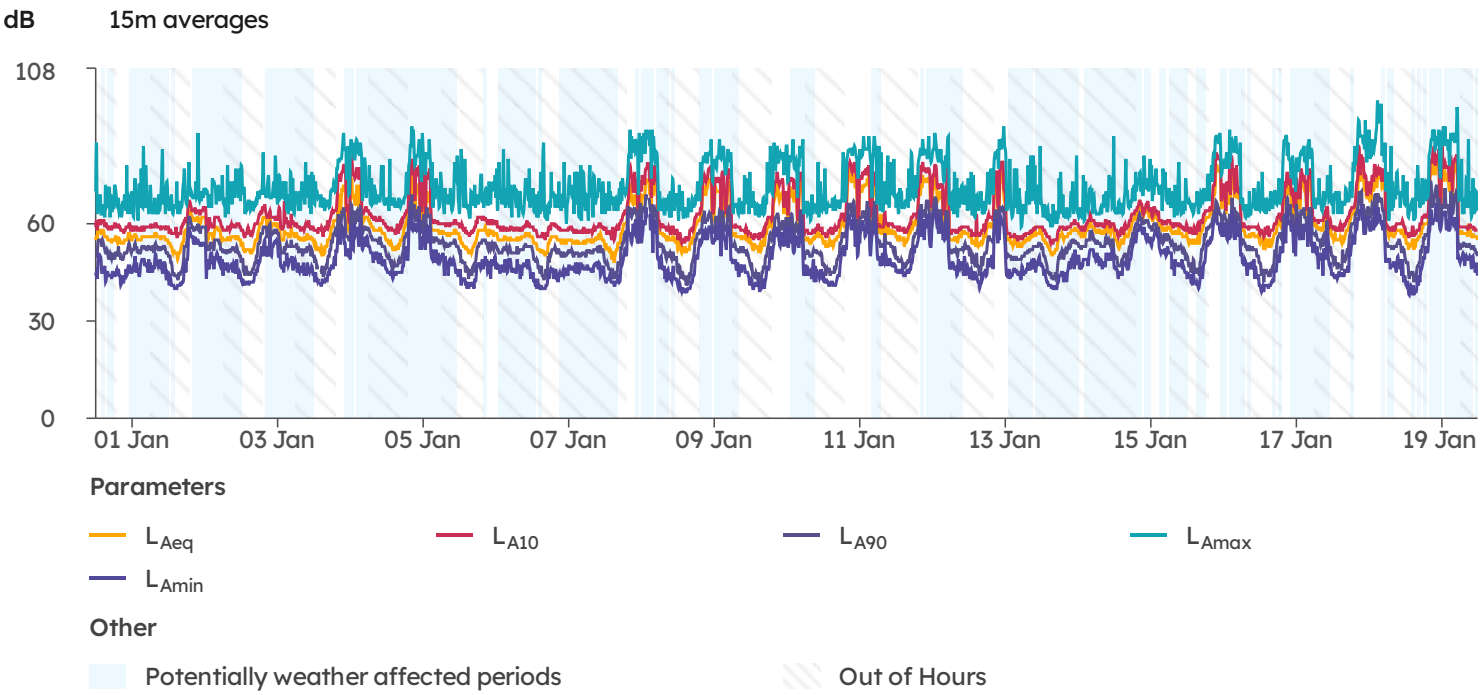
56 dB — NIGHT L_{Aeq}

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).

Central Hive

01 Jan 2024 - 19 Jan 2024



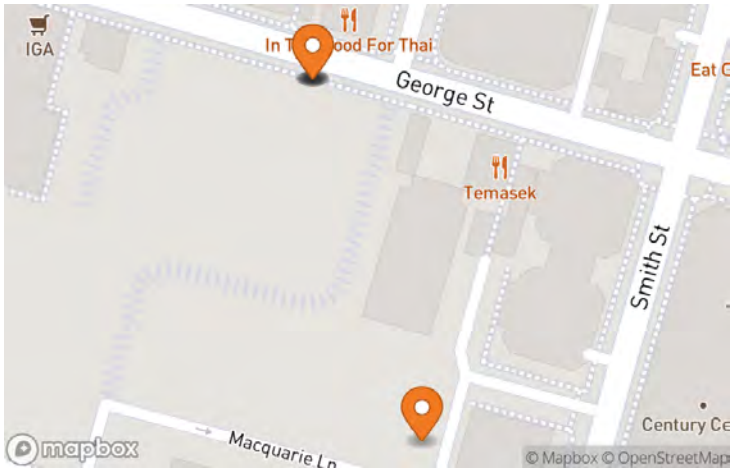
Gamuda Laing O'Rourke

Sydney Metro West WTP Parramatta

Monitoring Devices

Date Range 19 Jul 2023 - 31 Jul 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

63 dB — DAY L_{Aeq}

51 dB — EVENING L_{Aeq}

63 dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

57 dB — DAY L_{Aeq}

48 dB — EVENING L_{Aeq}

56 dB — NIGHT L_{Aeq}

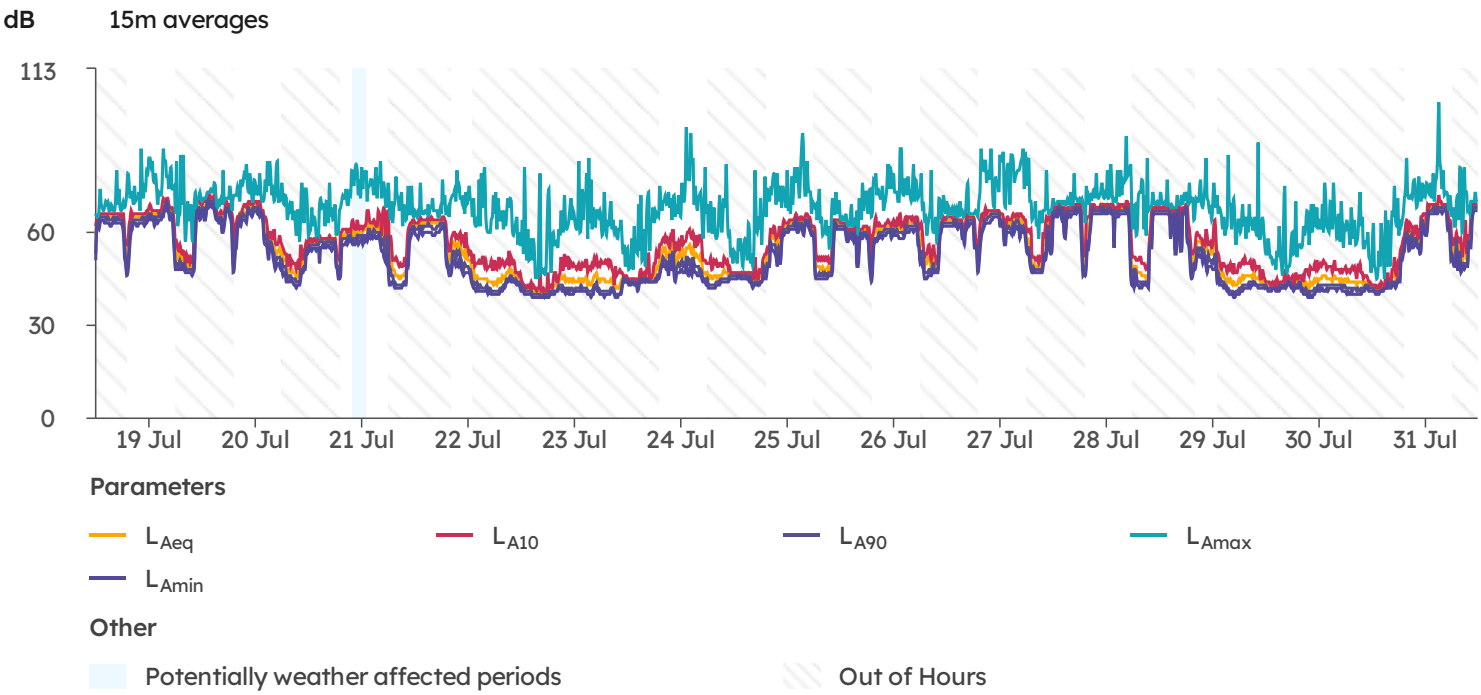
Average value across selected time period

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

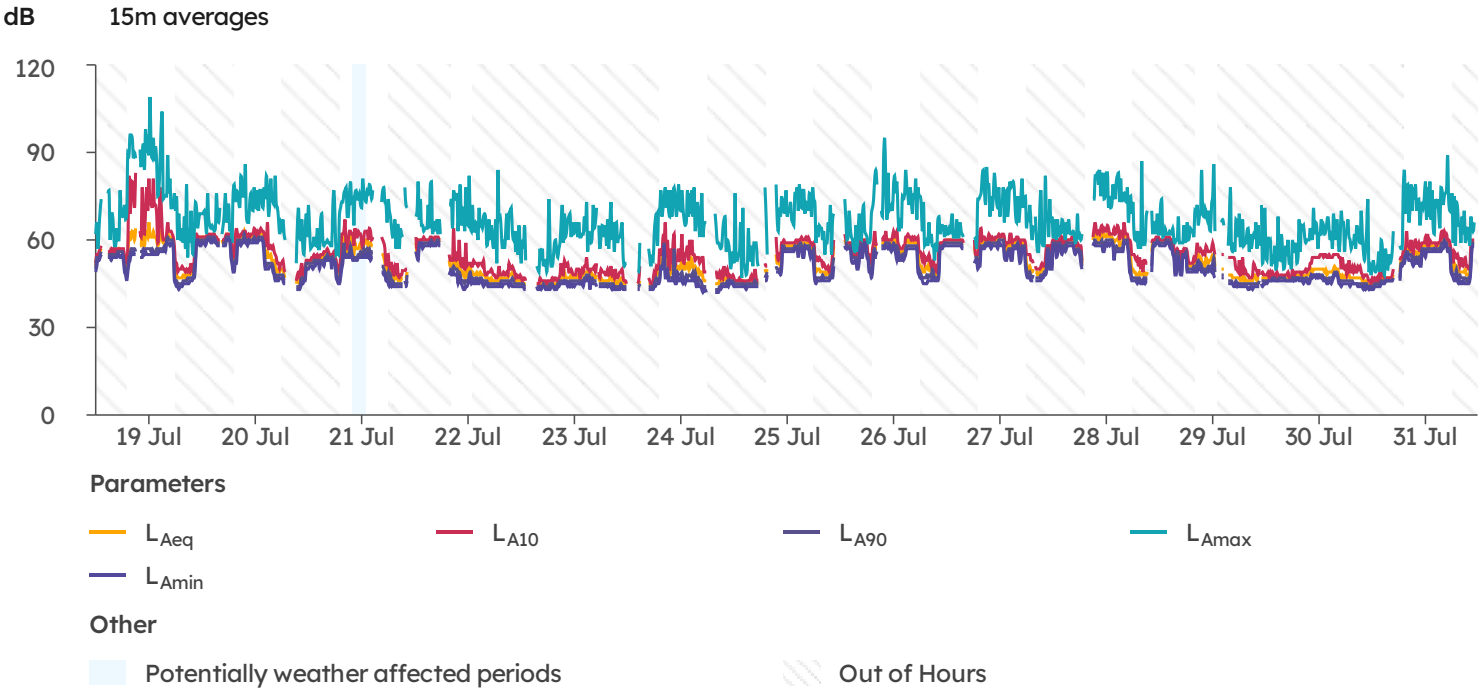
New Macquarie Lane Hoarding

19 Jul 2023 - 31 Jul 2023



George St Hoarding new

19 Jul 2023 - 31 Jul 2023



Gamuda Laing O'Rourke

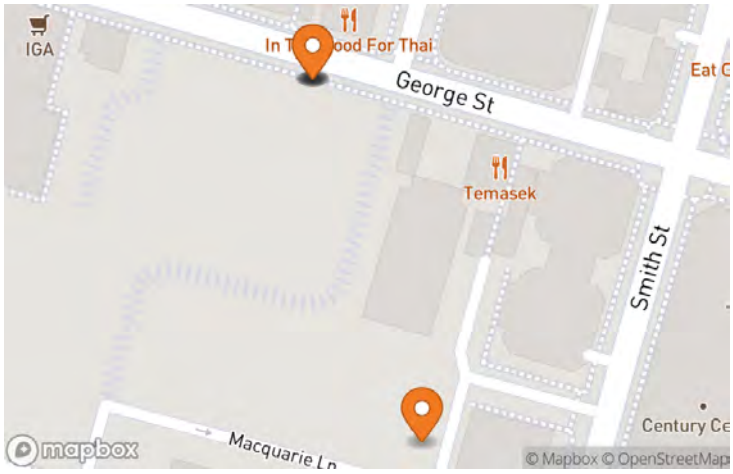
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 01Augl23_15Aug23 Parramatta

Monitoring Devices

Date Range 01 Aug 2023 - 15 Aug 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

64 dB	DAY L_{Aeq}
46 dB	EVENING L_{Aeq}
66 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

58 dB	DAY L_{Aeq}
45 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

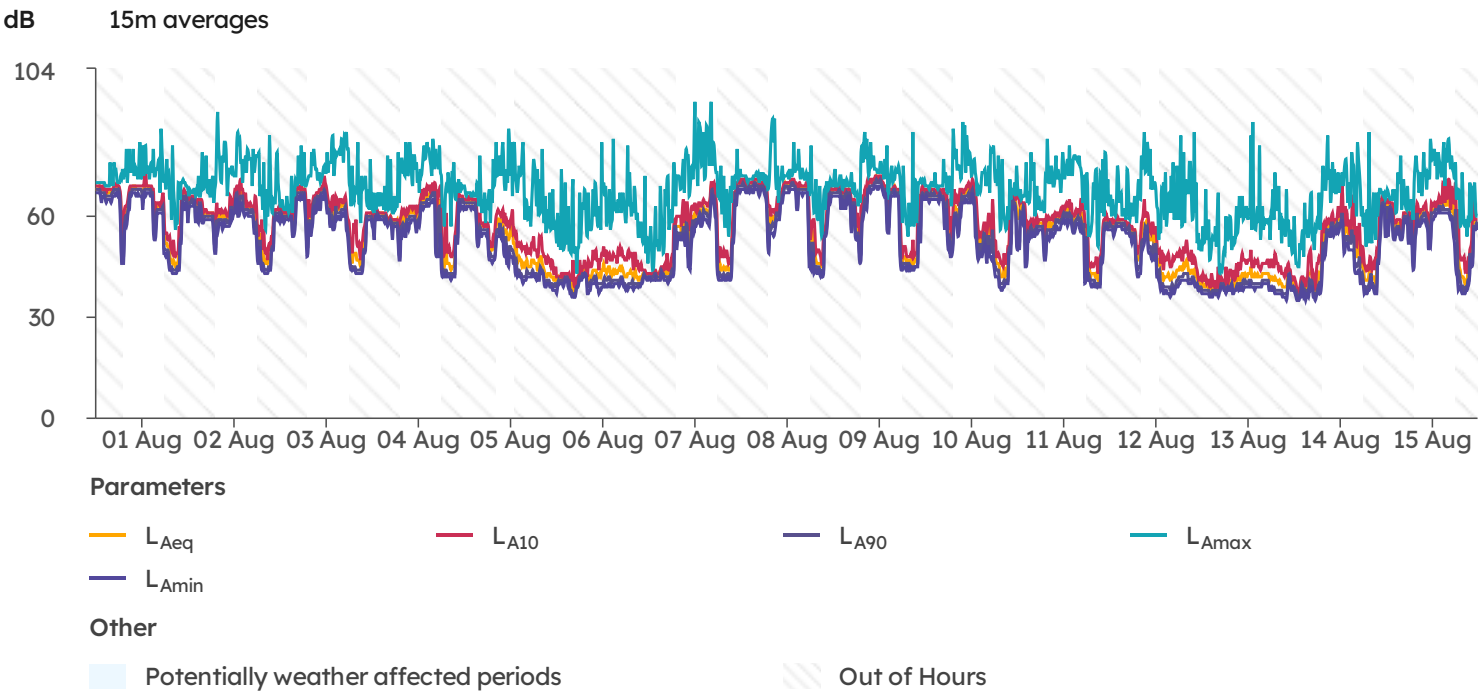
Average value across selected time period

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

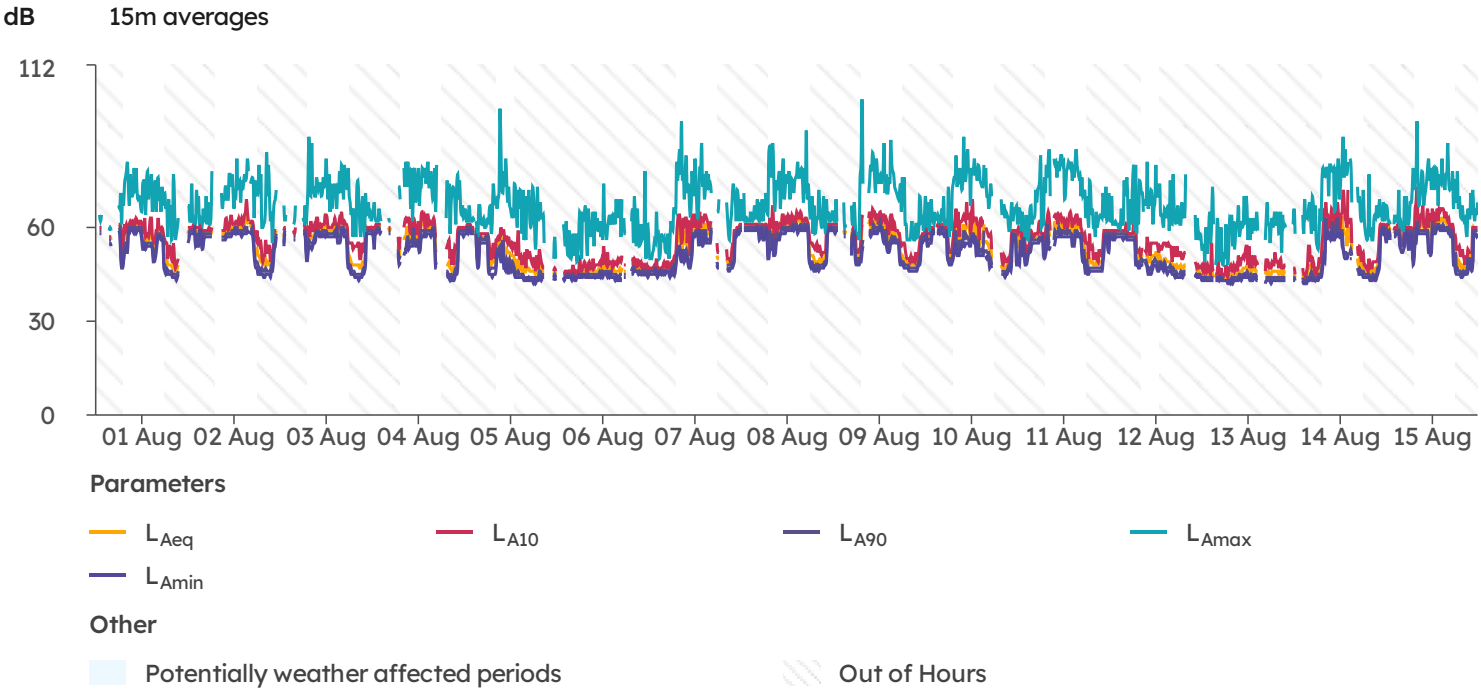
New Macquarie Lane Hoarding

01 Aug 2023 - 15 Aug 2023



George St Hoarding new

01 Aug 2023 - 15 Aug 2023



Gamuda Laing O'Rourke

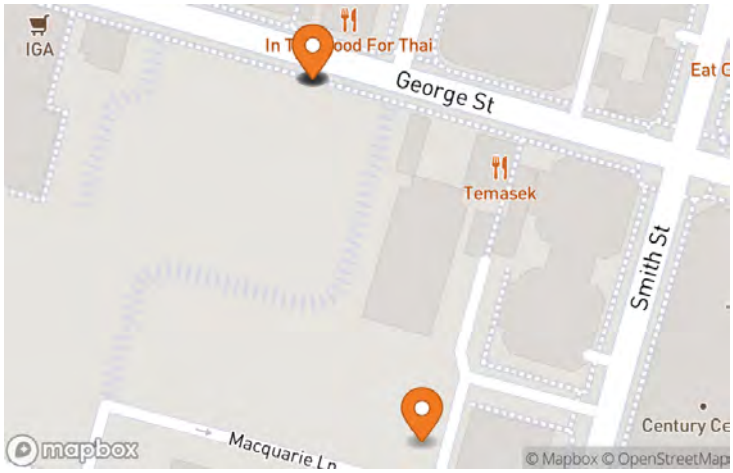
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 16Augl23_31Aug23 Parramatta

Monitoring Devices

Date Range 16 Aug 2023 - 31 Aug 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

64 dB	DAY L_{Aeq}
49 dB	EVENING L_{Aeq}
61 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

60 dB	DAY L_{Aeq}
50 dB	EVENING L_{Aeq}
59 dB	NIGHT L_{Aeq}

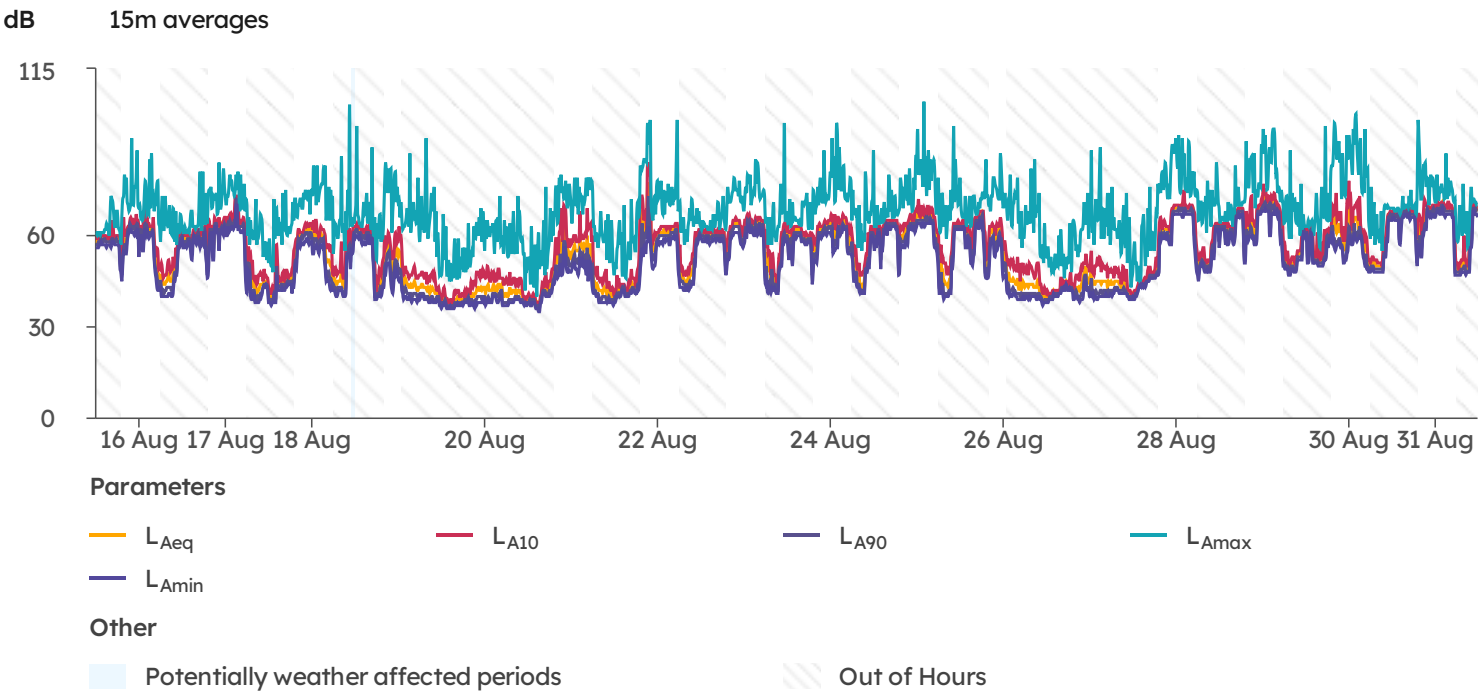
Average value across selected time period

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

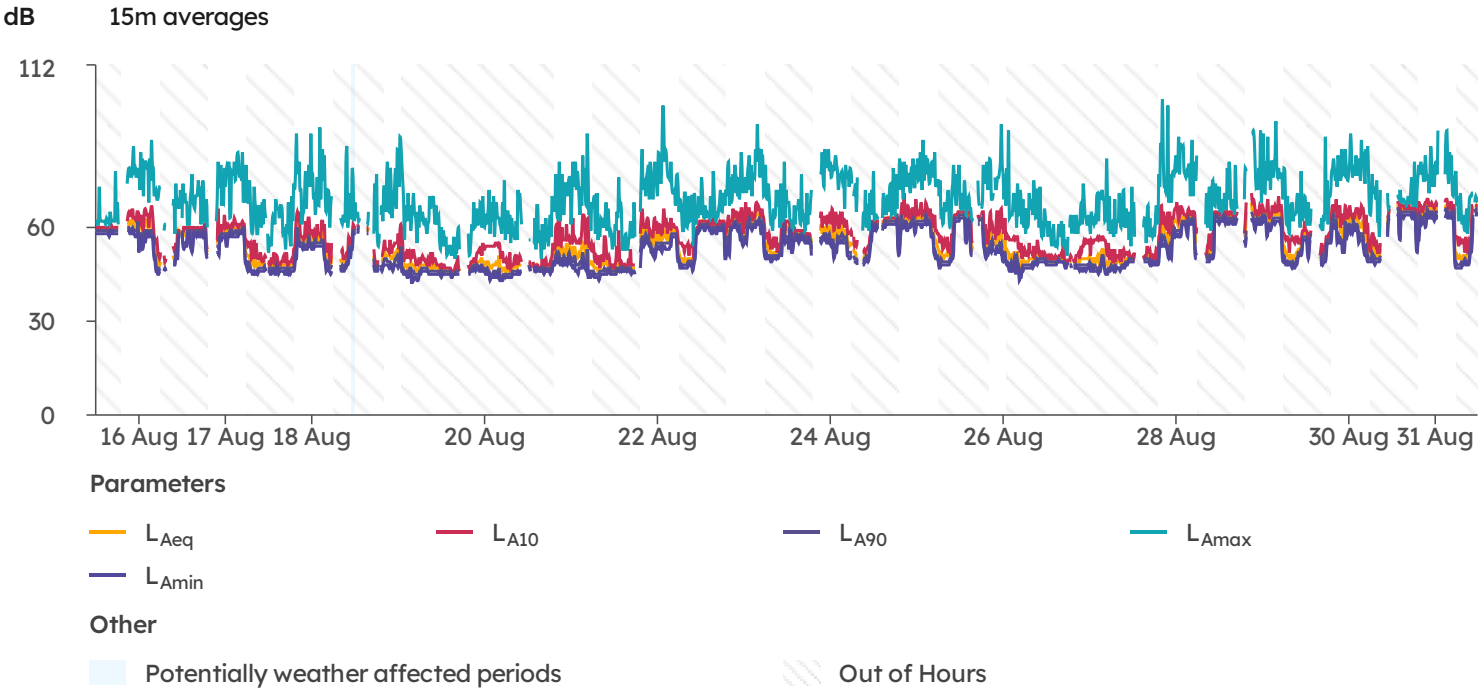
New Macquarie Lane Hoarding

16 Aug 2023 - 31 Aug 2023



George St Hoarding new

16 Aug 2023 - 31 Aug 2023



Gamuda Laing O'Rourke

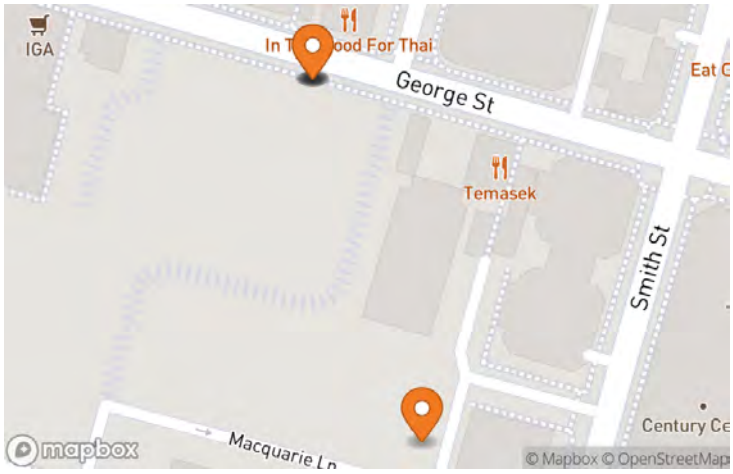
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 01Oct23_16Oct23 Parramatta

Monitoring Devices

Date Range 01 Oct 2023 - 16 Oct 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

59 dB	DAY L_{Aeq}
54 dB	EVENING L_{Aeq}
59 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

57 dB	DAY L_{Aeq}
53 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

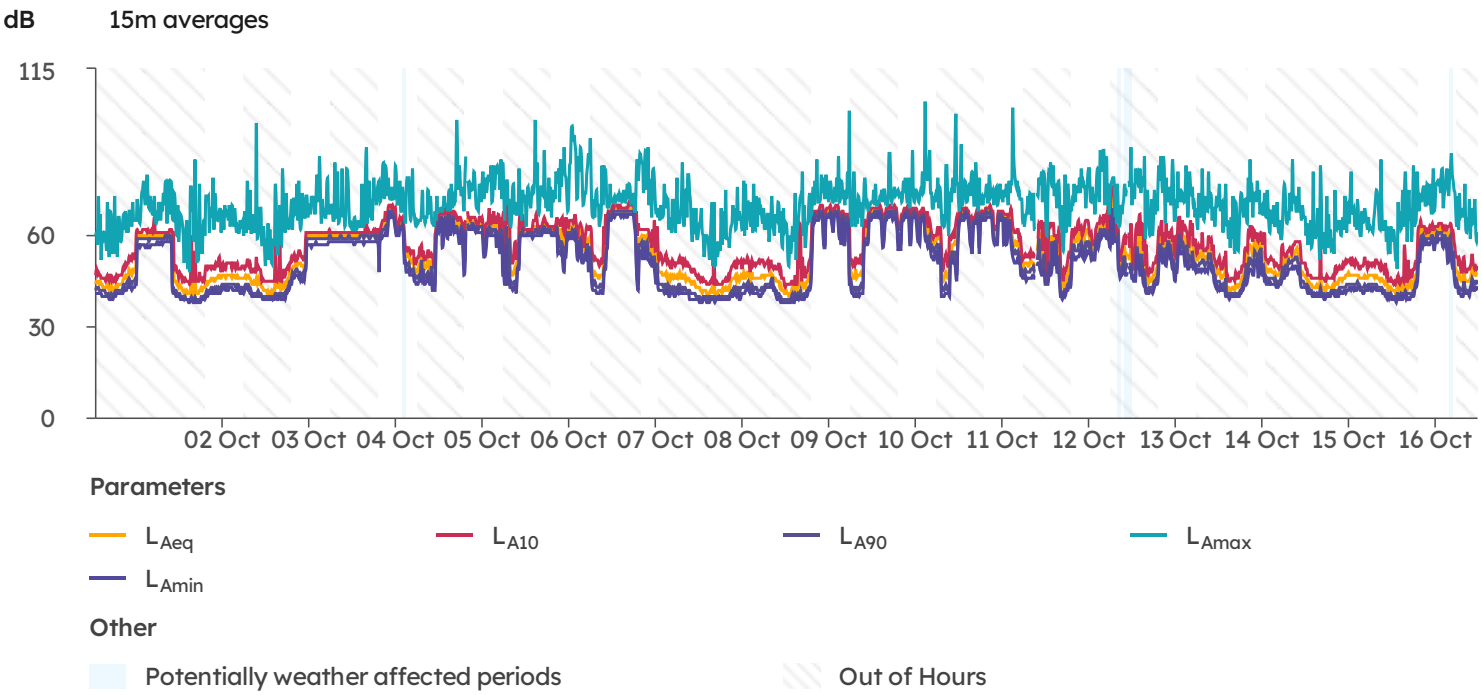
Average value across selected time period

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

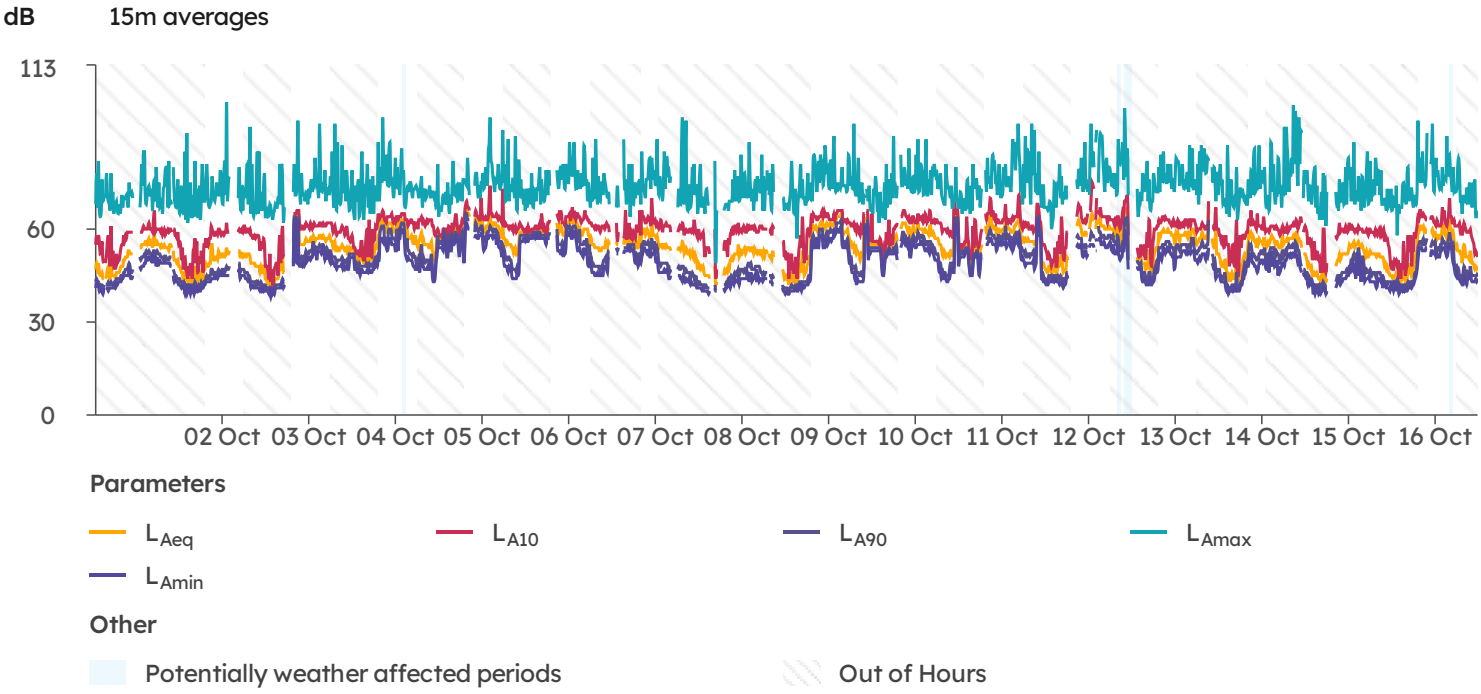
New Macquarie Lane Hoarding

01 Oct 2023 - 16 Oct 2023



George St Hoarding new

01 Oct 2023 - 16 Oct 2023



Gamuda Laing O'Rourke

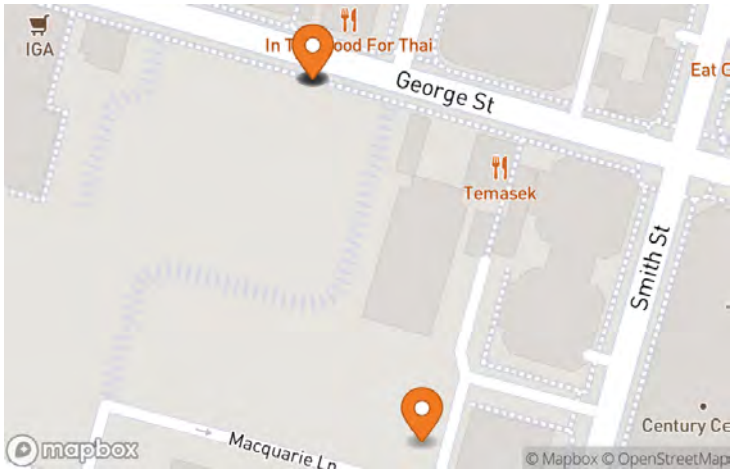
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 16Oct23_31Oct23 Parramatta

Monitoring Devices

Date Range 17 Oct 2023 - 31 Oct 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

60 dB	DAY L_{Aeq}
51 dB	EVENING L_{Aeq}
50 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

59 dB	DAY L_{Aeq}
54 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

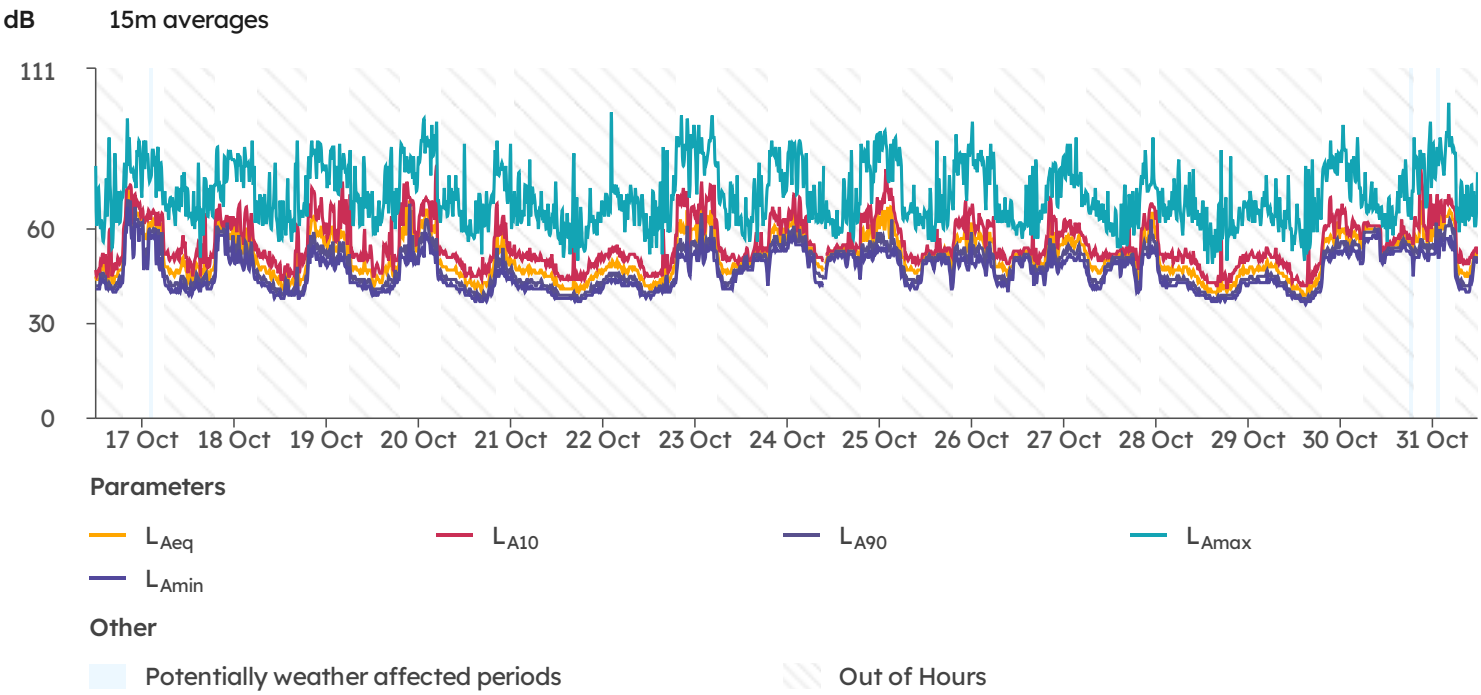
Average value across selected time period

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

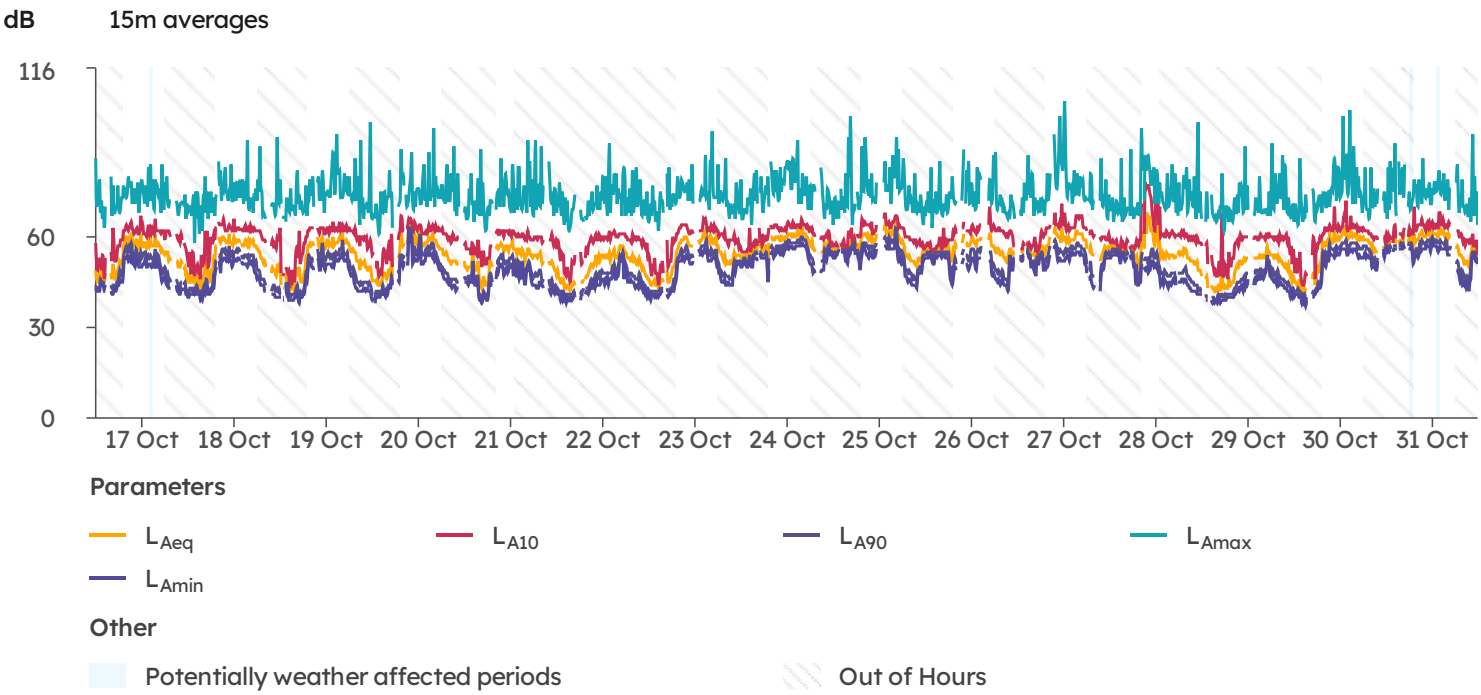
New Macquarie Lane Hoarding

17 Oct 2023 - 31 Oct 2023



George St Hoarding new

17 Oct 2023 - 31 Oct 2023



Gamuda Laing O'Rourke

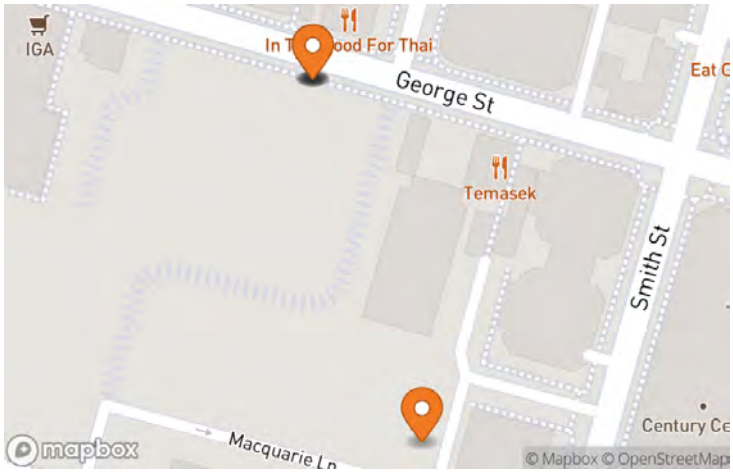
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 01Sep23_15Sep23 Parramatta

Monitoring Devices

Date Range 01 Sep 2023 - 15 Sep 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

62 dB	DAY L_{Aeq}
48 dB	EVENING L_{Aeq}
64 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

63 dB	DAY L_{Aeq}
50 dB	EVENING L_{Aeq}
63 dB	NIGHT L_{Aeq}

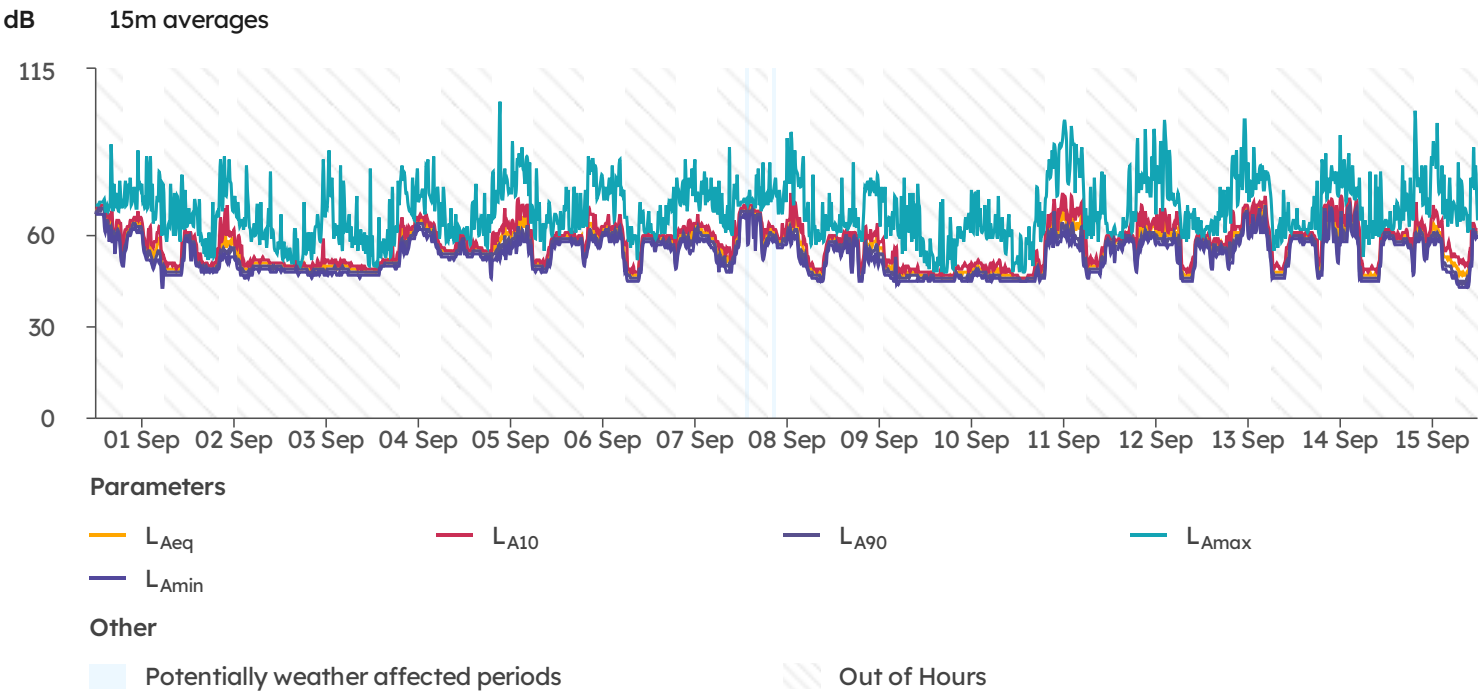
Average value across selected time period

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

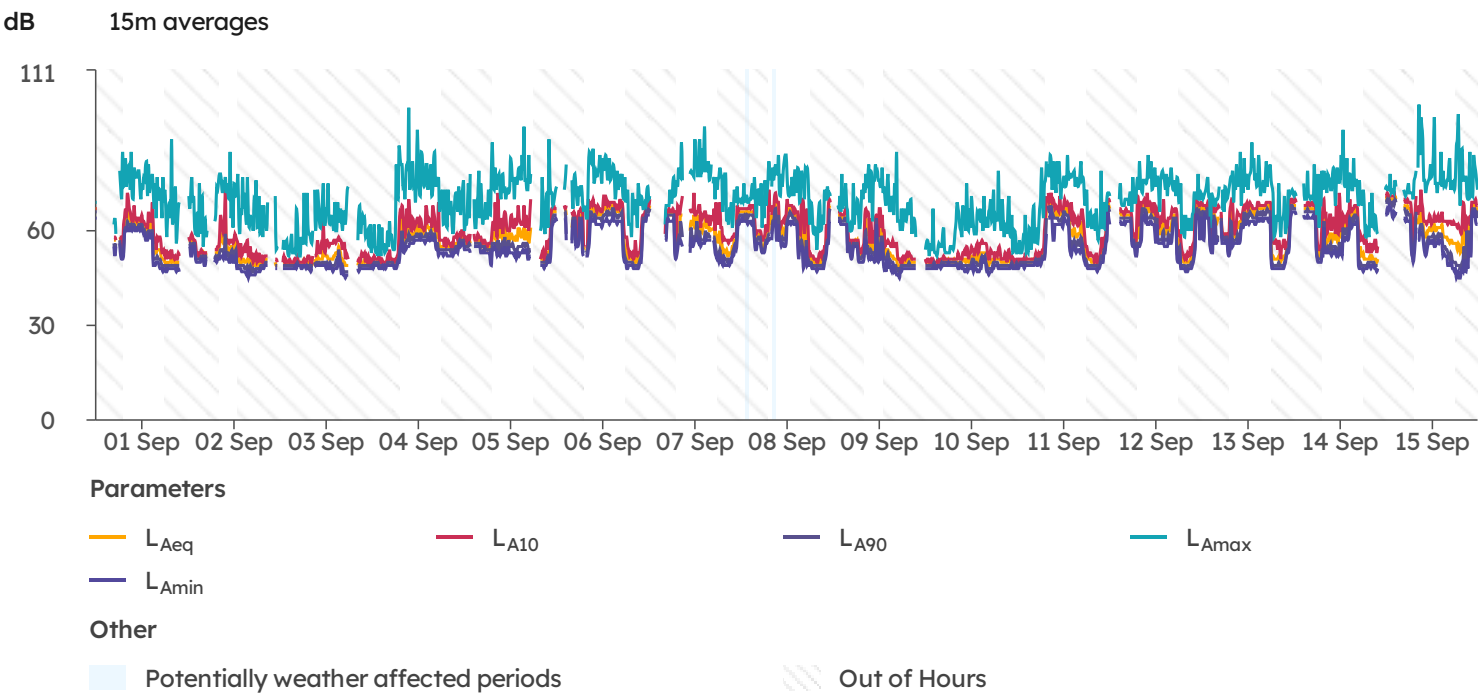
New Macquarie Lane Hoarding

01 Sep 2023 - 15 Sep 2023



George St Hoarding new

01 Sep 2023 - 15 Sep 2023



Gamuda Laing O'Rourke

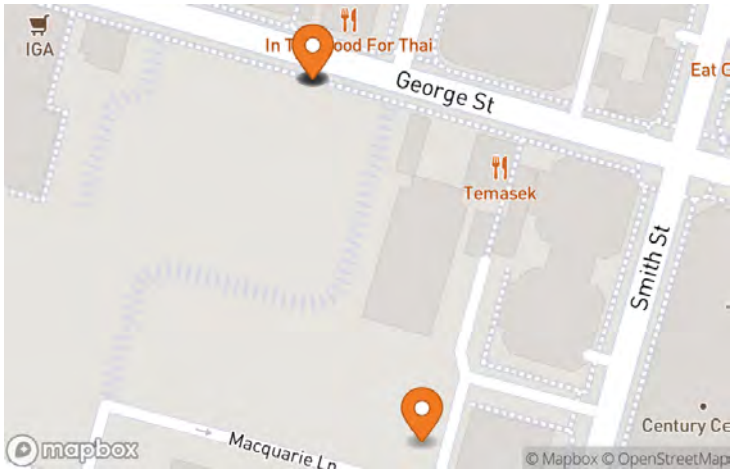
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 16Sep23_30Sep23 Parramatta

Monitoring Devices

Date Range 16 Sep 2023 - 30 Sep 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

63 dB — DAY L_{Aeq}

56 dB — EVENING L_{Aeq}

64 dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

60 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

57 dB — NIGHT L_{Aeq}

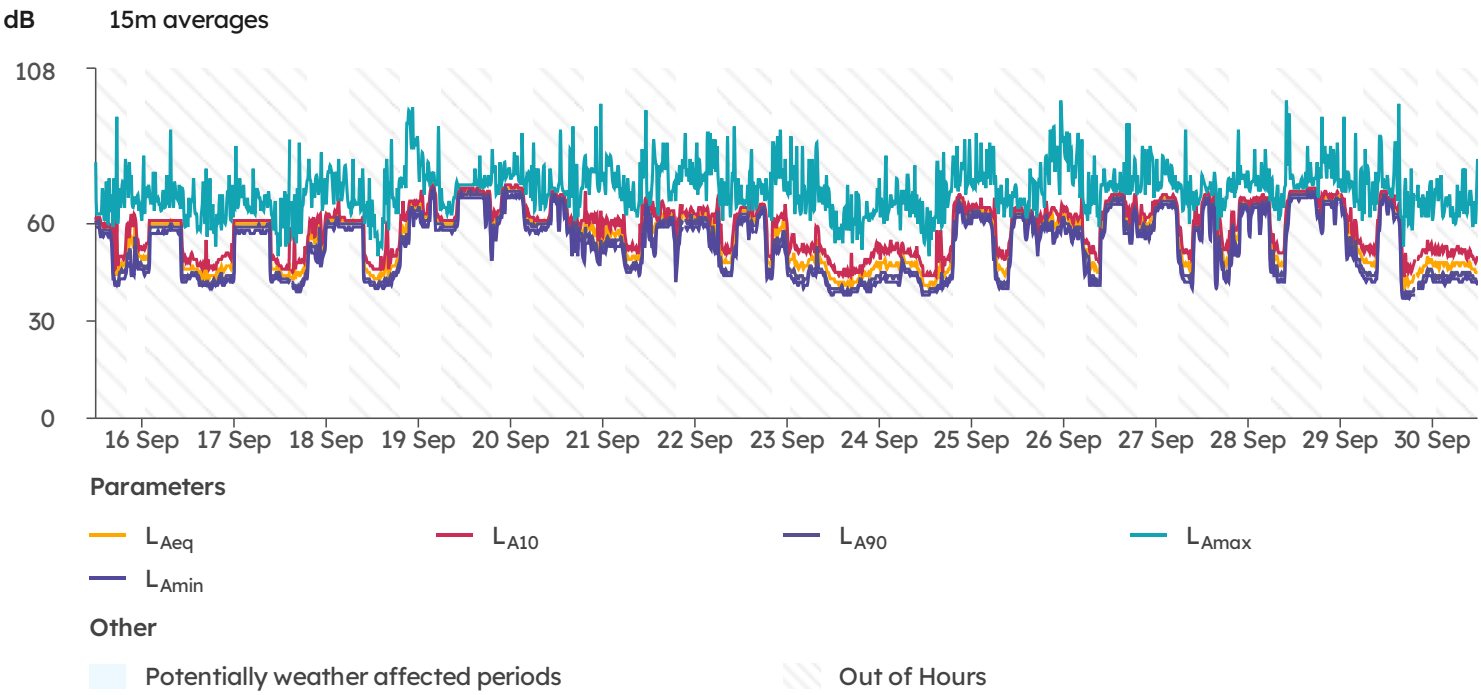
Average value across selected time period

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

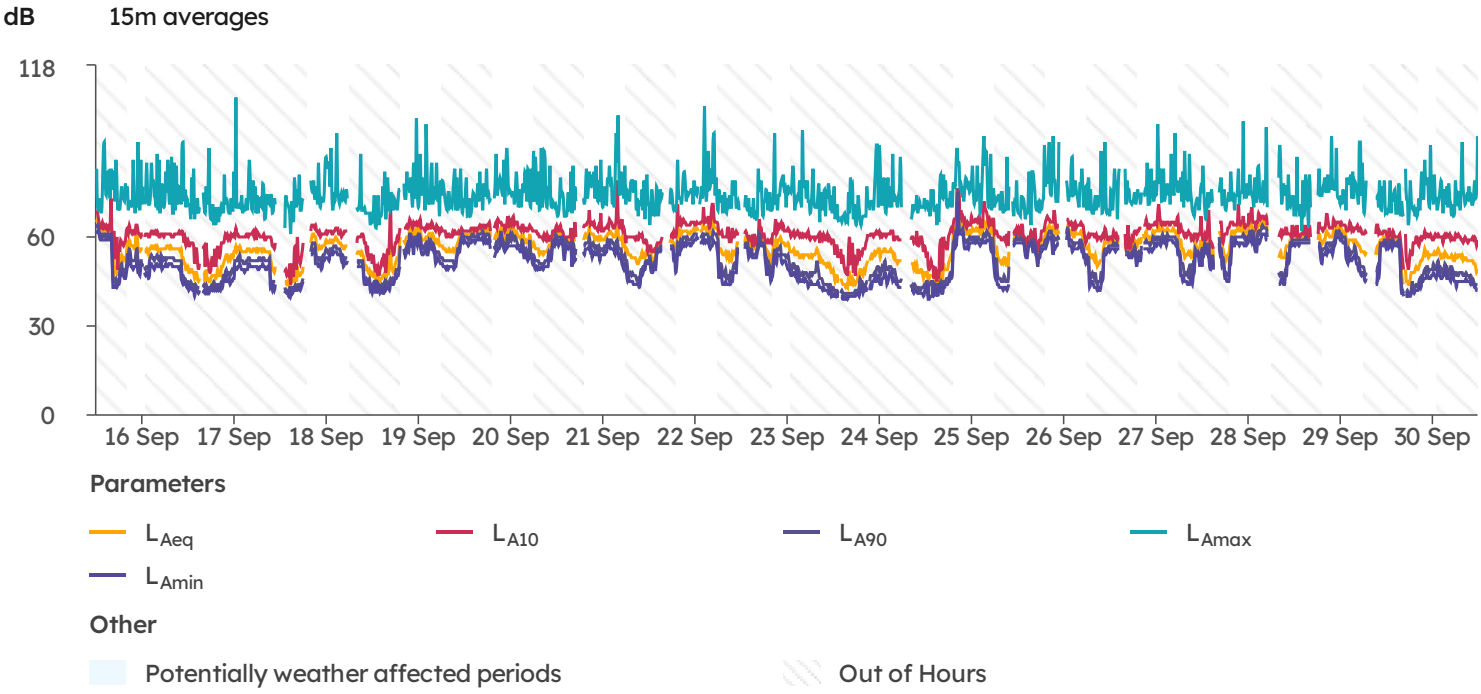
New Macquarie Lane Hoarding

16 Sep 2023 - 30 Sep 2023



George St Hoarding new

16 Sep 2023 - 30 Sep 2023



Gamuda Laing O'Rourke

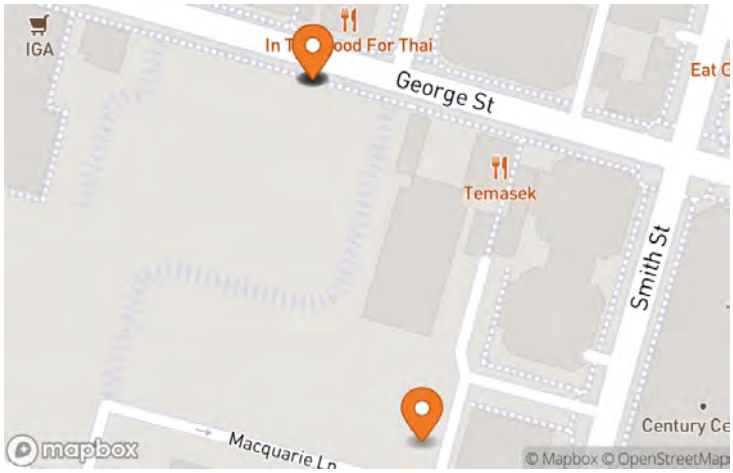
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 01Nov23_15Nov23 Parramatta

Monitoring Devices

Date Range 01 Nov 2023 - 15 Nov 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

61 dB — DAY L_{Aeq}

47 dB — EVENING L_{Aeq}

51 dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

60 dB — DAY L_{Aeq}

51 dB — EVENING L_{Aeq}

55 dB — NIGHT L_{Aeq}

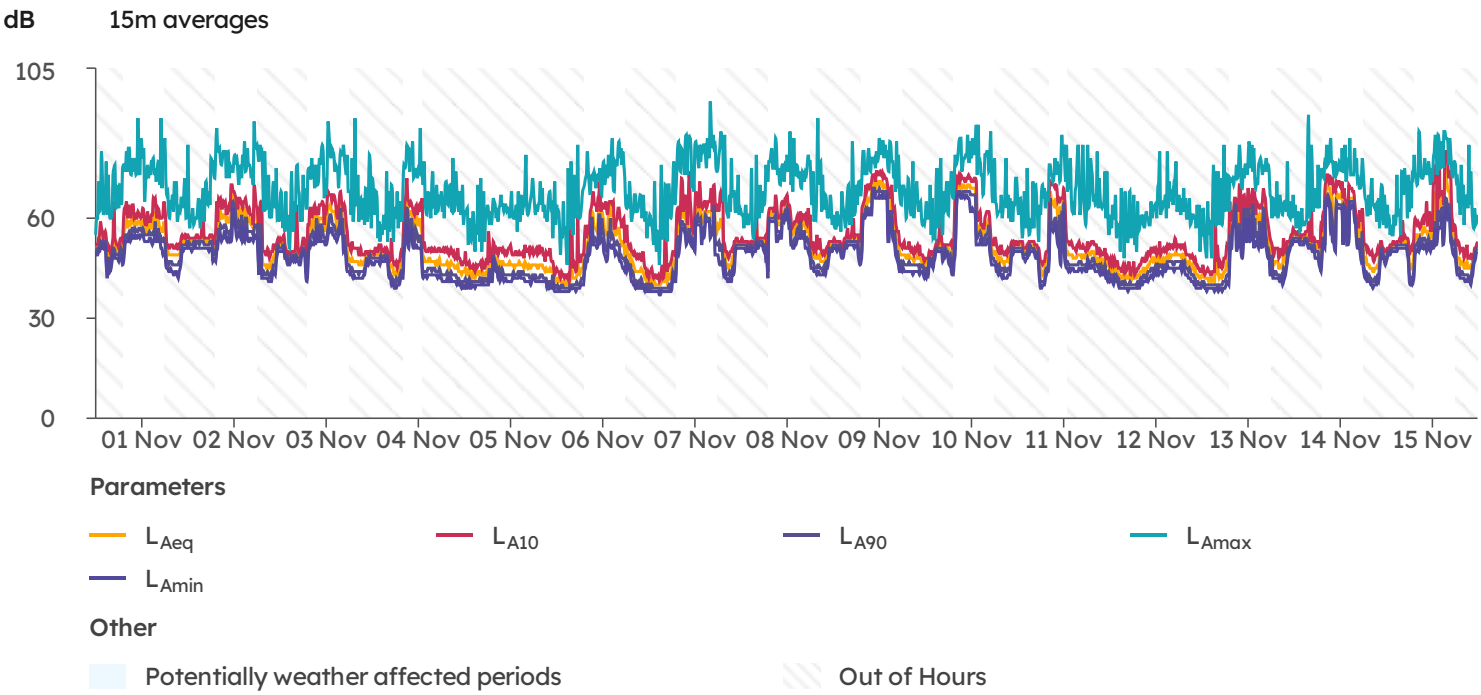
Average value across selected time period

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

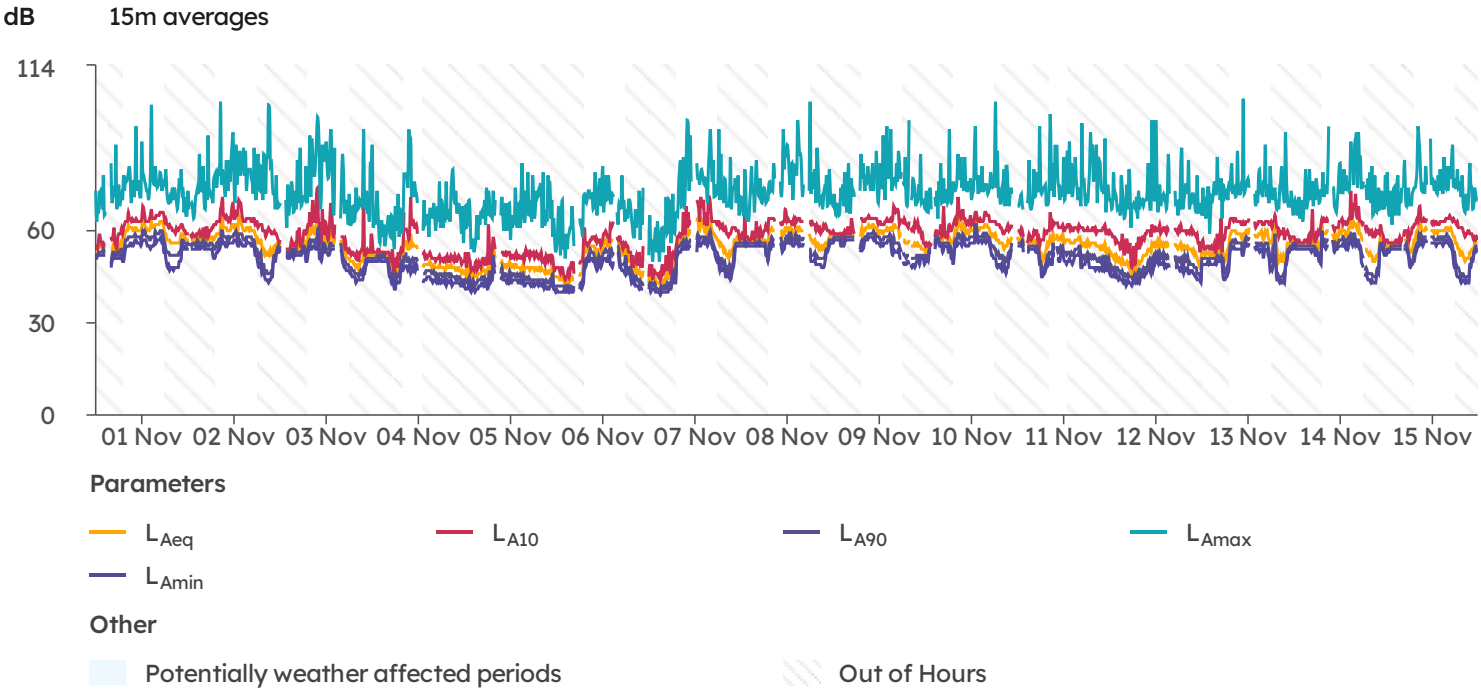
New Macquarie Lane Hoarding

01 Nov 2023 - 15 Nov 2023



George St Hoarding new

01 Nov 2023 - 15 Nov 2023



Gamuda Laing O'Rourke

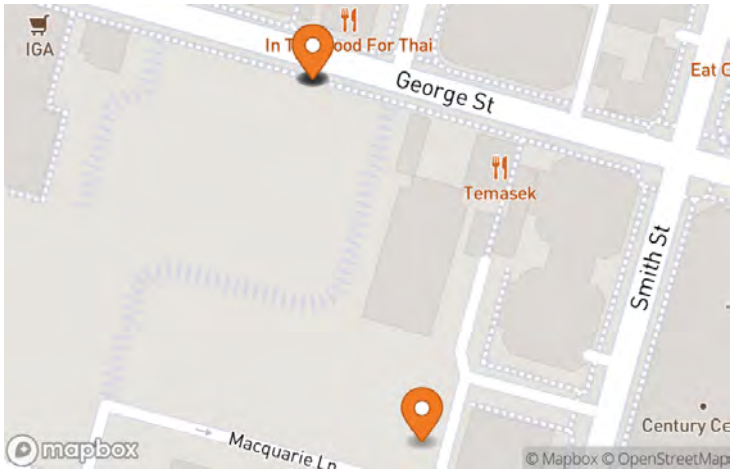
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 16Nov23_30Nov23 Parramatta

Monitoring Devices

Date Range 16 Nov 2023 - 30 Nov 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

59 dB — DAY L_{Aeq}

48 dB — EVENING L_{Aeq}

50 dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

60 dB — DAY L_{Aeq}

55 dB — EVENING L_{Aeq}

55 dB — NIGHT L_{Aeq}

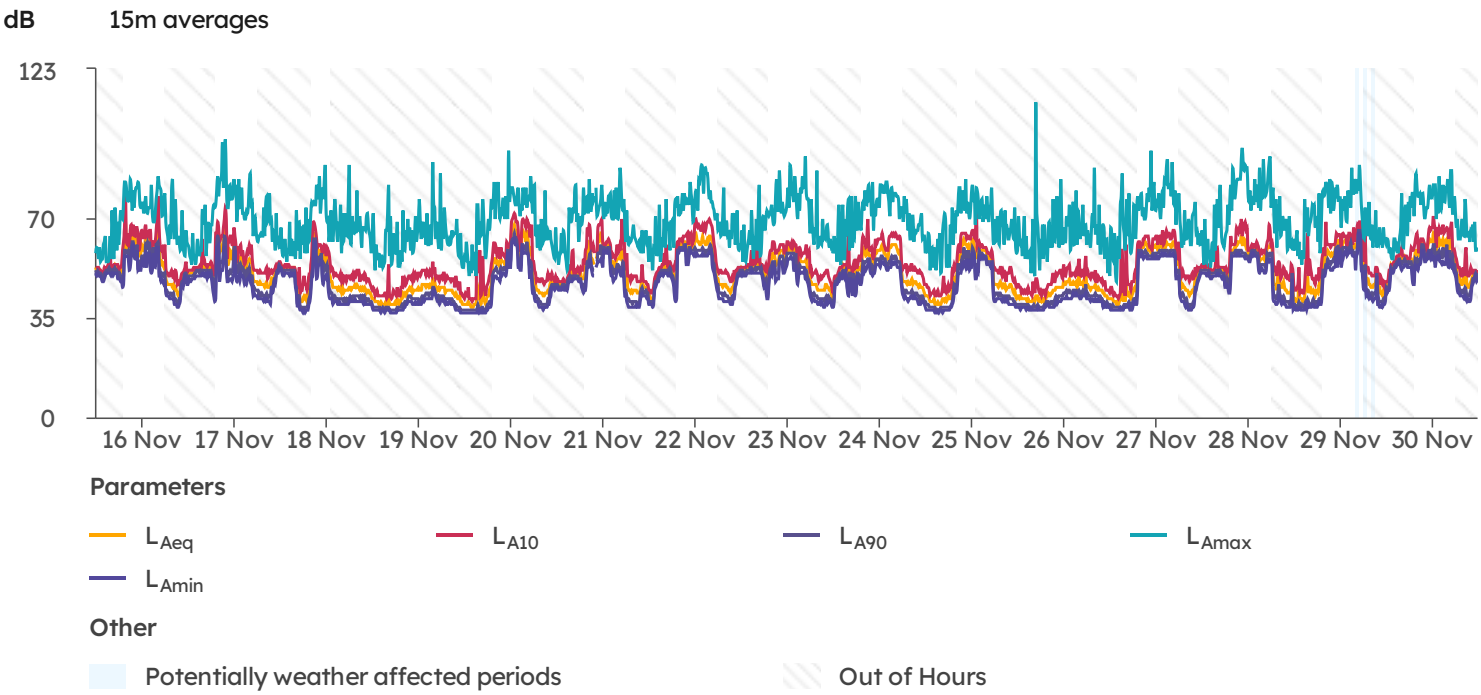
Average value across selected time period

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

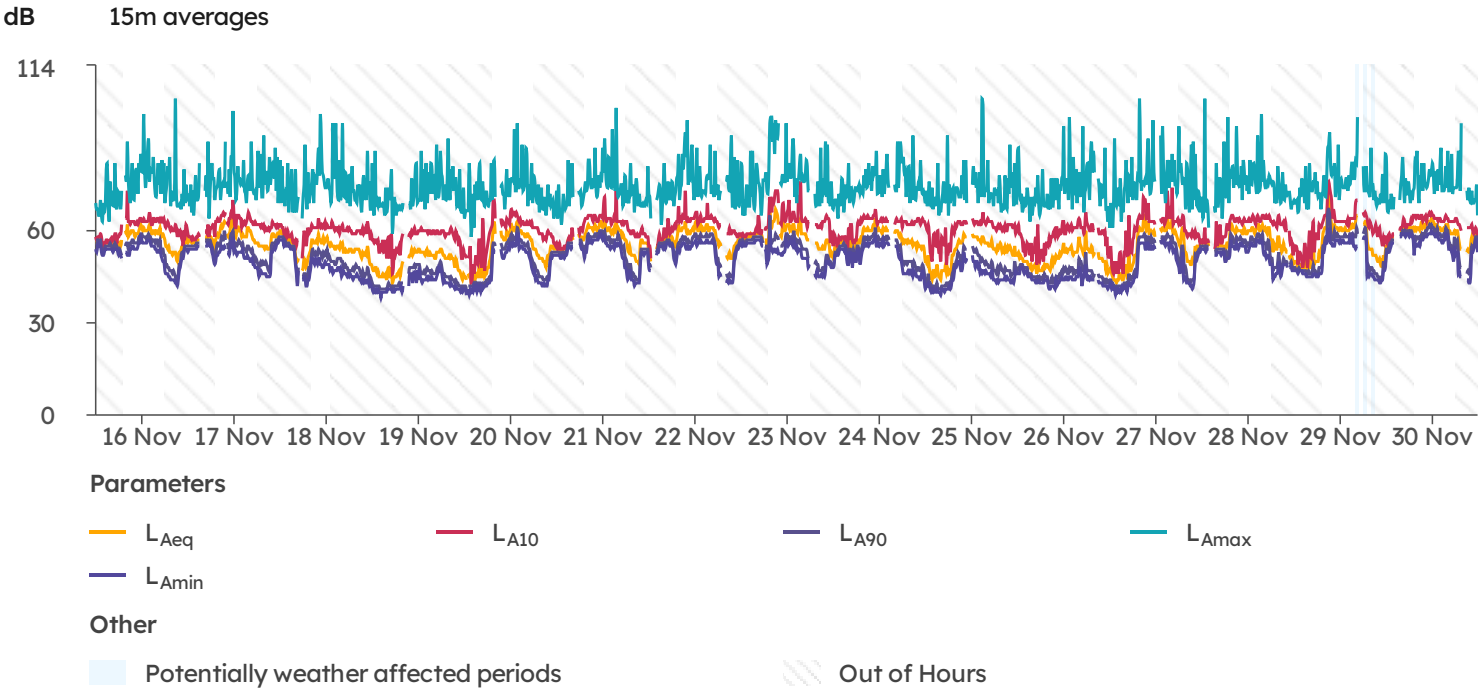
New Macquarie Lane Hoarding

16 Nov 2023 - 30 Nov 2023



George St Hoarding new

16 Nov 2023 - 30 Nov 2023



Gamuda Laing O'Rourke

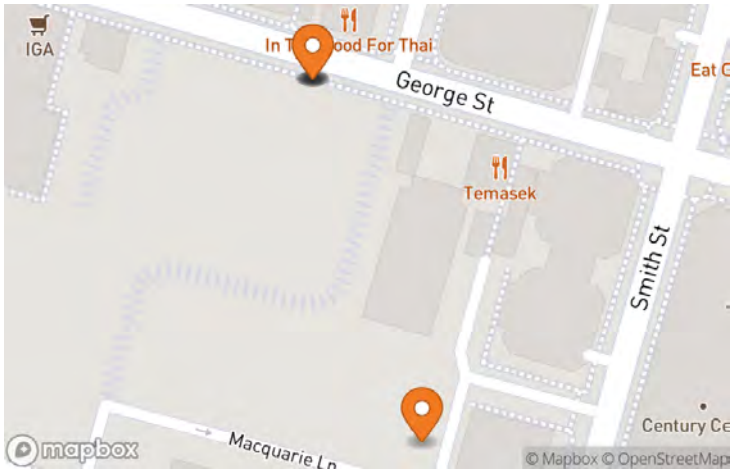
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 01Dec23_16Dec23 Parramatta

Monitoring Devices

Date Range 01 Dec 2023 - 16 Dec 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

58 dB	DAY L_{Aeq}
54 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

60 dB	DAY L_{Aeq}
53 dB	EVENING L_{Aeq}
55 dB	NIGHT L_{Aeq}

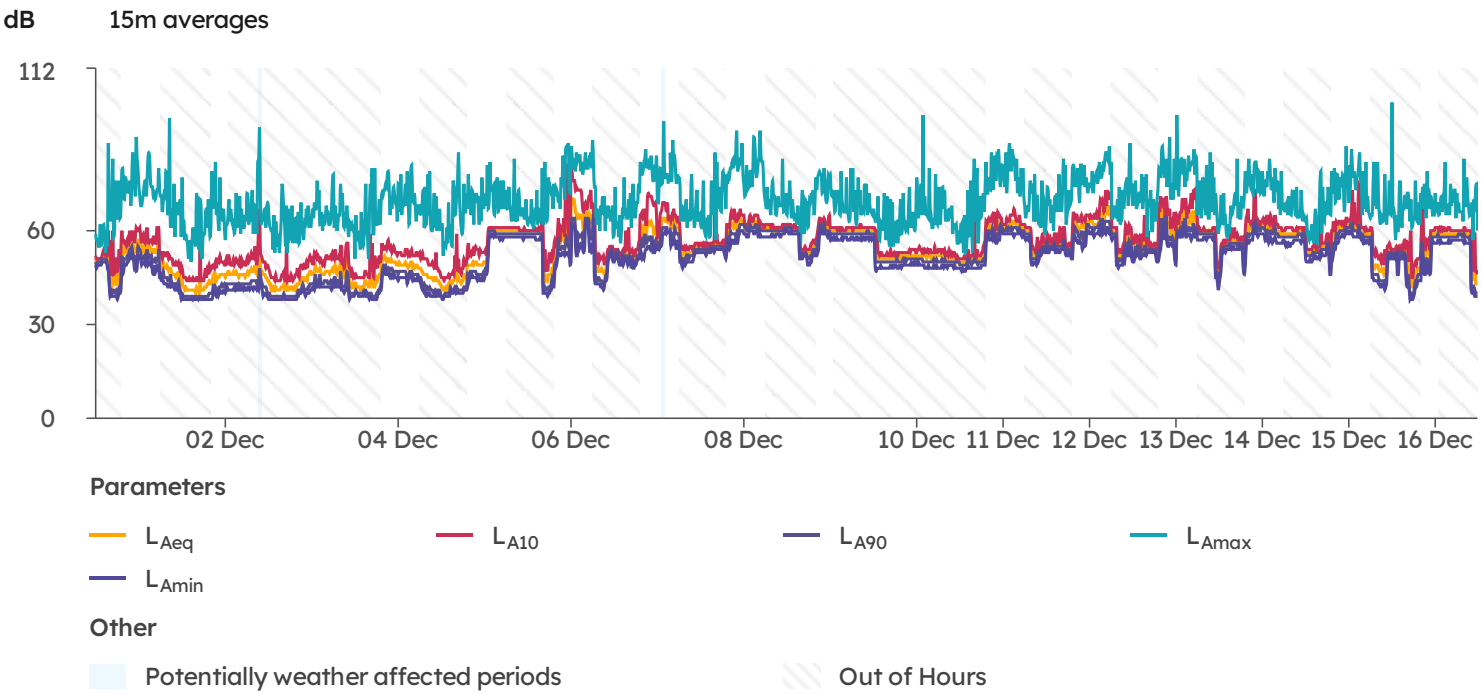
Average value across selected time period

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

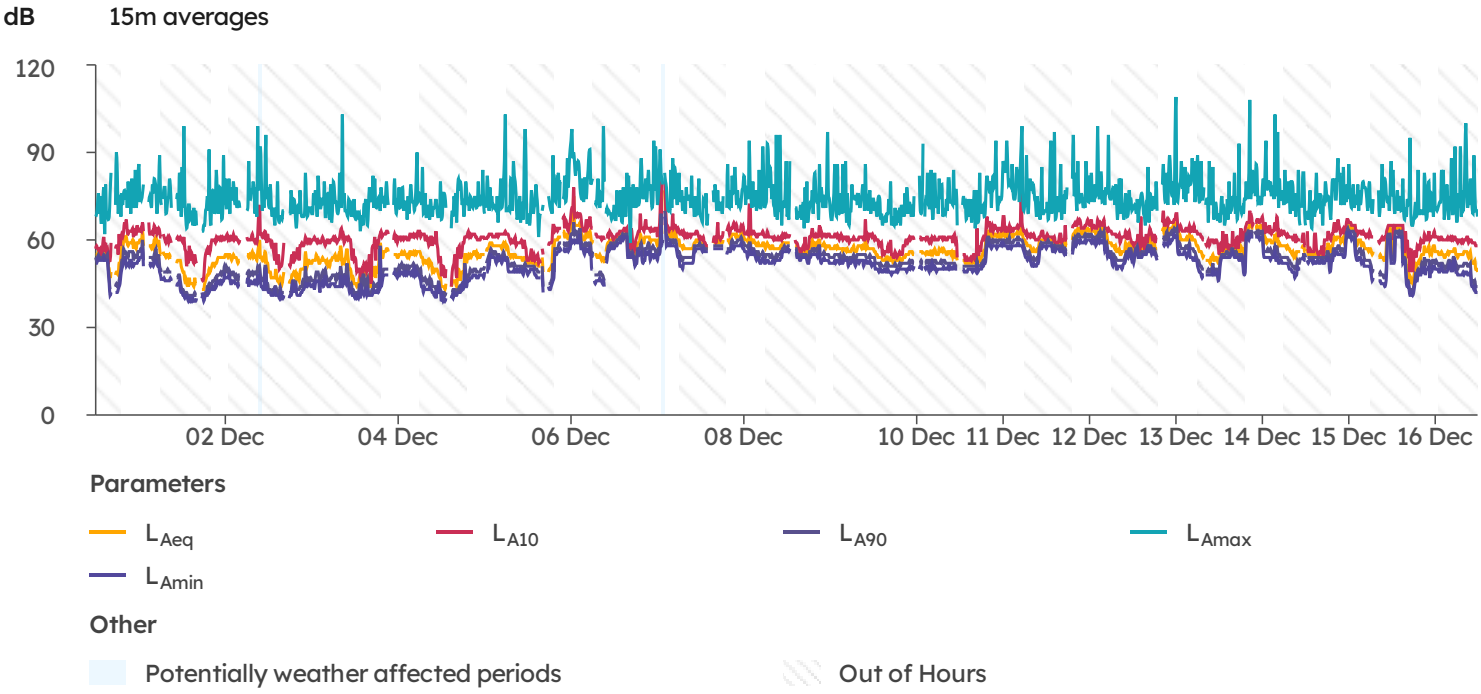
New Macquarie Lane Hoarding

01 Dec 2023 - 16 Dec 2023



George St Hoarding new

01 Dec 2023 - 16 Dec 2023



Gamuda Laing O'Rourke

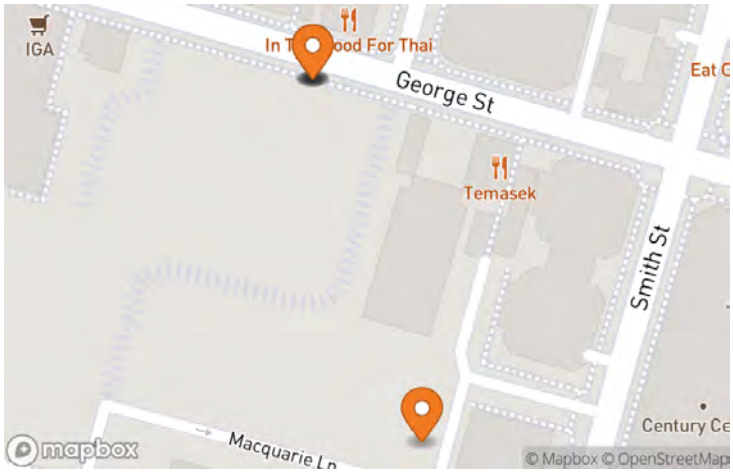
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 17Dec23_31Dec23 Parramatta

Monitoring Devices

Date Range 17 Dec 2023 - 31 Dec 2023

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

56 dB — DAY L_{Aeq}

52 dB — EVENING L_{Aeq}

46 dB — NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

56 dB — DAY L_{Aeq}

53 dB — EVENING L_{Aeq}

49 dB — NIGHT L_{Aeq}

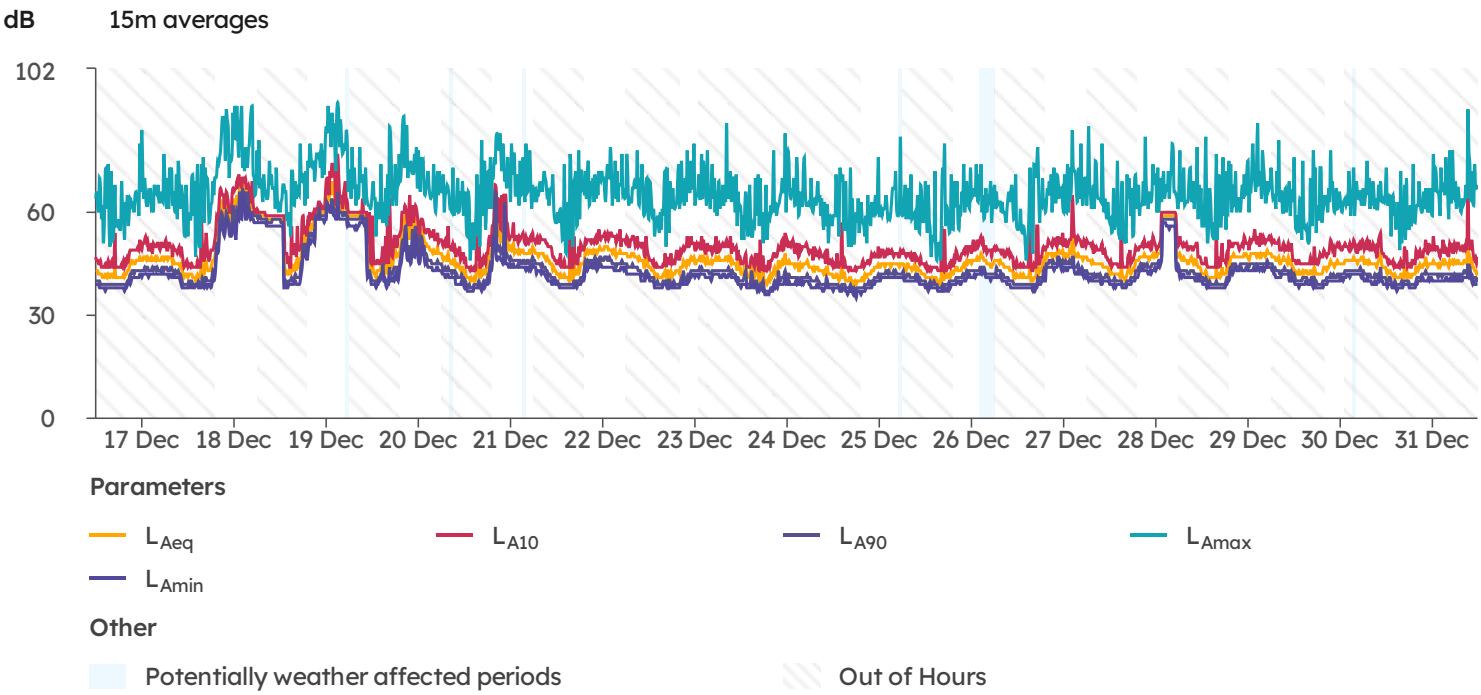
Average value across selected time period

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

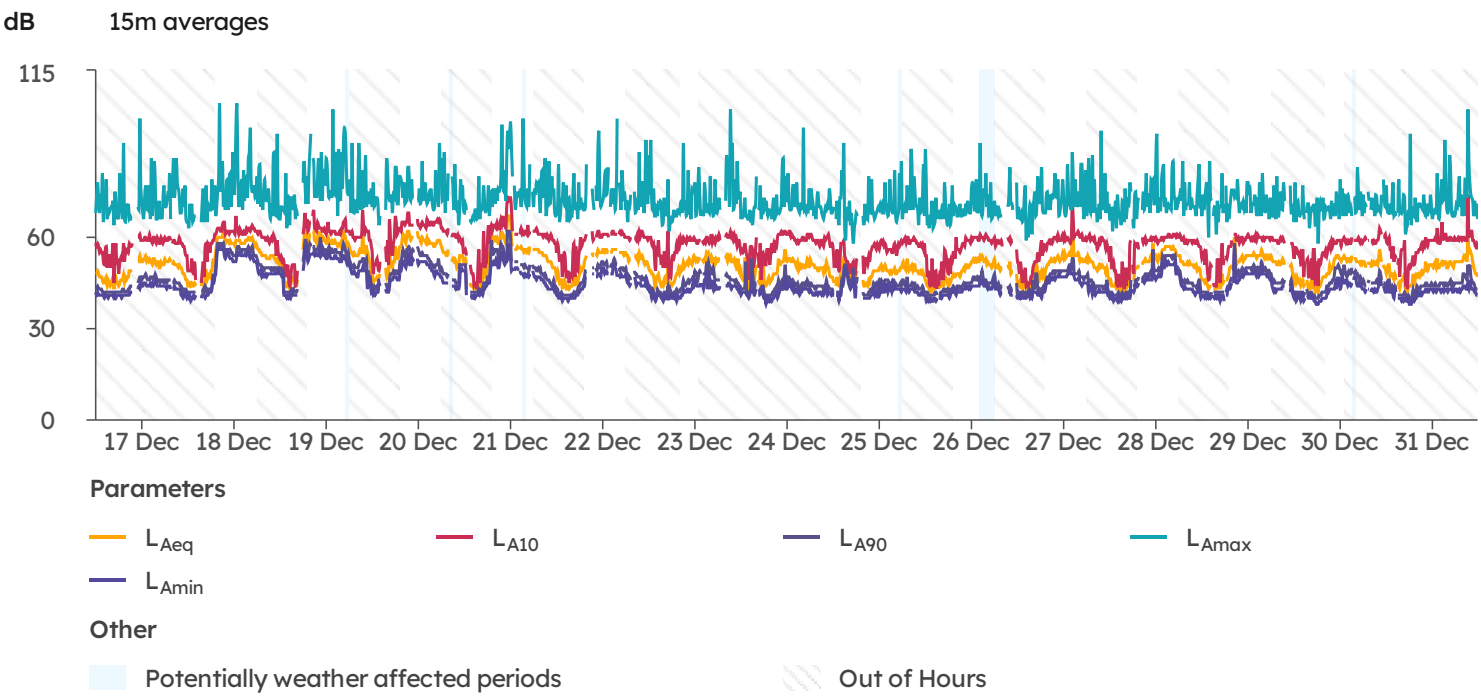
New Macquarie Lane Hoarding

17 Dec 2023 - 31 Dec 2023



George St Hoarding new

17 Dec 2023 - 31 Dec 2023



Gamuda Laing O'Rourke

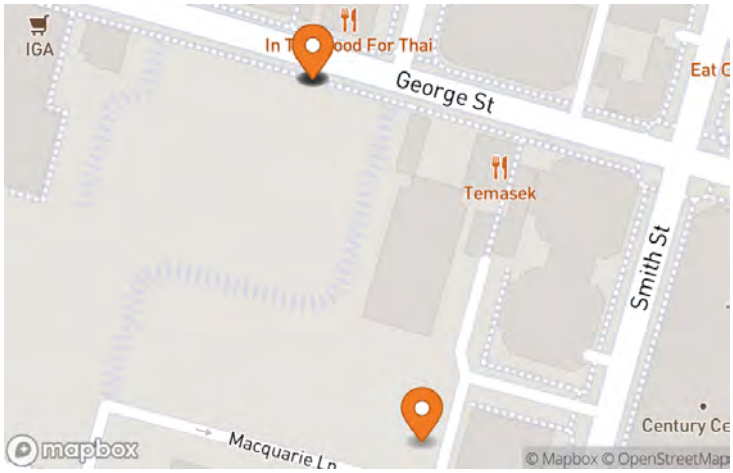
Sydney Metro West WTP Parramatta

Unattended Noise Monitoring 01Jan23_19Jan23 Parramatta

Monitoring Devices

Date Range 01 Jan 2024 - 19 Jan 2024

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



Noise Monitoring Statistics

New Macquarie Lane Hoa...

57 dB	DAY L_{Aeq}
53 dB	EVENING L_{Aeq}
50 dB	NIGHT L_{Aeq}

Average value across selected time period

George St Hoarding new

57 dB	DAY L_{Aeq}
54 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

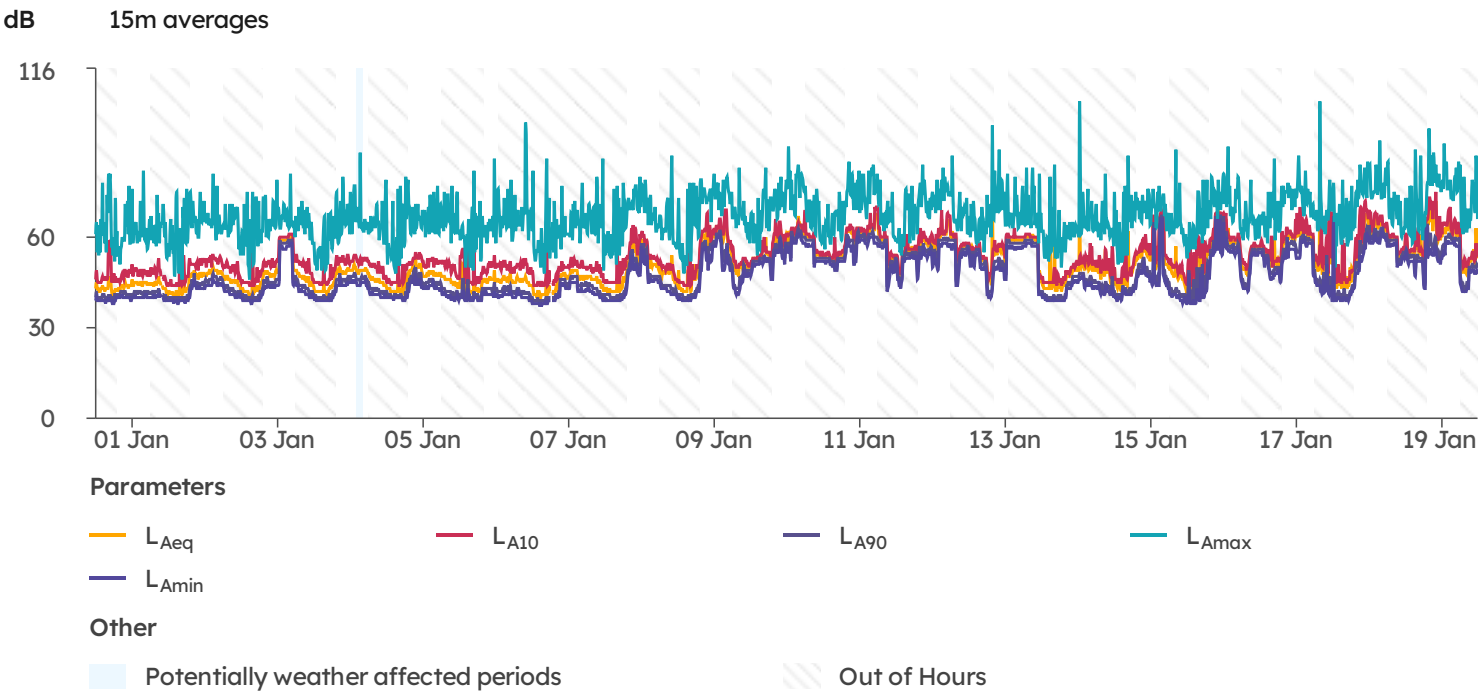
Average value across selected time period

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

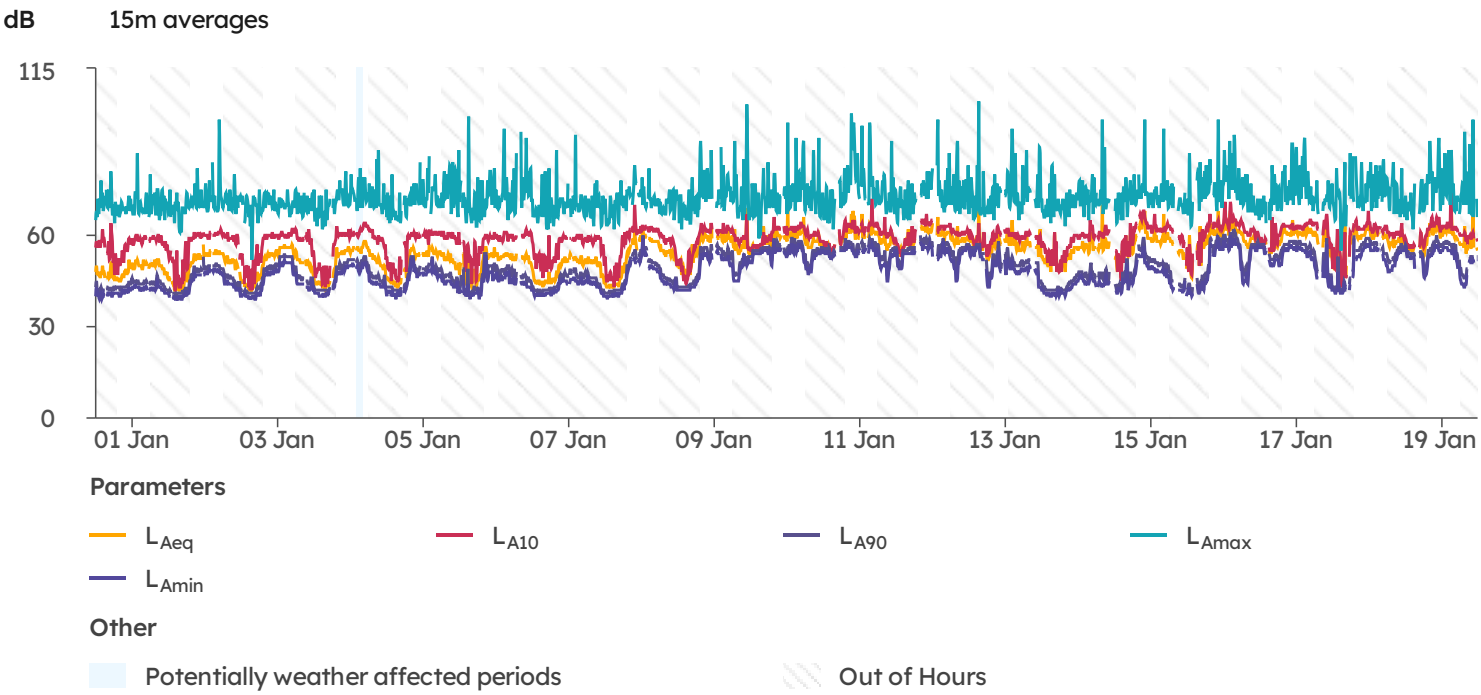
New Macquarie Lane Hoarding

01 Jan 2024 - 19 Jan 2024



George St Hoarding new

01 Jan 2024 - 19 Jan 2024



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 19Jul23_31Jul23 Westmead

Monitoring Devices

Date Range 19 Jul 2023 - 31 Jul 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

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

Average value across selected time period

Hassall Street

62 dB	DAY L_{Aeq}
54 dB	EVENING L_{Aeq}
49 dB	NIGHT L_{Aeq}

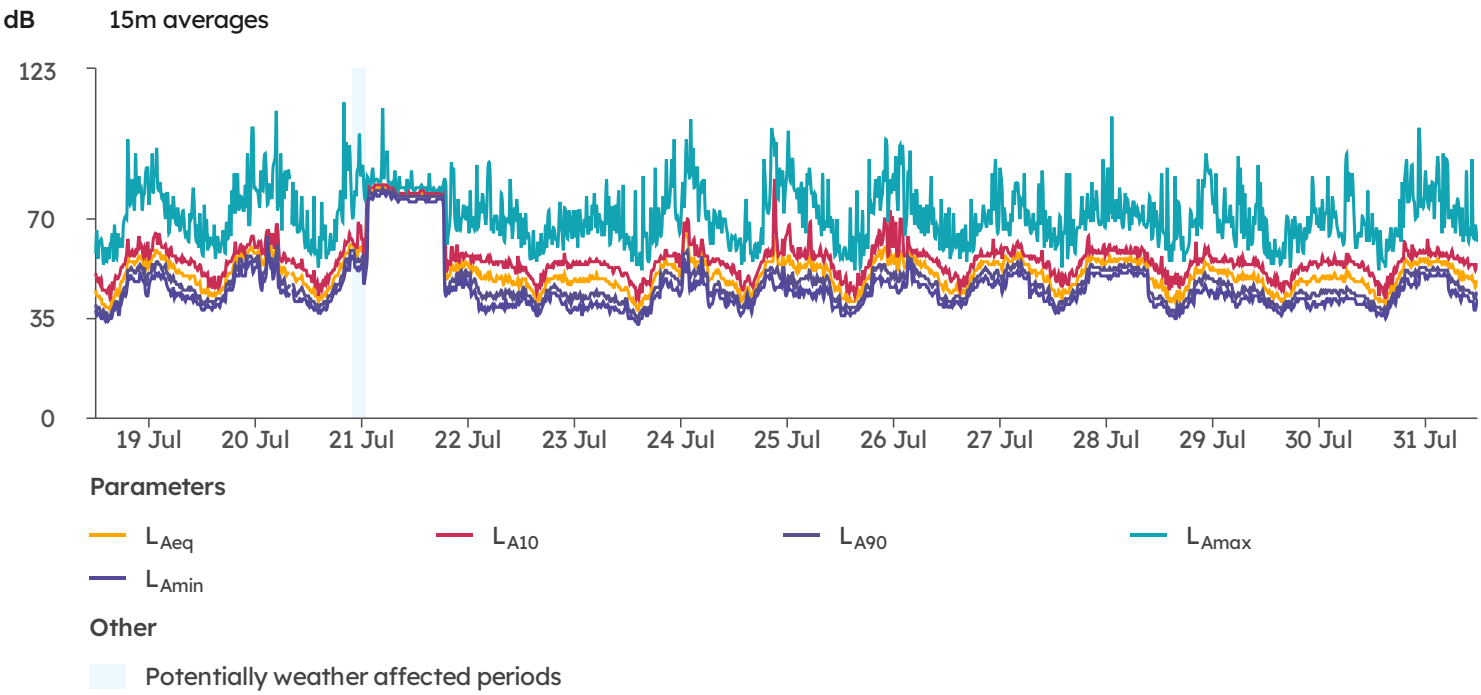
Average value across selected time period

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

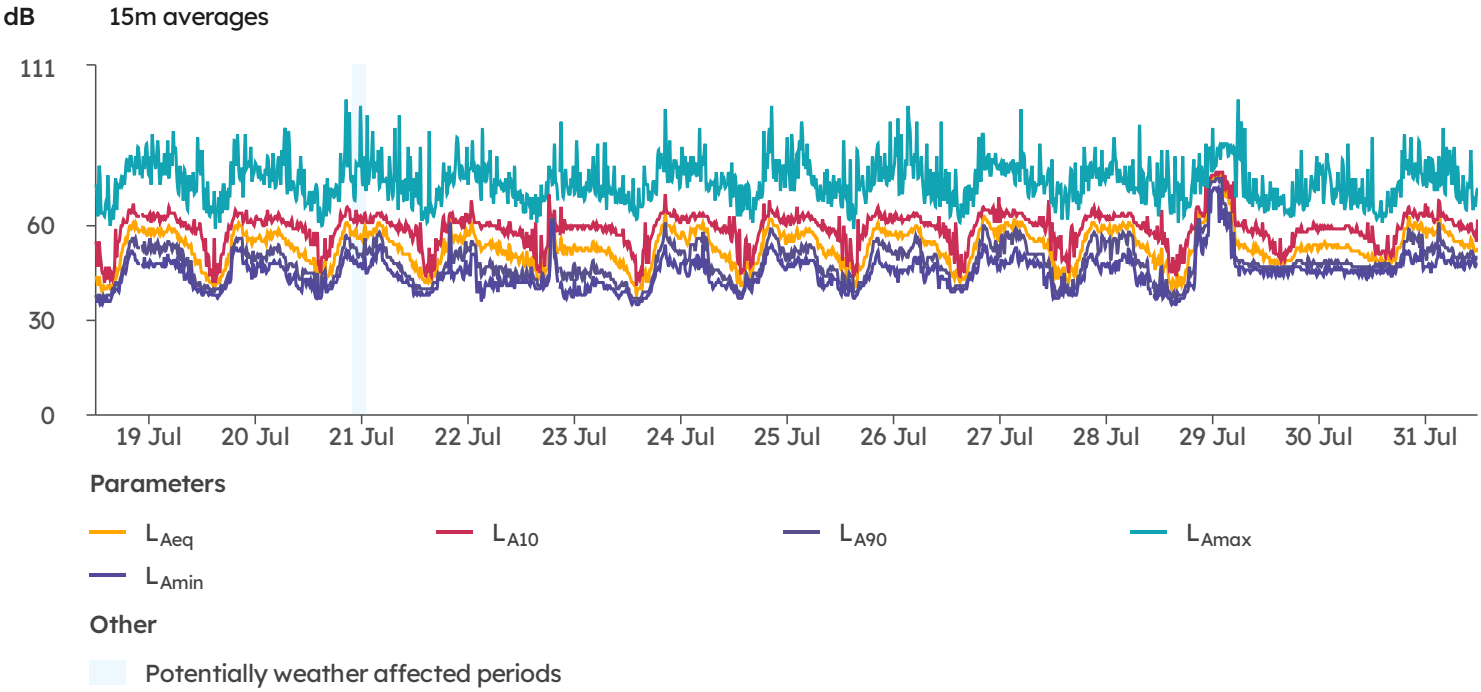
MSF 3in1 Pod

19 Jul 2023 - 31 Jul 2023



Hassall Street

19 Jul 2023 - 31 Jul 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 01Aug23_16Aug23 Westmead

Monitoring Devices

Date Range 01 Aug 2023 - 16 Aug 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

70 dB	DAY L_{Aeq}
67 dB	EVENING L_{Aeq}
47 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

58 dB	DAY L_{Aeq}
53 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

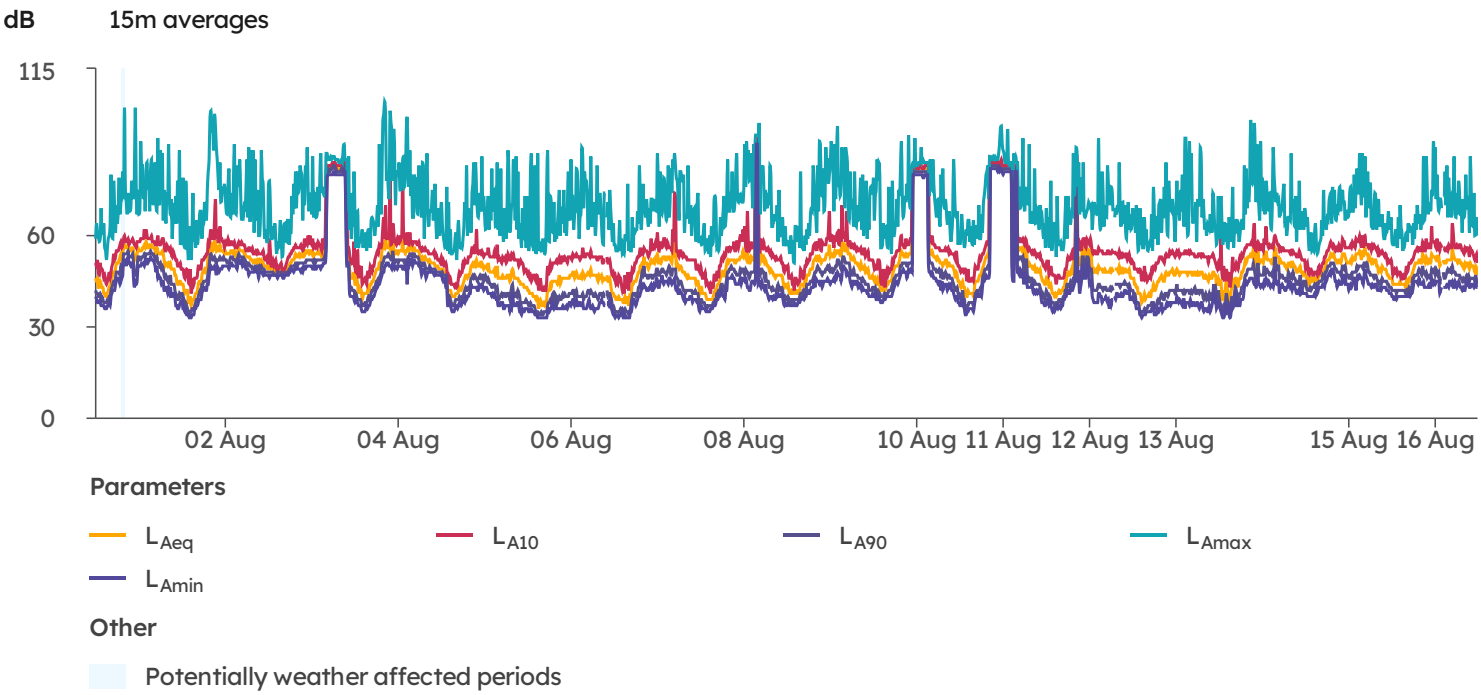
Average value across selected time period

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

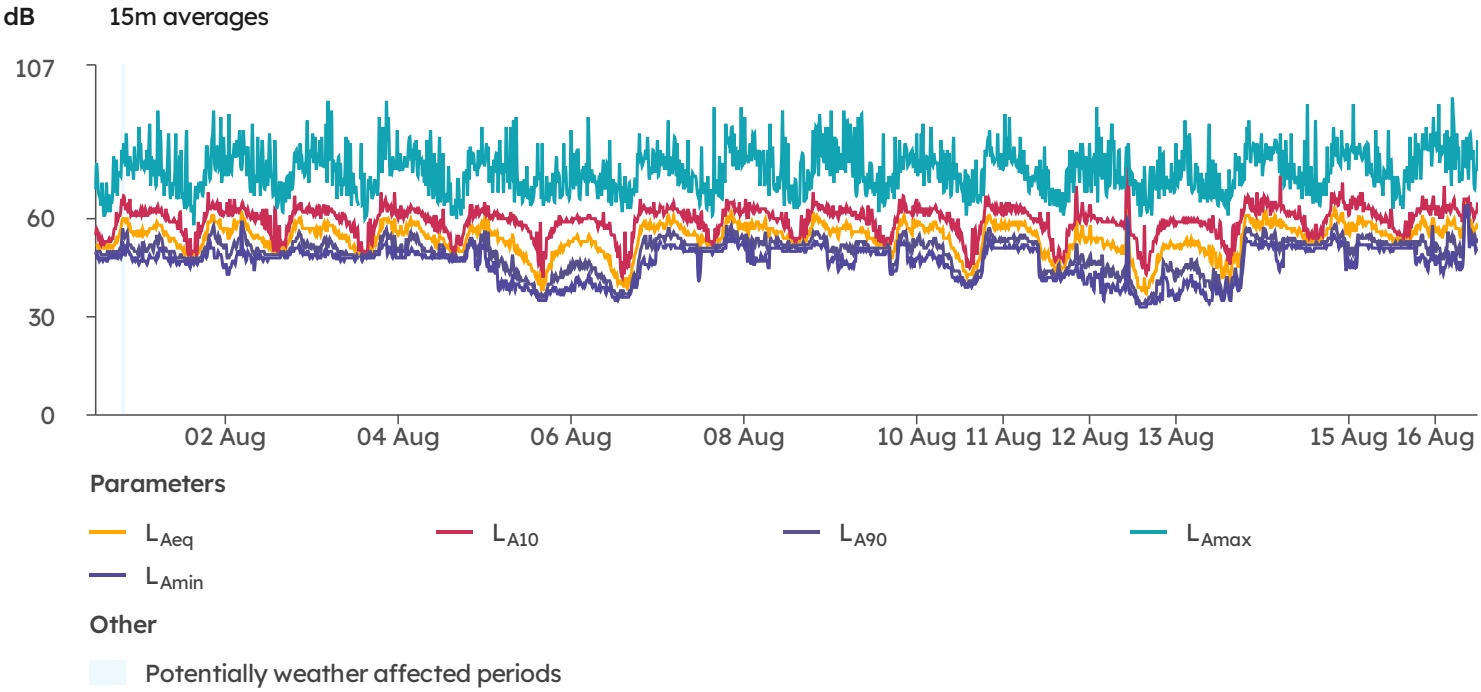
MSF 3in1 Pod

01 Aug 2023 - 16 Aug 2023



Hassall Street

01 Aug 2023 - 16 Aug 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 17Aug23_31Aug23 Westmead

Monitoring Devices

Date Range 17 Aug 2023 - 31 Aug 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

55 dB	DAY L_{Aeq}
51 dB	EVENING L_{Aeq}
47 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

58 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

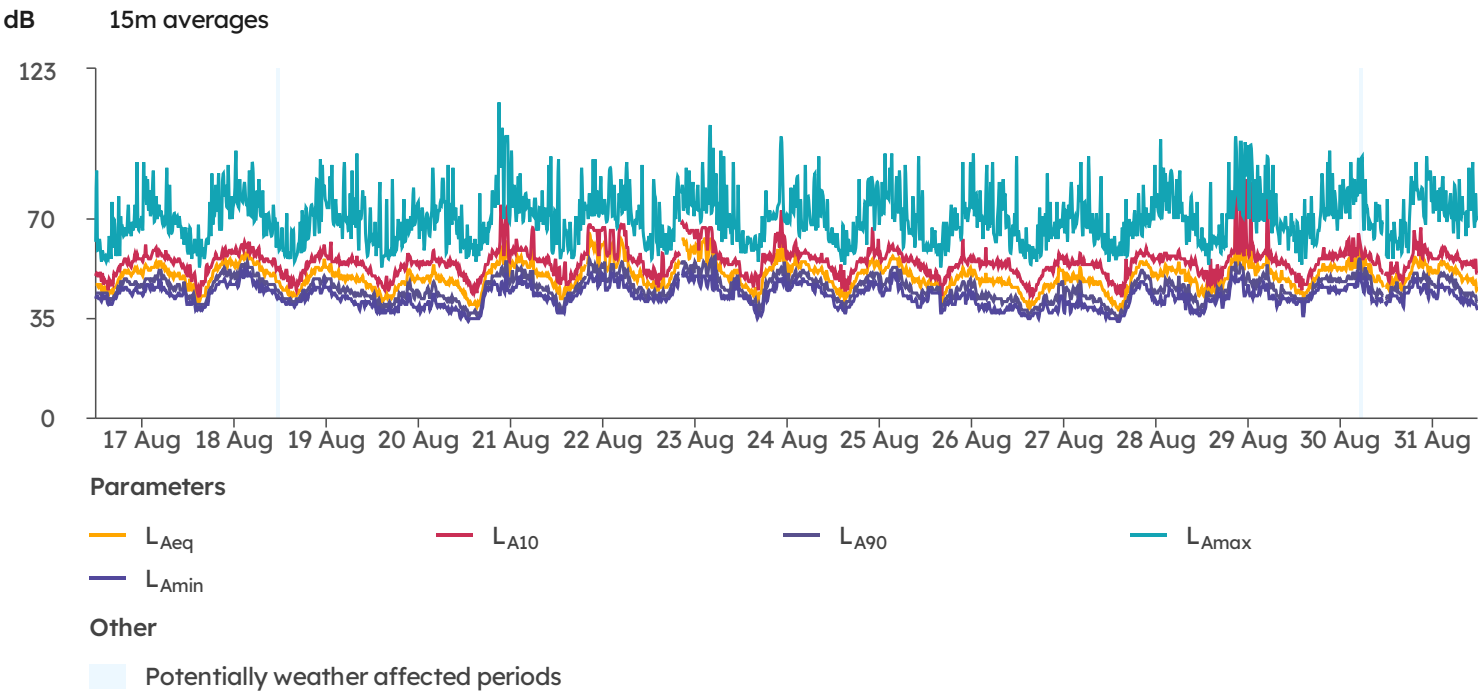
Average value across selected time period

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

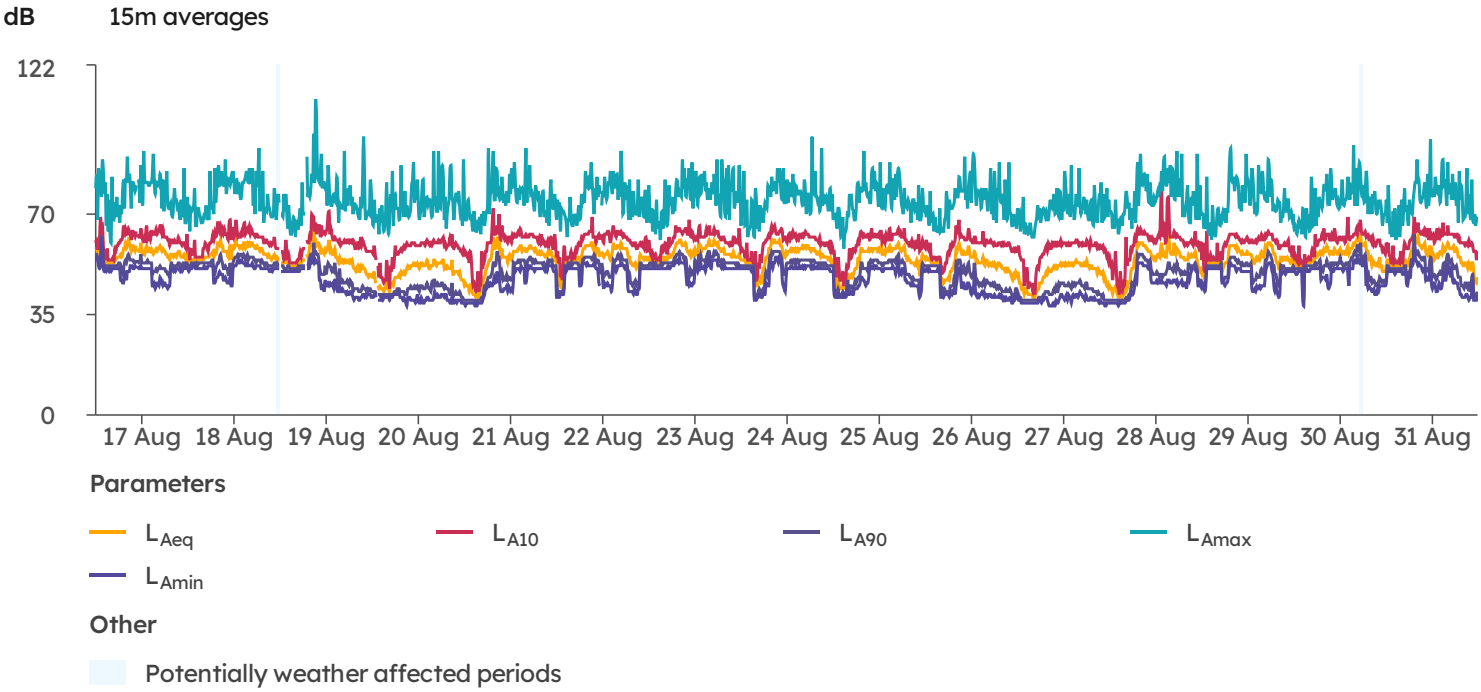
MSF 3in1 Pod

17 Aug 2023 - 31 Aug 2023



Hassall Street

17 Aug 2023 - 31 Aug 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 01Sep23_15Sep23 Westmead

Monitoring Devices

Date Range 01 Sep 2023 - 15 Sep 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

57 dB	DAY L_{Aeq}
51 dB	EVENING L_{Aeq}
48 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

58 dB	DAY L_{Aeq}
51 dB	EVENING L_{Aeq}
49 dB	NIGHT L_{Aeq}

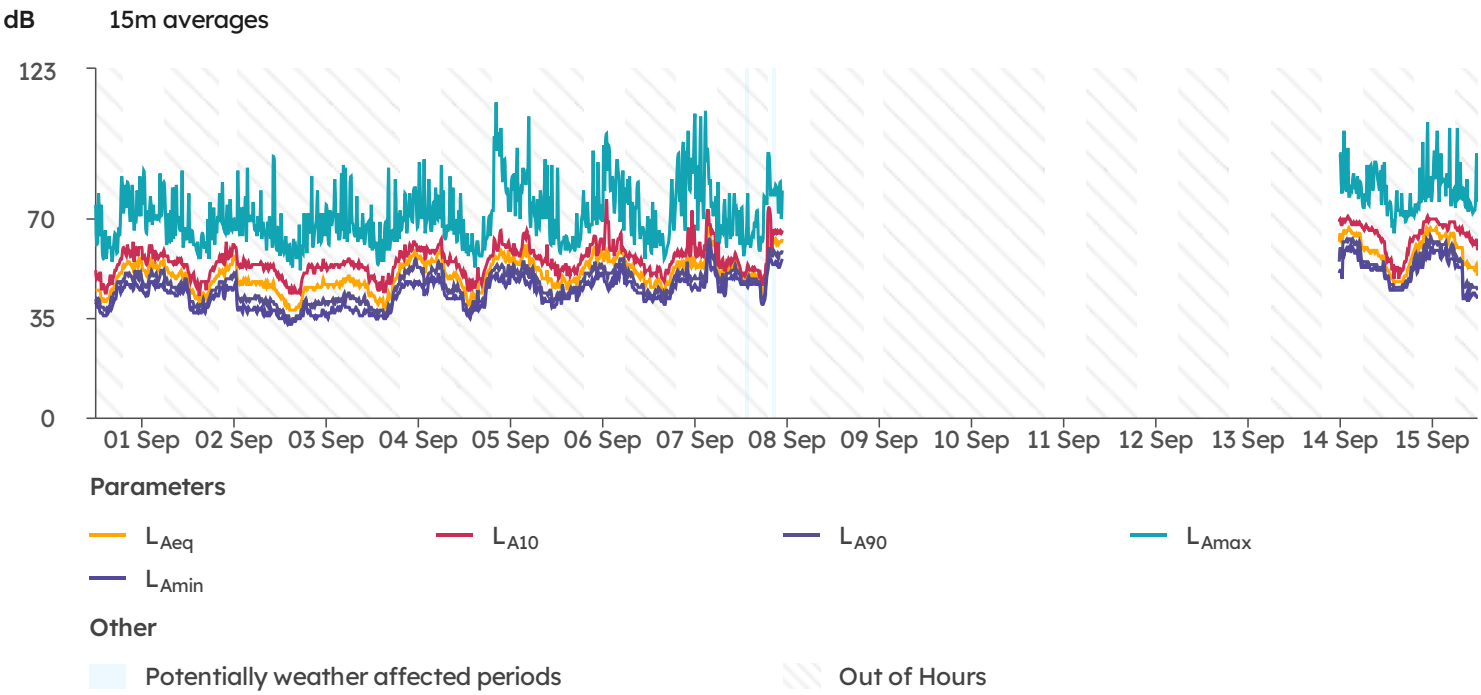
Average value across selected time period

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

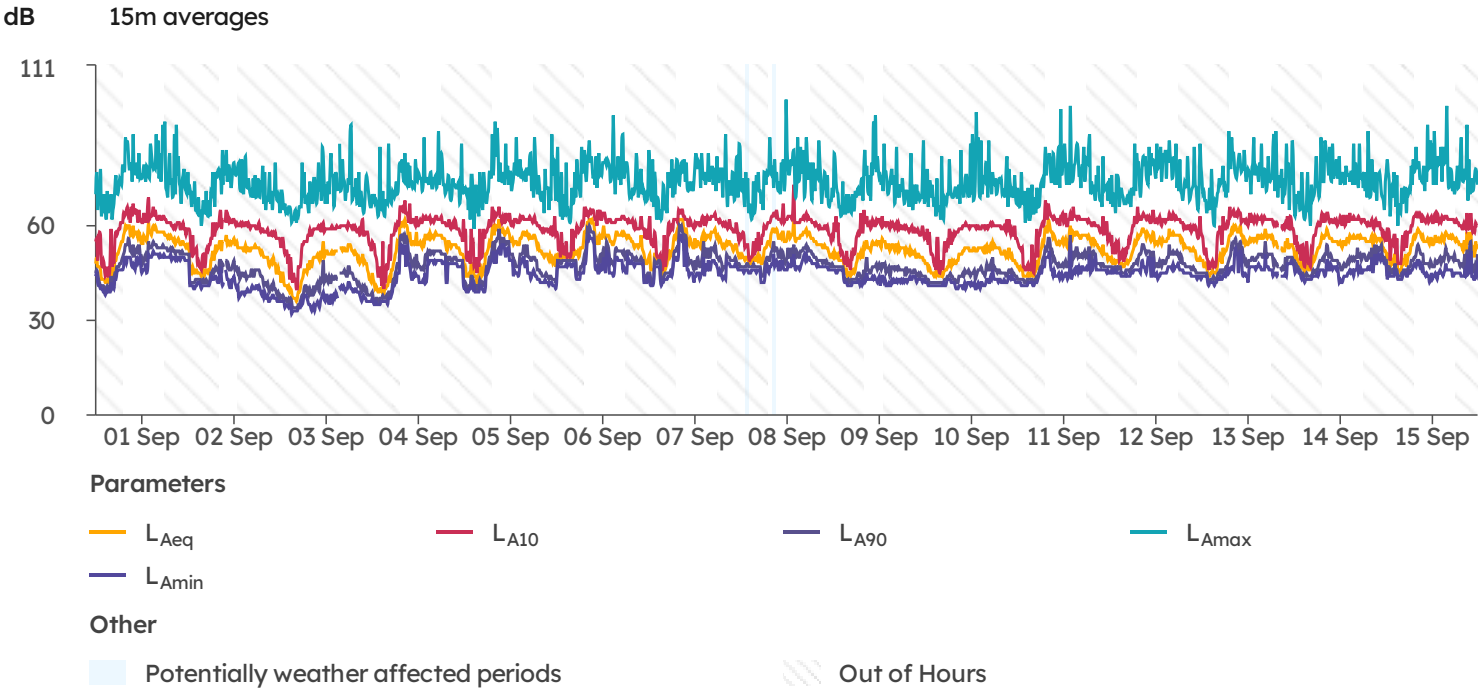
MSF 3in1 Pod

01 Sep 2023 - 15 Sep 2023



Hassall Street

01 Sep 2023 - 15 Sep 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 16Sep23_30Sep23 Westmead

Monitoring Devices

Date Range 16 Sep 2023 - 30 Sep 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

65 dB	DAY L_{Aeq}
57 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

57 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
51 dB	NIGHT L_{Aeq}

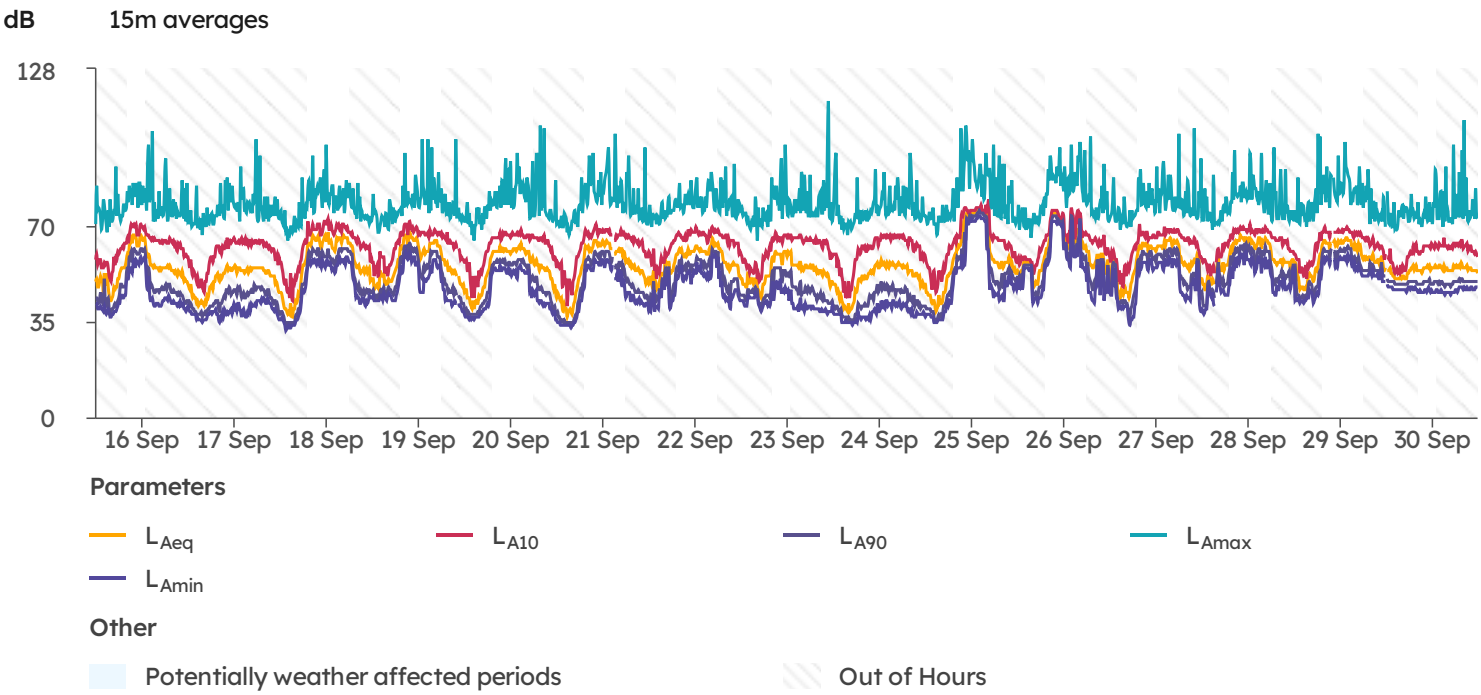
Average value across selected time period

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

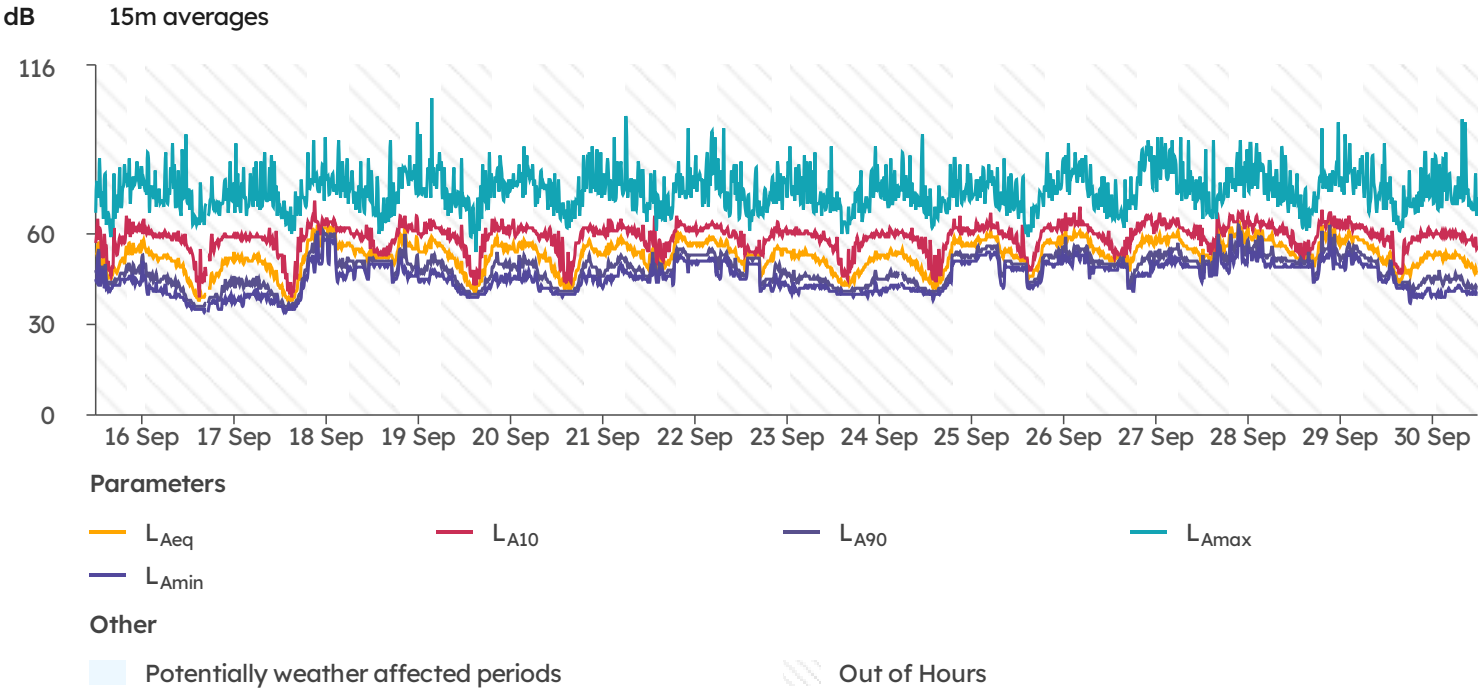
MSF 3in1 Pod

16 Sep 2023 - 30 Sep 2023



Hassall Street

16 Sep 2023 - 30 Sep 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 01Oct23_16Oct23 Westmead

Monitoring Devices

Date Range 01 Oct 2023 - 16 Oct 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

60 dB	DAY L_{Aeq}
53 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

56 dB	DAY L_{Aeq}
51 dB	EVENING L_{Aeq}
48 dB	NIGHT L_{Aeq}

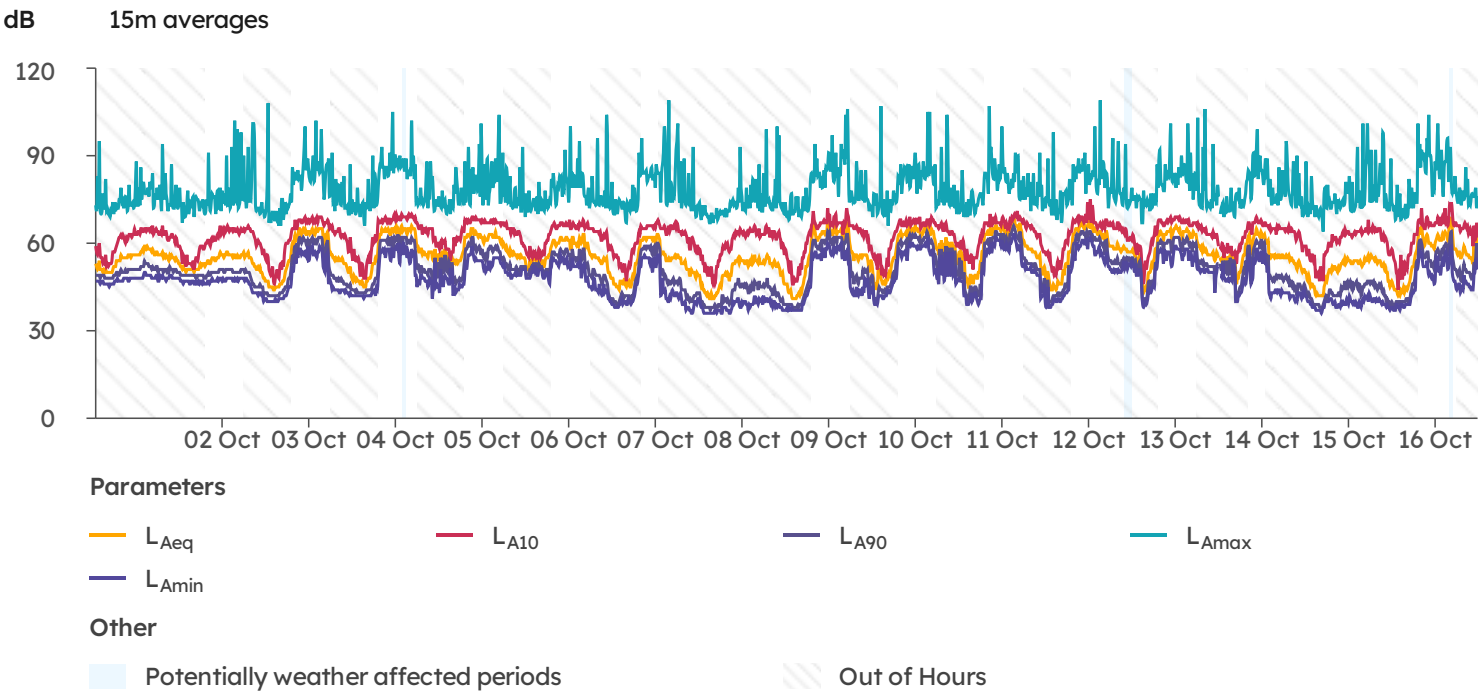
Average value across selected time period

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

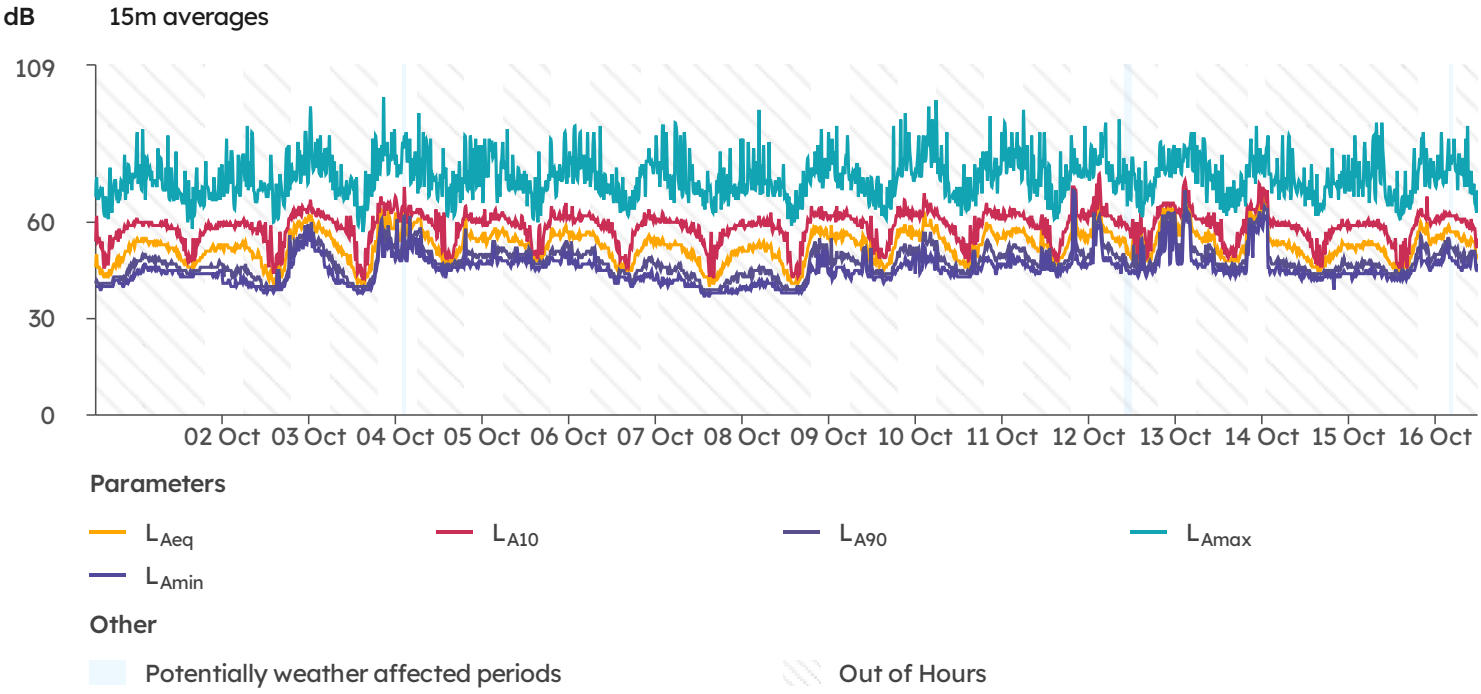
MSF 3in1 Pod

01 Oct 2023 - 16 Oct 2023



Hassall Street

01 Oct 2023 - 16 Oct 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 16Oct23_31Oct23 Westmead

Monitoring Devices

Date Range 17 Oct 2023 - 31 Oct 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

62 dB	DAY L_{Aeq}
56 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

57 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
51 dB	NIGHT L_{Aeq}

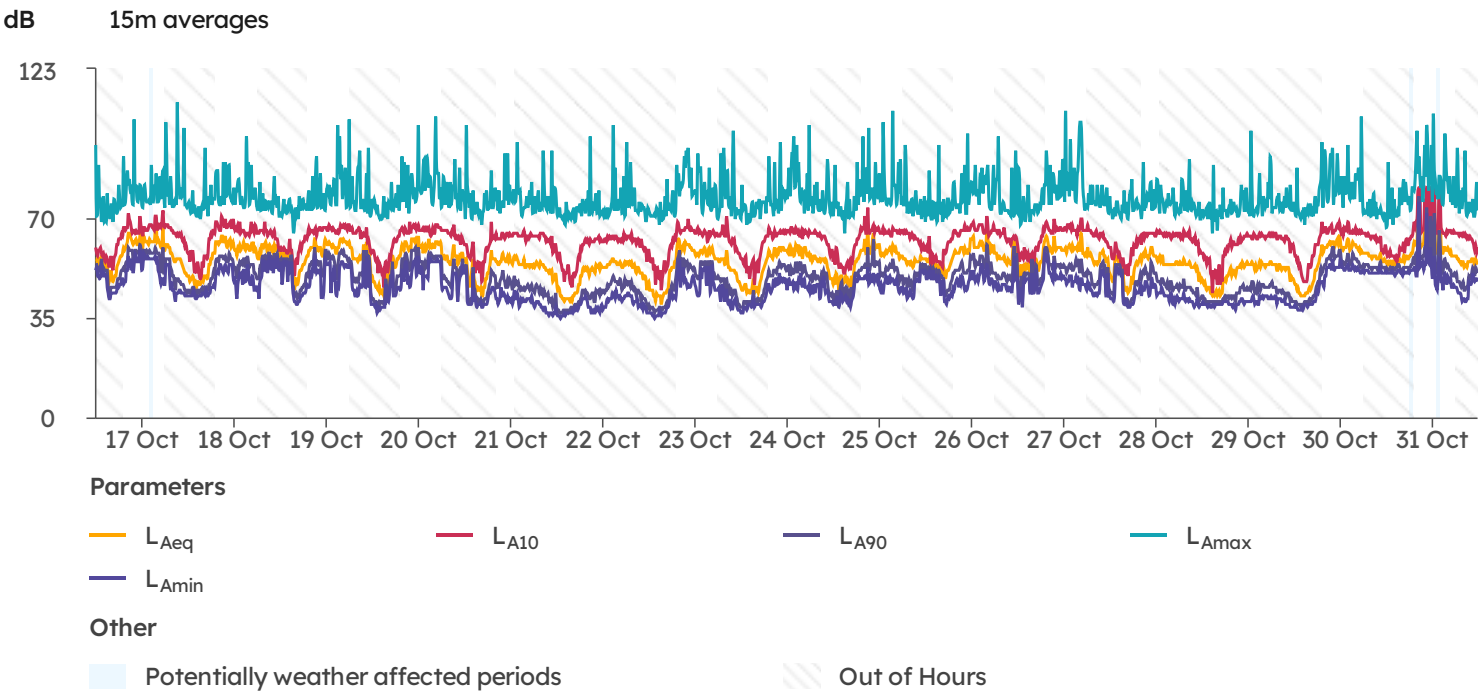
Average value across selected time period

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

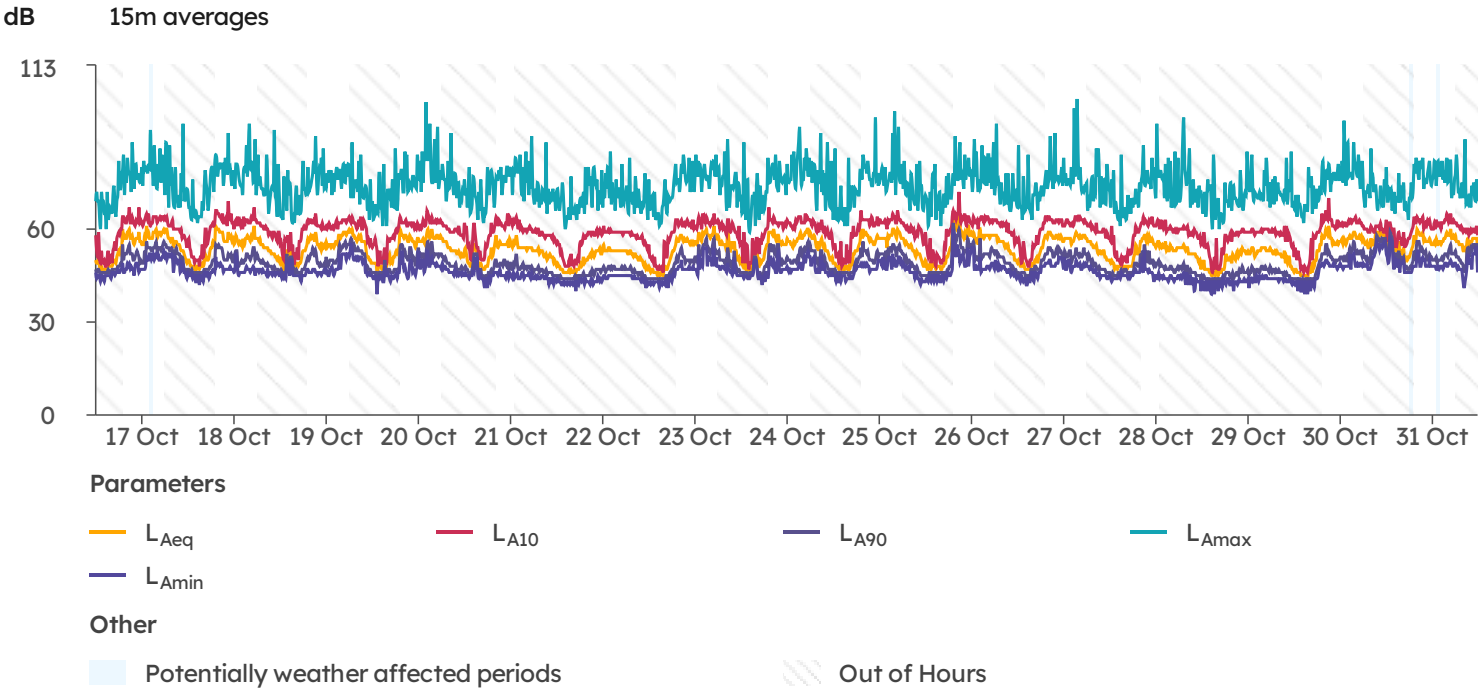
MSF 3in1 Pod

17 Oct 2023 - 31 Oct 2023



Hassall Street

17 Oct 2023 - 31 Oct 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 01Nov23_16Nov23 Westmead

Monitoring Devices

Date Range 01 Nov 2023 - 16 Nov 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

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

Average value across selected time period

Hassall Street

58 dB	DAY L_{Aeq}
54 dB	EVENING L_{Aeq}
58 dB	NIGHT L_{Aeq}

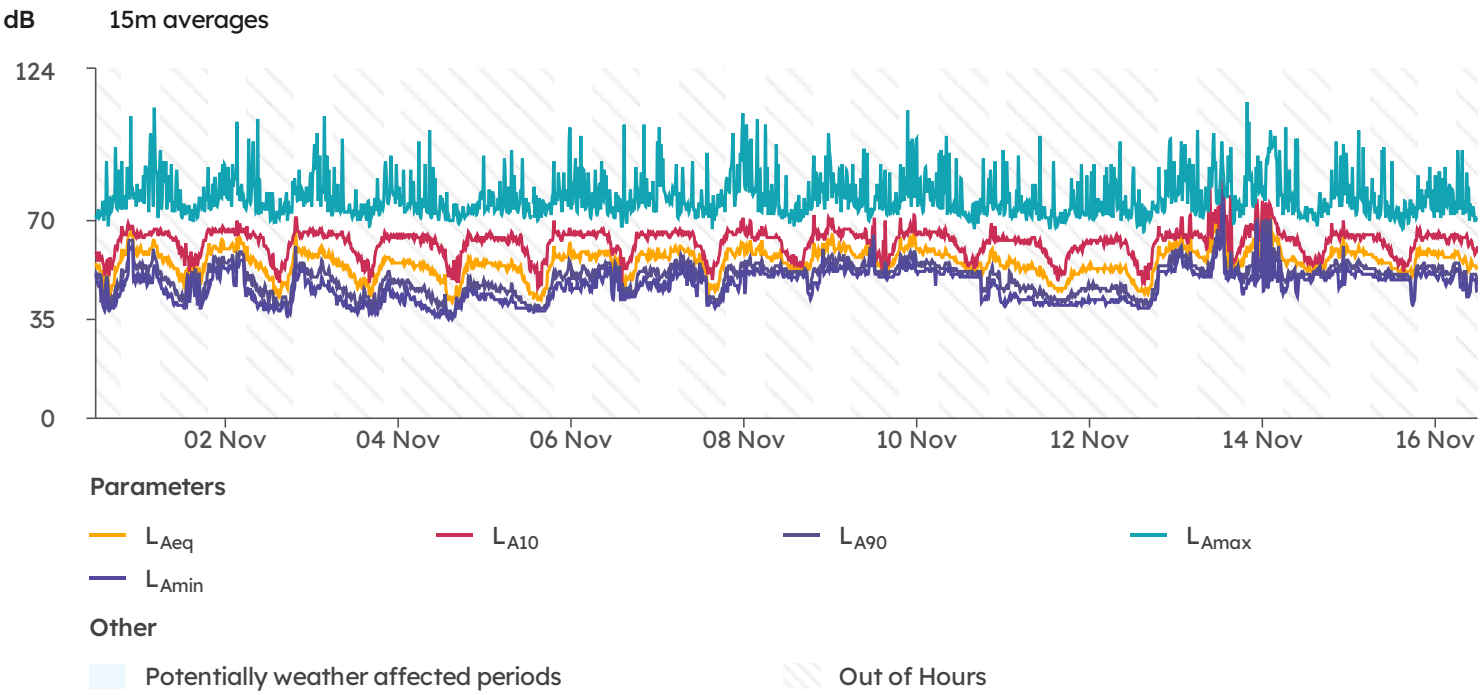
Average value across selected time period

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

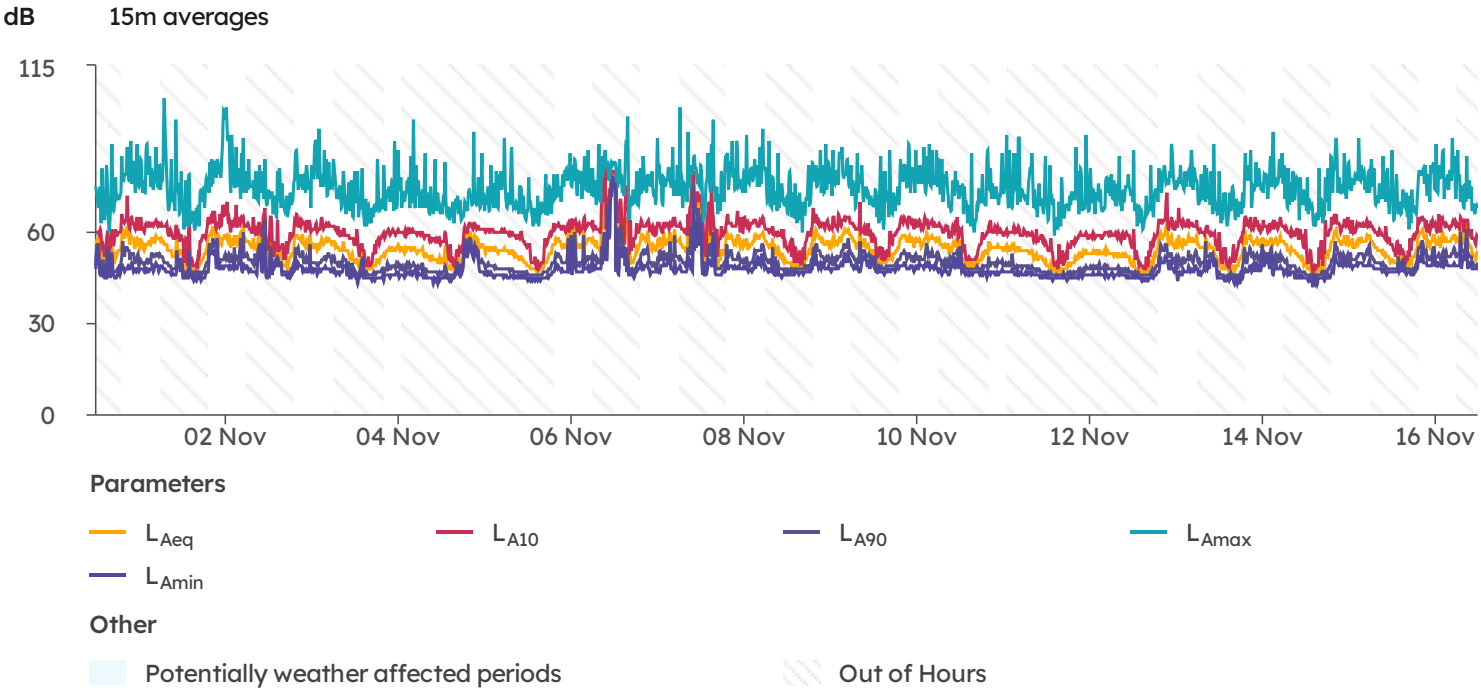
MSF 3in1 Pod

01 Nov 2023 - 16 Nov 2023



Hassall Street

01 Nov 2023 - 16 Nov 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 17Nov23_30Nov23 Westmead

Monitoring Devices

Date Range 17 Nov 2023 - 30 Nov 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

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

Average value across selected time period

Hassall Street

58 dB	DAY L_{Aeq}
56 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

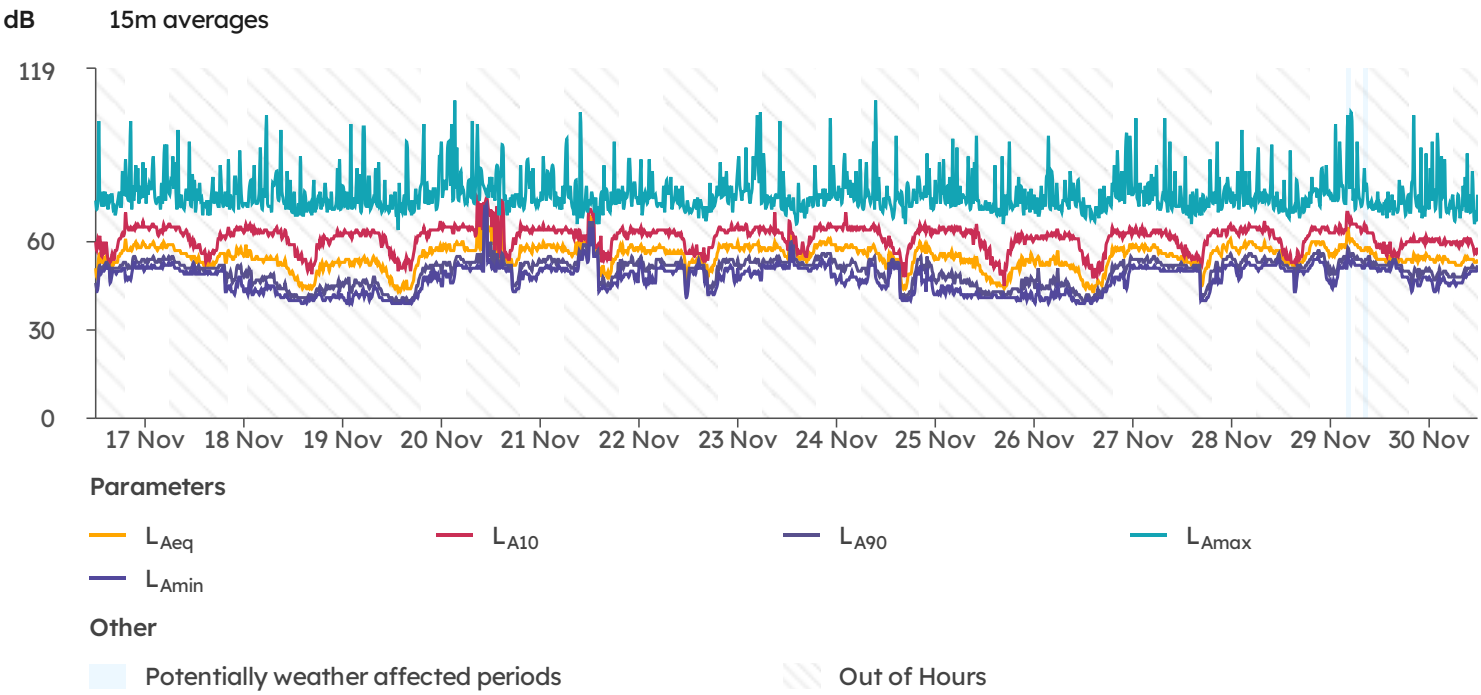
Average value across selected time period

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

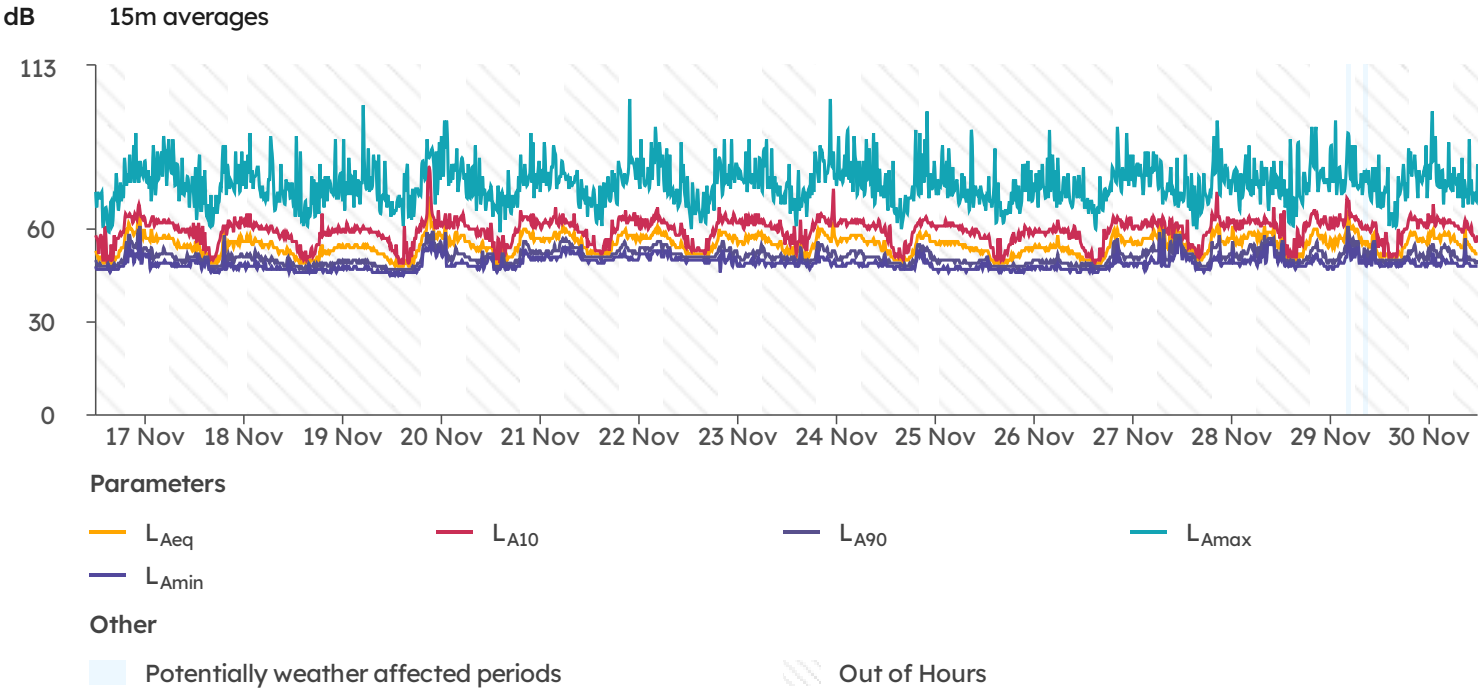
MSF 3in1 Pod

17 Nov 2023 - 30 Nov 2023



Hassall Street

17 Nov 2023 - 30 Nov 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 01Dec23_16Dec23 Westmead

Monitoring Devices

Date Range 01 Dec 2023 - 16 Dec 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

56 dB	DAY L_{Aeq}
52 dB	EVENING L_{Aeq}
51 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

58 dB	DAY L_{Aeq}
52 dB	EVENING L_{Aeq}
52 dB	NIGHT L_{Aeq}

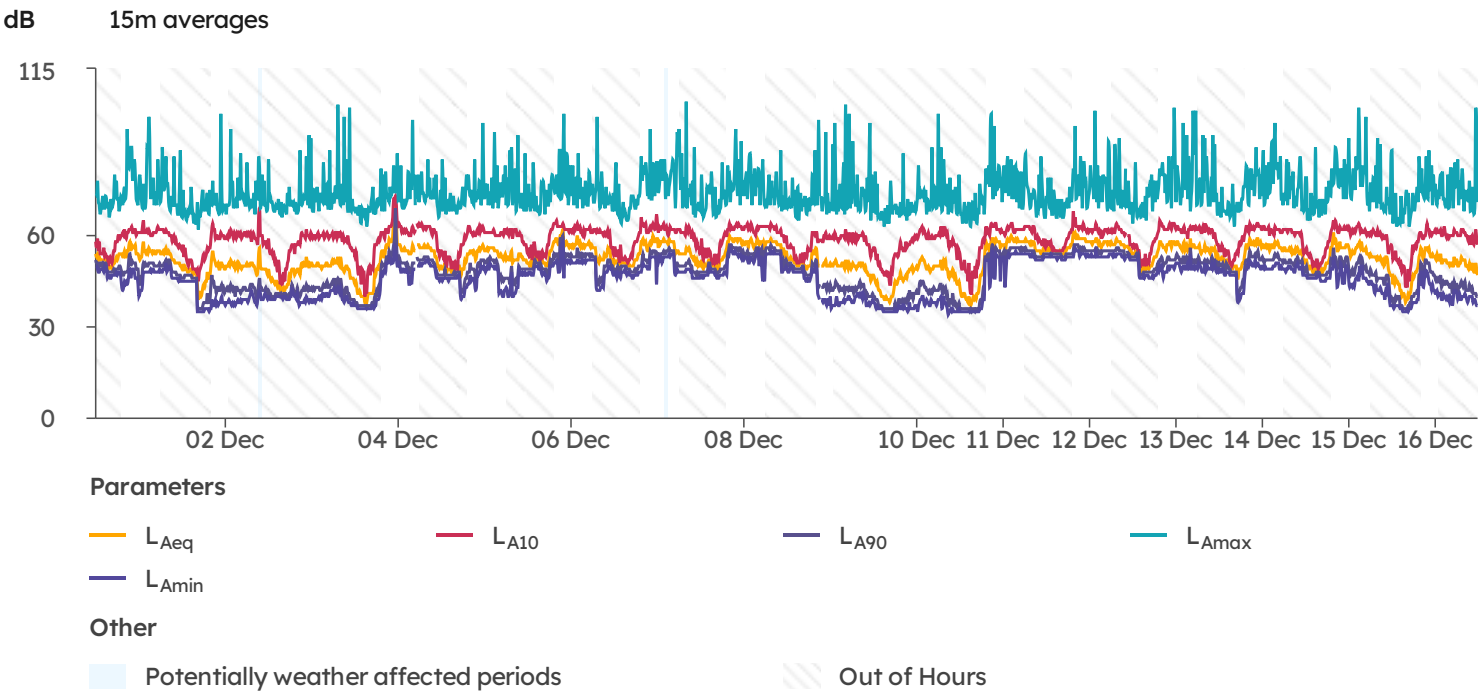
Average value across selected time period

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

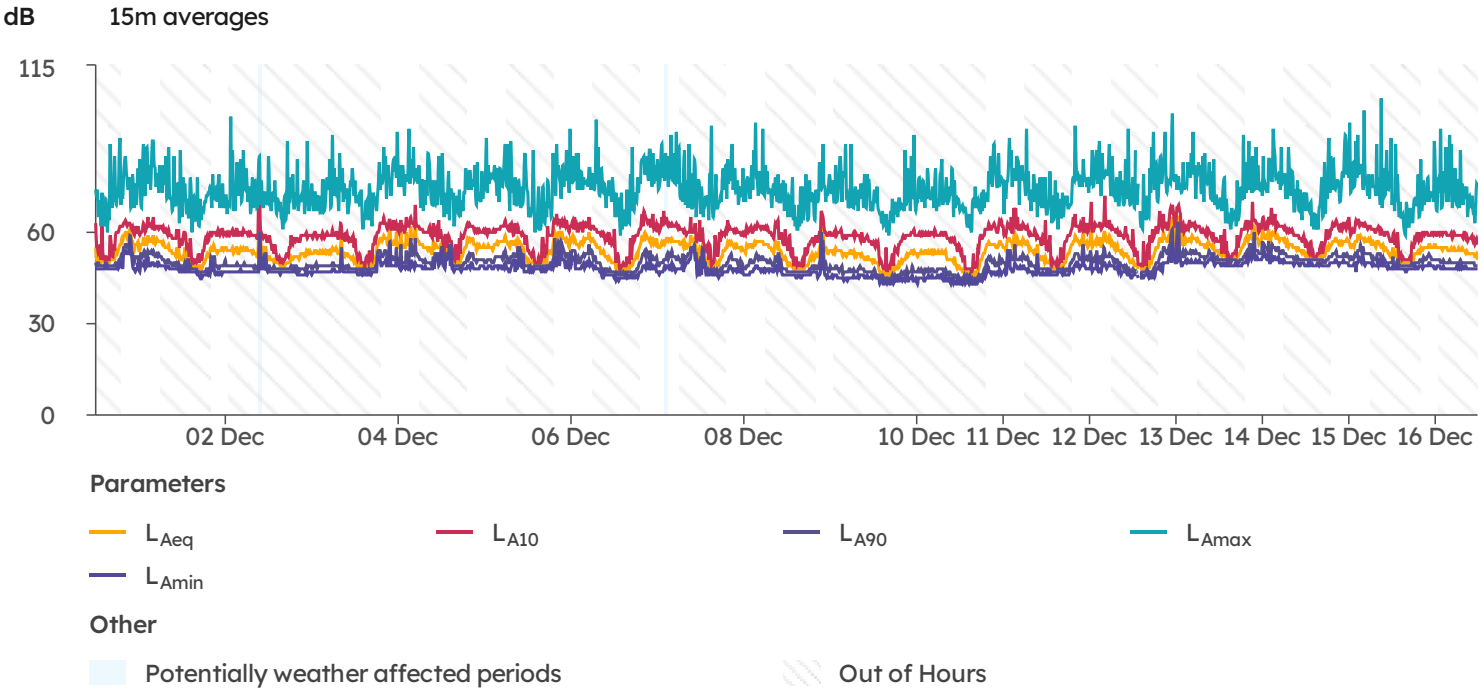
MSF 3in1 Pod

01 Dec 2023 - 16 Dec 2023



Hassall Street

01 Dec 2023 - 16 Dec 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 17Dec23_31Dec23 Westmead

Monitoring Devices

Date Range 17 Dec 2023 - 31 Dec 2023

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

55 dB	DAY L_{Aeq}
52 dB	EVENING L_{Aeq}
47 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

56 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
53 dB	NIGHT L_{Aeq}

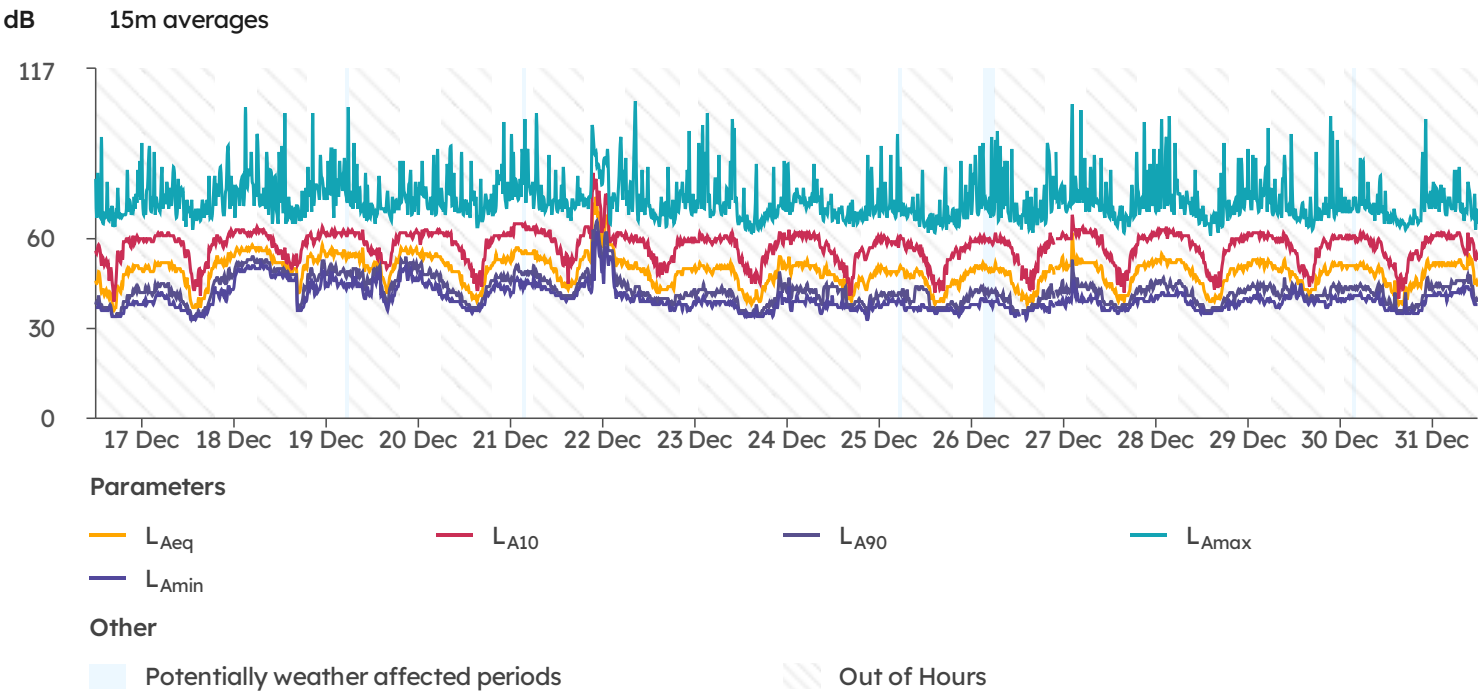
Average value across selected time period

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

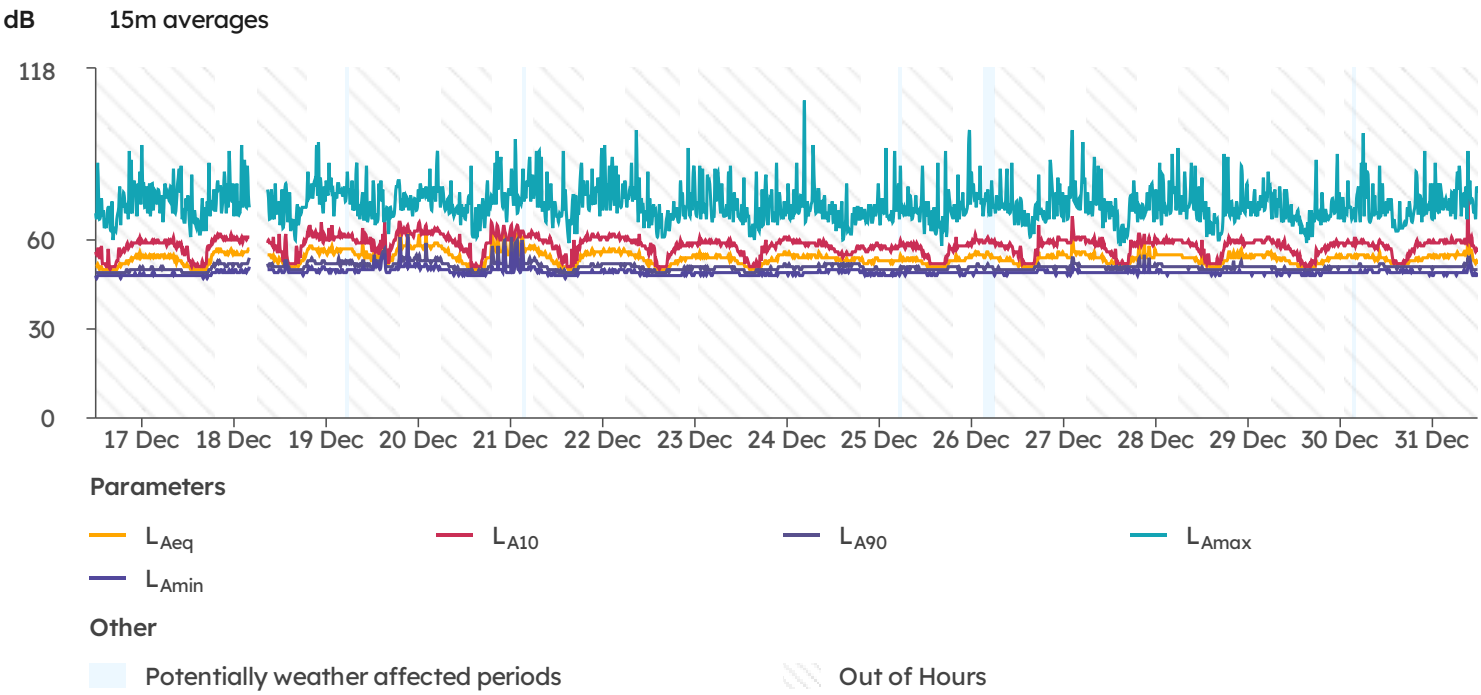
MSF 3in1 Pod

17 Dec 2023 - 31 Dec 2023



Hassall Street

17 Dec 2023 - 31 Dec 2023



Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Unattended Noise Monitoring 01Jan23_19Jan23 Westmead

Monitoring Devices

Date Range 01 Jan 2024 - 19 Jan 2024

Device Serial	Monitoring Points
HEX-000007	MSF 3in1 Pod
HEX-000020	Hassall Street

Noise Monitoring Statistics

MSF 3in1 Pod

56 dB	DAY L_{Aeq}
55 dB	EVENING L_{Aeq}
49 dB	NIGHT L_{Aeq}

Average value across selected time period

Hassall Street

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

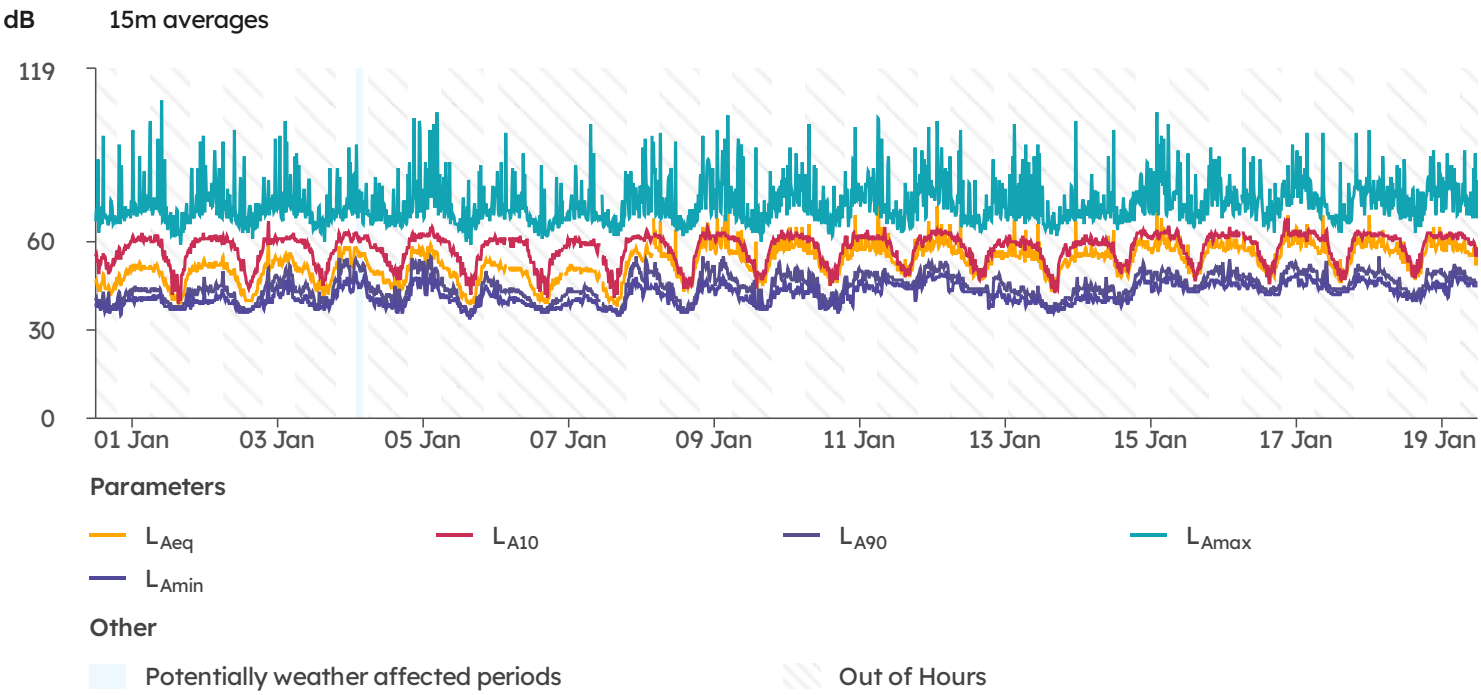
Average value across selected time period

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

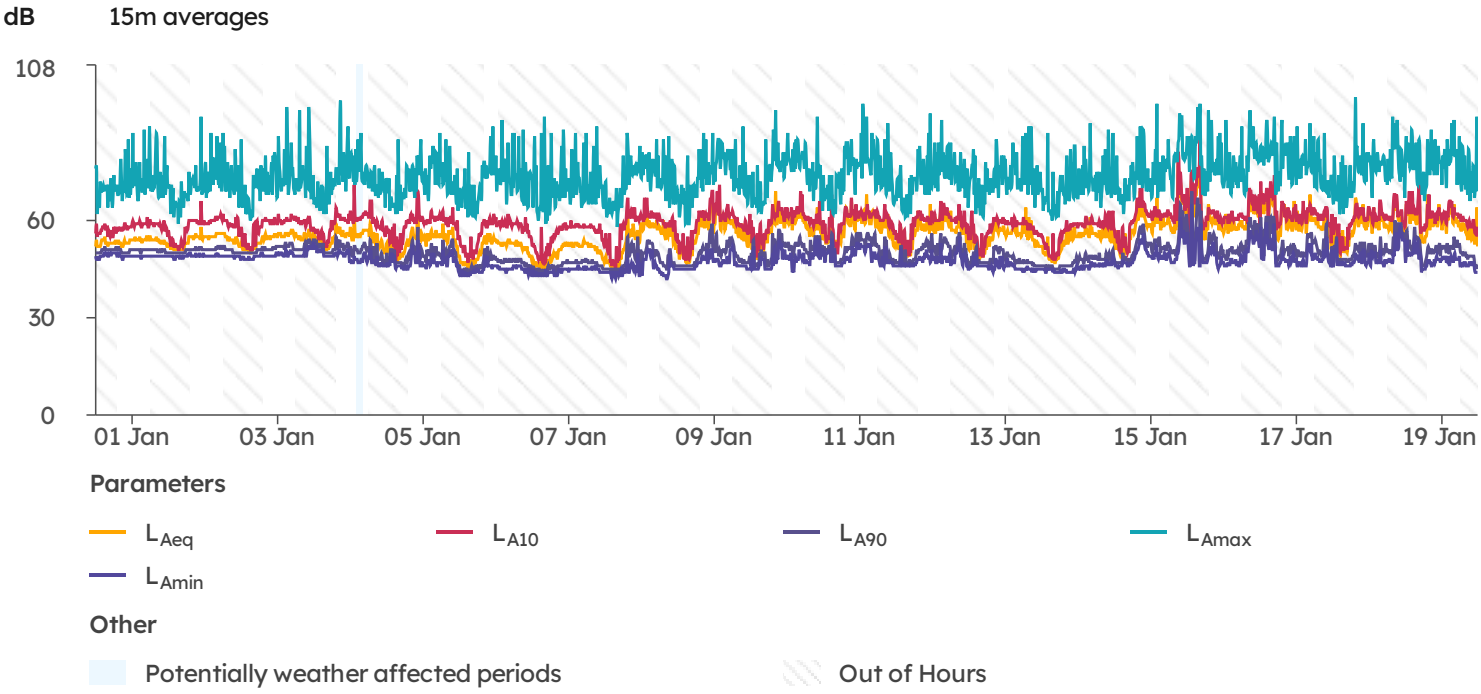
MSF 3in1 Pod

01 Jan 2024 - 19 Jan 2024



Hassall Street

01 Jan 2024 - 19 Jan 2024



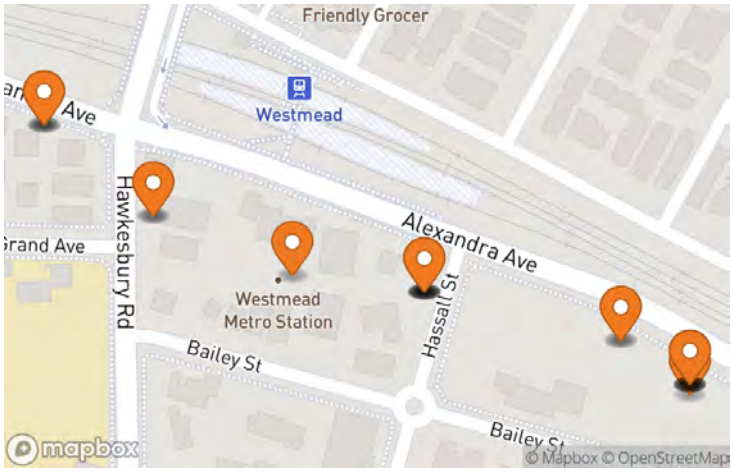
Gamuda Laing O'Rourke

Sydney Metro West WTP Westmead

Monitoring Devices

Date Range 19 Jul 2023 - 19 Jan 2024

Device Serial	Monitoring Points
QAVULI	Hawkesbury Road
NUWACA	Hassall Street
VIB-000006	Hassall Street - trial
C22	30 Alexandra Ave
VIB-000009	4 Alexandra Ave New, 4 Alexandra Ave
VIB-000021	Hassall Street
VIB-000010	Hassall Street
VIB-000030	7 Alexandra Avenue
VIB-000072	30 Alexandra Ave



Vibration Monitoring Statistics

mm/s	Hassall Street		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	1	1	0
20 Jul 2023	1	0	0
21 Jul 2023	1	1	0
22 Jul 2023	1	0	0
23 Jul 2023	1	0	0
24 Jul 2023	0	0	0
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	110	68	88
01 Aug 2023	0	0	0
02 Aug 2023	1	1	0
03 Aug 2023	2	1	1
04 Aug 2023	1	2	1
05 Aug 2023	0	0	0
06 Aug 2023	0	0	0
07 Aug 2023	1	1	1
08 Aug 2023	16	8	2
09 Aug 2023	0	0	0
10 Aug 2023	0	0	0
11 Aug 2023	0	1	0
12 Aug 2023	0	1	1
13 Aug 2023	0	1	0
14 Aug 2023	2	1	3
15 Aug 2023	1	1	4
16 Aug 2023	0	0	0
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	0	0	0
22 Aug 2023	0	0	0
23 Aug 2023	1	1	1
24 Aug 2023	0	0	0
25 Aug 2023	1806	933	1624
26 Aug 2023	0	0	0
27 Aug 2023	0	0	0
28 Aug 2023	28	17	2
29 Aug 2023	0	0	1
30 Aug 2023	0	1	0
31 Aug 2023	23	17	3
01 Sep 2023	1	0	0
02 Sep 2023	0	1	0

$m/s^{1.75}$	Hassall Street	
Daily VDV	Day	Night
19 Jul 2023	--	--
20 Jul 2023	--	--
21 Jul 2023	--	--
22 Jul 2023	--	--
23 Jul 2023	--	--
24 Jul 2023	--	--
25 Jul 2023	--	--
26 Jul 2023	--	--
27 Jul 2023	--	--
28 Jul 2023	--	--
29 Jul 2023	--	--
30 Jul 2023	--	--
31 Jul 2023	--	--
01 Aug 2023	--	--
02 Aug 2023	--	--
03 Aug 2023	0.01 (Z)	0.01 (Z)
04 Aug 2023	0.03 (Z)	0.04 (Z)
05 Aug 2023	0.02 (Z)	0.01 (Z)
06 Aug 2023	0.01 (Z)	0.01 (X)
07 Aug 2023	0.03 (Z)	0.02 (Z)
08 Aug 2023	0.06 (X)	0.02 (Z)
09 Aug 2023	0.02 (Z)	0.01 (Z)
10 Aug 2023	0.02 (Z)	0.01 (Z)
11 Aug 2023	0.02 (Z)	0.01 (Z)
12 Aug 2023	0.02 (Z)	0.01 (Y)
13 Aug 2023	0.01 (X)	0.02 (Z)
14 Aug 2023	0.06 (Z)	0.04 (Z)
15 Aug 2023	0.02 (Z)	0.01 (Z)
16 Aug 2023	0.01 (Z)	--
17 Aug 2023	--	--
18 Aug 2023	--	--
19 Aug 2023	--	--
20 Aug 2023	--	--
21 Aug 2023	--	--
22 Aug 2023	--	--
23 Aug 2023	--	--
24 Aug 2023	--	--
25 Aug 2023	--	--
26 Aug 2023	--	--
27 Aug 2023	--	--
28 Aug 2023	--	--
29 Aug 2023	--	--
30 Aug 2023	--	--
31 Aug 2023	--	--
01 Sep 2023	--	--
02 Sep 2023	--	--

03 Sep 2023	0	0	0	03 Sep 2023	--	--
04 Sep 2023	0	1	0	04 Sep 2023	--	--
05 Sep 2023	0	1	0	05 Sep 2023	--	--
06 Sep 2023	1	0	0	06 Sep 2023	--	--
07 Sep 2023	0	0	0	07 Sep 2023	--	--
08 Sep 2023	1	1	0	08 Sep 2023	--	--
09 Sep 2023	0	0	0	09 Sep 2023	--	--
10 Sep 2023	0	0	0	10 Sep 2023	--	--
11 Sep 2023	0	0	0	11 Sep 2023	--	--
12 Sep 2023	0	0	0	12 Sep 2023	--	--
13 Sep 2023	1	0	0	13 Sep 2023	--	--
14 Sep 2023	1	1	0	14 Sep 2023	--	--
15 Sep 2023	1	1	1	15 Sep 2023	0.01 (Z)	0.01 (Z)
16 Sep 2023	0	1	0	16 Sep 2023	0.01 (Z)	0.01 (Z)
17 Sep 2023	0	0	0	17 Sep 2023	0.01 (Z)	0.01 (Z)
18 Sep 2023	0	0	0	18 Sep 2023	0.02 (Z)	0.02 (Z)
19 Sep 2023	0	0	0	19 Sep 2023	0.01 (Z)	0.01 (Z)
20 Sep 2023	0	0	0	20 Sep 2023	0.01 (Z)	0.01 (Z)
21 Sep 2023	8	6	1	21 Sep 2023	0.02 (X)	0.01 (Z)
22 Sep 2023	0	0	0	22 Sep 2023	0.02 (Z)	0.02 (Z)
23 Sep 2023	1	0	0	23 Sep 2023	0.01 (Z)	0.01 (Z)
24 Sep 2023	0	0	0	24 Sep 2023	0.01 (Z)	0.01 (Z)
25 Sep 2023	1	0	0	25 Sep 2023	0.02 (Z)	0.01 (Z)
26 Sep 2023	0	0	0	26 Sep 2023	0.02 (Z)	0.01 (Z)
27 Sep 2023	0	0	0	27 Sep 2023	0.02 (Z)	0.01 (Z)
28 Sep 2023	8	72	13	28 Sep 2023	0.26 (Z)	0.01 (Z)
29 Sep 2023	1	0	1	29 Sep 2023	0.01 (Z)	0.01 (Z)
30 Sep 2023	0	0	0	30 Sep 2023	0.01 (Z)	0.01 (Z)
01 Oct 2023	0	0	0	01 Oct 2023	0.01 (Z)	0.01 (Z)
02 Oct 2023	0	0	0	02 Oct 2023	0.01 (Z)	0.01 (Z)
03 Oct 2023	1	1	0	03 Oct 2023	0.01 (Z)	0.01 (Z)
04 Oct 2023	570	264	350	04 Oct 2023	2.02 (Z)	0.01 (Z)
05 Oct 2023	0	0	1	05 Oct 2023	0.01 (Z)	0.01 (Z)
06 Oct 2023	0	0	0	06 Oct 2023	0.01 (Z)	0.01 (Z)
07 Oct 2023	0	0	0	07 Oct 2023	0.01 (Z)	0.01 (Z)
08 Oct 2023	0	0	0	08 Oct 2023	0.01 (Z)	0.01 (Z)
09 Oct 2023	680	424	71	09 Oct 2023	0.91 (X)	0.01 (X)
10 Oct 2023	10	4	8	10 Oct 2023	0.13 (Z)	0.04 (Z)
11 Oct 2023	3	2	3	11 Oct 2023	0.01 (X)	0.02 (Z)
12 Oct 2023	0	0	0	12 Oct 2023	0.01 (Z)	0.01 (Z)
13 Oct 2023	0	0	0	13 Oct 2023	0.01 (Z)	0.01 (Z)
14 Oct 2023	0	0	0	14 Oct 2023	0.01 (Z)	0.01 (Z)
15 Oct 2023	0	0	0	15 Oct 2023	0.01 (Z)	0.01 (Z)
16 Oct 2023	0	0	0	16 Oct 2023	0.01 (Z)	--
17 Oct 2023	1	1	1	17 Oct 2023	0.02 (Z)	0.01 (Y)
18 Oct 2023	232	134	53	18 Oct 2023	0.83 (Z)	0.01 (Z)
19 Oct 2023	0	0	0	19 Oct 2023	0.02 (Z)	0.01 (Z)
20 Oct 2023	0	0	0	20 Oct 2023	0.01 (Z)	0.01 (Z)
21 Oct 2023	0	0	0	21 Oct 2023	0.01 (Z)	0.01 (Z)
22 Oct 2023	0	0	0	22 Oct 2023	0.01 (Z)	0.01 (Z)
					0.01 (Z)	0.01 (Z)

23 Oct 2023	0	0	0	23 Oct 2023	0.01 (X)	0.01 (X)
24 Oct 2023	1	1	0	24 Oct 2023	0.02 (Z)	0.01 (X)
25 Oct 2023	1	1	1	25 Oct 2023	0.02 (Y)	0.01 (X)
26 Oct 2023	2	2	2	26 Oct 2023	0.02 (Z)	0.01 (Z)
27 Oct 2023	1	2	1	27 Oct 2023	0.01 (Z)	0.01 (Z)
28 Oct 2023	0	0	0	28 Oct 2023	0.01 (Z)	0.01 (Z)
29 Oct 2023	0	0	0	29 Oct 2023	0.01 (Z)	0.01 (Z)
30 Oct 2023	0	1	0	30 Oct 2023	0.01 (Z)	0.01 (Z)
31 Oct 2023	1	0	0	31 Oct 2023	0.01 (Z)	0.01 (Z)
01 Nov 2023	0	1	0	01 Nov 2023	0.02 (Z)	0.01 (Z)
02 Nov 2023	2	2	1	02 Nov 2023	0.01 (X)	0.01 (Z)
03 Nov 2023	0	0	0	03 Nov 2023	0.01 (Z)	0.01 (Z)
04 Nov 2023	0	0	0	04 Nov 2023	0.01 (Z)	0.01 (Z)
05 Nov 2023	0	0	0	05 Nov 2023	0.01 (Z)	0.02 (Z)
06 Nov 2023	0	0	0	06 Nov 2023	0.01 (Z)	0.02 (Z)
07 Nov 2023	1	0	0	07 Nov 2023	0.01 (Z)	0.01 (Z)
08 Nov 2023	0	0	0	08 Nov 2023	0.01 (Z)	0.01 (Z)
09 Nov 2023	0	0	0	09 Nov 2023	0.01 (Z)	0.01 (Z)
10 Nov 2023	0	0	0	10 Nov 2023	0.01 (Z)	0.01 (Z)
11 Nov 2023	0	0	0	11 Nov 2023	0.01 (Z)	0.01 (Z)
12 Nov 2023	0	0	0	12 Nov 2023	0.01 (Z)	0.01 (Z)
13 Nov 2023	0	0	0	13 Nov 2023	0.01 (Z)	0.01 (Z)
14 Nov 2023	0	0	0	14 Nov 2023	0.01 (Z)	0.01 (Z)
15 Nov 2023	0	0	0	15 Nov 2023	0.01 (Z)	0.01 (Z)
16 Nov 2023	0	0	0	16 Nov 2023	0.01 (Z)	0.01 (Z)
17 Nov 2023	0	0	0	17 Nov 2023	0.01 (Z)	0.01 (Z)
18 Nov 2023	0	1	1	18 Nov 2023	0.01 (Z)	0.01 (Z)
19 Nov 2023	0	0	0	19 Nov 2023	0.01 (Z)	0.01 (Z)
20 Nov 2023	1	0	1	20 Nov 2023	0.04 (Z)	0.01 (Z)
21 Nov 2023	0	0	0	21 Nov 2023	0.01 (Z)	0.01 (Z)
22 Nov 2023	0	0	0	22 Nov 2023	0.01 (Z)	0.01 (Z)
23 Nov 2023	0	1	0	23 Nov 2023	0.01 (Z)	0.01 (Z)
24 Nov 2023	1	0	0	24 Nov 2023	0.01 (Z)	0.01 (Z)
25 Nov 2023	0	0	0	25 Nov 2023	0.01 (Z)	0.01 (Z)
26 Nov 2023	0	0	0	26 Nov 2023	0.01 (Z)	0.01 (Z)
27 Nov 2023	0	1	0	27 Nov 2023	0.01 (Z)	0.01 (Z)
28 Nov 2023	3	3	3	28 Nov 2023	0.06 (Z)	0.01 (Z)
29 Nov 2023	2	3	2	29 Nov 2023	0.04 (Z)	0.01 (Z)
30 Nov 2023	0	0	0	30 Nov 2023	0.01 (Z)	0.01 (Z)
01 Dec 2023	0	0	0	01 Dec 2023	0.01 (Z)	0.01 (Z)
02 Dec 2023	0	0	0	02 Dec 2023	0.01 (Z)	0.01 (Z)
03 Dec 2023	0	0	0	03 Dec 2023	0.01 (Z)	0.01 (Z)
04 Dec 2023	0	0	0	04 Dec 2023	0.01 (Z)	0.01 (Z)
05 Dec 2023	0	0	0	05 Dec 2023	0.01 (Z)	0.01 (Z)
06 Dec 2023	0	0	0	06 Dec 2023	0.01 (Z)	--
07 Dec 2023	0	0	0	07 Dec 2023	0.01 (Z)	0.01 (Z)
08 Dec 2023	0	1	1	08 Dec 2023	0.03 (Z)	0.01 (Z)
09 Dec 2023	1	1	1	09 Dec 2023	0.02 (Z)	0.01 (Z)
10 Dec 2023	0	0	0	10 Dec 2023	0.01 (Z)	0.01 (Z)
11 Dec 2023	0	0	0	11 Dec 2023	0.01 (Z)	0.01 (Z)
12 Dec 2023	0	1	1	12 Dec 2023	0.02 (Z)	0.01 (Z)
					0.04 (Z)	0.01 (Z)

13 Dec 2023	2	5	2
14 Dec 2023	0	0	1
15 Dec 2023	11	43	39
16 Dec 2023	0	0	0
17 Dec 2023	0	0	0
18 Dec 2023	0	0	0
19 Dec 2023	0	0	0
20 Dec 2023	0	0	0
21 Dec 2023	0	0	0
22 Dec 2023	0	0	0
23 Dec 2023	0	0	0
24 Dec 2023	0	0	0
25 Dec 2023	0	0	0
26 Dec 2023	0	0	0
27 Dec 2023	0	0	0
28 Dec 2023	0	0	0
29 Dec 2023	0	0	0
30 Dec 2023	0	0	0
31 Dec 2023	0	0	0
01 Jan 2024	0	0	0
02 Jan 2024	0	0	0
03 Jan 2024	0	0	0
04 Jan 2024	0	0	0
05 Jan 2024	0	0	0
06 Jan 2024	0	0	0
07 Jan 2024	0	0	0
08 Jan 2024	0	0	0
09 Jan 2024	0	0	0
10 Jan 2024	0	0	0
11 Jan 2024	1	2	2
12 Jan 2024	0	0	0
13 Jan 2024	0	0	0
14 Jan 2024	0	0	0
15 Jan 2024	1	1	1
16 Jan 2024	1	1	1
17 Jan 2024	0	0	1
18 Jan 2024	1	0	0
19 Jan 2024	1	0	0

13 Dec 2023	0.02 (Z)	0.01 (Z)
14 Dec 2023	0.94 (Z)	0.01 (Z)
15 Dec 2023	0.01 (Z)	0.01 (Z)
16 Dec 2023	0.01 (Z)	0.01 (Z)
17 Dec 2023	0.01 (Z)	0.01 (Z)
18 Dec 2023	0.01 (Z)	0.01 (Z)
19 Dec 2023	0.01 (Z)	0.01 (Z)
20 Dec 2023	0.01 (Z)	0.01 (Z)
21 Dec 2023	0.01 (Z)	0.01 (Z)
22 Dec 2023	0.01 (Z)	0.01 (Z)
23 Dec 2023	0.01 (Z)	0.01 (Z)
24 Dec 2023	0.01 (Z)	0.01 (Z)
25 Dec 2023	0.01 (Z)	0.01 (Z)
26 Dec 2023	0.01 (Z)	0.01 (Z)
27 Dec 2023	0.01 (Z)	0.01 (Z)
28 Dec 2023	0.01 (Z)	0.01 (Z)
29 Dec 2023	0.01 (Z)	0.01 (Z)
30 Dec 2023	0.01 (Z)	0.01 (Z)
31 Dec 2023	0.01 (Z)	0.01 (Z)
01 Jan 2024	0.01 (Z)	0.01 (Z)
02 Jan 2024	0.01 (Z)	0.01 (Z)
03 Jan 2024	0.01 (Z)	0.01 (Z)
04 Jan 2024	0.05 (Z)	0.01 (Z)
05 Jan 2024	0.01 (Z)	0.01 (Z)
06 Jan 2024	0.01 (Z)	0.01 (Z)
07 Jan 2024	0.01 (Z)	0.01 (Z)
08 Jan 2024	0.01 (Z)	0.01 (Z)
09 Jan 2024	0.01 (Z)	0.01 (Z)
10 Jan 2024	0.01 (Z)	0.01 (Z)
11 Jan 2024	0.04 (Z)	0.01 (Z)
12 Jan 2024	0.01 (Z)	0.01 (Z)
13 Jan 2024	0.01 (Z)	0.01 (Z)
14 Jan 2024	0.01 (Z)	0.01 (Z)
15 Jan 2024	0.03 (Z)	0.05 (Z)
16 Jan 2024	0.02 (Z)	0.04 (Z)
17 Jan 2024	0.01 (Z)	0.01 (Z)
18 Jan 2024	0.02 (Z)	0.03 (Z)
19 Jan 2024	0.02 (Z)	0.01 (Z)

mm/s	Hawkesbury Road		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	359	196	273
20 Jul 2023	287	172	202
21 Jul 2023	245	367	296
22 Jul 2023	1	1	1
23 Jul 2023	0	1	0
24 Jul 2023	344	185	125
25 Jul 2023	281	204	220
26 Jul 2023	300	249	123
27 Jul 2023	88	48	47
28 Jul 2023	15	18	6
29 Jul 2023	25	16	14
30 Jul 2023	1	1	0
31 Jul 2023	180	121	83
01 Aug 2023	244	232	219
02 Aug 2023	5	7	7
03 Aug 2023	6	7	2
04 Aug 2023	6	6	3
05 Aug 2023	3	1	1
06 Aug 2023	3	2	0
07 Aug 2023	4	2	1
08 Aug 2023	3	2	1
09 Aug 2023	3	3	2
10 Aug 2023	3	1	1
11 Aug 2023	5	4	4
12 Aug 2023	145	84	378
13 Aug 2023	1	2	0
14 Aug 2023	42	24	6
15 Aug 2023	441	707	322
16 Aug 2023	7	9	8
17 Aug 2023	4	3	5
18 Aug 2023	2	3	2
19 Aug 2023	2	2	1
20 Aug 2023	1	1	1
21 Aug 2023	4	4	3
22 Aug 2023	2	2	2
23 Aug 2023	6	4	5
24 Aug 2023	1	2	1
25 Aug 2023	2	4	2
26 Aug 2023	0	1	0
27 Aug 2023	--	--	--
28 Aug 2023	1	1	1
29 Aug 2023	1	2	1
30 Aug 2023	1	1	1
31 Aug 2023	1	1	1
01 Sep 2023	1	2	1
02 Sep 2023	3	4	3

$m/s^{1.75}$	Hawkesbury Road	
Daily VDV	Day	Night
19 Jul 2023	--	--
20 Jul 2023	--	--
21 Jul 2023	--	--
22 Jul 2023	--	--
23 Jul 2023	--	--
24 Jul 2023	--	--
25 Jul 2023	--	--
26 Jul 2023	3.36 (Z)	0.03 (Z)
27 Jul 2023	1.26 (Z)	0.01 (X)
28 Jul 2023	0.15 (Z)	0.01 (Z)
29 Jul 2023	0.31 (Z)	0.01 (Z)
30 Jul 2023	0.01 (X)	0.01 (Z)
31 Jul 2023	2.96 (Z)	0.02 (Z)
01 Aug 2023	5.03 (Z)	0.01 (X)
02 Aug 2023	0.2 (Z)	0.01 (X)
03 Aug 2023	0.07 (Z)	0.01 (X)
04 Aug 2023	0.06 (Z)	0.01 (X)
05 Aug 2023	0.02 (X)	0.01 (Z)
06 Aug 2023	0.02 (Z)	0.01 (Z)
07 Aug 2023	0.05 (Z)	0.01 (X)
08 Aug 2023	0.03 (Z)	0.01 (Z)
09 Aug 2023	0.05 (Z)	0.01 (X)
10 Aug 2023	0.02 (X)	--
11 Aug 2023	0.16 (Z)	0.02 (Z)
12 Aug 2023	6.22 (Z)	0.01 (X)
13 Aug 2023	0.01 (X)	0.02 (Z)
14 Aug 2023	0.17 (Z)	0.01 (Z)
15 Aug 2023	5.14 (Z)	0.03 (Z)
16 Aug 2023	0.45 (Z)	0.03 (Z)
17 Aug 2023	0.14 (Z)	0.03 (Z)
18 Aug 2023	0.09 (Z)	0.02 (Z)
19 Aug 2023	0.07 (Z)	0.02 (Z)
20 Aug 2023	0.04 (Z)	0.03 (Z)
21 Aug 2023	0.28 (Z)	0.06 (Z)
22 Aug 2023	0.45 (Z)	0.04 (Z)
23 Aug 2023	0.88 (Z)	0.03 (Z)
24 Aug 2023	0.21 (Z)	0.02 (Z)
25 Aug 2023	0.09 (Z)	0.02 (Z)
26 Aug 2023	0.02 (Z)	--
27 Aug 2023	--	--
28 Aug 2023	0.03 (Z)	0.01 (Z)
29 Aug 2023	0.03 (Z)	0.01 (Z)
30 Aug 2023	0.04 (Z)	0.01 (Z)
31 Aug 2023	0.02 (Z)	0.01 (Z)
01 Sep 2023	0.06 (Z)	0.01 (Z)
02 Sep 2023	0.1 (Z)	0.01 (Z)

03 Sep 2023	0	0	0
04 Sep 2023	3	2	2
05 Sep 2023	1	2	1
06 Sep 2023	3	3	2
07 Sep 2023	5	5	1
08 Sep 2023	0	0	0
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	1	1	1
12 Sep 2023	1	1	1
13 Sep 2023	1	1	1
14 Sep 2023	62	22	37
15 Sep 2023	2	2	1
16 Sep 2023	2	2	1
17 Sep 2023	0	0	0
18 Sep 2023	5	5	3
19 Sep 2023	3	3	2
20 Sep 2023	2	2	2
21 Sep 2023	2	1	2
22 Sep 2023	3	3	3
23 Sep 2023	4	3	3
24 Sep 2023	0	1	0
25 Sep 2023	6	8	4
26 Sep 2023	3	4	1
27 Sep 2023	4	3	3
28 Sep 2023	4	4	2
29 Sep 2023	12	22	5
30 Sep 2023	0	0	0
01 Oct 2023	0	1	0
02 Oct 2023	0	1	0
03 Oct 2023	4	3	4
04 Oct 2023	3	3	3
05 Oct 2023	6	5	3
06 Oct 2023	2	2	1
07 Oct 2023	1	1	1
08 Oct 2023	0	0	0
09 Oct 2023	1	1	1
10 Oct 2023	1	1	1
11 Oct 2023	1	1	1
12 Oct 2023	1	1	1
13 Oct 2023	4	3	3
14 Oct 2023	4	4	4
15 Oct 2023	0	0	0
16 Oct 2023	271	122	136
17 Oct 2023	1	2	0
18 Oct 2023	2	4	1
19 Oct 2023	1	2	1
20 Oct 2023	1	2	1
21 Oct 2023	1	1	0
22 Oct 2023	1	1	0

03 Sep 2023	0.01 (Z)	0.01 (Z)
04 Sep 2023	0.08 (Z)	0.01 (Z)
05 Sep 2023	0.08 (Z)	0.01 (Z)
06 Sep 2023	0.1 (Z)	0.01 (Z)
07 Sep 2023	0.06 (Z)	0.01 (Z)
08 Sep 2023	--	--
09 Sep 2023	--	--
10 Sep 2023	--	--
11 Sep 2023	0.06 (Z)	0.02 (Z)
12 Sep 2023	0.07 (Z)	0.02 (Z)
13 Sep 2023	0.08 (Z)	0.01 (Z)
14 Sep 2023	0.79 (Z)	0.02 (Z)
15 Sep 2023	0.12 (Z)	0.01 (Z)
16 Sep 2023	0.19 (Z)	0.01 (Z)
17 Sep 2023	0.01 (Z)	0.01 (Z)
18 Sep 2023	0.38 (Z)	0.01 (Z)
19 Sep 2023	0.18 (Z)	0.01 (Z)
20 Sep 2023	0.08 (Z)	0.01 (Z)
21 Sep 2023	0.09 (Z)	0.01 (Z)
22 Sep 2023	0.08 (Z)	0.01 (Z)
23 Sep 2023	0.11 (Z)	0.01 (Z)
24 Sep 2023	0.01 (Z)	0.01 (Z)
25 Sep 2023	0.16 (Z)	0.01 (Z)
26 Sep 2023	0.07 (Z)	0.01 (Z)
27 Sep 2023	0.23 (Z)	0.05 (Z)
28 Sep 2023	0.21 (Z)	0.01 (Z)
29 Sep 2023	0.09 (Z)	0.01 (Z)
30 Sep 2023	0.01 (Z)	0.01 (Z)
01 Oct 2023	0.02 (Z)	0.01 (Z)
02 Oct 2023	0.01 (Z)	0.01 (Z)
03 Oct 2023	0.15 (Z)	0.01 (Z)
04 Oct 2023	0.15 (Z)	0.01 (Z)
05 Oct 2023	0.1 (Z)	0.02 (Z)
06 Oct 2023	0.07 (Z)	0.01 (Z)
07 Oct 2023	0.03 (Z)	0.01 (Z)
08 Oct 2023	0.01 (Z)	0.01 (Z)
09 Oct 2023	0.04 (Z)	--
10 Oct 2023	0.05 (Z)	0.01 (Z)
11 Oct 2023	0.1 (Z)	0.01 (Z)
12 Oct 2023	0.05 (Z)	0.01 (Z)
13 Oct 2023	0.16 (Z)	0.01 (Z)
14 Oct 2023	0.12 (Z)	0.01 (Z)
15 Oct 2023	0.01 (Z)	0.01 (Z)
16 Oct 2023	2.93 (Z)	0.01 (Y)
17 Oct 2023	0.02 (Z)	0.01 (Y)
18 Oct 2023	0.07 (Z)	0.01 (Z)
19 Oct 2023	0.02 (Z)	0.01 (Z)
20 Oct 2023	0.03 (Z)	0.01 (Z)
21 Oct 2023	0.01 (Z)	0.01 (Z)
22 Oct 2023	0.01 (Z)	0.01 (Z)
	0.43 (Z)	0.01 (Z)

23 Oct 2023	63	80	25	23 Oct 2023	0.13 (Z)	0.01 (X)
24 Oct 2023	0	0	3	24 Oct 2023	0.1 (Z)	0.01 (Y)
25 Oct 2023	2	2	1	25 Oct 2023	0.07 (Z)	0.01 (X)
26 Oct 2023	2	3	1	26 Oct 2023	0.04 (Z)	0.01 (Z)
27 Oct 2023	2	2	1	27 Oct 2023	0.03 (Z)	-- (X)
28 Oct 2023	1	3	1	28 Oct 2023	--	--
29 Oct 2023	--	--	--	29 Oct 2023	--	--
30 Oct 2023	--	--	--	30 Oct 2023	--	0.01 (Z)
31 Oct 2023	--	--	--	31 Oct 2023	0.09 (Z)	0.01 (Z)
01 Nov 2023	1	1	1	01 Nov 2023	0.02 (Z)	0.01 (Y)
02 Nov 2023	1	2	0	02 Nov 2023	0.04 (Z)	0.01 (X)
03 Nov 2023	1	1	1	03 Nov 2023	2.92 (Z)	0.01 (X)
04 Nov 2023	125	57	94	04 Nov 2023	0.02 (Z)	0.01 (Z)
05 Nov 2023	0	1	0	05 Nov 2023	0.02 (Z)	0.01 (Z)
06 Nov 2023	1	1	0	06 Nov 2023	0.01 (Z)	0.01 (X)
07 Nov 2023	2	1	0	07 Nov 2023	1.02 (Z)	0.04 (Z)
08 Nov 2023	42	59	41	08 Nov 2023	3.55 (Z)	0.19 (Z)
09 Nov 2023	155	215	138	09 Nov 2023	0.04 (Z)	0.02 (Z)
10 Nov 2023	9	11	7	10 Nov 2023	0.01 (Z)	0.01 (Z)
11 Nov 2023	0	0	0	11 Nov 2023	0.02 (Z)	0.01 (Z)
12 Nov 2023	2	2	0	12 Nov 2023	2.47 (Z)	0.06 (Z)
13 Nov 2023	115	154	111	13 Nov 2023	4.85 (Z)	0.03 (Z)
14 Nov 2023	346	213	269	14 Nov 2023	0.03 (Z)	0.02 (Z)
15 Nov 2023	1	1	1	15 Nov 2023	0.02 (Z)	0.01 (Z)
16 Nov 2023	1	1	0	16 Nov 2023	0.02 (Y)	0.01 (Z)
17 Nov 2023	4	4	1	17 Nov 2023	0.02 (Z)	0.01 (Z)
18 Nov 2023	0	1	0	18 Nov 2023	0.01 (Z)	0.02 (Z)
19 Nov 2023	1	1	0	19 Nov 2023	0.06 (Z)	0.06 (Z)
20 Nov 2023	3	2	1	20 Nov 2023	0.89 (X)	0.02 (Z)
21 Nov 2023	262	129	24	21 Nov 2023	0.02 (Z)	0.01 (Z)
22 Nov 2023	1	3	1	22 Nov 2023	0.55 (X)	0.01 (Z)
23 Nov 2023	167	80	19	23 Nov 2023	0.02 (Z)	0.01 (Z)
24 Nov 2023	1	1	0	24 Nov 2023	0.02 (Z)	0.01 (Z)
25 Nov 2023	0	1	0	25 Nov 2023	0.07 (Z)	0.01 (Z)
26 Nov 2023	0	0	2	26 Nov 2023	0.03 (X)	--
27 Nov 2023	8	3	1	27 Nov 2023	--	--
28 Nov 2023	--	--	--	28 Nov 2023	--	--
29 Nov 2023	--	--	--	29 Nov 2023	--	--
30 Nov 2023	--	--	--	30 Nov 2023	0.02 (Z)	0.12 (Z)
01 Dec 2023	0	1	0	01 Dec 2023	0.73 (Z)	0.01 (Z)
02 Dec 2023	14	9	19	02 Dec 2023	0.05 (Z)	0.01 (Z)
03 Dec 2023	0	0	1	03 Dec 2023	0.03 (Z)	0.02 (Z)
04 Dec 2023	3	1	1	04 Dec 2023	0.02 (Z)	0.1 (Z)
05 Dec 2023	1	1	0	05 Dec 2023	0.02 (Z)	0.02 (Z)
06 Dec 2023	6	6	3	06 Dec 2023	0.02 (Z)	0.01 (Z)
07 Dec 2023	1	1	0	07 Dec 2023	0.08 (Z)	0.02 (Z)
08 Dec 2023	4	4	2	08 Dec 2023	0.01 (Z)	0.03 (Z)
09 Dec 2023	0	1	0	09 Dec 2023	0.01 (Z)	0.02 (Z)
10 Dec 2023	1	2	1	10 Dec 2023	0.02 (Z)	0.01 (Z)
11 Dec 2023	1	1	0	11 Dec 2023	0.03 (Z)	0.01 (Z)
12 Dec 2023	1	1	1	12 Dec 2023	0.02 (Z)	0.02 (Z)

13 Dec 2023	1	1	1
14 Dec 2023	1	1	0
15 Dec 2023	0	0	0
16 Dec 2023	1	1	1
17 Dec 2023	0	1	1
18 Dec 2023	1	1	1
19 Dec 2023	1	2	6
20 Dec 2023	0	1	0
21 Dec 2023	0	1	0
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	1	0	0
05 Jan 2024	1	1	1
06 Jan 2024	1	1	1
07 Jan 2024	0	1	0
08 Jan 2024	0	1	0
09 Jan 2024	0	1	0
10 Jan 2024	0	1	0
11 Jan 2024	0	0	1
12 Jan 2024	1	1	2
13 Jan 2024	0	1	0
14 Jan 2024	0	1	1
15 Jan 2024	3	3	1
16 Jan 2024	1	1	0
17 Jan 2024	1	2	1
18 Jan 2024	1	1	0
19 Jan 2024	1	1	0

13 Dec 2023	0.02 (Z)	0.01 (Z)
14 Dec 2023	0.02 (Z)	0.02 (Z)
15 Dec 2023	0.02 (Z)	0.02 (Z)
16 Dec 2023	0.01 (Z)	0.01 (Z)
17 Dec 2023	0.02 (Z)	0.02 (Z)
18 Dec 2023	0.25 (Z)	0.02 (Z)
19 Dec 2023	0.02 (Z)	0.01 (Z)
20 Dec 2023	0.01 (Z)	--
21 Dec 2023	--	--
22 Dec 2023	--	--
23 Dec 2023	--	--
24 Dec 2023	--	--
25 Dec 2023	--	--
26 Dec 2023	--	--
27 Dec 2023	--	--
28 Dec 2023	--	--
29 Dec 2023	--	--
30 Dec 2023	--	--
31 Dec 2023	--	--
01 Jan 2024	--	--
02 Jan 2024	--	--
03 Jan 2024	0.05 (Z)	0.01 (Z)
04 Jan 2024	0.06 (Z)	0.02 (Z)
05 Jan 2024	0.02 (Z)	0.01 (Z)
06 Jan 2024	0.01 (Z)	0.01 (Z)
07 Jan 2024	0.03 (Z)	0.01 (Z)
08 Jan 2024	0.06 (Z)	0.01 (Z)
09 Jan 2024	0.02 (Z)	0.01 (Z)
10 Jan 2024	0.03 (Z)	0.01 (Z)
11 Jan 2024	0.07 (Z)	0.01 (Z)
12 Jan 2024	0.01 (Z)	0.01 (Z)
13 Jan 2024	0.01 (Z)	0.02 (Z)
14 Jan 2024	0.05 (Z)	0.02 (Z)
15 Jan 2024	0.02 (Z)	0.01 (Y)
16 Jan 2024	0.03 (Z)	0.01 (Z)
17 Jan 2024	0.02 (Z)	0.01 (Z)
18 Jan 2024	0.02 (Z)	0.01 (Z)
19 Jan 2024		

mm/s	Hassall Street - trial		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	2	2	1
20 Jul 2023	0	1	0
21 Jul 2023	7	4	1
22 Jul 2023	1	1	1
23 Jul 2023	1	1	0
24 Jul 2023	1	1	1
25 Jul 2023	1	1	0
26 Jul 2023	7	29	36
27 Jul 2023	1	1	1
28 Jul 2023	2	1	1
29 Jul 2023	1	1	1
30 Jul 2023	1	2	1
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
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15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
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26 Aug 2023	--	--	--
27 Aug 2023	--	--	--
28 Aug 2023	--	--	--
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30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
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01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
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31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
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27 Dec 2023	--	--	--
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31 Dec 2023	--	--	--
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15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--

mm/s	30 Alexandra Ave		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	0	1	0
20 Jul 2023	0	0	0
21 Jul 2023	0	1	0
22 Jul 2023	0	0	0
23 Jul 2023	0	0	0
24 Jul 2023	0	0	0
25 Jul 2023	1	1	0
26 Jul 2023	8	25	8
27 Jul 2023	0	1	0
28 Jul 2023	0	1	0
29 Jul 2023	0	0	0
30 Jul 2023	0	0	0
31 Jul 2023	159	140	169
01 Aug 2023	0	1	0
02 Aug 2023	1	1	0
03 Aug 2023	1	3	1
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
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22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--

$m/s^{1.75}$	30 Alexandra Ave	
Daily VDV	Day	Night
19 Jul 2023	--	--
20 Jul 2023	--	--
21 Jul 2023	--	--
22 Jul 2023	--	--
23 Jul 2023	--	--
24 Jul 2023	--	--
25 Jul 2023	--	--
26 Jul 2023	--	--
27 Jul 2023	--	--
28 Jul 2023	--	--
29 Jul 2023	--	--
30 Jul 2023	--	--
31 Jul 2023	--	--
01 Aug 2023	--	--
02 Aug 2023	--	--
03 Aug 2023	--	--
04 Aug 2023	--	--
05 Aug 2023	--	--
06 Aug 2023	--	--
07 Aug 2023	--	--
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09 Aug 2023	--	--
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27 Aug 2023	--	--
28 Aug 2023	--	--
29 Aug 2023	--	--
30 Aug 2023	--	--
31 Aug 2023	--	--
01 Sep 2023	--	--
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03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
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09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
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24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
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16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--

03 Sep 2023	--	--
04 Sep 2023	--	--
05 Sep 2023	--	--
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07 Sep 2023	--	--
08 Sep 2023	--	--
09 Sep 2023	--	--
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13 Sep 2023	--	--
14 Sep 2023	--	--
15 Sep 2023	--	--
16 Sep 2023	--	--
17 Sep 2023	--	--
18 Sep 2023	--	--
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20 Sep 2023	--	--
21 Sep 2023	--	--
22 Sep 2023	--	--
23 Sep 2023	--	--
24 Sep 2023	--	--
25 Sep 2023	--	--
26 Sep 2023	--	--
27 Sep 2023	--	--
28 Sep 2023	--	--
29 Sep 2023	--	--
30 Sep 2023	--	--
01 Oct 2023	--	--
02 Oct 2023	--	--
03 Oct 2023	--	--
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16 Oct 2023	--	--
17 Oct 2023	--	--
18 Oct 2023	--	--
19 Oct 2023	--	--
20 Oct 2023	--	--
21 Oct 2023	--	--
22 Oct 2023	--	--
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23 Oct 2023	--	--	--	23 Oct 2023	--	--
24 Oct 2023	--	--	--	24 Oct 2023	--	--
25 Oct 2023	--	--	--	25 Oct 2023	--	--
26 Oct 2023	--	--	--	26 Oct 2023	--	--
27 Oct 2023	--	--	--	27 Oct 2023	--	--
28 Oct 2023	--	--	--	28 Oct 2023	--	--
29 Oct 2023	--	--	--	29 Oct 2023	--	--
30 Oct 2023	--	--	--	30 Oct 2023	--	--
31 Oct 2023	--	--	--	31 Oct 2023	--	--
01 Nov 2023	--	--	--	01 Nov 2023	--	--
02 Nov 2023	583	558	132	02 Nov 2023	--	--
03 Nov 2023	0	0	0	03 Nov 2023	--	--
04 Nov 2023	0	0	0	04 Nov 2023	--	--
05 Nov 2023	0	0	0	05 Nov 2023	--	--
06 Nov 2023	0	0	0	06 Nov 2023	--	--
07 Nov 2023	0	0	0	07 Nov 2023	--	--
08 Nov 2023	0	0	0	08 Nov 2023	--	--
09 Nov 2023	0	0	0	09 Nov 2023	--	--
10 Nov 2023	0	0	0	10 Nov 2023	--	--
11 Nov 2023	0	0	0	11 Nov 2023	--	--
12 Nov 2023	0	0	0	12 Nov 2023	--	--
13 Nov 2023	3	3	3	13 Nov 2023	--	--
14 Nov 2023	0	0	0	14 Nov 2023	--	--
15 Nov 2023	0	1	0	15 Nov 2023	--	--
16 Nov 2023	1	1	1	16 Nov 2023	--	--
17 Nov 2023	0	0	0	17 Nov 2023	--	--
18 Nov 2023	0	0	0	18 Nov 2023	--	--
19 Nov 2023	0	0	0	19 Nov 2023	--	--
20 Nov 2023	0	0	0	20 Nov 2023	--	--
21 Nov 2023	0	0	0	21 Nov 2023	--	--
22 Nov 2023	0	0	0	22 Nov 2023	--	--
23 Nov 2023	0	0	0	23 Nov 2023	--	--
24 Nov 2023	0	0	0	24 Nov 2023	--	--
25 Nov 2023	0	0	0	25 Nov 2023	--	--
26 Nov 2023	0	0	0	26 Nov 2023	--	--
27 Nov 2023	0	0	0	27 Nov 2023	--	--
28 Nov 2023	1	2	1	28 Nov 2023	--	--
29 Nov 2023	0	0	0	29 Nov 2023	--	--
30 Nov 2023	0	0	0	30 Nov 2023	--	--
01 Dec 2023	0	0	0	01 Dec 2023	--	--
02 Dec 2023	0	0	0	02 Dec 2023	--	--
03 Dec 2023	0	0	0	03 Dec 2023	--	--
04 Dec 2023	0	0	0	04 Dec 2023	--	--
05 Dec 2023	0	0	0	05 Dec 2023	--	--
06 Dec 2023	0	0	0	06 Dec 2023	--	--
07 Dec 2023	0	0	0	07 Dec 2023	--	--
08 Dec 2023	0	1	1	08 Dec 2023	--	--
09 Dec 2023	0	0	0	09 Dec 2023	--	--
10 Dec 2023	0	0	0	10 Dec 2023	--	--
11 Dec 2023	0	0	0	11 Dec 2023	--	--
12 Dec 2023	0	0	0	12 Dec 2023	--	--
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13 Dec 2023	0	0	0
14 Dec 2023	0	1	0
15 Dec 2023	0	0	0
16 Dec 2023	6	10	5
17 Dec 2023	0	0	0
18 Dec 2023	2	4	4
19 Dec 2023	0	0	0
20 Dec 2023	0	0	0
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	0	0	0
04 Jan 2024	0	0	0
05 Jan 2024	2	2	2
06 Jan 2024	0	0	0
07 Jan 2024	0	0	0
08 Jan 2024	0	0	0
09 Jan 2024	0	0	0
10 Jan 2024	0	0	0
11 Jan 2024	0	0	0
12 Jan 2024	0	0	0
13 Jan 2024	0	0	0
14 Jan 2024	0	0	0
15 Jan 2024	0	0	0
16 Jan 2024	0	0	0
17 Jan 2024	0	0	0
18 Jan 2024	0	0	0
19 Jan 2024	0	0	0

13 Dec 2023	--	--
14 Dec 2023	--	--
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31 Dec 2023	--	--
01 Jan 2024	--	--
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17 Jan 2024	--	--
18 Jan 2024	--	--
19 Jan 2024	--	--

mm/s	4 Alexandra Ave		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
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26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	0	1	0
05 Aug 2023	0	0	0
06 Aug 2023	0	0	0
07 Aug 2023	0	0	0
08 Aug 2023	0	0	0
09 Aug 2023	0	0	0
10 Aug 2023	0	0	0
11 Aug 2023	0	0	0
12 Aug 2023	0	0	0
13 Aug 2023	0	0	0
14 Aug 2023	0	0	0
15 Aug 2023	0	0	0
16 Aug 2023	0	0	0
17 Aug 2023	0	0	0
18 Aug 2023	0	0	0
19 Aug 2023	0	0	0
20 Aug 2023	0	0	0
21 Aug 2023	0	0	0
22 Aug 2023	0	0	0
23 Aug 2023	0	0	0
24 Aug 2023	0	0	0
25 Aug 2023	0	0	0
26 Aug 2023	0	0	0
27 Aug 2023	0	0	0
28 Aug 2023	0	0	0
29 Aug 2023	0	0	0
30 Aug 2023	0	0	0
31 Aug 2023	0	0	0
01 Sep 2023	0	0	0
02 Sep 2023	0	0	0

03 Sep 2023	0	0	0
04 Sep 2023	0	0	0
05 Sep 2023	0	0	0
06 Sep 2023	0	0	0
07 Sep 2023	0	0	0
08 Sep 2023	0	0	0
09 Sep 2023	0	0	0
10 Sep 2023	0	0	0
11 Sep 2023	0	0	0
12 Sep 2023	0	0	0
13 Sep 2023	0	0	0
14 Sep 2023	0	0	0
15 Sep 2023	0	0	0
16 Sep 2023	0	0	0
17 Sep 2023	0	0	0
18 Sep 2023	0	0	0
19 Sep 2023	0	0	0
20 Sep 2023	0	0	0
21 Sep 2023	0	0	0
22 Sep 2023	0	0	0
23 Sep 2023	0	0	0
24 Sep 2023	0	0	0
25 Sep 2023	0	0	0
26 Sep 2023	0	0	0
27 Sep 2023	0	0	0
28 Sep 2023	0	0	0
29 Sep 2023	0	0	0
30 Sep 2023	0	0	0
01 Oct 2023	0	0	0
02 Oct 2023	0	0	0
03 Oct 2023	0	0	0
04 Oct 2023	0	0	0
05 Oct 2023	0	0	0
06 Oct 2023	0	0	0
07 Oct 2023	0	0	0
08 Oct 2023	0	0	0
09 Oct 2023	0	0	0
10 Oct 2023	0	0	0
11 Oct 2023	0	0	0
12 Oct 2023	0	0	0
13 Oct 2023	0	0	0
14 Oct 2023	0	0	0
15 Oct 2023	0	0	0
16 Oct 2023	0	0	0
17 Oct 2023	0	0	0
18 Oct 2023	0	0	0
19 Oct 2023	0	0	0
20 Oct 2023	0	0	0
21 Oct 2023	0	0	0
22 Oct 2023	0	0	0

23 Oct 2023	0	0	0
24 Oct 2023	0	0	0
25 Oct 2023	0	0	0
26 Oct 2023	0	0	1
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	1	2	2
31 Oct 2023	0	0	0
01 Nov 2023	0	1	1
02 Nov 2023	8	10	8
03 Nov 2023	1	2	0
04 Nov 2023	1	2	0
05 Nov 2023	0	1	0
06 Nov 2023	0	0	0
07 Nov 2023	0	0	0
08 Nov 2023	0	1	0
09 Nov 2023	0	0	0
10 Nov 2023	0	1	0
11 Nov 2023	0	0	0
12 Nov 2023	0	1	0
13 Nov 2023	0	0	0
14 Nov 2023	0	0	0
15 Nov 2023	0	0	0
16 Nov 2023	0	0	0
17 Nov 2023	0	0	0
18 Nov 2023	0	0	0
19 Nov 2023	0	0	0
20 Nov 2023	0	0	0
21 Nov 2023	--	--	--
22 Nov 2023	--	--	--
23 Nov 2023	2	2	1
24 Nov 2023	0	0	0
25 Nov 2023	0	0	0
26 Nov 2023	0	0	0
27 Nov 2023	0	0	0
28 Nov 2023	0	0	0
29 Nov 2023	0	0	0
30 Nov 2023	0	0	0
01 Dec 2023	0	0	0
02 Dec 2023	0	0	0
03 Dec 2023	0	0	0
04 Dec 2023	0	1	0
05 Dec 2023	0	0	0
06 Dec 2023	28	39	14
07 Dec 2023	0	0	0
08 Dec 2023	0	0	0
09 Dec 2023	0	0	0
10 Dec 2023	0	0	0
11 Dec 2023	0	0	0
12 Dec 2023	0	0	0

13 Dec 2023	0	0	0
14 Dec 2023	0	0	0
15 Dec 2023	0	0	0
16 Dec 2023	0	0	0
17 Dec 2023	0	0	0
18 Dec 2023	0	0	0
19 Dec 2023	0	0	0
20 Dec 2023	0	0	0
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	0	1	0
04 Jan 2024	0	1	0
05 Jan 2024	0	1	1
06 Jan 2024	0	0	0
07 Jan 2024	1	0	0
08 Jan 2024	0	0	0
09 Jan 2024	0	0	0
10 Jan 2024	0	0	0
11 Jan 2024	1	1	0
12 Jan 2024	0	0	0
13 Jan 2024	0	0	0
14 Jan 2024	0	0	0
15 Jan 2024	0	0	0
16 Jan 2024	0	0	0
17 Jan 2024	0	0	0
18 Jan 2024	0	1	0
19 Jan 2024	1	2	1

mm/s	7 Alexandra Avenue		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--

$m/s^{1.75}$	7 Alexandra Avenue	
Daily VDV	Day	Night
19 Jul 2023	--	--
20 Jul 2023	--	--
21 Jul 2023	--	--
22 Jul 2023	--	--
23 Jul 2023	--	--
24 Jul 2023	--	--
25 Jul 2023	--	--
26 Jul 2023	--	--
27 Jul 2023	--	--
28 Jul 2023	--	--
29 Jul 2023	--	--
30 Jul 2023	--	--
31 Jul 2023	--	--
01 Aug 2023	--	--
02 Aug 2023	--	--
03 Aug 2023	--	--
04 Aug 2023	--	--
05 Aug 2023	--	--
06 Aug 2023	--	--
07 Aug 2023	--	--
08 Aug 2023	--	--
09 Aug 2023	--	--
10 Aug 2023	--	--
11 Aug 2023	--	--
12 Aug 2023	--	--
13 Aug 2023	--	--
14 Aug 2023	--	--
15 Aug 2023	--	--
16 Aug 2023	--	--
17 Aug 2023	--	--
18 Aug 2023	--	--
19 Aug 2023	--	--
20 Aug 2023	--	--
21 Aug 2023	--	--
22 Aug 2023	--	--
23 Aug 2023	--	--
24 Aug 2023	--	--
25 Aug 2023	--	--
26 Aug 2023	--	--
27 Aug 2023	--	--
28 Aug 2023	--	--
29 Aug 2023	--	--
30 Aug 2023	--	--
31 Aug 2023	--	--
01 Sep 2023	--	--
02 Sep 2023	--	--

03 Sep 2023	--	--	--	03 Sep 2023	--	--
04 Sep 2023	--	--	--	04 Sep 2023	--	--
05 Sep 2023	--	--	--	05 Sep 2023	--	--
06 Sep 2023	--	--	--	06 Sep 2023	--	--
07 Sep 2023	--	--	--	07 Sep 2023	--	--
08 Sep 2023	--	--	--	08 Sep 2023	--	--
09 Sep 2023	--	--	--	09 Sep 2023	--	--
10 Sep 2023	--	--	--	10 Sep 2023	--	--
11 Sep 2023	--	--	--	11 Sep 2023	--	--
12 Sep 2023	--	--	--	12 Sep 2023	--	--
13 Sep 2023	--	--	--	13 Sep 2023	--	--
14 Sep 2023	--	--	--	14 Sep 2023	--	--
15 Sep 2023	39	44	49	15 Sep 2023	0.02 (Z)	0.01 (Z)
16 Sep 2023	1	2	1	16 Sep 2023	0.01 (Z)	0.01 (Z)
17 Sep 2023	2	1	0	17 Sep 2023	0.02 (X)	0.01 (X)
18 Sep 2023	2	1	0	18 Sep 2023	0.01 (X)	0.01 (Z)
19 Sep 2023	4	3	2	19 Sep 2023	0.02 (X)	0.01 (X)
20 Sep 2023	2	2	1	20 Sep 2023	0.01 (X)	0.01 (X)
21 Sep 2023	69	45	6	21 Sep 2023	0.38 (X)	0.01 (X)
22 Sep 2023	1	1	0	22 Sep 2023	0.01 (X)	0.01 (X)
23 Sep 2023	2	1	1	23 Sep 2023	0.01 (X)	0.01 (X)
24 Sep 2023	2	1	0	24 Sep 2023	0.01 (X)	0.01 (X)
25 Sep 2023	2	1	1	25 Sep 2023	0.02 (X)	0.01 (X)
26 Sep 2023	1	1	0	26 Sep 2023	0.02 (Z)	0.01 (X)
27 Sep 2023	1	1	0	27 Sep 2023	0.02 (Z)	0.01 (Z)
28 Sep 2023	0	0	0	28 Sep 2023	0.01 (X)	0.01 (Z)
29 Sep 2023	0	0	0	29 Sep 2023	0.01 (X)	0.01 (X)
30 Sep 2023	1	1	1	30 Sep 2023	0.02 (Z)	0.01 (Z)
01 Oct 2023	0	0	0	01 Oct 2023	0.01 (X)	0.01 (X)
02 Oct 2023	1	0	1	02 Oct 2023	0.01 (X)	0.01 (X)
03 Oct 2023	1	1	0	03 Oct 2023	0.02 (Z)	0.01 (Z)
04 Oct 2023	1	1	0	04 Oct 2023	0.02 (Z)	0.01 (X)
05 Oct 2023	2	1	1	05 Oct 2023	0.02 (Z)	0.01 (X)
06 Oct 2023	3	2	1	06 Oct 2023	0.02 (Z)	0.02 (Z)
07 Oct 2023	1	1	1	07 Oct 2023	0.01 (X)	0.01 (X)
08 Oct 2023	1	0	0	08 Oct 2023	0.01 (X)	0.01 (Z)
09 Oct 2023	0	0	0	09 Oct 2023	0.01 (X)	0.01 (X)
10 Oct 2023	2	2	1	10 Oct 2023	0.02 (X)	0.02 (X)
11 Oct 2023	2	2	1	11 Oct 2023	0.02 (X)	0.02 (X)
12 Oct 2023	1	2	1	12 Oct 2023	0.02 (X)	0.01 (X)
13 Oct 2023	2	3	1	13 Oct 2023	0.02 (X)	0.01 (X)
14 Oct 2023	5	1	1	14 Oct 2023	0.02 (X)	0.01 (X)
15 Oct 2023	1	1	0	15 Oct 2023	0.01 (X)	0.01 (X)
16 Oct 2023	1	2	1	16 Oct 2023	0.02 (X)	0.01 (X)
17 Oct 2023	1	2	1	17 Oct 2023	0.01 (X)	--
18 Oct 2023	2	1	0	18 Oct 2023	0.02 (Z)	0.02 (Z)
19 Oct 2023	2	1	0	19 Oct 2023	0.02 (Z)	0.02 (Z)
20 Oct 2023	3	2	1	20 Oct 2023	0.03 (X)	0.02 (X)
21 Oct 2023	2	2	1	21 Oct 2023	0.02 (X)	0.01 (X)
22 Oct 2023	2	2	1	22 Oct 2023	0.02 (X)	0.01 (X)
					0.03 (X)	0.02 (X)

23 Oct 2023	2	2	1	23 Oct 2023	0.03 (X)	0.01 (Z)
24 Oct 2023	2	1	1	24 Oct 2023	0.02 (X)	0.01 (X)
25 Oct 2023	1	1	0	25 Oct 2023	0.02 (Z)	0.01 (X)
26 Oct 2023	1	2	1	26 Oct 2023	0.02 (X)	0.01 (X)
27 Oct 2023	1	1	0	27 Oct 2023	0.02 (X)	0.01 (X)
28 Oct 2023	3	1	1	28 Oct 2023	0.02 (X)	0.01 (Z)
29 Oct 2023	2	1	1	29 Oct 2023	0.02 (Z)	0.01 (Z)
30 Oct 2023	0	0	0	30 Oct 2023	0.02 (Z)	0.02 (Z)
31 Oct 2023	0	0	0	31 Oct 2023	0.02 (X)	0.02 (X)
01 Nov 2023	3	1	1	01 Nov 2023	0.02 (X)	0.02 (Z)
02 Nov 2023	3	1	0	02 Nov 2023	0.02 (Z)	0.01 (X)
03 Nov 2023	1	1	0	03 Nov 2023	0.01 (X)	0.01 (X)
04 Nov 2023	1	1	0	04 Nov 2023	0.01 (X)	0.01 (X)
05 Nov 2023	1	0	0	05 Nov 2023	0.02 (X)	0.02 (Z)
06 Nov 2023	3	1	0	06 Nov 2023	0.02 (Z)	0.02 (Z)
07 Nov 2023	1	1	0	07 Nov 2023	0.02 (Z)	0.02 (Z)
08 Nov 2023	1	0	0	08 Nov 2023	0.02 (Z)	0.02 (Z)
09 Nov 2023	0	0	0	09 Nov 2023	0.02 (Z)	0.02 (Z)
10 Nov 2023	0	0	0	10 Nov 2023	0.02 (Z)	0.01 (X)
11 Nov 2023	0	0	0	11 Nov 2023	0.02 (Z)	0.01 (X)
12 Nov 2023	0	0	0	12 Nov 2023	0.02 (Z)	0.02 (Z)
13 Nov 2023	0	1	0	13 Nov 2023	0.02 (Z)	0.02 (Z)
14 Nov 2023	0	0	0	14 Nov 2023	0.02 (Z)	0.01 (Z)
15 Nov 2023	0	0	0	15 Nov 2023	0.02 (Z)	0.01 (Z)
16 Nov 2023	0	0	0	16 Nov 2023	0.01 (Z)	0.01 (Z)
17 Nov 2023	0	0	0	17 Nov 2023	0.01 (Z)	0.01 (X)
18 Nov 2023	0	0	0	18 Nov 2023	0.02 (Z)	0.02 (Z)
19 Nov 2023	0	0	0	19 Nov 2023	0.02 (Z)	0.02 (Z)
20 Nov 2023	0	0	0	20 Nov 2023	0.01 (Z)	--
21 Nov 2023	1	1	0	21 Nov 2023	0.02 (Z)	0.01 (Z)
22 Nov 2023	0	0	0	22 Nov 2023	0.01 (X)	0.01 (Z)
23 Nov 2023	0	0	0	23 Nov 2023	0.02 (Z)	0.01 (X)
24 Nov 2023	0	0	0	24 Nov 2023	0.03 (Z)	0.01 (X)
25 Nov 2023	1	0	0	25 Nov 2023	0.02 (Z)	0.01 (X)
26 Nov 2023	0	0	0	26 Nov 2023	0.03 (Z)	0.02 (Z)
27 Nov 2023	1	2	1	27 Nov 2023	0.02 (Z)	0.02 (Z)
28 Nov 2023	0	0	0	28 Nov 2023	0.02 (Z)	0.02 (Z)
29 Nov 2023	0	0	0	29 Nov 2023	0.02 (Z)	0.01 (Z)
30 Nov 2023	0	0	0	30 Nov 2023	0.01 (Z)	0.01 (Z)
01 Dec 2023	0	0	0	01 Dec 2023	0.02 (Z)	0.01 (Z)
02 Dec 2023	0	0	0	02 Dec 2023	0.02 (Z)	0.01 (Z)
03 Dec 2023	0	0	0	03 Dec 2023	0.02 (Z)	0.01 (Z)
04 Dec 2023	1	0	0	04 Dec 2023	0.02 (Z)	0.02 (Z)
05 Dec 2023	0	0	0	05 Dec 2023	0.02 (Z)	0.01 (Z)
06 Dec 2023	0	0	0	06 Dec 2023	0.02 (Z)	0.01 (Z)
07 Dec 2023	0	0	0	07 Dec 2023	0.02 (Z)	0.01 (X)
08 Dec 2023	0	0	0	08 Dec 2023	0.01 (X)	0.01 (Z)
09 Dec 2023	0	0	0	09 Dec 2023	0.02 (Z)	0.02 (Z)
10 Dec 2023	0	0	0	10 Dec 2023	0.02 (Z)	0.02 (Z)
11 Dec 2023	0	0	0	11 Dec 2023	0.02 (Z)	0.02 (Z)
12 Dec 2023	0	0	0	12 Dec 2023	0.02 (Z)	0.02 (Z)

13 Dec 2023	0	0	0
14 Dec 2023	0	0	0
15 Dec 2023	0	0	0
16 Dec 2023	0	0	0
17 Dec 2023	0	0	0
18 Dec 2023	0	0	0
19 Dec 2023	1	1	0
20 Dec 2023	0	0	0
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	2	1	1
04 Jan 2024	0	0	0
05 Jan 2024	0	0	0
06 Jan 2024	0	0	0
07 Jan 2024	0	0	0
08 Jan 2024	0	0	0
09 Jan 2024	1	0	0
10 Jan 2024	0	0	0
11 Jan 2024	0	0	0
12 Jan 2024	1	1	1
13 Jan 2024	1	1	0
14 Jan 2024	0	0	0
15 Jan 2024	1	0	0
16 Jan 2024	0	0	0
17 Jan 2024	0	0	0
18 Jan 2024	0	0	0
19 Jan 2024	1	2	0

13 Dec 2023	0.02 (Z)	0.01 (Z)
14 Dec 2023	0.02 (Z)	0.01 (Z)
15 Dec 2023	0.01 (Z)	0.01 (Z)
16 Dec 2023	0.01 (Z)	0.01 (Z)
17 Dec 2023	0.02 (Z)	0.01 (Z)
18 Dec 2023	0.02 (Z)	0.01 (Z)
19 Dec 2023	0.01 (Z)	--
20 Dec 2023	--	--
21 Dec 2023	--	--
22 Dec 2023	--	--
23 Dec 2023	--	--
24 Dec 2023	--	--
25 Dec 2023	--	--
26 Dec 2023	--	--
27 Dec 2023	--	--
28 Dec 2023	--	--
29 Dec 2023	--	--
30 Dec 2023	--	--
31 Dec 2023	--	--
01 Jan 2024	--	--
02 Jan 2024	0.02 (Z)	0.01 (Z)
03 Jan 2024	0.02 (Z)	0.01 (Z)
04 Jan 2024	0.02 (Z)	0.01 (Z)
05 Jan 2024	0.02 (Z)	0.01 (Z)
06 Jan 2024	0.02 (Z)	0.01 (Z)
07 Jan 2024	0.02 (Z)	0.02 (Z)
08 Jan 2024	0.02 (Z)	0.02 (Z)
09 Jan 2024	0.02 (Z)	0.02 (Z)
10 Jan 2024	0.02 (Z)	0.01 (Z)
11 Jan 2024	0.02 (Z)	0.02 (Z)
12 Jan 2024	0.02 (Z)	0.01 (Z)
13 Jan 2024	0.02 (Z)	0.01 (Z)
14 Jan 2024	0.02 (Z)	0.02 (Z)
15 Jan 2024	0.02 (Z)	0.02 (Z)
16 Jan 2024	0.02 (Z)	0.01 (Z)
17 Jan 2024	0.02 (Z)	0.02 (Z)
18 Jan 2024	0.02 (Z)	0.01 (Z)
19 Jan 2024		

mm/s	4 Alexandra Ave New		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--

$m/s^{1.75}$	4 Alexandra Ave New	
Daily VDV	Day	Night
19 Jul 2023	--	--
20 Jul 2023	--	--
21 Jul 2023	--	--
22 Jul 2023	--	--
23 Jul 2023	--	--
24 Jul 2023	--	--
25 Jul 2023	--	--
26 Jul 2023	--	--
27 Jul 2023	--	--
28 Jul 2023	--	--
29 Jul 2023	--	--
30 Jul 2023	--	--
31 Jul 2023	--	--
01 Aug 2023	--	--
02 Aug 2023	--	--
03 Aug 2023	--	--
04 Aug 2023	--	--
05 Aug 2023	--	--
06 Aug 2023	--	--
07 Aug 2023	--	--
08 Aug 2023	--	--
09 Aug 2023	--	--
10 Aug 2023	--	--
11 Aug 2023	--	--
12 Aug 2023	--	--
13 Aug 2023	--	--
14 Aug 2023	--	--
15 Aug 2023	--	--
16 Aug 2023	--	--
17 Aug 2023	--	--
18 Aug 2023	--	--
19 Aug 2023	--	--
20 Aug 2023	--	--
21 Aug 2023	--	--
22 Aug 2023	--	--
23 Aug 2023	--	--
24 Aug 2023	--	--
25 Aug 2023	--	--
26 Aug 2023	--	--
27 Aug 2023	--	--
28 Aug 2023	--	--
29 Aug 2023	--	--
30 Aug 2023	--	--
31 Aug 2023	--	--
01 Sep 2023	--	--
02 Sep 2023	--	--

03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--

03 Sep 2023	--	--
04 Sep 2023	--	--
05 Sep 2023	--	--
06 Sep 2023	--	--
07 Sep 2023	--	--
08 Sep 2023	--	--
09 Sep 2023	--	--
10 Sep 2023	--	--
11 Sep 2023	--	--
12 Sep 2023	--	--
13 Sep 2023	--	--
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23 Sep 2023	--	--
24 Sep 2023	--	--
25 Sep 2023	--	--
26 Sep 2023	--	--
27 Sep 2023	--	--
28 Sep 2023	--	--
29 Sep 2023	--	--
30 Sep 2023	--	--
01 Oct 2023	--	--
02 Oct 2023	--	--
03 Oct 2023	--	--
04 Oct 2023	--	--
05 Oct 2023	--	--
06 Oct 2023	--	--
07 Oct 2023	--	--
08 Oct 2023	--	--
09 Oct 2023	--	--
10 Oct 2023	--	--
11 Oct 2023	--	--
12 Oct 2023	--	--
13 Oct 2023	--	--
14 Oct 2023	--	--
15 Oct 2023	--	--
16 Oct 2023	--	--
17 Oct 2023	--	--
18 Oct 2023	--	--
19 Oct 2023	--	--
20 Oct 2023	--	--
21 Oct 2023	--	--
22 Oct 2023	--	--
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23 Oct 2023	--	--	--	23 Oct 2023	--	--
24 Oct 2023	--	--	--	24 Oct 2023	--	--
25 Oct 2023	--	--	--	25 Oct 2023	--	--
26 Oct 2023	--	--	--	26 Oct 2023	--	--
27 Oct 2023	--	--	--	27 Oct 2023	--	--
28 Oct 2023	--	--	--	28 Oct 2023	--	--
29 Oct 2023	--	--	--	29 Oct 2023	--	--
30 Oct 2023	1	2	2	30 Oct 2023	0.03 (Z)	0.02 (Z)
31 Oct 2023	0	0	0	31 Oct 2023	0.02 (Z)	0.02 (Z)
01 Nov 2023	0	1	1	01 Nov 2023	0.02 (Z)	0.03 (Y)
02 Nov 2023	8	10	8	02 Nov 2023	0.14 (Z)	0.02 (Z)
03 Nov 2023	1	2	0	03 Nov 2023	0.02 (Y)	0.01 (X)
04 Nov 2023	1	2	0	04 Nov 2023	0.01 (Y)	0.01 (Y)
05 Nov 2023	0	1	0	05 Nov 2023	0.02 (Z)	0.01 (Z)
06 Nov 2023	0	0	0	06 Nov 2023	0.02 (Z)	0.02 (Z)
07 Nov 2023	0	0	0	07 Nov 2023	0.02 (Z)	0.02 (Z)
08 Nov 2023	0	1	0	08 Nov 2023	0.02 (Z)	0.02 (Z)
09 Nov 2023	0	0	0	09 Nov 2023	0.03 (Z)	0.02 (Z)
10 Nov 2023	0	1	0	10 Nov 2023	0.02 (Z)	0.02 (Z)
11 Nov 2023	0	0	0	11 Nov 2023	0.02 (Z)	0.02 (Z)
12 Nov 2023	0	1	0	12 Nov 2023	0.02 (Z)	0.02 (Z)
13 Nov 2023	0	0	0	13 Nov 2023	0.03 (Z)	0.02 (Z)
14 Nov 2023	0	0	0	14 Nov 2023	0.03 (Z)	0.02 (Z)
15 Nov 2023	0	0	0	15 Nov 2023	0.03 (Z)	0.02 (Z)
16 Nov 2023	0	0	0	16 Nov 2023	0.03 (Z)	0.02 (Z)
17 Nov 2023	0	0	0	17 Nov 2023	0.02 (Z)	0.01 (Z)
18 Nov 2023	0	0	0	18 Nov 2023	0.01 (Z)	0.01 (Z)
19 Nov 2023	0	0	0	19 Nov 2023	0.01 (Z)	0.01 (Z)
20 Nov 2023	0	0	0	20 Nov 2023	0.01 (Z)	--
21 Nov 2023	--	--	--	21 Nov 2023	--	--
22 Nov 2023	--	--	--	22 Nov 2023	--	--
23 Nov 2023	2	2	1	23 Nov 2023	0.02 (Z)	0.01 (Z)
24 Nov 2023	0	0	0	24 Nov 2023	0.03 (Z)	0.01 (Z)
25 Nov 2023	0	0	0	25 Nov 2023	0.02 (Z)	0.01 (Z)
26 Nov 2023	0	0	0	26 Nov 2023	0.02 (Z)	0.01 (Z)
27 Nov 2023	0	0	0	27 Nov 2023	0.02 (Z)	0.02 (Z)
28 Nov 2023	0	0	0	28 Nov 2023	0.02 (Z)	0.02 (Z)
29 Nov 2023	0	0	0	29 Nov 2023	0.02 (Z)	0.02 (Z)
30 Nov 2023	0	0	0	30 Nov 2023	0.02 (Z)	0.02 (Z)
01 Dec 2023	0	0	0	01 Dec 2023	0.03 (Z)	0.02 (Z)
02 Dec 2023	0	0	0	02 Dec 2023	0.02 (Z)	0.01 (Z)
03 Dec 2023	0	0	0	03 Dec 2023	0.02 (Z)	0.01 (Z)
04 Dec 2023	0	1	0	04 Dec 2023	0.03 (Z)	0.02 (Z)
05 Dec 2023	0	0	0	05 Dec 2023	0.02 (Z)	0.02 (Z)
06 Dec 2023	28	39	14	06 Dec 2023	0.22 (Z)	0.02 (Z)
07 Dec 2023	0	0	0	07 Dec 2023	0.02 (Z)	0.02 (Z)
08 Dec 2023	0	0	0	08 Dec 2023	0.02 (Z)	0.02 (Z)
09 Dec 2023	0	0	0	09 Dec 2023	0.02 (Z)	0.01 (Z)
10 Dec 2023	0	0	0	10 Dec 2023	0.01 (Z)	0.01 (Z)
11 Dec 2023	0	0	0	11 Dec 2023	0.02 (Z)	0.02 (Z)
12 Dec 2023	0	0	0	12 Dec 2023	0.02 (Z)	0.02 (Z)
					0.02 (Z)	0.02 (Z)

13 Dec 2023	0	0	0
14 Dec 2023	0	0	0
15 Dec 2023	0	0	0
16 Dec 2023	0	0	0
17 Dec 2023	0	0	0
18 Dec 2023	0	0	0
19 Dec 2023	0	0	0
20 Dec 2023	0	0	0
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	0	1	0
04 Jan 2024	0	1	0
05 Jan 2024	0	1	1
06 Jan 2024	0	0	0
07 Jan 2024	1	0	0
08 Jan 2024	0	0	0
09 Jan 2024	0	0	0
10 Jan 2024	0	0	0
11 Jan 2024	1	1	0
12 Jan 2024	0	0	0
13 Jan 2024	0	0	0
14 Jan 2024	0	0	0
15 Jan 2024	0	0	0
16 Jan 2024	0	0	0
17 Jan 2024	0	0	0
18 Jan 2024	0	1	0
19 Jan 2024	1	2	1

13 Dec 2023	0.02 (Z)	0.02 (Z)
14 Dec 2023	0.02 (Z)	0.01 (Z)
15 Dec 2023	0.01 (Z)	0.01 (Z)
16 Dec 2023	0.01 (Z)	0.01 (Z)
17 Dec 2023	0.02 (Z)	0.01 (Z)
18 Dec 2023	0.02 (Z)	0.01 (Z)
19 Dec 2023	0.01 (Z)	--
20 Dec 2023	--	--
21 Dec 2023	--	--
22 Dec 2023	--	--
23 Dec 2023	--	--
24 Dec 2023	--	--
25 Dec 2023	--	--
26 Dec 2023	--	--
27 Dec 2023	--	--
28 Dec 2023	--	--
29 Dec 2023	--	--
30 Dec 2023	--	--
31 Dec 2023	--	--
01 Jan 2024	--	--
02 Jan 2024	0.02 (Z)	0.01 (Y)
03 Jan 2024	0.02 (Z)	0.01 (X)
04 Jan 2024	0.02 (Z)	0.01 (X)
05 Jan 2024	0.02 (Z)	0.01 (X)
06 Jan 2024	0.02 (Z)	0.01 (X)
07 Jan 2024	0.02 (Z)	0.02 (Z)
08 Jan 2024	0.02 (Z)	0.02 (Z)
09 Jan 2024	0.02 (Z)	0.02 (Z)
10 Jan 2024	0.02 (Z)	0.02 (Z)
11 Jan 2024	0.03 (Z)	0.02 (Z)
12 Jan 2024	0.02 (Z)	0.01 (Z)
13 Jan 2024	0.02 (Z)	0.01 (Y)
14 Jan 2024	0.03 (Z)	0.02 (Z)
15 Jan 2024	0.03 (Z)	0.03 (Z)
16 Jan 2024	0.03 (Z)	0.03 (Z)
17 Jan 2024	0.03 (Z)	0.03 (Z)
18 Jan 2024	0.03 (Z)	0.01 (Z)
19 Jan 2024		

Vibration Events

No data for this period

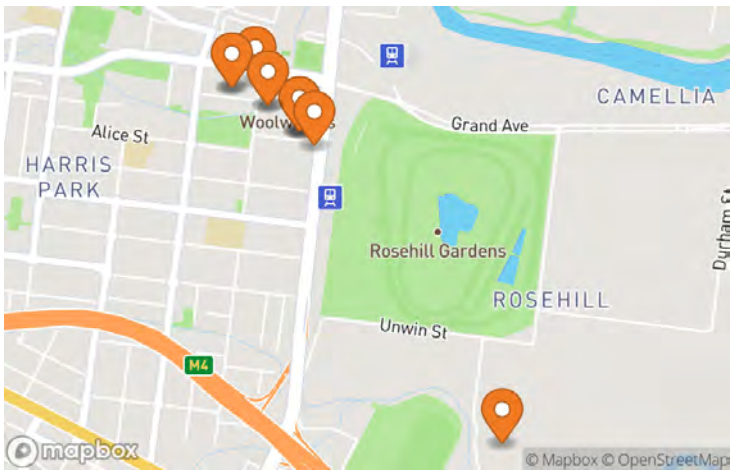
Gamuda Laing O'Rourke

Sydney Metro West WTP Clyde Dive

Monitoring Devices

Date Range 19 Jul 2023 - 19 Jan 2024

Device Serial	Monitoring Points
VIB-000028	13 Hope Street , 108 Aruthr St , 12 Oak St
VIB-000037	115 Authur St, Rosehill, 8 Hope Street, Rosehill, C 5/7 Shirley St, Rosehill



Vibration Monitoring Statistics

mm/s	8 Hope Street, Rosehill		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	0	0	0
18 Aug 2023	0	0	0
19 Aug 2023	0	0	0
20 Aug 2023	0	0	1
21 Aug 2023	0	0	0
22 Aug 2023	0	0	0
23 Aug 2023	0	0	1
24 Aug 2023	0	0	0
25 Aug 2023	0	0	0
26 Aug 2023	0	0	0
27 Aug 2023	0	0	0
28 Aug 2023	0	0	1
29 Aug 2023	1	0	1
30 Aug 2023	0	0	1
31 Aug 2023	0	0	1
01 Sep 2023	0	0	0
02 Sep 2023	0	0	0

03 Sep 2023	0	0	0
04 Sep 2023	0	0	0
05 Sep 2023	0	0	0
06 Sep 2023	0	0	0
07 Sep 2023	0	0	1
08 Sep 2023	0	0	0
09 Sep 2023	0	0	0
10 Sep 2023	0	0	0
11 Sep 2023	0	0	2
12 Sep 2023	0	0	1
13 Sep 2023	0	0	0
14 Sep 2023	0	0	0
15 Sep 2023	0	0	0
16 Sep 2023	0	0	0
17 Sep 2023	0	0	1
18 Sep 2023	0	0	0
19 Sep 2023	0	0	0
20 Sep 2023	0	0	0
21 Sep 2023	0	0	0
22 Sep 2023	0	0	0
23 Sep 2023	0	0	0
24 Sep 2023	0	0	0
25 Sep 2023	0	0	0
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--

23 Oct 2023	--	--	--
24 Oct 2023	--	--	--
25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
22 Nov 2023	--	--	--
23 Nov 2023	--	--	--
24 Nov 2023	--	--	--
25 Nov 2023	--	--	--
26 Nov 2023	--	--	--
27 Nov 2023	--	--	--
28 Nov 2023	--	--	--
29 Nov 2023	--	--	--
30 Nov 2023	--	--	--
01 Dec 2023	--	--	--
02 Dec 2023	--	--	--
03 Dec 2023	--	--	--
04 Dec 2023	--	--	--
05 Dec 2023	--	--	--
06 Dec 2023	--	--	--
07 Dec 2023	--	--	--
08 Dec 2023	--	--	--
09 Dec 2023	--	--	--
10 Dec 2023	--	--	--
11 Dec 2023	--	--	--
12 Dec 2023	--	--	--

13 Dec 2023	--	--	--
14 Dec 2023	--	--	--
15 Dec 2023	--	--	--
16 Dec 2023	--	--	--
17 Dec 2023	--	--	--
18 Dec 2023	--	--	--
19 Dec 2023	--	--	--
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--

mm/s	13 Hope Street		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--

$m/s^{1.75}$	13 Hope Street	
Daily VDV	Day	Night
19 Jul 2023	--	--
20 Jul 2023	--	--
21 Jul 2023	--	--
22 Jul 2023	--	--
23 Jul 2023	--	--
24 Jul 2023	--	--
25 Jul 2023	--	--
26 Jul 2023	--	--
27 Jul 2023	--	--
28 Jul 2023	--	--
29 Jul 2023	--	--
30 Jul 2023	--	--
31 Jul 2023	--	--
01 Aug 2023	--	--
02 Aug 2023	--	--
03 Aug 2023	--	--
04 Aug 2023	--	--
05 Aug 2023	--	--
06 Aug 2023	--	--
07 Aug 2023	--	--
08 Aug 2023	--	--
09 Aug 2023	--	--
10 Aug 2023	--	--
11 Aug 2023	--	--
12 Aug 2023	--	--
13 Aug 2023	--	--
14 Aug 2023	--	--
15 Aug 2023	--	--
16 Aug 2023	--	--
17 Aug 2023	--	--
18 Aug 2023	--	--
19 Aug 2023	--	--
20 Aug 2023	--	--
21 Aug 2023	--	--
22 Aug 2023	--	--
23 Aug 2023	--	--
24 Aug 2023	--	--
25 Aug 2023	--	--
26 Aug 2023	--	--
27 Aug 2023	--	--
28 Aug 2023	--	--
29 Aug 2023	--	--
30 Aug 2023	--	--
31 Aug 2023	--	--
01 Sep 2023	--	--
02 Sep 2023	--	--

03 Sep 2023	--	--	--	03 Sep 2023	--	--
04 Sep 2023	--	--	--	04 Sep 2023	--	--
05 Sep 2023	--	--	--	05 Sep 2023	--	--
06 Sep 2023	--	--	--	06 Sep 2023	--	--
07 Sep 2023	--	--	--	07 Sep 2023	--	--
08 Sep 2023	--	--	--	08 Sep 2023	--	--
09 Sep 2023	--	--	--	09 Sep 2023	--	--
10 Sep 2023	--	--	--	10 Sep 2023	--	--
11 Sep 2023	--	--	--	11 Sep 2023	--	--
12 Sep 2023	--	--	--	12 Sep 2023	--	--
13 Sep 2023	--	--	--	13 Sep 2023	--	--
14 Sep 2023	--	--	--	14 Sep 2023	--	--
15 Sep 2023	--	--	--	15 Sep 2023	--	--
16 Sep 2023	--	--	--	16 Sep 2023	--	--
17 Sep 2023	--	--	--	17 Sep 2023	--	--
18 Sep 2023	--	--	--	18 Sep 2023	--	--
19 Sep 2023	5	4	26	19 Sep 2023	0.48 (Z)	0.06 (Z)
20 Sep 2023	8	6	47	20 Sep 2023	0.66 (Z)	0.1 (Z)
21 Sep 2023	4	1	11	21 Sep 2023	0.27 (Z)	0.06 (Z)
22 Sep 2023	3	4	24	22 Sep 2023	0.44 (Z)	0.1 (Z)
23 Sep 2023	4	3	6	23 Sep 2023	0.17 (Z)	0.09 (Z)
24 Sep 2023	4	2	9	24 Sep 2023	0.28 (Z)	0.07 (Z)
25 Sep 2023	2	4	15	25 Sep 2023	0.38 (Z)	0.07 (Z)
26 Sep 2023	49	39	33	26 Sep 2023	0.45 (Z)	0.11 (Z)
27 Sep 2023	3	5	16	27 Sep 2023	0.31 (Z)	0.07 (Z)
28 Sep 2023	3	1	5	28 Sep 2023	0.18 (Z)	0.08 (Z)
29 Sep 2023	3	4	5	29 Sep 2023	0.2 (Z)	0.12 (Z)
30 Sep 2023	5	5	21	30 Sep 2023	0.56 (Z)	0.07 (Z)
01 Oct 2023	7	8	32	01 Oct 2023	0.53 (Z)	0.14 (Z)
02 Oct 2023	4	3	10	02 Oct 2023	0.26 (Z)	0.13 (Z)
03 Oct 2023	2	3	7	03 Oct 2023	0.25 (Z)	0.07 (Z)
04 Oct 2023	3	1	8	04 Oct 2023	0.24 (Z)	0.12 (Z)
05 Oct 2023	2	2	11	05 Oct 2023	0.35 (Z)	0.25 (Z)
06 Oct 2023	5	2	10	06 Oct 2023	0.27 (Z)	0.08 (Z)
07 Oct 2023	2	1	5	07 Oct 2023	0.21 (Z)	0.14 (Z)
08 Oct 2023	8	2	18	08 Oct 2023	0.54 (Z)	0.09 (Z)
09 Oct 2023	29	6	14	09 Oct 2023	0.47 (Z)	0.17 (Z)
10 Oct 2023	2	3	4	10 Oct 2023	0.17 (Z)	0.15 (Z)
11 Oct 2023	2	4	9	11 Oct 2023	0.31 (Z)	0.06 (Z)
12 Oct 2023	3	4	15	12 Oct 2023	0.34 (Z)	0.6 (Z)
13 Oct 2023	11	12	53	13 Oct 2023	1.34 (Z)	0.06 (Z)
14 Oct 2023	5	3	9	14 Oct 2023	0.37 (Z)	0.06 (Z)
15 Oct 2023	4	6	15	15 Oct 2023	0.35 (Z)	0.08 (Z)
16 Oct 2023	7	6	18	16 Oct 2023	0.31 (Z)	0.34 (Z)
17 Oct 2023	9	3	7	17 Oct 2023	0.22 (Z)	0.09 (Z)
18 Oct 2023	2	3	7	18 Oct 2023	0.15 (Z)	0.04 (Z)
19 Oct 2023	2	1	3	19 Oct 2023	0.12 (Z)	0.04 (Z)
20 Oct 2023	18	13	23	20 Oct 2023	0.82 (Z)	0.05 (Z)
21 Oct 2023	2	2	10	21 Oct 2023	0.33 (Z)	0.04 (Z)
22 Oct 2023	3	2	9	22 Oct 2023	0.27 (Z)	0.11 (Z)
					0.75 (Z)	--

23 Oct 2023	3	6	34	23 Oct 2023	--	--
24 Oct 2023	--	--	--	24 Oct 2023	--	--
25 Oct 2023	--	--	--	25 Oct 2023	--	--
26 Oct 2023	--	--	--	26 Oct 2023	--	--
27 Oct 2023	--	--	--	27 Oct 2023	--	--
28 Oct 2023	--	--	--	28 Oct 2023	--	--
29 Oct 2023	--	--	--	29 Oct 2023	--	--
30 Oct 2023	--	--	--	30 Oct 2023	--	--
31 Oct 2023	--	--	--	31 Oct 2023	--	--
01 Nov 2023	--	--	--	01 Nov 2023	--	--
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mm/s	115 Authur St, Rosehill		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
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$m/s^{1.75}$	115 Authur St, Rosehill	
Daily VDV	Day	Night
19 Jul 2023	--	--
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21 Jul 2023	--	--
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23 Oct 2023				23 Oct 2023		
24 Oct 2023	0	0	1	24 Oct 2023	0.02 (Z)	0.01 (Z)
25 Oct 2023	0	0	1	25 Oct 2023	0.01 (Z)	0.01 (Z)
26 Oct 2023	0	0	0	26 Oct 2023	0.02 (Z)	0.01 (Z)
27 Oct 2023	0	0	0	27 Oct 2023	0.01 (Z)	0.02 (Z)
28 Oct 2023	2395	634	1668	28 Oct 2023	-- (X)	--
29 Oct 2023	0	0	0	29 Oct 2023	--	--
30 Oct 2023	0	0	0	30 Oct 2023	--	--
31 Oct 2023	0	0	0	31 Oct 2023	--	--
01 Nov 2023	0	0	0	01 Nov 2023	--	--
02 Nov 2023	0	0	0	02 Nov 2023	--	--
03 Nov 2023	0	0	0	03 Nov 2023	--	--
04 Nov 2023	0	0	0	04 Nov 2023	--	--
05 Nov 2023	0	0	0	05 Nov 2023	--	--
06 Nov 2023	0	0	0	06 Nov 2023	--	--
07 Nov 2023	0	0	0	07 Nov 2023	--	--
08 Nov 2023	0	0	0	08 Nov 2023	--	--
09 Nov 2023	0	0	0	09 Nov 2023	--	--
10 Nov 2023	--	--	--	10 Nov 2023	--	--
11 Nov 2023	--	--	--	11 Nov 2023	--	--
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13 Nov 2023	--	--	--	13 Nov 2023	--	--
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21 Nov 2023	--	--	--	21 Nov 2023	--	--
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25 Nov 2023	--	--	--	25 Nov 2023	--	--
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01 Dec 2023	--	--	--	01 Dec 2023	--	--
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mm/s	108 Aruthr St		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
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$m/s^{1.75}$	108 Aruthr St	
Daily VDV	Day	Night
19 Jul 2023	--	--
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23 Oct 2023	--	--	--	23 Oct 2023	--	--
24 Oct 2023				24 Oct 2023		
25 Oct 2023	2	1	7	25 Oct 2023	0.13 (Z)	0.1 (Z)
26 Oct 2023	5	1	3	26 Oct 2023	0.13 (Z)	0.05 (Z)
27 Oct 2023	2	1	5	27 Oct 2023	0.16 (Z)	0.04 (Z)
28 Oct 2023	1	1	6	28 Oct 2023	0.15 (Z)	0.04 (Z)
29 Oct 2023	1	1	3	29 Oct 2023	0.08 (Z)	0.04 (Z)
30 Oct 2023	1	1	2	30 Oct 2023	0.07 (Z)	0.02 (Z)
31 Oct 2023	2	2	5	31 Oct 2023	0.16 (Z)	0.05 (Z)
01 Nov 2023	2	2	2	01 Nov 2023	0.07 (Z)	0.05 (Z)
02 Nov 2023	0	0	2	02 Nov 2023	0.06 (Z)	0.05 (Z)
03 Nov 2023	1	1	6	03 Nov 2023	0.06 (Z)	0.04 (Z)
04 Nov 2023	1	0	1	04 Nov 2023	0.09 (Z)	0.04 (Z)
05 Nov 2023	2	1	5	05 Nov 2023	0.15 (Z)	0.05 (Z)
06 Nov 2023	1	1	2	06 Nov 2023	0.08 (Z)	0.04 (Z)
07 Nov 2023	0	0	1	07 Nov 2023	0.06 (Z)	0.04 (Z)
08 Nov 2023	2	1	10	08 Nov 2023	0.34 (Z)	0.04 (Z)
09 Nov 2023	1	0	1	09 Nov 2023	0.07 (Z)	0.04 (Z)
10 Nov 2023	0	1	1	10 Nov 2023	0.07 (Z)	0.05 (Z)
11 Nov 2023	1	1	1	11 Nov 2023	0.08 (Z)	0.05 (Z)
12 Nov 2023	1	1	1	12 Nov 2023	0.07 (Z)	0.07 (Z)
13 Nov 2023	1	1	3	13 Nov 2023	0.09 (Z)	--
14 Nov 2023	--	--	--	14 Nov 2023	--	--
15 Nov 2023	--	--	--	15 Nov 2023	--	--
16 Nov 2023	--	--	--	16 Nov 2023	--	--
17 Nov 2023	--	--	--	17 Nov 2023	--	--
18 Nov 2023	--	--	--	18 Nov 2023	--	--
19 Nov 2023	--	--	--	19 Nov 2023	--	--
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23 Nov 2023	--	--	--	23 Nov 2023	--	--
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26 Nov 2023	--	--	--	26 Nov 2023	--	--
27 Nov 2023	--	--	--	27 Nov 2023	--	--
28 Nov 2023	--	--	--	28 Nov 2023	--	--
29 Nov 2023	--	--	--	29 Nov 2023	--	--
30 Nov 2023	--	--	--	30 Nov 2023	--	--
01 Dec 2023	--	--	--	01 Dec 2023	--	--
02 Dec 2023	--	--	--	02 Dec 2023	--	--
03 Dec 2023	--	--	--	03 Dec 2023	--	--
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07 Dec 2023	--	--	--	07 Dec 2023	--	--
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mm/s	12 Oak St		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
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01 Sep 2023	--	--	--
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$m/s^{1.75}$	12 Oak St	
Daily VDV	Day	Night
19 Jul 2023	--	--
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26 Oct 2023	--	--	--	26 Oct 2023	--	--
27 Oct 2023	--	--	--	27 Oct 2023	--	--
28 Oct 2023	--	--	--	28 Oct 2023	--	--
29 Oct 2023	--	--	--	29 Oct 2023	--	--
30 Oct 2023	--	--	--	30 Oct 2023	--	--
31 Oct 2023	--	--	--	31 Oct 2023	--	--
01 Nov 2023	--	--	--	01 Nov 2023	--	--
02 Nov 2023	--	--	--	02 Nov 2023	--	--
03 Nov 2023	--	--	--	03 Nov 2023	--	--
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14 Nov 2023	--	--	--	14 Nov 2023	--	--
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16 Nov 2023	--	--	--	16 Nov 2023	--	--
17 Nov 2023	--	--	--	17 Nov 2023	--	--
18 Nov 2023	--	--	--	18 Nov 2023	--	--
19 Nov 2023	--	--	--	19 Nov 2023	--	--
20 Nov 2023	0	0	0	20 Nov 2023	0.01 (Z)	0.01 (Z)
21 Nov 2023	0	0	0	21 Nov 2023	0.01 (Z)	0.01 (Z)
22 Nov 2023	0	0	0	22 Nov 2023	0.01 (Z)	0.01 (Z)
23 Nov 2023	0	0	0	23 Nov 2023	0.01 (Z)	0.01 (Z)
24 Nov 2023	0	0	0	24 Nov 2023	0.01 (Z)	0.01 (Z)
25 Nov 2023	0	0	0	25 Nov 2023	0.01 (Z)	0.01 (Z)
26 Nov 2023	0	0	1	26 Nov 2023	0.02 (Z)	0.01 (Z)
27 Nov 2023	0	0	0	27 Nov 2023	0.02 (Z)	0.01 (Z)
28 Nov 2023	0	0	0	28 Nov 2023	0.02 (Z)	0.01 (Z)
29 Nov 2023	0	0	1	29 Nov 2023	0.02 (Z)	0.01 (Z)
30 Nov 2023	0	0	0	30 Nov 2023	0.01 (Z)	0.01 (Z)
01 Dec 2023	0	0	0	01 Dec 2023	0.01 (Z)	0.01 (Z)
02 Dec 2023	0	0	0	02 Dec 2023	0.01 (Z)	0.01 (Z)
03 Dec 2023	0	0	0	03 Dec 2023	0.01 (Z)	0.01 (Z)
04 Dec 2023	0	0	0	04 Dec 2023	0.01 (Z)	0.01 (Z)
05 Dec 2023	0	0	0	05 Dec 2023	0.01 (Z)	--
06 Dec 2023	--	--	--	06 Dec 2023	--	--
07 Dec 2023	--	--	--	07 Dec 2023	--	--
08 Dec 2023	--	--	--	08 Dec 2023	--	--
09 Dec 2023	--	--	--	09 Dec 2023	--	--
10 Dec 2023	--	--	--	10 Dec 2023	--	--
11 Dec 2023	--	--	--	11 Dec 2023	--	--
12 Dec 2023	0	0	0	12 Dec 2023	0.01 (Z)	0.01 (Z)
					0.02 (Z)	0.01 (Z)

13 Dec 2023	0	0	0
14 Dec 2023	0	0	0
15 Dec 2023	--	--	--
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13 Dec 2023	0.01 (Z)	--
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mm/s	C 5/7 Shirley St, Rosehi		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
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23 Jul 2023	--	--	--
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23 Oct 2023			
24 Oct 2023	0	0	1
25 Oct 2023	0	0	1
26 Oct 2023	0	0	0
27 Oct 2023	0	0	0
28 Oct 2023	2395	634	1668
29 Oct 2023	0	0	0
30 Oct 2023	0	0	0
31 Oct 2023	0	0	0
01 Nov 2023	0	0	0
02 Nov 2023	0	0	0
03 Nov 2023	0	0	0
04 Nov 2023	0	0	0
05 Nov 2023	0	0	0
06 Nov 2023	0	0	0
07 Nov 2023	0	0	0
08 Nov 2023	0	0	0
09 Nov 2023	0	0	0
10 Nov 2023	--	--	--
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20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--

Vibration Events

No data for this period

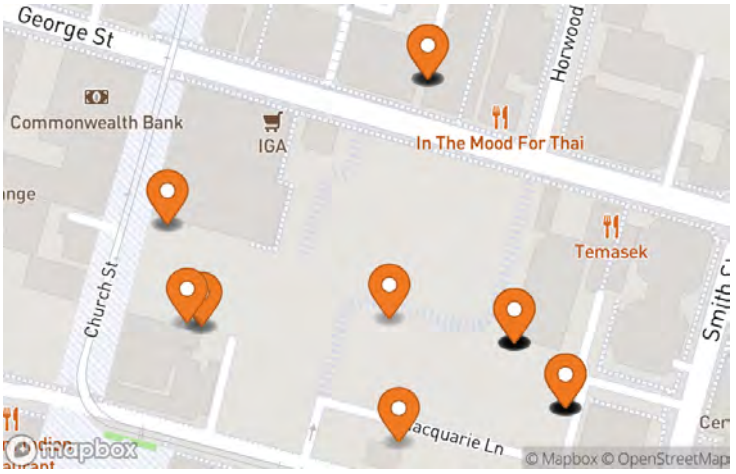
Gamuda Laing O'Rourke

Sydney Metro West WTP Parramatta

Monitoring Devices

Date Range 19 Jul 2023 - 19 Jan 2024

Device Serial	Monitoring Points
LECIYE	240 Church Street Parramatta, Grabber_P65, Horse Parapet Building
FIBISA	Macquarie Lane East Hoarding, Kia Ora, 240 Church Street, North of mens outdoor bathroom panel, 218 Church Street
GEGAWE	Roxy Theatre, P68, 220 Church St Parramatta
VIB-000182	-



Vibration Monitoring Statistics

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	8	8	10
20 Jul 2023	649	601	438
21 Jul 2023	18	7	14
22 Jul 2023	7	1	2
23 Jul 2023	0	0	0
24 Jul 2023	0	0	1
25 Jul 2023	2	1	2
26 Jul 2023	25	9	30
27 Jul 2023	14	9	8
28 Jul 2023	2	1	8
29 Jul 2023	457	581	649
30 Jul 2023	0	0	0
31 Jul 2023	9	22	10
01 Aug 2023	9	19	7
02 Aug 2023	0	1	1
03 Aug 2023	2	6	2
04 Aug 2023	5	12	8
05 Aug 2023	1	2	1
06 Aug 2023	0	0	0
07 Aug 2023	4	15	4
08 Aug 2023	1	8	5
09 Aug 2023	431	554	571
10 Aug 2023	13	16	7
11 Aug 2023	1	2	1
12 Aug 2023	1	1	1
13 Aug 2023	0	0	0
14 Aug 2023	7	7	9
15 Aug 2023	2	2	2
16 Aug 2023	29	101	18
17 Aug 2023	4	3	15
18 Aug 2023	3	3	1
19 Aug 2023	0	0	0
20 Aug 2023	0	0	0
21 Aug 2023	1	1	0
22 Aug 2023	7	5	7
23 Aug 2023	1	1	1
24 Aug 2023	1	1	0
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	1	1	1

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	4	1	1
08 Oct 2023	0	0	0
09 Oct 2023	47	13	15
10 Oct 2023	1	1	1
11 Oct 2023	0	0	0
12 Oct 2023	295	515	498
13 Oct 2023	8	4	5
14 Oct 2023	1	2	0
15 Oct 2023	0	0	0
16 Oct 2023	7	1	1
17 Oct 2023	99	58	7
18 Oct 2023	154	236	55
19 Oct 2023	2	3	1
20 Oct 2023	2	6	1
21 Oct 2023	1	1	0
22 Oct 2023	0	0	0
23 Oct 2023	182	710	181
24 Oct 2023	444	513	392
25 Oct 2023	--	--	--
26 Oct 2023	2	4	2
27 Oct 2023	3	13	7
28 Oct 2023	1	2	0
29 Oct 2023	0	0	0
30 Oct 2023	7	31	26
31 Oct 2023	5	16	7
01 Nov 2023	1	4	2
02 Nov 2023	2	8	3
03 Nov 2023	2	3	1
04 Nov 2023	74	73	63
05 Nov 2023	0	0	0
06 Nov 2023	2	4	4
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	2	1	1
10 Nov 2023	2	7	4
11 Nov 2023	3	1	1
12 Nov 2023	0	0	0
13 Nov 2023	2	0	1
14 Nov 2023	1	0	1
15 Nov 2023	564	510	207

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	8	4	3
17 Nov 2023	13	7	6
18 Nov 2023	2	1	1
19 Nov 2023	0	0	0
20 Nov 2023	24	10	11
21 Nov 2023	31	88	19
22 Nov 2023	356	426	297
23 Nov 2023	110	462	385
24 Nov 2023	358	587	317
25 Nov 2023	481	852	699
26 Nov 2023	0	0	0
27 Nov 2023	20	13	13
28 Nov 2023	0	0	0
29 Nov 2023	--	--	--
30 Nov 2023	3	1	1
01 Dec 2023	581	678	485
02 Dec 2023	0	0	0
03 Dec 2023	0	0	0
04 Dec 2023	0	0	0
05 Dec 2023	0	0	0
06 Dec 2023	100	55	13
07 Dec 2023	10	79	39
08 Dec 2023	1	1	1
09 Dec 2023	1	1	1
10 Dec 2023	0	0	0
11 Dec 2023	3	3	2
12 Dec 2023	2	6	2
13 Dec 2023	2	7	3
14 Dec 2023	4	6	4
15 Dec 2023	2	1	2
16 Dec 2023	0	0	0
17 Dec 2023	0	0	0
18 Dec 2023	1	1	1
19 Dec 2023	0	1	1
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	Roxy Theatre		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	0	1	1
09 Jan 2024	2	3	2
10 Jan 2024	1	1	1
11 Jan 2024	1	2	1
12 Jan 2024	212	310	224
13 Jan 2024	7	6	3
14 Jan 2024	0	0	0
15 Jan 2024	2	1	0
16 Jan 2024	1	2	1
17 Jan 2024	3	4	3
18 Jan 2024	4	5	6
19 Jan 2024	216	264	426
	--	--	--

mm/s	Macquarie Lane East H		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	Macquarie Lane East H		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	4	4	14
16 Sep 2023	0	0	0
17 Sep 2023	0	0	0
18 Sep 2023	0	0	0
19 Sep 2023	0	0	0
20 Sep 2023	0	0	0
21 Sep 2023	0	0	0
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	4	5	5
28 Sep 2023	12	3	4
29 Sep 2023	0	0	1
30 Sep 2023	0	0	0
01 Oct 2023	0	0	0
02 Oct 2023	0	0	0
03 Oct 2023	0	0	0
04 Oct 2023	1	1	1
05 Oct 2023	0	0	0
06 Oct 2023	1	1	1

mm/s	Macquarie Lane East H		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	0	0	0
08 Oct 2023	0	0	0
09 Oct 2023	0	0	0
10 Oct 2023	0	0	0
11 Oct 2023	0	0	0
12 Oct 2023	2	3	11
13 Oct 2023	0	0	1
14 Oct 2023	0	0	1
15 Oct 2023	0	0	0
16 Oct 2023	0	1	1
17 Oct 2023	--	--	--
18 Oct 2023	0	1	1
19 Oct 2023	1	0	1
20 Oct 2023	0	0	0
21 Oct 2023	1	1	1
22 Oct 2023	0	0	0
23 Oct 2023	0	1	1
24 Oct 2023	--	--	--
25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	Macquarie Lane East H		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
22 Nov 2023	--	--	--
23 Nov 2023	--	--	--
24 Nov 2023	--	--	--
25 Nov 2023	--	--	--
26 Nov 2023	--	--	--
27 Nov 2023	--	--	--
28 Nov 2023	--	--	--
29 Nov 2023	--	--	--
30 Nov 2023	--	--	--
01 Dec 2023	--	--	--
02 Dec 2023	--	--	--
03 Dec 2023	--	--	--
04 Dec 2023	--	--	--
05 Dec 2023	--	--	--
06 Dec 2023	--	--	--
07 Dec 2023	--	--	--
08 Dec 2023	--	--	--
09 Dec 2023	--	--	--
10 Dec 2023	--	--	--
11 Dec 2023	--	--	--
12 Dec 2023	--	--	--
13 Dec 2023	--	--	--
14 Dec 2023	--	--	--
15 Dec 2023	--	--	--
16 Dec 2023	--	--	--
17 Dec 2023	--	--	--
18 Dec 2023	--	--	--
19 Dec 2023	--	--	--
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	Macquarie Lane East H		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
	--	--	--

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	1	1	1
17 Aug 2023	3	3	6
18 Aug 2023	31	19	21
19 Aug 2023	2	1	0
20 Aug 2023	0	0	0
21 Aug 2023	25	31	42
22 Aug 2023	107	47	121
23 Aug 2023	2	2	1
24 Aug 2023	1	0	1
25 Aug 2023	1	0	1
26 Aug 2023	4	2	2
27 Aug 2023	1	0	1

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	5	3	14
29 Aug 2023	0	0	0
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	5	6	6
17 Sep 2023	0	0	0
18 Sep 2023	1	1	0
19 Sep 2023	1	1	1
20 Sep 2023	0	0	1
21 Sep 2023	1	1	1
22 Sep 2023	1	0	1
23 Sep 2023	0	1	1
24 Sep 2023	0	0	0
25 Sep 2023	2	2	1
26 Sep 2023	1	0	0
27 Sep 2023	5	5	4
28 Sep 2023	33	10	29
29 Sep 2023	2	2	2
30 Sep 2023	1	0	0
01 Oct 2023	1	1	1
02 Oct 2023	1	1	1
03 Oct 2023	1	0	0
04 Oct 2023	7	4	3
05 Oct 2023	4	8	6
06 Oct 2023	0	1	0

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	0	0	0
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	1	1	0
12 Oct 2023	1	0	1
13 Oct 2023	1	0	1
14 Oct 2023	0	0	0
15 Oct 2023	0	0	0
16 Oct 2023	1	1	1
17 Oct 2023	1	0	0
18 Oct 2023	2	2	1
19 Oct 2023	5	2	1
20 Oct 2023	1	1	1
21 Oct 2023	0	0	0
22 Oct 2023	0	0	0
23 Oct 2023	1	2	1
24 Oct 2023	0	1	0
25 Oct 2023	1	1	1
26 Oct 2023	1	1	0
27 Oct 2023	1	1	0
28 Oct 2023	0	0	0
29 Oct 2023	0	0	0
30 Oct 2023	0	0	0
31 Oct 2023	1	1	2
01 Nov 2023	3	3	3
02 Nov 2023	1	1	1
03 Nov 2023	1	1	0
04 Nov 2023	1	0	0
05 Nov 2023	0	0	0
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	38	51	40
15 Nov 2023	0	0	0

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	1	0	0
17 Nov 2023	1	1	0
18 Nov 2023	0	0	0
19 Nov 2023	0	0	0
20 Nov 2023	1	0	0
21 Nov 2023	1	1	1
22 Nov 2023	0	1	1
23 Nov 2023	1	0	1
24 Nov 2023	0	0	0
25 Nov 2023	0	0	0
26 Nov 2023	1	1	0
27 Nov 2023	2	3	4
28 Nov 2023	1	1	2
29 Nov 2023	0	0	0
30 Nov 2023	1	1	0
01 Dec 2023	0	0	0
02 Dec 2023	1	1	3
03 Dec 2023	0	0	0
04 Dec 2023	0	0	0
05 Dec 2023	--	--	--
06 Dec 2023	--	--	--
07 Dec 2023	--	--	--
08 Dec 2023	--	--	--
09 Dec 2023	--	--	--
10 Dec 2023	--	--	--
11 Dec 2023	--	--	--
12 Dec 2023	--	--	--
13 Dec 2023	--	--	--
14 Dec 2023	--	--	--
15 Dec 2023	--	--	--
16 Dec 2023	--	--	--
17 Dec 2023	--	--	--
18 Dec 2023	--	--	--
19 Dec 2023	--	--	--
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	240 Church Street Parr		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
	--	--	--

mm/s	Kia Ora		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	0	0	0
20 Jul 2023	0	0	0
21 Jul 2023	0	0	0
22 Jul 2023	0	0	0
23 Jul 2023	0	0	0
24 Jul 2023	0	0	0
25 Jul 2023	1	0	1
26 Jul 2023	0	0	0
27 Jul 2023	1	1	2
28 Jul 2023	0	0	0
29 Jul 2023	0	0	0
30 Jul 2023	0	0	0
31 Jul 2023	1	1	2
01 Aug 2023	0	1	1
02 Aug 2023	1	0	1
03 Aug 2023	0	0	1
04 Aug 2023	0	0	0
05 Aug 2023	0	0	0
06 Aug 2023	0	0	0
07 Aug 2023	1	1	1
08 Aug 2023	0	0	1
09 Aug 2023	0	0	0
10 Aug 2023	0	0	0
11 Aug 2023	0	0	1
12 Aug 2023	0	0	0
13 Aug 2023	0	0	0
14 Aug 2023	0	1	0
15 Aug 2023	1	1	2
16 Aug 2023	0	0	0
17 Aug 2023	0	0	0
18 Aug 2023	1	1	1
19 Aug 2023	0	1	0
20 Aug 2023	0	0	0
21 Aug 2023	0	1	0
22 Aug 2023	0	1	0
23 Aug 2023	1	4	12
24 Aug 2023	1	0	0
25 Aug 2023	0	0	0
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	Kia Ora		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	4	4	14
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	Kia Ora		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--
23 Oct 2023	--	--	--
24 Oct 2023	--	--	--
25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	Kia Ora		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
22 Nov 2023	--	--	--
23 Nov 2023	--	--	--
24 Nov 2023	--	--	--
25 Nov 2023	--	--	--
26 Nov 2023	--	--	--
27 Nov 2023	--	--	--
28 Nov 2023	--	--	--
29 Nov 2023	--	--	--
30 Nov 2023	--	--	--
01 Dec 2023	--	--	--
02 Dec 2023	--	--	--
03 Dec 2023	--	--	--
04 Dec 2023	--	--	--
05 Dec 2023	--	--	--
06 Dec 2023	--	--	--
07 Dec 2023	--	--	--
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09 Dec 2023	--	--	--
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11 Dec 2023	--	--	--
12 Dec 2023	--	--	--
13 Dec 2023	--	--	--
14 Dec 2023	--	--	--
15 Dec 2023	--	--	--
16 Dec 2023	--	--	--
17 Dec 2023	--	--	--
18 Dec 2023	--	--	--
19 Dec 2023	--	--	--
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	Kia Ora		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
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mm/s	Grabber_P65		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	3	11	4
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	Grabber_P65		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	Grabber_P65		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--
23 Oct 2023	--	--	--
24 Oct 2023	--	--	--
25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	Grabber_P65		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
22 Nov 2023	--	--	--
23 Nov 2023	--	--	--
24 Nov 2023	--	--	--
25 Nov 2023	--	--	--
26 Nov 2023	--	--	--
27 Nov 2023	--	--	--
28 Nov 2023	--	--	--
29 Nov 2023	--	--	--
30 Nov 2023	--	--	--
01 Dec 2023	--	--	--
02 Dec 2023	--	--	--
03 Dec 2023	--	--	--
04 Dec 2023	--	--	--
05 Dec 2023	--	--	--
06 Dec 2023	--	--	--
07 Dec 2023	--	--	--
08 Dec 2023	--	--	--
09 Dec 2023	--	--	--
10 Dec 2023	--	--	--
11 Dec 2023	--	--	--
12 Dec 2023	--	--	--
13 Dec 2023	--	--	--
14 Dec 2023	--	--	--
15 Dec 2023	--	--	--
16 Dec 2023	--	--	--
17 Dec 2023	--	--	--
18 Dec 2023	--	--	--
19 Dec 2023	--	--	--
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	Grabber_P65		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
	--	--	--

mm/s	Horse Parapet Building		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	4	12	5
12 Aug 2023	1	2	0
13 Aug 2023	2	3	4
14 Aug 2023	6	15	5
15 Aug 2023	7	15	5
16 Aug 2023	4	8	3
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	Horse Parapet Building		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	Horse Parapet Building		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--
23 Oct 2023	--	--	--
24 Oct 2023	--	--	--
25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	Horse Parapet Building		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
22 Nov 2023	--	--	--
23 Nov 2023	--	--	--
24 Nov 2023	--	--	--
25 Nov 2023	--	--	--
26 Nov 2023	--	--	--
27 Nov 2023	--	--	--
28 Nov 2023	--	--	--
29 Nov 2023	--	--	--
30 Nov 2023	--	--	--
01 Dec 2023	--	--	--
02 Dec 2023	--	--	--
03 Dec 2023	--	--	--
04 Dec 2023	--	--	--
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06 Dec 2023	--	--	--
07 Dec 2023	--	--	--
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15 Dec 2023	--	--	--
16 Dec 2023	--	--	--
17 Dec 2023	--	--	--
18 Dec 2023	--	--	--
19 Dec 2023	--	--	--
20 Dec 2023	--	--	--
21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	Horse Parapet Building		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	--	--	--
10 Jan 2024	--	--	--
11 Jan 2024	--	--	--
12 Jan 2024	--	--	--
13 Jan 2024	--	--	--
14 Jan 2024	--	--	--
15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
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mm/s	P68		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
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11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	3	3	4
25 Aug 2023	1	1	0
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	P68		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	5	4	5
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	P68		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--
23 Oct 2023	--	--	--
24 Oct 2023	--	--	--
25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	--	--	--
09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	P68		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
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30 Nov 2023	--	--	--
01 Dec 2023	--	--	--
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24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	P68		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
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07 Jan 2024	--	--	--
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15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
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mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
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16 Aug 2023	--	--	--
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20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	20	13	12
16 Sep 2023	1	3	3
17 Sep 2023	0	0	0
18 Sep 2023	1	1	2
19 Sep 2023	12	42	32
20 Sep 2023	2	3	9
21 Sep 2023	2	3	6
22 Sep 2023	408	617	440
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	2	3	3
26 Sep 2023	1	2	1
27 Sep 2023	2	2	2
28 Sep 2023	3	0	3
29 Sep 2023	26	2	8
30 Sep 2023	3	1	1
01 Oct 2023	0	0	0
02 Oct 2023	0	0	0
03 Oct 2023	0	0	0
04 Oct 2023	2	1	1
05 Oct 2023	13	1	3
06 Oct 2023	--	--	--

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
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18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
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25 Oct 2023	--	--	--
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
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29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
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03 Nov 2023	--	--	--
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12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
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01 Dec 2023	--	--	--
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21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	220 Church St Parramc		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
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17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
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mm/s	240 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
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18 Aug 2023	--	--	--
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20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	240 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	0	0	0
17 Sep 2023	0	0	0
18 Sep 2023	0	0	0
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	240 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
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09 Nov 2023	--	--	--
10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	240 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
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01 Dec 2023	--	--	--
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07 Dec 2023	--	--	--
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18 Dec 2023	--	--	--
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21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	240 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
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15 Jan 2024	--	--	--
16 Jan 2024	--	--	--
17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
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mm/s	North of mens outdoor		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
05 Aug 2023	--	--	--
06 Aug 2023	--	--	--
07 Aug 2023	--	--	--
08 Aug 2023	--	--	--
09 Aug 2023	--	--	--
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13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
21 Aug 2023	--	--	--
22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	North of mens outdoor		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
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16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	North of mens outdoor		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--
23 Oct 2023	85	23	43
24 Oct 2023	34	51	10
25 Oct 2023	14	16	4
26 Oct 2023	--	--	--
27 Oct 2023	--	--	--
28 Oct 2023	--	--	--
29 Oct 2023	--	--	--
30 Oct 2023	--	--	--
31 Oct 2023	--	--	--
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
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06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
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10 Nov 2023	--	--	--
11 Nov 2023	--	--	--
12 Nov 2023	--	--	--
13 Nov 2023	--	--	--
14 Nov 2023	--	--	--
15 Nov 2023	--	--	--

mm/s	North of mens outdoor		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	--	--	--
17 Nov 2023	--	--	--
18 Nov 2023	--	--	--
19 Nov 2023	--	--	--
20 Nov 2023	--	--	--
21 Nov 2023	--	--	--
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01 Dec 2023	--	--	--
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21 Dec 2023	--	--	--
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	North of mens outdoor		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
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17 Jan 2024	--	--	--
18 Jan 2024	--	--	--
19 Jan 2024	--	--	--
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mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
19 Jul 2023	--	--	--
20 Jul 2023	--	--	--
21 Jul 2023	--	--	--
22 Jul 2023	--	--	--
23 Jul 2023	--	--	--
24 Jul 2023	--	--	--
25 Jul 2023	--	--	--
26 Jul 2023	--	--	--
27 Jul 2023	--	--	--
28 Jul 2023	--	--	--
29 Jul 2023	--	--	--
30 Jul 2023	--	--	--
31 Jul 2023	--	--	--
01 Aug 2023	--	--	--
02 Aug 2023	--	--	--
03 Aug 2023	--	--	--
04 Aug 2023	--	--	--
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07 Aug 2023	--	--	--
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09 Aug 2023	--	--	--
10 Aug 2023	--	--	--
11 Aug 2023	--	--	--
12 Aug 2023	--	--	--
13 Aug 2023	--	--	--
14 Aug 2023	--	--	--
15 Aug 2023	--	--	--
16 Aug 2023	--	--	--
17 Aug 2023	--	--	--
18 Aug 2023	--	--	--
19 Aug 2023	--	--	--
20 Aug 2023	--	--	--
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22 Aug 2023	--	--	--
23 Aug 2023	--	--	--
24 Aug 2023	--	--	--
25 Aug 2023	--	--	--
26 Aug 2023	--	--	--
27 Aug 2023	--	--	--

mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
28 Aug 2023	--	--	--
29 Aug 2023	--	--	--
30 Aug 2023	--	--	--
31 Aug 2023	--	--	--
01 Sep 2023	--	--	--
02 Sep 2023	--	--	--
03 Sep 2023	--	--	--
04 Sep 2023	--	--	--
05 Sep 2023	--	--	--
06 Sep 2023	--	--	--
07 Sep 2023	--	--	--
08 Sep 2023	--	--	--
09 Sep 2023	--	--	--
10 Sep 2023	--	--	--
11 Sep 2023	--	--	--
12 Sep 2023	--	--	--
13 Sep 2023	--	--	--
14 Sep 2023	--	--	--
15 Sep 2023	--	--	--
16 Sep 2023	--	--	--
17 Sep 2023	--	--	--
18 Sep 2023	--	--	--
19 Sep 2023	--	--	--
20 Sep 2023	--	--	--
21 Sep 2023	--	--	--
22 Sep 2023	--	--	--
23 Sep 2023	--	--	--
24 Sep 2023	--	--	--
25 Sep 2023	--	--	--
26 Sep 2023	--	--	--
27 Sep 2023	--	--	--
28 Sep 2023	--	--	--
29 Sep 2023	--	--	--
30 Sep 2023	--	--	--
01 Oct 2023	--	--	--
02 Oct 2023	--	--	--
03 Oct 2023	--	--	--
04 Oct 2023	--	--	--
05 Oct 2023	--	--	--
06 Oct 2023	--	--	--

mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
07 Oct 2023	--	--	--
08 Oct 2023	--	--	--
09 Oct 2023	--	--	--
10 Oct 2023	--	--	--
11 Oct 2023	--	--	--
12 Oct 2023	--	--	--
13 Oct 2023	--	--	--
14 Oct 2023	--	--	--
15 Oct 2023	--	--	--
16 Oct 2023	--	--	--
17 Oct 2023	--	--	--
18 Oct 2023	--	--	--
19 Oct 2023	--	--	--
20 Oct 2023	--	--	--
21 Oct 2023	--	--	--
22 Oct 2023	--	--	--
23 Oct 2023	--	--	--
24 Oct 2023	--	--	--
25 Oct 2023	9	18	4
26 Oct 2023	321	247	549
27 Oct 2023	4	12	6
28 Oct 2023	142	83	157
29 Oct 2023	0	0	0
30 Oct 2023	2	6	5
31 Oct 2023	22	37	11
01 Nov 2023	--	--	--
02 Nov 2023	--	--	--
03 Nov 2023	--	--	--
04 Nov 2023	--	--	--
05 Nov 2023	--	--	--
06 Nov 2023	--	--	--
07 Nov 2023	--	--	--
08 Nov 2023	120	93	217
09 Nov 2023	2	1	0
10 Nov 2023	3	3	1
11 Nov 2023	39	93	246
12 Nov 2023	0	0	0
13 Nov 2023	182	60	70
14 Nov 2023	90	37	22
15 Nov 2023	24	423	185

mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
16 Nov 2023	385	287	192
17 Nov 2023	319	368	204
18 Nov 2023	2	1	1
19 Nov 2023	0	0	0
20 Nov 2023	2	4	1
21 Nov 2023	1	0	0
22 Nov 2023	57	117	69
23 Nov 2023	1	0	0
24 Nov 2023	2	1	1
25 Nov 2023	0	0	0
26 Nov 2023	0	0	1
27 Nov 2023	5	4	1
28 Nov 2023	5	5	9
29 Nov 2023	1	1	2
30 Nov 2023	3	1	1
01 Dec 2023	1	0	0
02 Dec 2023	--	--	--
03 Dec 2023	--	--	--
04 Dec 2023	--	--	--
05 Dec 2023	--	--	--
06 Dec 2023	4	3	1
07 Dec 2023	2	1	0
08 Dec 2023	2	1	0
09 Dec 2023	4	2	0
10 Dec 2023	0	0	0
11 Dec 2023	3	2	0
12 Dec 2023	2	2	1
13 Dec 2023	2	2	1
14 Dec 2023	5	6	5
15 Dec 2023	1	0	0
16 Dec 2023	1	1	0
17 Dec 2023	0	0	0
18 Dec 2023	6	4	8
19 Dec 2023	1	3	2
20 Dec 2023	0	0	0
21 Dec 2023	1	1	0
22 Dec 2023	--	--	--
23 Dec 2023	--	--	--
24 Dec 2023	--	--	--
25 Dec 2023	--	--	--

mm/s	218 Church Street		
Daily Max	X Peak	Y Peak	Z Peak
26 Dec 2023	--	--	--
27 Dec 2023	--	--	--
28 Dec 2023	--	--	--
29 Dec 2023	--	--	--
30 Dec 2023	--	--	--
31 Dec 2023	--	--	--
01 Jan 2024	--	--	--
02 Jan 2024	--	--	--
03 Jan 2024	--	--	--
04 Jan 2024	--	--	--
05 Jan 2024	--	--	--
06 Jan 2024	--	--	--
07 Jan 2024	--	--	--
08 Jan 2024	--	--	--
09 Jan 2024	3	6	2
10 Jan 2024	1	2	1
11 Jan 2024	1	1	1
12 Jan 2024	1	1	1
13 Jan 2024	0	0	0
14 Jan 2024	0	1	1
15 Jan 2024	1	1	1
16 Jan 2024	17	19	6
17 Jan 2024	180	81	77
18 Jan 2024	20	54	23
19 Jan 2024	15	121	33
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Attachment 4 –Vibration Monitoring Summary – where there are exceedances

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

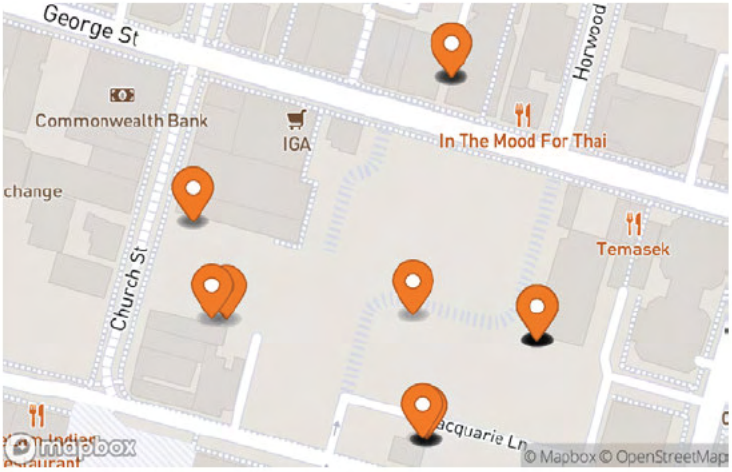
Gamuda Laing O'Rourke

Sydney Metro West WTP Parramatta

Monitoring Devices

Date Range 19 Jul 2023 - 19 Jan 2024

Device Serial	Monitoring Points
LECIYE	240 Church Street Parramatta, Grabber_P65, Horse Parapet Building
FIBISA	Kia Ora North Facade, Kia Ora, 240 Church Street, North of mens outdoor bathroom panel, 218 Church St Wall
GEGAWE	Roxy Theatre, P68, 220 Church St Parramatta



Note: Monitoring data has been separated based on the monitoring locations:

a) Roxy Theatre
b) 218-220 Church Street
c) 240 Church Street
d) D-Wall construction
e) Panel P65 (Piling Pad)
f) Macquarie Lane East
g) Kia Ora

Roxy Theatre

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Wed	19/07/2023 13:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6	NON_REPORTABLE	Works are compliant and do n	Concrete agitator delivering concrete to complete concrete pour for Panel P65. Activities are >7m away from wall.Concrete agitator delivering concrete into panel excavation to complete pour. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	19/07/2023 13:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.03	NON_REPORTABLE	Works are compliant and do n	Concrete agitator delivering concrete to complete concrete pour for Panel P65. Activities are >7m away from wall.Concrete agitator delivering concrete into panel excavation to complete pour. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	19/07/2023 17:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.18	NON_REPORTABLE	Monitor displaced	During inspection of Panel P65 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	20/07/2023 13:04	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.62	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panels P62-P63. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trenches. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 13:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.04	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panels P62-P63. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trenches. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 13:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.78	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panels P62-P63. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trenches. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 17:05	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	480.03	NON_REPORTABLE	Monitor displaced	During inspection of Panel P63 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	20/07/2023 17:05	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.34	NON_REPORTABLE	Monitor displaced	During inspection of Panel P63 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	20/07/2023 17:05	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	816.54	NON_REPORTABLE	Monitor displaced	During inspection of Panel P63 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	20/07/2023 17:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	438.13	NON_REPORTABLE	Monitor displaced	During inspection of Panel P63 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	20/07/2023 17:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	549.19	NON_REPORTABLE	Monitor displaced	During inspection of Panel P63 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	20/07/2023 17:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	31.84	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab moving into Panel P63 work area. Mobilisation occuring approx. 15m from the Roxy Theatre boundary. Grab attachment lowered to the ground connecting with concrete slab in the immediate area/ No vibration-intensive activiites being conducted at the time of the event.
Thu	20/07/2023 17:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	570.26	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab moving into Panel P63 work area. Mobilisation occuring approx. 15m from the Roxy Theatre boundary. Grab attachment lowered to the ground connecting with concrete slab in the immediate area/ No vibration-intensive activiites being conducted at the time of the event.
Thu	20/07/2023 18:18	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.38	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:26	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.36	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.57	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Thu	20/07/2023 18:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.35	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:34	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.25	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.72	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.57	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	20/07/2023 18:42	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.27	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:35	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.61	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.3	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.06	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.17	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 7:59	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.21	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:15	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.83	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:20	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.33	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.89	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.89	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.17	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.91	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 8:54	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.84	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Fri	21/07/2023 9:00	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.92	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 9:15	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.39	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 9:20	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.46	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 9:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.35	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 9:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.24	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 9:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.6	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 9:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.36	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 10:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.19	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 10:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.35	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 10:16	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.59	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 10:21	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.55	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 10:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.67	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:22	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.9	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.23	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.25	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:42	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.55	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.17	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 11:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.29	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Fri	21/07/2023 12:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.99	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 12:18	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.75	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 12:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.3	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 12:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.46	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 12:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.36	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 12:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.36	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 12:59	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.67	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 13:03	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 13:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.02	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:00	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.87	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.71	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.76	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.09	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:10	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.82	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.89	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.77	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.37	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 14:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.35	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Fri	21/07/2023 14:56	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.81	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	21/07/2023 15:08	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.01	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	22/07/2023 6:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.51	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutting activities being completed on Panel P63. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 16:17	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.46	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 16:53	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.87	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 16:58	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.04	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 16:59	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.27	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 17:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.88	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 17:04	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.58	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 17:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	29.89	NON_REPORTABLE	Monitor displaced	During inspection of Panel P64 works along Roxy Theatre boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	26/07/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.23	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 17:15	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.93	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	26/07/2023 17:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.55	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.26	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.47	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.56	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.93	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Thu	27/07/2023 7:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.59	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:44	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.68	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	27/07/2023 7:44	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.07	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P64. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	28/07/2023 16:03	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.1	NON_REPORTABLE	Monitor displaced	During concrete pours of Panel P64 site workers observed sitting on bentonite pipes adjacent to monitoring device places along Roxy Theatre boundary. Site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Sat	29/07/2023 11:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	933.65	NON_REPORTABLE	Monitor displaced	During clean-up activities following concrete pour of Panel P64 site workers observed sitting on and walking on bentonite pipes adjacent to monitoring device places along Roxy Theatre boundary. Site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	31/07/2023 8:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.63	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.93	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.69	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.9	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.61	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.5	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:33	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.27	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:33	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.46	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:33	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.33	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:34	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.47	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:34	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.43	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	31/07/2023 8:43	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.47	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:44	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.1	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.64	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.24	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 8:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.61	NON_REPORTABLE	Works are compliant and do n	20T excavator loading out excavated materials from between guide walls at Panel P66. Activities are >7m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.41	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.33	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.81	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.88	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:51	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.2	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:51	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:51	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.17	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.32	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 10:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.8	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.19	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:29	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.02	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	31/07/2023 11:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.04	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.27	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.64	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.01	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.03	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:42	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.42	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 11:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.53	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.24	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.04	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.31	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.22	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.89	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.45	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.49	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.25	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:29	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.56	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:29	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.63	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.41	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	31/07/2023 12:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.34	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.77	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.8	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.13	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.06	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:42	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	23.06	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.03	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.3	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 12:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.44	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:16	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.73	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:16	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.76	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:20	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.29	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:22	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.23	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.84	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.63	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.72	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:43	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.38	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 13:56	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.46	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	31/07/2023 13:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.84	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.22	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:15	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.33	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:16	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.25	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.61	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.14	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.34	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.32	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	31/07/2023 14:53	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	20.69	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.36	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.76	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.56	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.47	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.82	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.4	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.35	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:58	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.16	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:58	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.01	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Tue	1/08/2023 7:58	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.08	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 7:59	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.27	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.06	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.97	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.62	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.22	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.32	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.59	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.91	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.95	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.4	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.66	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.6	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:08	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.21	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:08	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.41	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:08	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.73	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.26	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.65	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Tue	1/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.13	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:35	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.54	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.64	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.43	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.7	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:43	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.43	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 8:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.91	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.98	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:12	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.58	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.05	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.32	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.44	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.58	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:16	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.32	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:21	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:22	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.83	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:22	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.3	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.86	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Tue	1/08/2023 9:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.34	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 9:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.06	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:00	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.53	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:04	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.18	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:08	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.09	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.24	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:18	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.58	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.47	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.87	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.72	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:29	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.25	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:34	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.17	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 10:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:20	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.33	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:20	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.11	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.75	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.5	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Tue	1/08/2023 11:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.37	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.46	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.49	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.87	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	1/08/2023 11:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.68	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	3/08/2023 2:26	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.93	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutter being lowered into Panel P66 to commence 2nd bite of cutting activities on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	3/08/2023 2:26	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.76	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutter being lowered into Panel P66 to commence 2nd bite of cutting activities on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	3/08/2023 2:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.68	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutter being lowered into Panel P66 to commence 2nd bite of cutting activities on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	3/08/2023 2:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.88	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutter being lowered into Panel P66 to commence 2nd bite of cutting activities on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 3:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.76	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutting activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 4:56	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.99	NON_REPORTABLE	Works are compliant and do n	Hydraulic cutting activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 12:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.45	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 12:51	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.81	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 12:53	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.9	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 12:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.53	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 12:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.96	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 12:59	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.67	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 13:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.1	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Fri	4/08/2023 13:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.4	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 13:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.91	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 13:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.68	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 13:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.53	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	4/08/2023 13:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.02	NON_REPORTABLE	Works are compliant and do n	Final clean-up activiites being completed using mechanical grab on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:36	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.44	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.73	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.73	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.23	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.93	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 7:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.52	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.55	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:18	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.3	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.39	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.32	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.95	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.61	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.09	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	7/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.56	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.42	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.16	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.25	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.51	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.55	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:42	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.65	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:43	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.8	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.04	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.95	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.32	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.85	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	7/08/2023 8:50	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.51	NON_REPORTABLE	Works are compliant and do n	Stop end installation being undertaken on Panel P66. Works being completed approx. 3m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	8/08/2023 13:07	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.61	NON_REPORTABLE	Works are compliant and do n	Concrete agitator delivering concrete to complete concrete pour for Panel P66. Activities are >7m away from wall.Concrete agitator delivering concrete into panel excavation to complete pour. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	8/08/2023 14:54	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.45	NON_REPORTABLE	Works are compliant and do n	Concrete agitator delivering concrete to complete concrete pour for Panel P66. Activities are >7m away from wall.Concrete agitator delivering concrete into panel excavation to complete pour. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 8:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.34	NON_REPORTABLE	Works are compliant and do n	20T excavator preparing area to load out excavated materials from between guide walls at Panel P67. Activities are >10m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 8:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.28	NON_REPORTABLE	Works are compliant and do n	20T excavator preparing area to load out excavated materials from between guide walls at Panel P67. Activities are >10m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	9/08/2023 10:42	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.29	NON_REPORTABLE	Works are compliant and do n	20T excavator preparing area to load out excavated materials from between guide walls at Panel P67. Activities are >10m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 11:16	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.97	NON_REPORTABLE	Works are compliant and do n	15T excavator with hammer attachment breaking small section of guide wall to remove prior to d-wall activiites commencing. Activiites are <7m from Roxy Theatre Wall. 15T excavator using a 500kg breaker attachment to break a discrtete section of overpoured guide-walls at Panel P67. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 11:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.52	NON_REPORTABLE	Works are compliant and do n	15T excavator with hammer attachment breaking small section of guide wall to remove prior to d-wall activiites commencing. Activiites are <7m from Roxy Theatre Wall. 15T excavator using a 500kg breaker attachment to break a discrtete section of overpoured guide-walls at Panel P67. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 11:19	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.1	NON_REPORTABLE	Works are compliant and do n	15T excavator with hammer attachment breaking small section of guide wall to remove prior to d-wall activiites commencing. Activiites are <7m from Roxy Theatre Wall. 15T excavator using a 500kg breaker attachment to break a discrtete section of overpoured guide-walls at Panel P67. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 11:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.55	NON_REPORTABLE	Works are compliant and do n	20T excavator preparing area to load out excavated materials from between guide walls at Panel P67. Activities are >10m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 11:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	711.4	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	9/08/2023 11:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	243.2	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	9/08/2023 11:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	430.62	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	9/08/2023 11:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	717.68	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	9/08/2023 13:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 13:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.9	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 13:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.78	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 13:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.13	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:12	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.41	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:15	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:17	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.69	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.67	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:27	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.33	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	9/08/2023 14:35	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.97	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.19	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 14:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.59	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 15:01	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.75	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 15:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.75	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 15:21	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.11	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 15:25	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.84	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 15:35	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.96	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.13	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	25.12	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:13	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.22	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:17	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.5	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:21	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.73	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.38	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.53	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:40	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.49	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 16:43	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.38	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:10	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.1	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.44	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.3	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.68	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.76	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.7	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.7	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	9/08/2023 17:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:46	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.4	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.88	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.15	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.4	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.53	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.05	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:47	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.37	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:51	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.3	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 8:58	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.84	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:06	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.12	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:09	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.24	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Thu	10/08/2023 9:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.61	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:14	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.58	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:15	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:23	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.77	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:29	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.49	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.34	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 9:57	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.04	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:08	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.19	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:17	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.56	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:26	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.44	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:30	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.81	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:43	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:48	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.64	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	20.66	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 10:55	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.09	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 11:03	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.86	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	10/08/2023 11:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:29	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.18	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:31	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.53	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	14/08/2023 13:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.95	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:39	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.47	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.68	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.67	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.01	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 7:00	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.75	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	16/08/2023 7:00	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	101.93	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	16/08/2023 7:00	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.53	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	16/08/2023 13:37	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	36.75	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.54	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	19.62	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	20.89	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:38	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.74	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:39	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.19	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:41	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.49	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:45	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.17	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 14:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.94	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 14:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.57	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 14:32	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	24.53	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 14:51	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.89	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 14:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.16	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	16/08/2023 14:52	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.26	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 22:28	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.07	NON_REPORTABLE	Works are compliant and do n	Mechanical grab activities being completed on Panel P67. Works being completed approx. 10m from Roxy Theatre boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	17/08/2023 14:24	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.87	NON_REPORTABLE	Monitor displaced	During clean-up for concrete pours of Panel P67 site workers observed moving in and around monitoring device places along Roxy Theatre boundary. Site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 15:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.64	NON_REPORTABLE	Works are compliant and do n	20T excavator preparing area to load out excavated materials from between guide walls at Panel P68. Activities are >10m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	22/08/2023 15:11	1.69E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.95	NON_REPORTABLE	Works are compliant and do n	20T excavator preparing area to load out excavated materials from between guide walls at Panel P68. Activities are >10m away from Roxy Theatre wall. 20T excavator using bucket attachment to excavate spoil materials from top of panel trench. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	10/10/2023 15:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	50.41	REPORTABLE	Works resulted in trigger event, review of activities completed	Cutter crane tracking in close proximity to monitor. No vibration-intensive activities being conducted in the area at the time of event. On-site review of activites completed. No further trigger alerts received.
Thu	12/10/2023 21:41	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	46.65	NON_REPORTABLE	Installation	Monitor relocated/adjusted upon check for triggers
Thu	12/10/2023 21:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	86.26	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed
Thu	12/10/2023 21:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	96.71	NON_REPORTABLE	Installation	Monitor relocated/adjusted upon check for triggers
Thu	12/10/2023 21:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	734.92	NON_REPORTABLE	Monitor displaced	During removal of the bentonite pipelines to allow for the installstion of the WTP discharge pipeline, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	12/10/2023 22:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	463.13	NON_REPORTABLE	Monitor displaced	During removal of the bentonite pipelines to allow for the installstion of the WTP discharge pipeline, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	12/10/2023 22:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	203.52	NON_REPORTABLE	Monitor displaced	During removal of the bentonite pipelines to allow for the installstion of the WTP discharge pipeline, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	12/10/2023 22:51	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	363.03	NON_REPORTABLE	Monitor displaced	During removal of the bentonite pipelines to allow for the installstion of the WTP discharge pipeline, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	13/10/2023 2:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.83	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed
Mon	16/10/2023 14:52	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.69	NON_REPORTABLE	Installation	Monitor relocated/adjusted upon check for triggers
Tue	17/10/2023 13:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	112.73	NON_REPORTABLE	Monitor displaced	During installation of WTP discharge pipeline, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	18/10/2023 7:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	35.38	NON_REPORTABLE	Installation	Interaction with monitor while checking battery and relocating outside of immediate works area. Note no vibration intensive activities being completed at the time of events.
Wed	18/10/2023 7:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	62.38	NON_REPORTABLE	Installation	Interaction with monitor while checking battery and relocating outside of immediate works area. Note no vibration intensive activities being completed at the time of events.
Wed	18/10/2023 7:10	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	87.61	NON_REPORTABLE	Installation	Interaction with monitor while checking battery and relocating outside of immediate works area. Note no vibration intensive activities being completed at the time of events.
Wed	18/10/2023 11:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.1	NON_REPORTABLE	Works are compliant and do n	Work team installing WTP discharge line have interacted with the monitor. No vibration-intensive actvities being completed in the area. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	18/10/2023 15:36	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	239.68	NON_REPORTABLE	Monitor displaced	WTP discharge line installation being completed adjacent to the monitor and it has been bumped. No vibration intensive activities being completed at the time of the event.
Wed	18/10/2023 16:20	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.84	NON_REPORTABLE	Monitor displaced	WTP discharge line installation being completed adjacent to the monitor and it has been bumped. No vibration intensive activities being completed at the time of the event.
Fri	20/10/2023 15:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.29	NON_REPORTABLE	Monitor displaced	Monitor bumped by site personnel competing inspections in the area. No vibration intensive activities being completed at the time of this event.
Mon	23/10/2023 8:50	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.16	NON_REPORTABLE	Works are compliant and do n	Removal of sheet piles and guide wall being completed using 23T excavator. Activities >7m from Roxy Theatre. On-site review of activites completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.

Mon	23/10/2023 8:51	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	28.26	REPORTABLE	Works resulted in trigger event, review of activities completed	Removal of sheet piles and guide wall being completed using 23T excavator. Activities >7m from Roxy Theatre. On-site review of activites completed. No further trigger alerts received.
Mon	23/10/2023 13:23	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	721.7	NON_REPORTABLE	Monitor displaced	Personnel working in vicinity to the monitor have bumped monitor. No vibration intensive activities being completed at the time of the events.
Mon	23/10/2023 13:24	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.68	NON_REPORTABLE	Monitor displaced	Personnel working in vicinity to the monitor have bumped monitor. No vibration intensive activities being completed at the time of the events.
Mon	23/10/2023 13:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.08	NON_REPORTABLE	Monitor displaced	Saw cutting works being completed in close vicinity to the monitor which has been inadvertently bumped by the operator. No vibration intensive activities being completed at the time of the event.
Mon	23/10/2023 15:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.37	NON_REPORTABLE	Monitor displaced	Saw cutting works being completed in close vicinity to the monitor which has been inadvertently bumped by the operator. No vibration intensive activities being completed at the time of the event.
Mon	23/10/2023 17:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	202.37	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Tue	24/10/2023 7:33	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.06	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 8:04	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.17	NON_REPORTABLE	Relocation of device	Monitor relocated/adjusted upon check for triggers
Tue	24/10/2023 8:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	240.45	NON_REPORTABLE	Relocation of device	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	24/10/2023 8:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	312.18	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 8:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	615.41	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 8:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.4	NON_REPORTABLE	Relocation of device	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	24/10/2023 8:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.37	NON_REPORTABLE	Relocation of device	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	24/10/2023 8:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.11	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 8:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.71	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 9:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.42	NON_REPORTABLE	Relocation of device	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	24/10/2023 9:54	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.27	NON_REPORTABLE	Relocation of device	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	24/10/2023 9:54	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.09	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 9:54	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.69	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 9:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.11	NON_REPORTABLE	Relocation of device	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	24/10/2023 12:23	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.6	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 12:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.89	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy
Tue	24/10/2023 12:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.29	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 12:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.82	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 12:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.55	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 12:43	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.42	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 12:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.81	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 12:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.42	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 13:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.39	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy
Tue	24/10/2023 13:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.62	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 13:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.07	NON_REPORTABLE	Monitor displaced	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 13:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.14	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 13:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.29	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 13:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.37	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 13:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.09	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 13:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.2	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Tue	24/10/2023 13:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.54	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy Theatre. No vibration-intensive activities being completed at the time of the event.
Tue	24/10/2023 13:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.04	NON_REPORTABLE	Relocation of device	Monitor relocated due to cleaning of slab along Roxy
Fri	27/10/2023 9:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.82	NON_REPORTABLE	Works are compliant and do n	25T excavator in use with bucket attachment to peel off concrete pad. Removed concrete pieces stockpiled dropped onto stockpile on southern side of piling pad. Operation being observed during exceedance. Vibration triggers attributed to excavator bucket having poor grip on concrete pieces and inadvertently dropping these onto the piling pad. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Fri	27/10/2023 9:20	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.54	NON_REPORTABLE	Works are compliant and do n	25T excavator in use with bucket attachment to peel off concrete pad. Removed concrete pieces stockpiled being dropped onto stockpile on southern side of piling pad. Operation being observed during exceedance. No significant event observed. Vibration exceedance(s) may be attributed to excavator bucket having poor grip on concrete pieces and inadvertently dropping these onto the piling pad. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	27/10/2023 9:22	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.63	NON_REPORTABLE	Works are compliant and do n	25T excavator in use with bucket attachment to peel off concrete pad. Removed concrete pieces stockpiled dropped onto stockpile on southern side of piling pad. Operation being observed during exceedance. No significant event observed. Vibration exceedance(s) may be attributed to excavator bucket having poor grip on concrete pieces and inadvertently dropping these onto the piling pad. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	27/10/2023 9:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.26	NON_REPORTABLE	Works are compliant and do n	25T excavator in use with bucket attachment to peel off concrete pad. Removed concrete pieces stockpiled dropped onto stockpile on southern side of piling pad. Operation being observed during exceedance. No significant event observed. Vibration exceedance(s) may be attributed to excavator bucket having poor grip on concrete pieces and inadvertently dropping these onto the piling pad. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	27/10/2023 9:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.37	NON_REPORTABLE	Works are compliant and do n	25T excavator in use with bucket attachment to peel off concrete pad. Removed concrete pieces stockpiled dropped onto stockpile on southern side of piling pad. Operation being observed during exceedance. No significant event observed. Vibration exceedance(s) may be attributed to excavator bucket having poor grip on concrete pieces and inadvertently dropping these onto the piling pad. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	27/10/2023 10:43	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.16	NON_REPORTABLE	Works are compliant and do n	25T excavator in use with bucket attachment to peel off concrete pad. Removed concrete pieces stockpiled dropped onto stockpile on southern side of piling pad. Operation being observed during exceedance. No significant event observed. Vibration exceedance(s) may be attributed to excavator bucket having poor grip on concrete pieces and inadvertently dropping these onto the piling pad. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 8:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.88	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 8:47	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.51	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 8:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.91	NON_REPORTABLE	Works are compliant and do n	25T excavator completing eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 8:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.72	NON_REPORTABLE	Works are compliant and do n	25T excavator completing eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 8:49	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.62	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.02	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:15	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.64	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:15	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.4	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:15	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.1	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.98	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.31	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.32	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.

Mon	30/10/2023 9:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.12	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.35	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:36	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.34	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.88	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.48	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete slabs adjacent to eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 9:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.91	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete slabs adjacent to eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 9:44	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.28	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 9:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.28	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete slabs adjacent to eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 9:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.67	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete slabs adjacent to eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 9:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.78	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete slabs adjacent to eastern capping beam excavation works in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activiites completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:43	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.5	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.89	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.21	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:50	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.58	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:54	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.35	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.33	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.58	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.92	NON_REPORTABLE	Works are compliant and do n	Excavator stockpiling excavated material adjacent to Roxy Theatre. No vibration-intensive activities being completed. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 11:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.78	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	30/10/2023 11:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:58	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.61	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:58	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.63	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.22	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.8	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 11:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.16	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.56	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.58	NON_REPORTABLE	Works are compliant and do n	25T excavator completing excavation works along D-wall in close proximity to vibration monitor. Excavation activities are >7m away from vibration monitor. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.68	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.18	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.26	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.31	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.26	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.14	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.61	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 12:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	0.4	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 12:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.07	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	30/10/2023 12:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.08	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.17	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.16	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.33	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.32	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.5	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	34.02	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.24	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.89	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:15	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.96	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 12:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	22.36	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.97	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.32	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 15:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.88	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.29	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.19	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	30/10/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.5	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.2	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.19	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 15:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.75	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:20	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	19.83	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:24	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.05	NON_REPORTABLE	Works are compliant and do n	25T excavator cleaning off concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator usingbucket attachment to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:24	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.76	NON_REPORTABLE	Works are compliant and do n	25T excavator cleaning off concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator usingbucket attachment to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 15:43	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.6	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	30/10/2023 16:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.95	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	30/10/2023 16:24	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.31	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Tue	31/10/2023 7:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.51	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Thu	2/11/2023 14:52	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.64	NON_REPORTABLE	Works are compliant and do n	Concrete saw-cutting being undertaken on adjacent piling pad. No vibration intensive activities being completed at time of event. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	4/11/2023 8:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	85.78	NON_REPORTABLE	Non GLC related	No work activities including vibration intensive activities being completed at time of event.
Fri	10/11/2023 15:23	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.6	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	15/11/2023 10:36	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	687.6	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	15/11/2023 10:36	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	231	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	15/11/2023 11:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	29.64	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	15/11/2023 12:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.04	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	15/11/2023 12:10	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	43.68	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	15/11/2023 16:26	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.51	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Thu	16/11/2023 15:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.6	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	16/11/2023 15:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.75	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	16/11/2023 15:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.79	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	16/11/2023 16:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.99	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	16/11/2023 16:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.85	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	16/11/2023 16:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.69	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.

Fri	17/11/2023 7:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.72	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 8:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.34	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	17/11/2023 8:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.31	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 8:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.74	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	17/11/2023 8:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.37	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 8:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.33	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 8:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.26	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	17/11/2023 8:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.83	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 8:31	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.63	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.32	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:41	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.11	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:43	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.82	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	17/11/2023 9:44	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.99	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.57	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.19	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.95	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.52	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	17/11/2023 9:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.69	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	17/11/2023 9:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.63	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Fri	17/11/2023 9:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.39	NON_REPORTABLE	Works are compliant and do n	18T excavator excavating adjacent to concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 18T excavator using bucket attachment to pull-off concrete and excavate spoil away from guide wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 7:44	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.16	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	20/11/2023 7:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.47	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	20/11/2023 8:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	0.11	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	20/11/2023 8:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.35	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	20/11/2023 8:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.94	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.47	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	20/11/2023 8:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.07	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	26.29	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from Roxy Theatre. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. No further vibration triggers received related to these specific works.
Mon	20/11/2023 8:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.43	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.14	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	20/11/2023 8:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.14	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:10	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.34	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:10	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.24	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.92	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	20/11/2023 8:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	23.04	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	20/11/2023 8:26	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.76	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using beak/ breaker attachment (not hammer) to pull-off concrete from around reinforcement bars. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	21/11/2023 11:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.48	NON_REPORTABLE	Monitor displaced	Site labourers placing black plastic along Roxy Theatre façade and have interacted with vibration monitor. No vibration-intensive works being completed at the time.
Tue	21/11/2023 12:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	35.13	NON_REPORTABLE	Monitor displaced	Site labourers placing black plastic along Roxy Theatre façade and have interacted with vibration monitor. No vibration-intensive works being completed at the time.
Tue	21/11/2023 12:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	88.42	NON_REPORTABLE	Monitor displaced	Site labourers placing black plastic along Roxy Theatre façade and have interacted with vibration monitor. No vibration-intensive works being completed at the time.
Wed	22/11/2023 7:21	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	335.4	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	22/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	437.8	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	22/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	357.61	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	22/11/2023 12:41	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.13	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	22/11/2023 12:49	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.14	NON_REPORTABLE	Works are compliant and do n	Excavator breaking up concrete guide wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	22/11/2023 12:49	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.52	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 12:49	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	37.44	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from Roxy Theatre. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. No further vibration triggers received related to these specific works.
Wed	22/11/2023 12:50	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.7	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 12:50	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.91	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 12:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 13:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.75	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 13:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	57.53	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator removing concrete guide wall structure along D-wall in close proximity to vibration monitor. Activities are >7m away from Roxy Theatre. 25T excavator using bucket to pick-up previously broken concrete pieces and has dropped concrete inadvertently. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	106.38	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.21	NON_REPORTABLE	Works are compliant and do n	25T excavator completing backfill works along D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed.
Wed	22/11/2023 15:22	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	25.49	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:22	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.62	NON_REPORTABLE	Works are compliant and do n	25T excavator completing backfill works along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide wall removal. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	22/11/2023 15:23	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.26	NON_REPORTABLE	Works are compliant and do n	25T excavator completing backfill works along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide wall removal. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 15:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	103.38	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:31	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	114.31	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.06	NON_REPORTABLE	Works are compliant and do n	25T excavator completing backfill works along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide wall removal. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 15:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.57	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	22/11/2023 15:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.6	NON_REPORTABLE	Works are compliant and do n	25T excavator completing backfill works along D-wall in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide wall removal. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	22/11/2023 15:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	23.78	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	22.61	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	55.14	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	26.65	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:41	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	95.42	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 15:41	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	99.24	REPORTABLE	Works resulted in trigger event, review of activities completed	25T excavator completing backfill works between access way and D-wall structure in close proximity to vibration monitor. 25T excavator using bucket to place backfill materials into trench left by guide-wall removal. On-site review of activities completed. Works ceased to be completed in this manner.
Wed	22/11/2023 16:43	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.44	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	22/11/2023 16:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.17	NON_REPORTABLE	Works are compliant and do n	Although excavator working in close proximity to vibration monitor, excavation activities are >7m away from vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	22/11/2023 18:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.34	NON_REPORTABLE	Non GLC related	No work activities including vibration intensive activities being completed at time of event.
Thu	23/11/2023 11:15	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.1	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	78.74	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	16.93	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	25.53	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.04	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.18	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.

Thu	23/11/2023 11:18	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	96.24	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:21	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	30.33	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:21	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.49	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:22	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	96.9	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:22	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	34.02	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	17.63	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.67	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	52.61	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	27.9	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.81	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	42.38	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:33	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	604.32	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	71.21	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 11:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	66.17	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.73	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:44	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	28.26	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:44	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	27.5	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:44	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.39	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	39.57	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.28	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 12:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	15.46	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 13:30	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.43	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 13:30	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.96	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 13:31	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.03	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 13:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.45	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.

Thu	23/11/2023 13:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.28	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 13:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	47.77	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 13:58	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	30.05	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.6	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.17	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.37	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.34	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	20.65	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	52.3	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	19.38	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	33.14	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	33.09	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	31.11	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Thu	23/11/2023 14:52	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	110.66	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 7:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.49	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 8:24	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.75	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 8:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.09	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 8:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	161.96	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 8:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.38	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 9:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	432.98	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Fri	24/11/2023 10:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.18	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 10:46	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.34	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 10:47	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.76	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 10:47	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.85	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 10:47	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	19.5	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 10:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.44	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.

Fri	24/11/2023 10:49	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.74	NON_REPORTABLE	Monitor displaced	Workers in close proximity to monitor drilling holes for new hoarding posts. No vibration-intensive activities being completed at the time of the event. Levels under thresholds of BS 7385-2.
Fri	24/11/2023 11:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	311.38	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Fri	24/11/2023 12:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.84	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Fri	24/11/2023 12:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.09	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Fri	24/11/2023 12:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.92	NON_REPORTABLE	Works are compliant and do n	Workers in close proximity to monitor drilling holes for new hoarding posts. No vibration-intensive activities being completed at the time of the event. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	24/11/2023 12:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.09	NON_REPORTABLE	Works are compliant and do n	Workers in close proximity to monitor drilling holes for new hoarding posts. No vibration-intensive activities being completed at the time of the event. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	24/11/2023 12:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.94	NON_REPORTABLE	Works are compliant and do n	Workers in close proximity to monitor drilling holes for new hoarding posts. No vibration-intensive activities being completed at the time of the event. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	24/11/2023 12:09	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.79	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	19.34	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.51	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:18	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.58	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:18	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.01	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Fri	24/11/2023 12:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.38	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:33	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.89	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.84	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.47	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:35	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.67	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.92	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.08	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 12:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	19.8	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 13:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	22.61	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 13:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.51	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 13:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.19	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	24/11/2023 13:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	45.26	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.
Fri	24/11/2023 13:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	31.96	NON_REPORTABLE	Monitor displaced	Discharge line being relocated immediately adjacent to the monitor - in fact the monitor had been moved and the poly pipe was sitting up against the monitoring device. No vibration-intensive activities being completed at the time of the events.

Fri	24/11/2023 13:45	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	41.11	NON_REPORTABLE	Monitor displaced	Site labourers setting up for works in the area and have made contact with the monitor. No vibration intensive actiiites being completed at thetime of the vibration events.
Fri	24/11/2023 13:47	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	158.07	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Fri	24/11/2023 14:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	217.01	NON_REPORTABLE	Relocation of device	Monitor relocation for area clean up - no vibration intensive activities being completed at the time of the events.
Fri	24/11/2023 14:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	236.24	NON_REPORTABLE	Monitor displaced	Site labourers setting up for works in the area and have made contact with the monitor. No vibration intensive actiiites being completed at thetime of the vibration events.
Fri	24/11/2023 14:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	594.07	NON_REPORTABLE	Monitor displaced	Site labourers setting up for works in the area and have made contact with the monitor. No vibration intensive actiiites being completed at thetime of the vibration events.
Fri	24/11/2023 14:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	440.73	NON_REPORTABLE	Monitor displaced	Site labourers setting up for works in the area and have made contact with the monitor. No vibration intensive actiiites being completed at thetime of the vibration events.
Fri	24/11/2023 14:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	348.25	NON_REPORTABLE	Monitor displaced	Site labourers setting up for works in the area and have made contact with the monitor. No vibration intensive actiiites being completed at thetime of the vibration events.
Sat	25/11/2023 10:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	283	NON_REPORTABLE	Monitor displaced	Site labourers setting up for guide-wall removal works have moved the vibration monitor out of immediate work area. Human interaction with monitor while it was being relocated.
Sat	25/11/2023 10:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	44.89	NON_REPORTABLE	Monitor displaced	Site labourers setting up for guide-wall removal works have moved the vibration monitor out of immediate work area. Human interaction with monitor while it was being relocated.
Sat	25/11/2023 10:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	978.89	NON_REPORTABLE	Monitor displaced	Site labourers setting up for guide-wall removal works have moved the vibration monitor out of immediate work area. Human interaction with monitor while it was being relocated.
Sat	25/11/2023 11:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	73.73	NON_REPORTABLE	Monitor displaced	Site labourers setting up for another section of guide-wall removal works. Labourers ihave moved the vibration monitor out of immediate work area. Human interaction with monitor while it was being relocated.
Sat	25/11/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.95	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	25/11/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.37	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Sat	25/11/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.81	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Sat	25/11/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.68	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	25/11/2023 11:48	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.59	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	25/11/2023 11:51	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.41	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	25/11/2023 11:52	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.68	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	25/11/2023 12:21	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.82	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Sat	25/11/2023 12:50	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	242.82	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Sat	25/11/2023 12:52	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	112.23	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.

Sat	25/11/2023 12:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	33.12	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Sat	25/11/2023 12:55	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.18	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Sat	25/11/2023 12:56	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	41.57	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 8:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.59	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 8:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.79	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.9	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.44	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.96	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.5	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.21	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.44	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:12	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.83	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 9:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.1	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 9:20	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.23	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:23	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.55	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 9:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.11	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 9:42	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.86	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 11:04	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	23.56	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 11:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.33	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 12:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:02	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.51	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.

Mon	27/11/2023 12:04	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.69	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.98	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.05	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 12:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.56	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:07	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	4.37	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.88	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.17	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 12:59	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.98	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.97	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.45	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:03	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.84	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.11	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.32	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:06	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.51	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:08	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.72	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:35	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.6	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:35	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.96	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:39	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.74	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 13:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.46	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 14:28	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.08	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.

Mon	27/11/2023 14:31	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.72	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.78	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.28	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.71	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.92	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.75	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.76	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	27/11/2023 14:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.32	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:35	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.64	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	27/11/2023 14:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.56	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	27/11/2023 14:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.93	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	27/11/2023 14:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.11	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.75	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	27/11/2023 14:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.09	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 14:49	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.47	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed along guide-wall in close proximity to vibration monitor. Hand held jackhammer being used to remove concrete from guide. On-site review of activities completed by Supervisor. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	27/11/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.33	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.25	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 15:13	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.79	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.

Mon	27/11/2023 15:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.13	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 15:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.87	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 15:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.38	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.98	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:16	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.92	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:17	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.84	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	10.82	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:25	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11.75	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 15:27	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.84	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Mon	27/11/2023 16:05	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.75	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.18	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:14	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.29	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:19	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.35	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.38	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:33	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.97	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:33	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.57	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.84	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:37	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.8	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:38	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.07	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:41	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	6.95	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.37	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Mon	27/11/2023 16:57	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.16	NON_REPORTABLE	Works are compliant and do n	Jack hammering works being completed adjacent to the monitor. Works being monitored/reviewed and modified accordingly. While vibration-intensive activities being undertaken and trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.

Mon	27/11/2023 17:01	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.08	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 7:40	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	330.78	NON_REPORTABLE	Installation	Work crew relocating monitor away from area to be excavated. No vibration intensive activities being completed at the time.
Fri	1/12/2023 8:29	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	14.33	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 8:30	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	327.96	NON_REPORTABLE	Monitor displaced	Work crews working adjacent to monitor completing clean-up activities. No vibration intensive activities being completed at the time of events.
Fri	1/12/2023 8:31	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	13.79	NON_REPORTABLE	Monitor displaced	Work crews working adjacent to monitor completing clean-up activities. No vibration intensive activities being completed at the time of events.
Fri	1/12/2023 8:31	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	18.48	NON_REPORTABLE	Monitor displaced	Work crews working adjacent to monitor completing clean-up activities. No vibration intensive activities being completed at the time of events.
Fri	1/12/2023 8:32	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	11	NON_REPORTABLE	Monitor displaced	Work crews working adjacent to monitor completing clean-up activities. No vibration intensive activities being completed at the time of events.
Fri	1/12/2023 8:34	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	12.4	NON_REPORTABLE	Monitor displaced	Work crews working adjacent to monitor completing clean-up activities. No vibration intensive activities being completed at the time of events.
Fri	1/12/2023 10:47	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	132.52	NON_REPORTABLE	Monitor displaced	Cleaning up following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 10:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.05	NON_REPORTABLE	Monitor displaced	Site labourers undertaking clean-up activities following guide wall and d-wall removal works. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 10:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	9.5	NON_REPORTABLE	Monitor displaced	Cleaning up following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 15:19	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	948.14	NON_REPORTABLE	Monitor displaced	Cleaning up following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 15:19	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	474.73	NON_REPORTABLE	Monitor displaced	Cleaning up following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Fri	1/12/2023 15:20	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	516.86	NON_REPORTABLE	Monitor displaced	Cleaning up following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Wed	6/12/2023 8:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	107.45	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Thu	7/12/2023 15:00	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	87.65	NON_REPORTABLE	Monitor displaced	Cleaning up following guide wall and d-wall removal works. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. Human interaction with monitor while clean-up being completed.
Tue	12/12/2023 15:24	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.66	NON_REPORTABLE	Works are compliant and do n	Excavator compacting adjacent ground. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Wed	13/12/2023 12:11	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.33	NON_REPORTABLE	Works are compliant and do n	Excavator trimming adjacent area within station box. Review of CCTV footage confirmed that no vibration intensive activities being completed at the time. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	14/12/2023 12:51	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.91	NON_REPORTABLE	Works are compliant and do n	Excavator trimming concrete on D-wall on side closest to vibration monitor. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Thu	14/12/2023 12:53	1.7E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.77	NON_REPORTABLE	Works are compliant and do n	25T excavator removing concrete guide wall structure along access footpath in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using pick attachment (not hammer) to pull-off concrete. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	12/01/2024 15:50	1.71E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	333.44	NON_REPORTABLE	Relocation of device	Vibration monitor being relocated to adjacent location to capture planned concrete breaking over Saturday shift. Revised location is closer to the works being completed and south-western facade of the Roxy buildling
Fri	12/01/2024 15:50	1.71E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	237.09	NON_REPORTABLE	Relocation of device	Vibration monitor being relocated to adjacent location to capture planned concrete breaking over Saturday shift. Revised location is closer to the works being completed and south-western facade of the Roxy buildling
Sat	13/01/2024 10:10	1.71E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	8.83	NON_REPORTABLE	Works are compliant and do n	25T excavator completing backfill works along haul road/Roxy Theatre access way in close proximity to vibration monitor. Activities are >7m away from vibration monitor. 25T excavator using bucket to place backfill materials. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	18/01/2024 2:12	1.71E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	7.26	NON_REPORTABLE	Works are compliant and do n	Workers doing formwork installation, no vibration intensive works taking place. While trigger received, event level below the structural/cosmetic damage criteria for the frequency being received.
Fri	19/01/2024 7:46	1.71E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	5.84	NON_REPORTABLE	Relocation of device	Relocation of device due to access required to walkway. Moved towards Roxy Theatre eastern corner
Fri	19/01/2024 7:54	1.71E+12	Roxy Theatre	GEGAWE	-33.81478	151.00517	Third Party Vibration Waveforms	vSum	7.5	433.97	NON_REPORTABLE	Relocation of device	Relocation of device due to access required to walkway. Moved towards Roxy Theatre eastern corner

218-220 Church Street Vibration Monitor

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Fri	11/08/2023 8:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.22	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 8:21	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	2.17	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 8:21	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.29	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 8:21	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.53	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 8:21	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.46	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 9:16	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	5.74	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 9:17	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.59	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 9:17	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.38	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 9:18	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.57	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 9:18	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.78	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 9:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.39	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 10:31	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	5.51	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	11/08/2023 10:32	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.86	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:15	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.46	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:15	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.37	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:15	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.43	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	14/08/2023 13:15	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.03	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:16	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.5	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:16	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.15	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:16	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.76	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:17	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.81	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:18	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	9.66	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:19	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.97	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:19	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	9.21	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.84	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	15.69	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	10.51	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.4	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:20	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	10.76	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:26	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	10.61	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:26	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.24	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Mon	14/08/2023 13:27	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.14	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Tue	15/08/2023 7:30	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	5.46	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 7:55	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	5.31	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:41	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.34	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:42	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.85	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:47	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.14	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:50	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.69	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:57	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	10.7	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:58	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:58	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.68	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:58	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	9.7	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:58	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.64	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:58	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.78	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:58	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	10.95	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:59	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	9.95	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:59	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.05	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Tue	15/08/2023 12:59	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	14.67	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:59	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	10.53	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 12:59	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.35	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:00	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.31	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:00	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	15.81	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:01	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	11.52	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:02	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	14.55	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:03	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	12.76	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:04	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	12.49	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator breaking up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using hammer to break waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:42	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	15.11	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 13:43	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	15.58	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	15/08/2023 17:23	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.22	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator cleaning up waste concrete within concrete washout area on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to stockpile waste concrete materials for future load-out. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:37	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	5.77	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piling pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:38	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	5.42	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piling pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 13:40	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.6	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	16/08/2023 15:24	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.87	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 15:24	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.2	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 15:25	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.74	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 15:25	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	6.67	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 15:26	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	7.71	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	16/08/2023 15:29	1.69E+12	Horse Parapet Building	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	7.5	8.84	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator loading out excavated materials from western piing pad on western piling pad. Activities are >7m away from 218-220 Church Street wall. 20T excavator using bucket attachment to load-out trucks for off-site haulage. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	12/09/2023 10:28	1.69E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	5.69	NON_REPORTABLE	Monitor displaced	During installation of the bentonite pipelines and cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	14/09/2023 17:36	1.69E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	5.29	NON_REPORTABLE	Monitor displaced	During installation of the bentonite pipelines and cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	15/09/2023 11:57	1.69E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	132.13	NON_REPORTABLE	Installation	Relocation of device by site team - communicated to Enviro team upon relocation
Fri	15/09/2023 15:05	1.69E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	18.03	NON_REPORTABLE	Installation	Relocation of device by site team - communicated to Enviro team upon relocation
Tue	19/09/2023 11:03	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	52.01	NON_REPORTABLE	Monitor displaced	During clearing of hardstand area along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	20/09/2023 10:16	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	9.35	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking stockpiling works alongside 218-220 Church Street boundary. Activities are >7m away from wall. 20T excavator using bucket to stockpile and load-out hardstand materials. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	20/09/2023 10:18	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	7.43	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking stockpiling works alongside 218-220 Church Street boundary. Activities are >7m away from wall. 20T excavator using bucket to stockpile and load-out hardstand materials. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	21/09/2023 15:34	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	6.6	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking stockpiling works alongside 218-220 Church Street boundary. Activities are >7m away from wall. 20T excavator using bucket to stockpile and load-out hardstand materials. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	22/09/2023 9:01	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	63.29	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:02	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	16.08	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:02	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	23.66	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:02	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	41.91	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:02	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	39.52	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:05	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	46.54	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:05	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	670.02	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	22/09/2023 9:43	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	8.03	NON_REPORTABLE	Monitor displaced	During installation of the cable tray along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

Fri	22/09/2023 11:22	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	6.49	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking backfilling works alongside 218-220 Church Street boundary. Activities are >7m away from wall. 20T excavator using bucket to backfill hardstand materials around guide-wall structure. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	22/09/2023 12:09	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	6.99	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking backfilling works alongside 218-220 Church Street boundary. Activities are >7m away from wall. 20T excavator using bucket to backfill hardstand materials around guide-wall structure. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	22/09/2023 15:25	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	6.99	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Concrete agitator delivering concrete to complete guide-wall construction alongside 218-220 Church Street boundary. Activities are >7m away from wall.Concrete agitator delicering concrete into trench to form guide-wall structure. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	22/09/2023 16:12	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	6.09	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking stockpiling works alongside 218-220 Church Street boundary. Activities are >7m away from wall. 20T excavator using bucket to stockpile and load-out hardstand materials. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	29/09/2023 5:21	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	7.19	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on eastern piling pad. No vibration-intensive activities being completed.
Fri	29/09/2023 20:10	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	26.77	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on eastern piling pad. No vibration-intensive activities being completed.
Fri	29/09/2023 20:10	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	7.12	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on eastern piling pad. No vibration-intensive activities being completed.
Thu	5/10/2023 1:37	1.7E+12	218-220 Church Street	GEGAWE	-33.8147	151.0035	Third Party Vibration Waveforms	vSum	7.5	12.94	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on eastern piling pad. No vibration-intensive activities being completed.
Wed	25/10/2023 16:50	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.2	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:50	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.16	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:50	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	14.5	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:50	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	14.93	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:53	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.13	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:54	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.04	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:54	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.9	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:54	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	16.02	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:54	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	15.54	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:55	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	17.83	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:55	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	17.89	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:55	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	18.85	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:55	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	17.98	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	25/10/2023 16:56	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	16.6	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	25/10/2023 16:56	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	17.55	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	26/10/2023 3:11	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	133.54	NON_REPORTABLE	Monitor displaced	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	26/10/2023 6:20	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	621.49	NON_REPORTABLE	Monitor displaced	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	27/10/2023 10:35	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.32	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	27/10/2023 10:42	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.44	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	27/10/2023 10:53	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	11.05	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	27/10/2023 10:56	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	10.8	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	28/10/2023 11:46	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	169.3	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	31/10/2023 8:15	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	24.59	REPORTABLE	Works resulted in trigger event, review of activities completed	Hydraulic cutter moving into work area to commence on P20. Equipment being mobilised into the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activiites being completed at the time of the event. On-site review of activities completed.
Tue	31/10/2023 8:15	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	38.74	REPORTABLE	Works resulted in trigger event, review of activities completed	Hydraulic cutter moving into work area to commence on P20. Equipment being mobilised into the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activiites being completed at the time of the event. On-site review of activities completed.
Wed	8/11/2023 12:40	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	120.46	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	8/11/2023 12:40	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	162.16	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	8/11/2023 12:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	156.63	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	8/11/2023 12:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.52	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	8/11/2023 12:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	57.4	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	8/11/2023 12:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	231.72	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	8/11/2023 15:34	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	19.43	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Hydraulic cutter undertaking cutting operations on P20. Works being completed ~ 3m from 218-220 Church Street boundary. On-site review of activities completed.Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	11/11/2023 5:32	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	247.72	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	13/11/2023 14:38	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	63.7	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	13/11/2023 14:38	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.42	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	13/11/2023 14:39	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	15.6	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	13/11/2023 14:39	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	202	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	13/11/2023 16:21	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.38	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Hydraulic cutter undertaking cutting operations on P20. Works being completed ~ 3m from 218-220 Church Street boundary. On-site review of activities completed.Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 4:57	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.73	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Hydraulic cutter undertaking cutting operations on P20. Works being completed ~ 3m from 218-220 Church Street boundary. On-site review of activities completed.Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 5:09	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.4	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	14/11/2023 5:09	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	19.81	NON_REPORTABLE	Monitor displaced	During inspection of Panel P20 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

Tue	14/11/2023 15:10	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	11.39	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 15:10	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	15.94	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 15:12	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.95	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 15:12	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.8	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 15:12	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	14.32	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Mechanical grab activities being completed on Panel P20. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	14/11/2023 16:01	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	99.61	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	15/11/2023 12:52	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	461.44	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	15/11/2023 13:20	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	39.46	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab activities being completed on Panel P21. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed.
Wed	15/11/2023 14:15	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	39.95	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab activities being completed on Panel P21. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed.
Wed	15/11/2023 14:15	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	13.34	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab activities being completed on Panel P21. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed.
Wed	15/11/2023 22:02	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	23.73	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	15/11/2023 23:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	25.29	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	16/11/2023 2:07	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	464.39	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	16/11/2023 3:40	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	90.33	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	16/11/2023 9:43	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	254.16	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	17/11/2023 8:07	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	87.84	REPORTABLE	Works resulted in trigger event, review of activities completed	Hydraulic cutter moving out of Panel P21 work area . Equipment being tracked out of the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activities being completed at the time of the event. On-site review of activities completed.
Fri	17/11/2023 8:08	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	59.84	REPORTABLE	Works resulted in trigger event, review of activities completed	Hydraulic cutter moving out of Panel P21 work area . Equipment being tracked out of the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activities being completed at the time of the event. On-site review of activities completed.
Fri	17/11/2023 9:03	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	268.55	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	17/11/2023 10:47	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	10.59	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	17/11/2023 12:04	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	11.12	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	17/11/2023 12:52	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	510.16	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	17/11/2023 13:18	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	28.09	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Fri	17/11/2023 13:39	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	166.67	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	22/11/2023 1:02	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	108.41	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	22/11/2023 1:02	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	139.7	NON_REPORTABLE	Monitor displaced	During inspection of Panel P21 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

Wed	22/11/2023 16:02	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	22.71	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab moving into Panel P22 work area . Equipment being moved into the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activities being completed at the time of the event. On-site review of activities completed.
Wed	22/11/2023 16:02	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	16.96	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab moving into Panel P22 work area . Equipment being moved into the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activities being completed at the time of the event. On-site review of activities completed.
Wed	22/11/2023 17:14	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	33.4	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab activities being completed on Panel P22. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed.
Wed	22/11/2023 17:16	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	14.62	REPORTABLE	Works resulted in trigger event, review of activities completed	Mechanical grab activities being completed on Panel P22. Works being completed approx. 3m from 218-220 Church Street boundary. On-site review of activities completed.
Tue	9/01/2024 7:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	774.48	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Tue	9/01/2024 7:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	380.33	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Tue	9/01/2024 7:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	325.76	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Tue	9/01/2024 7:41	1.7E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	372.18	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Tue	16/01/2024 23:05	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	22.37	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Hydraulic cutter moving into Panel P22 work area . Equipment being moved into the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activities being completed at the time of the event. On-site review of activities completed.
Wed	17/01/2024 9:08	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	10.64	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Hydraulic cutter moving into Panel P22 work area . Equipment being moved into the work area approx. 3m from 218-220 Church Street boundary. No vibration intensive activities being completed at the time of the event. On-site review of activities completed.
Wed	17/01/2024 12:52	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	200.92	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P22 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	17/01/2024 12:52	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	38.36	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P22 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	17/01/2024 13:02	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	48.75	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P22 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	17/01/2024 13:39	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	12.95	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P22 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Wed	17/01/2024 14:10	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	84.63	NON_REPORTABLE	Monitor displaced	During concreting works for Panel P22 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Thu	18/01/2024 9:51	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	57.29	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Thu	18/01/2024 9:51	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	23.63	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Thu	18/01/2024 11:49	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	140.46	NON_REPORTABLE	Installation	Relocation of device by site team - communicated to Enviro team upon relocation
Fri	19/01/2024 20:05	1.71E+12	218-220 Church Street	FIBISA	-33.81471	151.00357	Third Party Vibration Waveforms	vSum	7.5	124.41	NON_REPORTABLE	Monitor displaced	During inspection of Panel P22 works along 218-220 Church Street boundary, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

240 Church Street

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Thu	17/08/2023 16:29	1.69225E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.29	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator commencing concrete footing breaking works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using hammer to break up discrete sections of old footings. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 8:26	1.69231E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	9.41	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 8:56	1.69231E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	17.81	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 9:00	1.69231E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.16	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 9:21	1.69231E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.77	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 9:21	1.69231E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	15.43	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 10:20	1.69232E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	9.97	REPORTABLE	Works resulted in trigger event, review of activities completed	20T excavator undertaking concrete footing breaking works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using hammer to break up discrete sections of old footings. On-site review of activities completed. Works reviewed and ceased being delivered in this way.
Fri	18/08/2023 10:22	1.69232E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	39.24	REPORTABLE	Works resulted in trigger event, review of activities completed	20T excavator undertaking concrete footing breaking works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using hammer to break up discrete sections of old footings. On-site review of activities completed. Works reviewed and ceased being delivered in this way.
Fri	18/08/2023 11:40	1.69232E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	5.3	REPORTABLE	Works resulted in trigger event, review of activities completed	20T excavator undertaking concrete footing breaking works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using hammer to break up discrete sections of old footings. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Fri	18/08/2023 13:02	1.69233E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	24.63	NON_REPORTABLE	Monitor displaced	During inspections behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	21/08/2023 7:29	1.69257E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	20.33	NON_REPORTABLE	Monitor displaced	During inspections behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	21/08/2023 12:13	1.69258E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	23.05	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	21/08/2023 12:14	1.69258E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	41.97	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

Mon	21/08/2023 12:14	1.69258E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	7.62	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	21/08/2023 13:13	1.69259E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	7.75	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Mon	21/08/2023 13:13	1.69259E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	44.67	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:20	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.61	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:21	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	87.03	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:22	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.13	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.

Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 7:28	1.69265E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	10.66	NON_REPORTABLE	Monitor displaced	During rectification of scaffolding behind shipping container wall, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	22/08/2023 12:37	1.69267E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.05	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	22/08/2023 12:37	1.69267E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	5.59	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	22/08/2023 12:37	1.69267E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	12.69	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	22/08/2023 12:38	1.69267E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	32.99	REPORTABLE	Works resulted in trigger event, review of activities completed	20T excavator undertaking bulk excavation works and loading out materials alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed.
Tue	22/08/2023 12:39	1.69267E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	90.07	REPORTABLE	Works resulted in trigger event, review of activities completed	20T excavator undertaking bulk excavation works and loading out materials alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed.
Tue	22/08/2023 12:41	1.69267E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.8	NON_REPORTABLE	Monitor displaced	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Tue	22/08/2023 13:35	1.69268E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	155.07	REPORTABLE	Works resulted in trigger event, review of activities completed	20T excavator undertaking bulk excavation works and loading out materials alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed.
Tue	22/08/2023 13:35	1.69268E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	11.41	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Mon	28/08/2023 11:00	1.69318E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	14.84	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator undertaking bulk excavation works alongside shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to excavate hardstand area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Sat	16/09/2023 10:57	1.69483E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.32	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power
Wed	27/09/2023 8:00	1.69577E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	5.12	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator commencing backfill works alongside shipping container wall. Hand-held vibration plate being utilised to compact discrete sections of hardstand area also. Activities are >7m away from wall. 20T excavator using bucket to place hardstand materials and vibration plate beig used to compact discrete areas. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	27/09/2023 8:05	1.69577E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.06	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator commencing backfill works alongside shipping container wall. Hand-held vibration plate being utilised to compact discrete sections of hardstand area also. Activities are >7m away from wall. 20T excavator using bucket to place hardstand materials and vibration plate beig used to compact discrete areas. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	28/09/2023 4:06	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	9.22	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 4:08	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	13.23	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 4:12	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	7.06	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 4:12	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.47	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 4:32	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	7.68	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 4:33	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	17.89	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 4:59	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	39.7	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Thu	28/09/2023 5:01	1.69584E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	7.01	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed. Heavy rainfall event experienced during the monitoring period.
Wed	4/10/2023 10:06	1.69637E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.48	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator completing backfill works within guide-wall trench adjacent to shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to place hardstand materials into trench area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	4/10/2023 10:40	1.69638E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.35	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator completing backfill works within guide-wall trench adjacent to shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to place hardstand materials into trench area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.

Wed	4/10/2023 10:44	1.69638E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.18	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator completing backfill works within guide-wall trench adjacent to shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to place hardstand materials into trench area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Wed	4/10/2023 10:51	1.69638E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	6.14	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	20T excavator completing backfill works within guide-wall trench adjacent to shipping container wall. Activities are >7m away from wall. 20T excavator using bucket to place hardstand materials into trench area. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	5/10/2023 15:41	1.69648E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	8.57	NON_REPORTABLE	Works are compliant and do not reach vibration thresholds	Elevated work platform tracking along hardstand area adjacent to shipping container wall. Activities are >7m away from wall. Elevated work platform moving through the area to complete inspections of the sgipping container wall. On-site review of activities completed. Vibration levels reviewed in SiteHive and confirmed to be below structural/cosmetic damage criteria for unreinforced structures.
Thu	19/10/2023 13:16	1.69768E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	5.53	NON_REPORTABLE	Monitor displaced	During installation of scaffolding behnd shipping container wall to support remedial works, site team have inadvertently contacted the vibration monitor. No vibration-intensive activities being conducted in the area at the time of event.
Tue	14/11/2023 8:00	1.69991E+12	240 Church Street Parramatta	LECIYE	-33.81428	151.0034	Third Party Vibration Waveforms	vSum	7.5	67.22	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power

D-Wall construction

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Mon	23/10/2023 17:01	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	12.41	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:06	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	34.63	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:09	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	11.86	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:09	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	27.93	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:14	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	46.8	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:20	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	82.51	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:25	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	73.81	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:29	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	31.69	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:44	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	87.25	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 17:48	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	62.34	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:00	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	12.27	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:02	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	28.73	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:06	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	31.77	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:10	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	12.21	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:10	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	39.33	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:15	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	45.54	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:15	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	49.86	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:30	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	34.27	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Mon	23/10/2023 18:31	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	35.15	NON_REPORTABLE	Grabber Banging on Concrete Piling Pad Surface	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 6:46	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	55.96	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 7:37	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	11.05	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 7:42	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	16.41	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 7:42	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	15.6	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 7:55	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	11.51	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 7:59	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	12.51	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 8:49	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	12.19	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 8:55	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	15.05	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 9:01	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	12.14	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 9:05	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	17.1	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 9:23	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	13.39	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 9:45	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	15.11	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 9:50	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	26.29	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 9:54	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	16.27	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 10:07	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	21.53	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 10:10	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	14.51	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 10:10	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	27.97	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 10:14	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	23.13	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 10:18	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	35.03	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Tue	24/10/2023 17:08	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	14.77	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.
Wed	25/10/2023 6:48	1.698E+12	North of mens outdoor bathroom panel	FIBISA	-33.81468	151.00453	Third Party Vibration Waveforms	vSum	n/a	21.94	NON_REPORTABLE	Grabber Claw Puncturing the Alluvium Ground Material	Grabbing of Test Panel - monitor placed within 0.5m of excavation for data gathering purposes only. No vibration-intensive activities being completed.

Panel P65

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Fri	11/08/2023 7:50	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	5.51	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:52	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	8.58	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:53	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	8.38	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:53	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	7.77	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:53	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	11.26	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:53	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	9.89	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:54	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	7.94	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:54	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	8.95	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.
Fri	11/08/2023 7:54	1.6917E+12	Grabber_P65	LECIYE	-33.81366	151.00473	Third Party Vibration Waveforms	vSum	n/a	10.07	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.

Macquarie Lane East

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Fri	15/09/2023 13:48	1.69E+12	Macquarie Lane East Hoarding	FIBISA	-33.8151	151.005	Third Party Vibration Waveforms	vSum	7.5	14.49	NON_REPORTABLE	Relocation of device	Monitor being relocated to new monitoring location on Macquarie Lane East Hoarding
Fri	15/09/2023 14:03	1.69E+12	Macquarie Lane East Hoarding	FIBISA	-33.8151	151.005	Third Party Vibration Waveforms	vSum	7.5	13.49	NON_REPORTABLE	Relocation of device	Monitor being relocated to new monitoring location on Macquarie Lane East Hoarding
Fri	15/09/2023 14:22	1.69E+12	Macquarie Lane East Hoarding	FIBISA	-33.8151	151.005	Third Party Vibration Waveforms	vSum	7.5	34.4	NON_REPORTABLE	Relocation of device	Monitor being relocated to new monitoring location on Macquarie Lane East Hoarding
Thu	28/09/2023 3:59	1.7E+12	Macquarie Lane East Hoarding	FIBISA	-33.8151	151.005	Third Party Vibration Waveforms	vSum	7.5	12.39	NON_REPORTABLE	Non GLC related	Minimal night-works being completed on western piling pad. No vibration-intensive activities being completed
Thu	12/10/2023 9:35	1.7E+12	Macquarie Lane East Hoarding	FIBISA	-33.8151	151.005	Third Party Vibration Waveforms	vSum	7.5	11.58	NON_REPORTABLE	Installation	Monitor relocated/adjusted - checking battery power

Kia Ora

Day	Date/Time	UTC	Monitoring Point	Device Name:	Longitude	Latitude	Rule Name	Source Parameter	Threshold Value	Observed Value	Status	Explanation	Note
Wed	23/08/2023 3:29	1.69E+12	Kia Ora	FIBISA	-33.8152	151.005	Third Party Vibration Waveforms	vSum	7.5	11.92	NON_REPORTABLE	Relocation of device	Monitor being relocated to office for deployment to alternative site.

Gamuda Laing O'Rourke

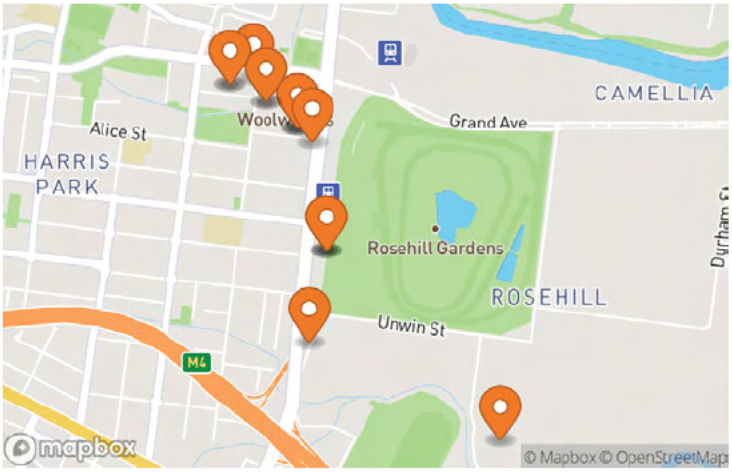
Sydney Metro West WTP Clyde Dive

Unattended Noise Monitoring 19Jul23_31Jul23 Clyde Dive

Monitoring Devices

Date Range 19 Jul 2023 - 19 Jan 2024

Device Serial	Monitoring Points
VIB-000028	Northern Hive , 13 Hope Street , 108 Aruthr St , 12 Oak St
VIB-000037	Northern Hive
JISAYI	Southern Hive
VIB-000037	Northern Hive , 8 Hope Street, Rosehill, 115 Authur St, Rosehill, C 5/7 Shirley St, Rosehill



Vibration Events

Date and time	Parameter	Value	Rule	Category	Monitoring Point
03 Aug 2023 12:16 installation	vSum	7.28	Third Party Vibration Waveforms mm/s	Installation	Northern Hive
03 Aug 2023 12:16	vSum	7.68	Third Party Vibration Waveforms mm/s	Installation	Northern Hive
09 Aug 2023 08:35 Installation	vSum	8.62	Third Party Vibration Waveforms mm/s	Installation	JISAYI
09 Aug 2023 09:16 Installation	vSum	5.27	Third Party Vibration Waveforms mm/s	Installation	JISAYI
09 Aug 2023 09:17 Installation	vSum	21.25	Third Party Vibration Waveforms mm/s	Installation	JISAYI
09 Aug 2023 09:26 Installation	vSum	5.27	Third Party Vibration Waveforms mm/s	Installation	JISAYI
09 Aug 2023 09:28 Installation	vSum	6.43	Third Party Vibration Waveforms mm/s	Installation	JISAYI

09 Aug 2023 13:13	vSum	5.67	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
09 Aug 2023 13:14	vSum	5.06	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
09 Aug 2023 13:15	vSum	6.28	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
09 Aug 2023 13:43	vSum	5.92	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
09 Aug 2023 13:49	vSum	14.91	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
09 Aug 2023 13:52	vSum	6.43	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
09 Aug 2023 16:16	vSum	5.06	Third Party Vibration Waveforms mm/s	Installation	JISAYI
Installation					
14 Sep 2023 11:23	vSum	2822.63	Third Party Vibration Waveforms mm/s	Installation	Northern Hive
Testing of equipment					
14 Sep 2023 11:23	vSum	39.23	Third Party Vibration Waveforms mm/s	Installation	Northern Hive
Testing of equipment					
19 Sep 2023 09:05	vSum	5.98	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
19 Sep 2023 09:08	vSum	6.07	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
19 Sep 2023 09:11	vSum	26.08	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					

19 Sep 2023 10:23	vSum	11.92	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
19 Sep 2023 10:24	vSum	10.72	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
19 Sep 2023 11:49	vSum	6.65	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
19 Sep 2023 13:56	vSum	5.38	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
19 Sep 2023 14:14	vSum	6.66	Third Party Vibration Waveforms mm/s	Human Interaction	13 Hope Street
wave length not matching that of a road header. due to human interaction					
27 Oct 2023 17:36	vSum	3.34	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
occured during shift changeover - no vibration activities occuring. Result: due to human interaction					
27 Oct 2023 17:45	vSum	4.22	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
occured during shift changeover - no vibration activities occuring. Result: due to human interaction					
27 Oct 2023 17:45	vSum	3.88	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
occured during shift changeover - no vibration activities occuring. Result: due to human interaction					
27 Oct 2023 17:48	vSum	4.00	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
occured during shift changeover - no vibration activities occuring. Result: due to human interaction					
27 Oct 2023 17:52	vSum	4.25	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
occured during shift changeover - no vibration activities occuring. Result: due to human interaction					
27 Oct 2023 17:53	vSum	3.02	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
occured during shift changeover - no vibration activities occuring. Result: due to human interaction					
28 Oct 2023 09:55	vSum	3.13	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Human interaction					

28 Oct 2023 10:18	vSum	3.69	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Human interaction					
28 Oct 2023 11:00	vSum	5.42	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Human interaction					
28 Oct 2023 11:02	vSum	3.00	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Human interaction					
28 Oct 2023 11:10	vSum	3.15	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Human interaction					
28 Oct 2023 11:40	vSum	5.95	PPV structural threshold ≥ 3mm/s	Human Interaction	115 Authur St, Rosehill
Human interaction					
28 Oct 2023 11:45	vSum	2977.08	PPV structural threshold ≥ 3mm/s	Human Interaction	115 Authur St, Rosehill
Human interaction					
28 Oct 2023 11:46	vSum	408.91	PPV structural threshold ≥ 3mm/s	Human Interaction	115 Authur St, Rosehill
Human interaction					
28 Oct 2023 11:54	vSum	102.16	PPV structural threshold ≥ 3mm/s	Human Interaction	115 Authur St, Rosehill
Human interaction					
31 Oct 2023 08:17	vSum	3.95	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Not consistent with GBNV. Likely interference with monitor					
31 Oct 2023 08:18	vSum	3.54	PPV structural threshold ≥ 3mm/s	Human Interaction	108 Aruthr St
Not consistent with GBNV. Likely interference with monitor					

Daily Notes

Date and time	By	Note
15 Dec 2023 13:22	Hala	Vib monitor (VIB-000028) was placed at A91 Hassall Street at 6:00pm. Location couldn't be changed from 14 Oak Street Parramatta to A91 Hassall St., Parramatta).
15 Dec 2023 13:27	Hala	Vib monitor (VIB-000028) was disconnected from A91 Hassall St, Parramatta at 5:45pm. location of monitoring point couldn't be changed from 12 Oak St. to A91 Hassall St.

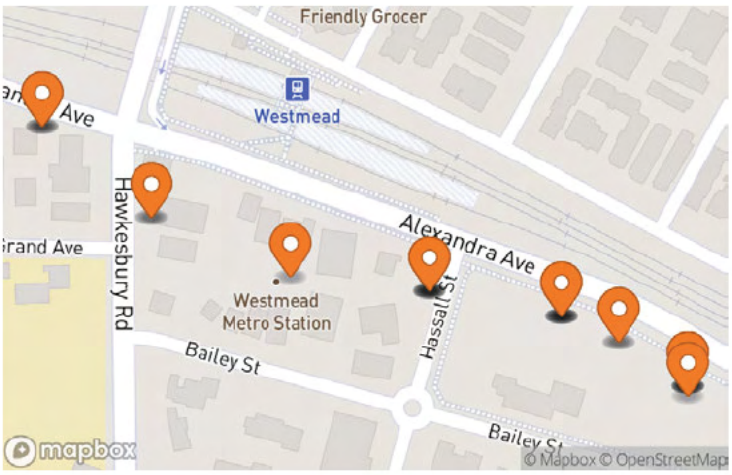
Gamuda Laing O'Rourke

Sydney Metro WTP Westmead

Monitoring Devices

Date Range 19 Jul 2023 - 19 Jan 2024

Device Serial	Monitoring Points
QAVULI	Hawkesbury Road
NUWACA	Hassall Street
VIB-000006	Hassall Street - trial
C22	30 Alexandra Ave
VIB-000009	8-12 Alexandra Avenue, 4 Alexandra Ave, 4 Alexandra Ave New
VIB-000021	8-12 Alexandra Avenue, Hassall Street
VIB-000024	8-12 Alexandra Avenue
VIB-000010	Hassall Street
VIB-000030	7 Alexandra Avenue
VIB-000072	30 Alexandra Ave



Vibration Events

Date and time	Parameter	Value	Rule	Category	Monitoring Point
19 Jul 2023 07:24	vSum	113.55	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 07:27	vSum	375.93	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 07:33	vSum	55.26	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 08:01	vSum	302.72	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 08:01	vSum	139.96	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 08:46	vSum	286.90	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					

19 Jul 2023 08:47	vSum	34.01	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 08:47	vSum	55.14	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 08:57	vSum	340.18	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 09:03	vSum	68.60	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 12:55	vSum	297.81	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 12:58	vSum	198.50	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 12:58	vSum	60.72	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 13:21	vSum	6.14	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:17	vSum	13.54	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:20	vSum	8.79	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:27	vSum	8.90	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:30	vSum	40.98	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					

19 Jul 2023 14:31	vSum	20.30	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:35	vSum	36.34	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:40	vSum	10.22	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:40	vSum	20.23	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:41	vSum	158.11	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:41	vSum	40.61	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 14:58	vSum	92.31	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 15:00	vSum	263.06	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
19 Jul 2023 17:23	vSum	61.03	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road
Plant Movement of tracked crane and Human Interaction around crane					
20 Jul 2023 07:19	vSum	239.28	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 09:50	vSum	262.80	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 11:41	vSum	337.96	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					

20 Jul 2023 14:07	vSum	127.13	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 14:07	vSum	96.12	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 14:09	vSum	115.96	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 14:15	vSum	7.86	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:09	vSum	296.71	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:13	vSum	5.55	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:14	vSum	40.94	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:19	vSum	188.78	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:29	vSum	223.03	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:41	vSum	234.24	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 15:58	vSum	248.65	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
20 Jul 2023 16:09	vSum	97.62	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					

20 Jul 2023 16:15	vSum	150.96	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device for shed works					
21 Jul 2023 07:08	vSum	320.51	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 09:37	vSum	135.37	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 09:40	vSum	12.76	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 10:43	vSum	228.54	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 12:59	vSum	197.98	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 13:11	vSum	42.05	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 13:12	vSum	109.77	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 14:12	vSum	208.05	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 14:12	vSum	209.84	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 14:17	vSum	60.05	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 14:21	vSum	180.93	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					

21 Jul 2023 14:27	vSum	92.93	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 14:28	vSum	117.97	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 14:28	vSum	150.11	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:06	vSum	167.77	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:06	vSum	7.69	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:06	vSum	39.61	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:06	vSum	90.14	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:06	vSum	10.76	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:08	vSum	30.21	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:13	vSum	18.41	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 15:37	vSum	84.52	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 16:52	vSum	287.01	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					

21 Jul 2023 16:55	vSum	54.05	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 17:16	vSum	60.76	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 17:19	vSum	164.10	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 17:23	vSum	75.72	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 17:27	vSum	114.64	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 17:35	vSum	45.56	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
21 Jul 2023 17:37	vSum	114.40	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 08:01	vSum	28.61	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 08:01	vSum	47.48	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 08:13	vSum	9.29	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 09:41	vSum	95.09	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 10:18	vSum	9.72	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					

24 Jul 2023 10:18	vSum	10.09	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 10:19	vSum	353.44	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 10:20	vSum	15.40	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 10:30	vSum	16.29	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 10:38	vSum	8.31	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 12:16	vSum	8.76	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 12:18	vSum	7.73	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 12:22	vSum	92.66	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 12:22	vSum	8.56	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 12:33	vSum	115.20	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 12:34	vSum	50.63	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:12	vSum	78.54	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					

24 Jul 2023 13:30	vSum	6.30	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:31	vSum	8.25	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:31	vSum	5.87	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:32	vSum	62.55	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:33	vSum	38.26	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:34	vSum	7.95	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:34	vSum	125.69	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:36	vSum	11.12	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 13:36	vSum	58.22	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 14:05	vSum	53.47	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 14:05	vSum	100.39	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
24 Jul 2023 14:07	vSum	22.17	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					

24 Jul 2023 14:07	vSum	223.66	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

24 Jul 2023 15:15	vSum	9.97	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

24 Jul 2023 15:16	vSum	23.58	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

24 Jul 2023 15:17	vSum	53.11	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 10:16	vSum	300.69	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 10:17	vSum	31.11	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 10:19	vSum	38.30	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 12:07	vSum	9.88	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 12:26	vSum	20.89	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 12:29	vSum	175.44	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 12:41	vSum	297.50	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 12:42	vSum	8.07	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

25 Jul 2023 12:44	vSum	11.32	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:26	vSum	76.49	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:29	vSum	68.33	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:29	vSum	14.40	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:46	vSum	14.14	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:46	vSum	31.94	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:48	vSum	22.47	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
25 Jul 2023 15:48	vSum	42.65	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
26 Jul 2023 07:03	vSum	37.18	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					
26 Jul 2023 07:49	vSum	42.21	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street - trial
Human Interaction Tests for device					
26 Jul 2023 07:49	vSum	26.01	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human Interaction Tests for device					
26 Jul 2023 08:05	vSum	7.80	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - installation of the acoustic shed adjacent to the monitor.					

26 Jul 2023 12:35	vSum	32.84	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 12:38	vSum	33.74	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 13:07	vSum	47.94	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 13:13	vSum	303.88	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 13:58	vSum	168.47	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 14:03	vSum	6.61	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 14:56	vSum	177.09	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 14:56	vSum	150.85	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 14:57	vSum	32.57	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

26 Jul 2023 15:02	vSum	7.41	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - installation of the acoustic shed adjacent to the monitor.

27 Jul 2023 07:09	vSum	52.45	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

27 Jul 2023 07:09	vSum	88.17	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

27 Jul 2023 10:35	vSum	11.63	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

27 Jul 2023 10:35	vSum	43.35	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

27 Jul 2023 10:36	vSum	13.28	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

27 Jul 2023 13:18	vSum	91.70	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

27 Jul 2023 15:19	vSum	9.71	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

28 Jul 2023 09:42	vSum	20.09	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

29 Jul 2023 10:20	vSum	10.67	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

29 Jul 2023 10:20	vSum	32.71	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil loadout activities that include the movement of spoil, and plant associated with spoil loadout on Pad1 Adjacent to the monitor,

31 Jul 2023 10:28	vSum	72.57	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction with monitoring with shed installation adjacent to the monitor device

31 Jul 2023 10:28	vSum	6.30	Third Party Vibration Waveforms mm/s	Spoil load out	Hawkesbury Road

Digger bucket in contact with Truck trailer

31 Jul 2023 10:28	vSum	43.62	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Movement of metal material associated with roofing work.

31 Jul 2023 10:31	vSum	6.09	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Digger hitting bucket with spoil truck.					
31 Jul 2023 11:32	vSum	145.08	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 11:38	vSum	156.43	Third Party Vibration Waveforms mm/s	Equipment Relocation	Hassall Street
Plugging in the recharged battery and moving away from monitor					
31 Jul 2023 12:01	vSum	9.44	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:01	vSum	6.01	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:02	vSum	5.53	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:03	vSum	12.91	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:03	vSum	6.59	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:04	vSum	7.07	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:04	vSum	11.64	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:04	vSum	7.65	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:05	vSum	10.81	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					

31 Jul 2023 12:06	vSum	42.94	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:27	vSum	9.27	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:28	vSum	9.65	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:30	vSum	7.16	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:31	vSum	6.67	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:31	vSum	13.67	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:31	vSum	9.42	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:31	vSum	7.43	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:33	vSum	6.58	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:35	vSum	16.90	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:35	vSum	9.76	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:43	vSum	5.63	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					

31 Jul 2023 12:45	vSum	10.90	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:47	vSum	22.72	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:47	vSum	6.52	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:48	vSum	5.37	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:48	vSum	10.52	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:50	vSum	6.40	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:50	vSum	7.48	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:51	vSum	6.51	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:51	vSum	6.37	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:57	vSum	9.41	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:58	vSum	10.99	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:58	vSum	5.35	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					

31 Jul 2023 12:58	vSum	7.28	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:59	vSum	6.71	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:59	vSum	7.49	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 12:59	vSum	10.35	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:00	vSum	5.93	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:01	vSum	6.56	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:01	vSum	6.23	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:07	vSum	7.20	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:13	vSum	8.91	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:14	vSum	6.85	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:17	vSum	12.17	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:19	vSum	15.59	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					

31 Jul 2023 13:19	vSum	7.45	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:19	vSum	6.80	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:19	vSum	6.80	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:20	vSum	10.83	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:20	vSum	10.83	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:20	vSum	8.90	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:20	vSum	8.90	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:20	vSum	15.10	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:20	vSum	15.10	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:21	vSum	133.36	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:23	vSum	11.92	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:24	vSum	6.72	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					

31 Jul 2023 13:24	vSum	153.65	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:24	vSum	10.86	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:25	vSum	8.22	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:25	vSum	9.30	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:26	vSum	9.28	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction while moving and recharging of unit					
31 Jul 2023 13:26	vSum	166.59	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:27	vSum	52.99	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:28	vSum	9.74	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:29	vSum	37.20	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:33	vSum	190.88	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around device to investigate previous spike in data					
31 Jul 2023 13:46	vSum	125.99	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:46	vSum	152.40	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					

31 Jul 2023 13:46	vSum	140.65	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:46	vSum	129.79	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:46	vSum	129.83	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:46	vSum	131.94	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:46	vSum	127.80	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:47	vSum	132.90	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:47	vSum	114.47	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human interaction, worker movements around monitoring device					
31 Jul 2023 13:47	vSum	0.40	Third Party Vibration Waveforms mm/s	Human Interaction	30 Alexandra Ave
Human Interaction around the device and close proximity					
31 Jul 2023 14:37	vSum	6.83	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil Load Out activities related to digger bucket being placed on the ground.					
31 Jul 2023 14:37	vSum	91.20	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil Load Out activities related to digger bucket being placed on the ground.					
01 Aug 2023 07:52	vSum	6.13	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of IDEC working close to monitor					
01 Aug 2023 10:42	vSum	14.90	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of IDEC working close to monitor					

01 Aug 2023 10:42	vSum	32.95	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of IDEC working close to monitor					
01 Aug 2023 12:59	vSum	343.30	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - IDEC working near around vibration equipment.					
01 Aug 2023 13:06	vSum	131.17	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - IDEC working near around vibration equipment.					
01 Aug 2023 14:29	vSum	36.11	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of IDEC working close to monitor					
01 Aug 2023 14:32	vSum	260.62	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - IDEC working near around vibration equipment.					
01 Aug 2023 15:17	vSum	227.44	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction - IDEC working near around vibration equipment.					
01 Aug 2023 17:10	vSum	47.54	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of IDEC working close to monitor					
01 Aug 2023 20:36	vSum	6.08	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of IDEC working close to monitor					
02 Aug 2023 08:14	vSum	9.81	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil load out activities, Digger working adjacent to monitor					
02 Aug 2023 08:15	vSum	8.06	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil load out activities, Digger working adjacent to monitor					
03 Aug 2023 11:55	vSum	14.65	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 11:56	vSum	11.35	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					

03 Aug 2023 11:58	vSum	10.37	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:03	vSum	10.30	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:03	vSum	6.04	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:05	vSum	62.00	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:16	vSum	6.70	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:16	vSum	7.68	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - works by Axis & IDEC around monitor					
03 Aug 2023 12:21	vSum	5.74	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:22	vSum	8.74	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - works by Axis & IDEC around monitor					
03 Aug 2023 12:22	vSum	9.87	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - works by Axis & IDEC around monitor					
03 Aug 2023 12:22	vSum	5.01	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:22	vSum	9.23	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:22	vSum	43.93	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					

03 Aug 2023 12:24	vSum	12.30	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:29	vSum	5.50	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - works by Axis & IDEC around monitor					
03 Aug 2023 12:29	vSum	7.35	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - works by Axis & IDEC around monitor					
03 Aug 2023 12:29	vSum	8.69	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:30	vSum	125.30	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - works by Axis & IDEC around monitor					
03 Aug 2023 12:32	vSum	5.21	Third Party Vibration Waveforms mm/s	Equipment Relocation	8-12 Alexandra Avenue
Equipment Relocation - enviro repositioning and movement of battery equipment over the course of the day					
03 Aug 2023 12:37	vSum	206.93	Third Party Vibration Waveforms mm/s	Human Interaction	8-12 Alexandra Avenue
Human interaction with monitor					
03 Aug 2023 15:48	vSum	7.76	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction, worker interacting with device					
04 Aug 2023 12:18	vSum	6.02	Third Party Vibration Waveforms mm/s	Spoil load out	Hawkesbury Road
Spoil Load out activities near receiver					
04 Aug 2023 14:00	vSum	0.14	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction, worker interacting with device					
08 Aug 2023 09:54	vSum	17.11	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human interaction, worker interacting with device					
11 Aug 2023 17:31	vSum	5.89	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction, worker interacting with device					

11 Aug 2023 17:31	vSum	5.89	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction, worker interacting with device					
11 Aug 2023 17:31	vSum	5.89	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction, worker interacting with device					
12 Aug 2023 08:01	vSum	388.73	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Scaffold installation adjacent to monitor					
14 Aug 2023 08:39	vSum	42.42	Third Party Vibration Waveforms mm/s	Spoil load out	Hawkesbury Road
Spoil Loadout on adjacent pad1					
14 Aug 2023 08:39	vSum	32.47	Third Party Vibration Waveforms mm/s	Spoil load out	Hawkesbury Road
Spoil Loadout on adjacent pad1					
14 Aug 2023 12:54	vSum	22.62	Third Party Vibration Waveforms mm/s	Spoil load out	Hawkesbury Road
Spoil Loadout on adjacent pad1					
15 Aug 2023 10:58	vSum	235.09	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 10:58	vSum	195.40	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 10:58	vSum	166.12	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 10:58	vSum	46.60	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 13:02	vSum	242.98	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 13:02	vSum	522.41	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					

15 Aug 2023 13:30	vSum	57.68	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 13:30	vSum	17.02	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 13:37	vSum	5.27	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:01	vSum	9.19	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:03	vSum	17.81	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:44	vSum	17.39	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:46	vSum	10.94	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:46	vSum	9.64	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:46	vSum	15.10	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:46	vSum	14.86	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:46	vSum	25.56	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:47	vSum	30.54	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					

15 Aug 2023 14:49	vSum	31.33	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:52	vSum	743.12	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:58	vSum	314.20	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:58	vSum	100.34	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:58	vSum	85.14	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:59	vSum	61.16	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 14:59	vSum	75.55	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
15 Aug 2023 16:09	vSum	5.66	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction of scaffold staircase installation within 5m of monitor device					
16 Aug 2023 10:56	vSum	6.13	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 10:56	vSum	6.06	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 10:56	vSum	6.49	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 10:56	vSum	5.99	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					

16 Aug 2023 10:57	vSum	6.44	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:02	vSum	6.50	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:06	vSum	9.79	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:07	vSum	8.20	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:07	vSum	10.76	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:08	vSum	7.67	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:08	vSum	7.92	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:08	vSum	9.84	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:08	vSum	8.41	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:17	vSum	8.05	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:17	vSum	8.58	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:18	vSum	6.65	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					

16 Aug 2023 11:26	vSum	5.67	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:26	vSum	5.69	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:30	vSum	5.62	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
16 Aug 2023 11:31	vSum	6.62	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction of installation of scaffolding staircase within 5m of monitor device					
17 Aug 2023 06:52	vSum	45.14	Third Party Vibration Waveforms mm/s	Human Interaction	8-12 Alexandra Avenue
Likely human interaction by third party with access to thetelstra rooms. possibly someone taking meter readings or looking at telstra comms box. Does not correlate with other vibration monitors closer to tunnel works					
23 Aug 2023 08:52	vSum	6.54	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around monitor device by Scaffold team					
23 Aug 2023 09:33	vSum	7.11	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around monitor device by Scaffold team					
23 Aug 2023 09:35	vSum	6.27	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction around monitor device by Scaffold team					
25 Aug 2023 10:32	vSum	7.59	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - enviro checking monitor and area around it.					
25 Aug 2023 10:46	vSum	1741.50	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - enviro checking monitor and area around it.					
25 Aug 2023 10:52	vSum	1892.30	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - enviro checking monitor and area around it.					
28 Aug 2023 14:05	vSum	32.92	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction - Fitting installing metal cladding to cable runner around monitor.					

31 Aug 2023 11:41	vSum	28.48	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction of workers carrying out surface works adjacent to the monitor device					
31 Aug 2023 11:42	vSum	11.01	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction of workers carrying out surface works adjacent to the monitor device					
31 Aug 2023 14:30	vSum	5.58	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction of workers carrying out surface works adjacent to the monitor device					
04 Sep 2023 14:57	vSum	5.07	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000030
Device was not registered to Westmead, this is a testing carried out by SiteHive offsite					
07 Sep 2023 13:21	vSum	7.07	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction, IDEC and Axis completing cladding around the extraction fan adjacent to monitor					
14 Sep 2023 11:29	vSum	75.18	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction , installation of noise and dust monitor adjacent to vibration monitor					
15 Sep 2023 13:48	vSum	19.29	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:48	vSum	8.02	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:49	vSum	22.43	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:50	vSum	27.09	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:51	vSum	6.37	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:52	vSum	5.95	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:53	vSum	22.16	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:54	vSum	6.13	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:55	vSum	19.97	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:56	vSum	5.05	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue

15 Sep 2023 13:57	vSum	9.01	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:59	vSum	55.61	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
15 Sep 2023 13:59	vSum	20.54	Third Party Vibration Waveforms mm/s	Equipment installation	7 Alexandra Avenue
18 Sep 2023 12:12	vSum	6.59	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil load out activities on Pad1					
21 Sep 2023 08:26	vSum	9.58	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction & Equipment modification, moving sandbags and placing a sandbag on 7 alexandra AVe.					
21 Sep 2023 08:30	vSum	82.62	Third Party Vibration Waveforms mm/s	Human Interaction	7 Alexandra Avenue
Human Interaction & Equipment modification, moving sandbags and placing a sandbag on 7 alexandra AVe.					
25 Sep 2023 08:54	vSum	7.18	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road
Rockbreaking being undertaken on Western end of Station box, in location closest to the Vibration monitor. Investigation of the events and the events have shown compliance within the DNVIS table 13 limits of 15mm/s for 4Hz for residential properties. Under the velocity, but above the frequency, overall below the curve. Not reportable					
25 Sep 2023 10:03	vSum	6.18	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road
Rockbreaking being undertaken on Western end of Station box, in location closest to the Vibration monitor. Investigation of the events and the events have shown compliance within the DNVIS table 13 limits of 15mm/s for 4Hz for residential properties. Under the velocity, but above the frequency, overall below the curve. Not reportable					
25 Sep 2023 10:28	vSum	6.37	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road
Rockbreaking being undertaken on Western end of Station box, in location closest to the Vibration monitor. Investigation of the events and the events have shown compliance within the DNVIS table 13 limits of 15mm/s for 4Hz for residential properties. Under the velocity, but above the frequency, overall below the curve. Not reportable					
25 Sep 2023 16:18	vSum	8.34	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road
Rockbreaking being undertaken on Western end of Station box, in location closest to the Vibration monitor. Investigation of the events and the events have shown compliance within the DNVIS table 13 limits of 15mm/s for 4Hz for residential properties. Under the velocity, but above the frequency, overall below the curve. Not reportable					
28 Sep 2023 08:17	vSum	72.51	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human interaction due to rain event					

29 Sep 2023 13:09	vSum	9.57	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Vibration monitor and works inspected upon receiving alert - verified that during the exceedance, rockbreaking was ongoing. However, during inspection at around 1:40pm, whilst rock-breaking was occurring, no exceedances were recorded and no ground vibration felt. Most likely due to human interaction.

29 Sep 2023 13:12	vSum	25.03	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Vibration monitor and works inspected upon receiving alert - verified that during the exceedance, rockbreaking was ongoing. However, during inspection at around 1:40pm, whilst rock-breaking was occurring, no exceedances were recorded and no ground vibration felt. Most likely due to human interaction.

04 Oct 2023 08:13	vSum	33.92	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

human interaction, drainage works and sediment controls being installed close to monitor.

04 Oct 2023 08:13	vSum	9.27	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

human interaction, drainage works and sediment controls being installed close to monitor.

04 Oct 2023 09:55	vSum	6.27	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

human interaction, drainage works and sediment controls being installed close to monitor.

04 Oct 2023 10:43	vSum	636.43	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

Human interaction repositioning monitor after being kicked

05 Oct 2023 08:11	vSum	6.38	Third Party Vibration Waveforms mm/s	Non GLC related	8-12 Alexandra Avenue

05 Oct 2023 14:48	vSum	6.84	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road

Spoil Loadout activities on pad 1

09 Oct 2023 08:43	vSum	782.21	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

Was checking battery level and vibe monitor placement

09 Oct 2023 08:43	vSum	797.22	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

Was checking battery level and vibe monitor placement

09 Oct 2023 20:30	vSum	153.80	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

Human interaction with device

10 Oct 2023 09:06	vSum	13.05	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street

Human interaction adjacent to monitor device

10 Oct 2023 09:13	vSum	5.61	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human interaction adjacent to monitor device					
14 Oct 2023 21:32	vSum	5.04	Third Party Vibration Waveforms mm/s	Non GLC related	7 Alexandra Avenue
No works undertaken during this time period					
16 Oct 2023 09:35	vSum	9.03	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil Loadout activities bucket scraping and cleaning pad1					
16 Oct 2023 15:13	vSum	54.70	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
Spoil Loadout Activities rearranging pad1					
16 Oct 2023 15:55	vSum	326.65	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human Interaction with device					
18 Oct 2023 10:28	vSum	268.08	Third Party Vibration Waveforms mm/s	Human Interaction	Hassall Street
Human Interaction with device					
23 Oct 2023 09:07	vSum	96.83	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road
Human interaction with device, axis roof installation team working adajcent to the monitor device					
24 Oct 2023 13:21	vSum	8.30	Third Party Vibration Waveforms mm/s	Spoil Load Out Activities	Hawkesbury Road
spoil loadout plant movements inside the box					
26 Oct 2023 16:34	vSum	5.89	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000072
Non-GLC related, device calibration at Site Hive office prior to delivery to site					
26 Oct 2023 16:37	vSum	7.20	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000072
Non-GLC related, device calibration at Site Hive office prior to delivery to site					
26 Oct 2023 16:41	vSum	5.13	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000072
Non-GLC related, device calibration at Site Hive office prior to delivery to site					
26 Oct 2023 16:42	vSum	5.77	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000072
Non-GLC related, device calibration at Site Hive office prior to delivery to site					

26 Oct 2023 16:47	vSum	5.31	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000072

Non-GLC related, device calibration at Site Hive office prior to delivery to site

26 Oct 2023 16:51	vSum	13.95	Third Party Vibration Waveforms mm/s	Non GLC related	VIB-000072

Non-GLC related, device calibration at Site Hive office prior to delivery to site

02 Nov 2023 07:03	vSum	3.01	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human Interaction, Upon inspecting the device immediately after the first event, a second event was triggered which aligns with the original value from 10 minutes before. Therefore could be considered that the initial event was triggered by an individual near the monitor.

02 Nov 2023 07:15	vSum	3.31	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human Interaction, Upon inspecting the device immediately after the first event, a second event was triggered which aligns with the original value from 10 minutes before. Therefore could be considered that the initial event was triggered by an individual near the monitor.

02 Nov 2023 07:20	vSum	3.29	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:28	vSum	3.37	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:37	vSum	3.54	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:38	vSum	3.34	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:45	vSum	6.88	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:45	vSum	10.18	PPV structural threshold ≥ 5mm/s	Equipment Relocation	4 Alexandra Ave New

Equipment Relocation - repositioning monitor and checking against trigger events

02 Nov 2023 07:47	vSum	3.91	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:50	vSum	3.81	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:51	vSum	6.33	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:54	vSum	5.01	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:54	vSum	4.35	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 07:59	vSum	6.29	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:02	vSum	3.59	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:05	vSum	5.29	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:09	vSum	3.66	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:10	vSum	4.69	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:14	vSum	4.44	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:18	vSum	3.28	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:24	vSum	5.76	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:26	vSum	4.34	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:30	vSum	3.09	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:36	vSum	5.68	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:44	vSum	3.86	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:49	vSum	4.41	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:50	vSum	5.07	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:52	vSum	7.52	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:52	vSum	597.23	PPV structural threshold ≥ 5mm/s	Equipment installation	30 Alexandra Ave

Equipment installation at 30 Alexandra Ave including placing sandbag and battery next to device

02 Nov 2023 08:53	vSum	53.03	PPV structural threshold ≥ 5mm/s	Equipment installation	30 Alexandra Ave

Equipment installation at 30 Alexandra Ave including placing sandbag and battery next to device

02 Nov 2023 08:53	vSum	4.75	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:53	vSum	3.27	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:55	vSum	5.65	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:56	vSum	3.38	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 08:57	vSum	3.25	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:01	vSum	8.73	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:04	vSum	3.18	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:12	vSum	3.78	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:16	vSum	3.58	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:23	vSum	3.98	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:25	vSum	3.56	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:34	vSum	4.39	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:36	vSum	10.53	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:41	vSum	3.20	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:43	vSum	3.76	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

02 Nov 2023 09:46	vSum	3.69	PPV structural threshold ≥ 5mm/s	Human Interaction	4 Alexandra Ave New

Human interaction has caused the device receptors to be misconfigured causing events. the hardware and software has been reconfigured by the site hive team

04 Nov 2023 08:58	vSum	124.31	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction Workers installing water and electrical lines next to vibration monitor

04 Nov 2023 09:36	vSum	137.60	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Workers installing electrical cabling to support scrubber activities adjacent to vibration device.

04 Nov 2023 10:12	vSum	6.21	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Workers installing electrical cabling to support scrubber activities adjacent to vibration device.

08 Nov 2023 13:45	vSum	82.44	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Electrical team installing cabling adjacent to the monitor and rattle gun being used on site hoarding to install vinyl graphics. Compliant

08 Nov 2023 13:47	vSum	11.69	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Electrical team installing cabling adjacent to the monitor and rattle gun being used on site hoarding to install vinyl graphics. Compliant

08 Nov 2023 13:49	vSum	8.74	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Electrical team installing cabling adjacent to the monitor and rattle gun being used on site hoarding to install vinyl graphics. Compliant

09 Nov 2023 11:24	vSum	8.40	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:25	vSum	31.66	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:26	vSum	75.51	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:29	vSum	13.90	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:31	vSum	12.60	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:46	vSum	218.79	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:58	vSum	58.94	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 11:58	vSum	7.26	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, disassembling of the timber staircase adjacent to the monitor.

09 Nov 2023 12:51	vSum	8.40	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of workers deconstructing timber staircase to west extraction fan box

09 Nov 2023 12:51	vSum	178.17	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of workers deconstructing timber staircase to west extraction fan box

09 Nov 2023 13:01	vSum	107.64	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of workers deconstructing timber staircase to west extraction fan box

09 Nov 2023 18:57	vSum	8.09	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - due the disassembled timber staircase, materials have been left on the floor adjacent to the device, electricians were observed feeding electrical cable into the box to support tunnel work operations

09 Nov 2023 21:33	vSum	36.91	Third Party Vibration Waveforms mm/s	Non GLC related	Hawkesbury Road

Non-GLC related - at 21:30 there is evidence that equipment set up is being undertaken by Quickway on Hawkesbury Road adjacent to site boundary and vibration monitor device.

10 Nov 2023 00:20	vSum	13.54	Third Party Vibration Waveforms mm/s	Non GLC related	Hawkesbury Road

Non-GLC related vibration event likely due to Qucikway night works outside and adjacent to site boundary.

13 Nov 2023 13:01	vSum	55.10	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:01	vSum	42.75	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:01	vSum	37.27	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:03	vSum	32.92	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:09	vSum	99.64	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:10	vSum	92.28	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:10	vSum	166.75	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

13 Nov 2023 13:47	vSum	91.69	Third Party Vibration Waveforms mm/s	Vibratory Activity within DNVIS Limits	Hawkesbury Road

Vibratory Activity within DNVIS Limits - Entensometrs works being undertaken outside of the work boundary adjacent to monitor device

14 Nov 2023 07:34	vSum	52.28	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:36	vSum	29.18	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:36	vSum	8.30	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:47	vSum	10.96	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:49	vSum	50.36	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:51	vSum	16.37	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:56	vSum	15.59	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 07:57	vSum	10.03	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 08:22	vSum	7.92	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 08:22	vSum	23.84	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 08:23	vSum	30.75	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 08:39	vSum	10.42	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 08:44	vSum	9.98	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 08:50	vSum	19.25	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 10:07	vSum	0.05	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 10:43	vSum	133.25	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 10:44	vSum	117.71	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 10:45	vSum	91.95	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 10:47	vSum	18.26	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 10:53	vSum	232.91	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:28	vSum	86.81	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:31	vSum	7.02	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:32	vSum	16.00	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:41	vSum	208.07	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:42	vSum	281.97	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:45	vSum	99.98	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:51	vSum	264.35	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:52	vSum	49.59	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:53	vSum	213.98	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:53	vSum	38.66	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:54	vSum	12.48	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:54	vSum	14.62	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:54	vSum	134.50	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:55	vSum	196.85	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:55	vSum	179.91	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:56	vSum	157.94	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 13:56	vSum	170.97	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement. A Vac truck parked outside the site boundary adjacent to the vibration device being used for the installation of extensometer.

14 Nov 2023 14:46	vSum	259.27	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant movement - Vac truck was parked and active outside the site boundary adjacent to the montiro device

14 Nov 2023 14:51	vSum	236.82	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Team working on extensometer were packing up equipment, including traffic control.

14 Nov 2023 15:03	vSum	281.36	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:23	vSum	9.74	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:24	vSum	23.53	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:24	vSum	363.13	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:24	vSum	58.72	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:25	vSum	58.56	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:25	vSum	81.18	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

14 Nov 2023 15:25	vSum	90.21	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction of labour hire workers moving around device as seen on the camera, liekly unaware of the device loaction

21 Nov 2023 12:06	vSum	19.64	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of worker undertaking timber staircase works adjacent to monitor

21 Nov 2023 12:06	vSum	18.56	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of worker undertaking timber staircase works adjacent to monitor

21 Nov 2023 12:13	vSum	273.80	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of worker undertaking timber staircase works adjacent to monitor

21 Nov 2023 12:29	vSum	22.33	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction of worker undertaking timber staircase works adjacent to monitor

23 Nov 2023 15:29	vSum	180.90	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interaction electricians running cable on cable tray adjacent tot vibration monitor

23 Nov 2023 16:00	vSum	21.68	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction electricians working adjacent to vibration monitor. equipment can be seen nearly on top monitor.

23 Nov 2023 16:10	vSum	6.93	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interactions of electricians running cable and working adjacent to the monitor device

23 Nov 2023 16:11	vSum	36.77	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interactions of electricians running cable and working adjacent to the monitor device

23 Nov 2023 16:12	vSum	27.54	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interactions of electricians running cable and working adjacent to the monitor device

23 Nov 2023 16:12	vSum	38.50	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human interactions of electricians running cable and working adjacent to the monitor device

23 Nov 2023 16:28	vSum	14.99	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction - Electricians running and installing cable adjacent to Vibration Monitor.

27 Nov 2023 13:36	vSum	8.77	Third Party Vibration Waveforms mm/s	Plant movement	Hawkesbury Road

Plant Movement on Pad moving equipment within the lay down area adjacent to monitor location

02 Dec 2023 06:53	vSum	11.58	Third Party Vibration Waveforms mm/s	Non GLC related	Hawkesbury Road

Non GLC Related Night shift team finished at 5:30am and the day sift only conducted tunnelling works in the east as per day/night shift reports

02 Dec 2023 21:16	vSum	17.13	Third Party Vibration Waveforms mm/s	Weather - Rain	Hawkesbury Road

As per BOM Parramatta North and images on the site camera system a large body of rain fell in a short time period which correlates with vibration spikes.

02 Dec 2023 21:16	vSum	9.31	Third Party Vibration Waveforms mm/s	Weather - Rain	Hawkesbury Road

As per BOM Parramatta North and images on the site camera system a large body of rain fell in a short time period which correlates with vibration spikes.

02 Dec 2023 21:16	vSum	22.38	Third Party Vibration Waveforms mm/s	Weather - Rain	Hawkesbury Road

As per BOM Parramatta North and images on the site camera system a large body of rain fell in a short time period which correlates with vibration spikes.

06 Dec 2023 06:38	vSum	8.79	Third Party Vibration Waveforms mm/s	Human Interaction	Hawkesbury Road

Human Interaction, work interacted with vibration monitor device.

06 Dec 2023 09:01	vSum	40.16	PPV structural threshold ≥ 5mm/s	Non GLC related	4 Alexandra Ave New

Non-GLC related human interaction, site observation post receiving event trigger alerts identified a landscaper mowing the grass areas of 4 Alexandra Avenue adjacent to vibration Monitor.

06 Dec 2023 09:27	vSum	6.00	PPV structural threshold ≥ 5mm/s	Non GLC related	4 Alexandra Ave New

Non-GLC related human interaction, site observation post receiving event trigger alerts identified a landscaper mowing the grass areas of 4 Alexandra Avenue adjacent to vibration Monitor.

06 Dec 2023 09:27	vSum	7.29	PPV structural threshold ≥ 5mm/s	Non GLC related	4 Alexandra Ave New

Non-GLC related human interaction, site observation post receiving event trigger alerts identified a landscaper mowing the grass areas of 4 Alexandra Avenue adjacent to vibration Monitor.

15 Dec 2023 14:58	vSum	58.65	PPV structural threshold ≥ 5mm/s	Human Interaction	Hassall Street

Human Interaction - Plumbers moving poly pipe and knocked vibration monitor

16 Dec 2023 12:44	vSum	12.34	PPV structural threshold ≥ 5mm/s	Human Interaction	30 Alexandra Ave

Human Interaction - upon discussion with the resident of 30 Alexandra Ave, i was informed that he was trimming the bushes adjacent to the vibration monitor and forgot it was in there and kicked the device.

18 Dec 2023 19:52	vSum	5.14	PPV structural threshold ≥ 5mm/s	Human Interaction	30 Alexandra Ave

Human Interaction - upon investigation it was noted the resident of 30 Alexandra Ave was mowing the lawn with a petrol engine lawn mower adjacent to the device.

19 Dec 2023 21:18	vSum	6.69	Third Party Vibration Waveforms mm/s	Weather - Rain	Hawkesbury Road

Weather, No vibration intense equipment was active at this time of night, wet weather event began approximately the same time as the vibration incident, as visible from the adjacent still image camera

Daily Notes

Date and time	By	Note
29 Aug 2023 12:54	Daniel	No Tunnelling Activities between 11am - 17:00pm
07 Sep 2023 16:52	Tahli	Workers identified doing works on cladding on Western side of Acoustic Shed Commissioned the Extraction Fans today on Western side There was no Spoil Load out today, only mining on Eastern side
08 Sep 2023 07:51	Daniel	MSF 3in1 Pod was hoisted from location onto Pad1 and is now positioned in the middle of the site, therefore picking up adjacent dust and noise. this does not represent the hawkesbury rd boundary or closest sensitive reciever
08 Sep 2023 07:53	Daniel	MSF 3in1 Pod is currently positioned on Pad1 , the monitor requires dismantling from hired unit and repositioned back on the Hawkesbury Boundary.
14 Sep 2023 11:38	Daniel	MSF 3in1 Reinstalled on Hawkesbury Boundary 11:15am
14 Sep 2023 16:15	Daniel	Redeployment of misters on Pad1 - to manage hot dry weather and spoil heap on pad1. misters may be interfearing with dust monitor
15 Sep 2023 15:50	Daniel	Vibration Monitor - 7 Alexandra Ave powered up in the office during events, then at 14:30-15:00 installation of device and moving equipment and tiles around device to secure it and make sure it is camouflage. Device is approximately 10m from busy Alexandra Avenue road Device was installed using spikes pressed into a clay-based dirt ground and surround with roof tiles for protection.
15 Sep 2023 15:54	Daniel	Eastern Tunnelling at Lead Cut 28 (approx. 58m from eastern station box east facade), placing the road header directly under 8-12 Alexandra Ave West Building.
18 Sep 2023 07:38	Daniel	Vibe Monitor - 7 Alexandra Ave showing very high results. I can confirm no surface works or tunnelling was undertaken during these hours. All activities would be Non-GLC related.
19 Sep 2023 16:46	Daniel	Tunnel Activities - Lead Length 61m Trail Length 13m All works surface and box stopped for incident emergency response. works recommenced approx 3pm
20 Sep 2023 09:34	Daniel	7 Alexandra Ave - PPV levels are very high but do not correlate with the other vibration devices in proximity (8-12 Alexandra Ave or 10-12 Hasall St). Currently no works are being undertaken in the box or tunnel due to incident. There were no works OOHW of site on Alexandra Ave.
21 Sep 2023 09:01	Daniel	No Box or tunnelling works were undertaken during the night shift

21 Sep 2023 07:01	Daniel	No Box or Tunnelling works were undertaken during the night shift.
21 Sep 2023 16:38	Daniel	Works in the box / tunnelling recommenced in the after noon, night works are expected to work.
30 Oct 2023 11:09	Virginia	Installation of VIB009 at 4 Alexandra Ave at ~10:56am. Installed using three small thread spikes and sandbag into bare soil. Installed at approximately 65m from lead tunnel activities and 105m from trail crossover cavern.
02 Nov 2023 08:04	Daniel	Events triggering, I carried out a site visit to check for any activities, no non-glc related activities were identified. one event trigger while standing next to the device at 7.10am Roadheader was confirmed to be cutting in the lead tunnel approx
02 Nov 2023 10:00	Virginia	Installation of vibration monitor at 30 Alexandra Ave (residential property) - installed in garden bed of front yard, 50cm away from brick house. Approx. 8m away from road, 68m away from box excavation. Vibration monitor placed above the tunnel alignment as best as possible, and is currently sitting on trail tunnel alignment being approx. 11m away from lead tunnel alignment.
09 Nov 2023 12:33	Daniel	MSF Hawkesbury Rd device, team deconstructing timber staircase to extraction fan box below device
10 Nov 2023 08:03	Daniel	Non-GLC Quickway night works on Hawkesbury Road close to monitor device were undertaken at the time of dust and vibration events (12:00am-02:00am) for MSF Hawkesbury devices. This has produced daily exceedances for daily dust monitoring.
23 Nov 2023 07:40	Daniel	VIB009 Battery Charged and reinstalled VIB030 Battery removed for charging
23 Nov 2023 07:45	Daniel	Non-GLC Quickway Works on Hawkesbury Rd
23 Nov 2023 16:23	Daniel	Electricians working adjacent Hawkesbury Rd Vibration monitor, work includes running cable and human interaction.
27 Nov 2023 10:40	Daniel	Day works - GLC Extensometer installation on Hawkesbury Rd 10m from monitor location, auger drill, installation of noise blankets, vehicle movements, human traffic in and out of the door directly below device. Night orks - Non-GLC related Qucikway NDD works, use of Vac truck.
27 Nov 2023 10:42	Daniel	Morning night works - non GLC related continuation of NDD works on hawkesbury rd. Day works - GLC Extensometer works use of VAC truck, water cart human traffic.
30 Nov 2023 10:57	Daniel	Heavy fog observed on the cameras at 2:45am - 5:00am which correlates with above threshold levels

06 Dec 2023 10:02	Daniel	4 Alexandra Avenue event - site inspection after event triggers, a landscaper was observed mowing the grass in the front and adjacent grass areas of the 4 Alexandra Ave complex. Vibration unrelated to tunnelling works
20 Dec 2023 09:18	Daniel	All External vibration monitors removed for shutdown period. monitors will be reinstalled on 3rd January. No excavation will be conducted from Wednesday afternoon. Only final shotcreting and site tidy up.
03 Jan 2024 12:31	Daniel	Residential Vibration Monitors reinstalled VIB 009, 030, 072 (4 Alexandra, 7 Alexandra, 30 Alexandra) Only box excavation works undertaken on the west side of the box. Shotcreting for the remained of the week in the east
04 Jan 2024 14:57	Daniel	Shotcreting in the east tunnel until the end of the week. No vibration intense equipment used. Small rain event and misters were observed to in use with excavation works.
16 Jan 2024 08:14	Daniel	8mm of rainfall recorded at 7am since 5pm yesterday
16 Jan 2024 08:16	Daniel	105mm of rainfall at 4pm since Thursday 10th January

Attachment 5 –Calibration Certificates

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Acoustic Research Labs Pty Ltd
Unit 36/14 Loyalty Rd
North Rocks NSW AUSTRALIA 2151
Ph: +61 2 9484 0800 A.B.N. 65 160 399 119
www.acousticresearch.com.au

Sound Level Meter

IEC 61672-3:2013

Calibration Certificate

Calibration Number C22383

Client Details Gamuda Berhad
Suite 26.01, 100 Miller Street
North Sydney NSW 2060

Equipment Tested/ Model Number : Rion NL-52
Instrument Serial Number : 01010868
Microphone Serial Number : 20512
Pre-amplifier Serial Number : 11516

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	24.7°C	**Ambient Temperature :**	25.1°C
Relative Humidity :	36.7%	**Relative Humidity :**	37.8%
Barometric Pressure :	100.3kPa	**Barometric Pressure :**	100.36kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 8 Jun 2022
Secondary Check: Rhys Gravelle
Report Issue Date : 9 Jun 2022

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	*±0.13dB*	*Temperature*	*±0.1°C*
1kHz	*±0.13dB*	*Relative Humidity*	*±1.9%*
8kHz	*±0.14dB*	*Barometric Pressure*	*±0.014kPa*
Electrical Tests	*±0.13dB*		

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.

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www.acousticresearch.com.au

Sound Level Meter

IEC 61672-3:2013

Calibration Certificate

Calibration Number C22380

Client Details Gamuda Berhad
Suite 26.01, 100 Miller Street
North Sydney NSW 2060

Equipment Tested/ Model Number : Rion NL-52
Instrument Serial Number : 01010867
Microphone Serial Number : 20511
Pre-amplifier Serial Number : 11515

Pre-Test Atmospheric Conditions		Post-Test Atmospheric Conditions	
Ambient Temperature :	25.1°C	**Ambient Temperature :**	25°C
Relative Humidity :	35.7%	**Relative Humidity :**	36.2%
Barometric Pressure :	100.28kPa	**Barometric Pressure :**	100.3kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 8 Jun 2022
Secondary Check: Rhys Gravelle
Report Issue Date : 9 Jun 2022

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	*±0.13dB*	*Temperature*	*±0.1°C*
1kHz	*±0.13dB*	*Relative Humidity*	*±1.9%*
8kHz	*±0.14dB*	*Barometric Pressure*	*±0.014kPa*
Electrical Tests	*±0.13dB*		

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 C22453

Client Details Gamuda Berhad
Suite 26.01, 100 Miller Street
North Sydney NSW 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34324039

Atmospheric Conditions

Ambient Temperature : 23.4°C
Relative Humidity : 58.2%
Barometric Pressure : 100.38kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 04 Jul 2022
Secondary Check: Dhanush Bonu
Report Issue Date : 5 Jul 2022

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	94.02	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	*±0.10dB*	*Temperature*	*±0.1°C*
Frequency	*±0.13%*	*Relative Humidity*	*±1.9%*
Distortion	*±0.20%*	*Barometric Pressure*	*±0.014kPa*

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.

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Sound Calibrator

IEC 60942:2017

Calibration Test Report

Calibration Number C22453

Client Details Gamuda Berhad
Suite 26.01, 100 Miller Street
North Sydney NSW 2060

Equipment Tested/ Model Number : Rion NC-75
Instrument Serial Number : 34324039

Atmospheric Conditions
Ambient Temperature : 23.4°C
Relative Humidity : 58.2%
Barometric Pressure : 100.38kPa

Calibration Technician : Lucky Jaiswal
Calibration Date : 04 Jul 2022
Secondary Check: Dhanush Bonu
Report Issue Date : 5 Jul 2022

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	*±0.10dB*	*Temperature*	*±0.1°C*
Frequency	*±0.13%*	*Relative Humidity*	*±1.9%*
Distortion	*±0.20%*	*Barometric Pressure*	*±0.014kPa*

All uncertainties are derived at the 95% confidence level with a coverage factor of 2.

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Attachment B – Surface Water Quality Monitoring Report

Surface Water Quality Monitoring Report No. 3

Sydney Metro West – Western Tunnelling Package

July 2023 to January 2024.

ISSUE DATE: FEBRUARY 2024

Document Details

Document Title	**Surface Water Quality Monitoring Report**
Project Name	**Sydney Metro West – Western Tunnelling Package**
Client	**Sydney Metro**
GA Project No.	**00013/13065**
Document Reference No.	SMWSTWTP-GLO-1NL-EN-RPT-000009
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	14/02/24	Revised draft for submission	Josephine Balado	Hussain Nilar
B	28/02/24	Updated in response to SM and ER comments	Hussain Nilar	Hussain Nilar

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TABLE OF CONTENTS

Revision History 2
Terms and Definitions 4

1 INTRODUCTION 5
1.1 Project description 5
1.2 Project requirements 6
1.3 Endorsement and publication 7

2 DESCRIPTION OF WORKS 8
2.1 Environment setting 8
2.2 Project activities undertaken during the reporting 9

3 MONITORING METHODOLOGY 12
3.1 Methodology 12
3.2 Equipment and analysis 12
3.3 Sampling during the reporting period 12
3.4 Monitoring locations 13
3.5 Parameters and Contaminants of concern 16
3.6 Baseline data (pre-construction) 16

4 RESULTS 19
4.1 Rainfall summary 19
4.2 Monitoring results 19

5 DISCUSSION 20
5.1 Assessment of results 20
Recommendations 25
5.2 25

6 CONCLUSION 26

ATTACHMENTS 27
Attachment 1 – Tabulated data 27
Attachment 2 – Laboratory Certificates 28

Terms and Definitions

Term	Definition
ANZG	Australian and New-Zealand Guidelines 2018
CBD	City Business District
CEMF	Construction Environmental Management Framework
CSSI	Critical State Significant Infrastructure
DPE	Department of Planning and Environment (NSW)
DPHI	Department of Planning Housing and Infrastructure (NSW) (Formerly DPE)
D-Wall	Diaphragm Wall
EIS	Environmental Impact Assessment
EPA	Environment Protection Authority
ER	Environmental Representative
FRP	Form Reo Pour
GLC	Gamuda Australia – Laing O'Rourke Consortium
MCoA	Ministers' Condition of Approval
MSF	Maintenance and Stabling Facility
REMM	Revised Environmental Mitigation Measures
SM	Sydney Metro
SMW	Sydney Metro West
SSI	State Significant Infrastructure
SWQMoP	Surface Water Quality Monitoring Program
SWMP	Soil and Water Management Plan
WQO	Water Quality Objectives (NSW)
WTP	Sydney Metro West Western Tunnelling Package works

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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 surface water quality impacts in response to the Secretary Environmental Assessment Requirements issued by the Department of Planning and Environment (DPE). 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.

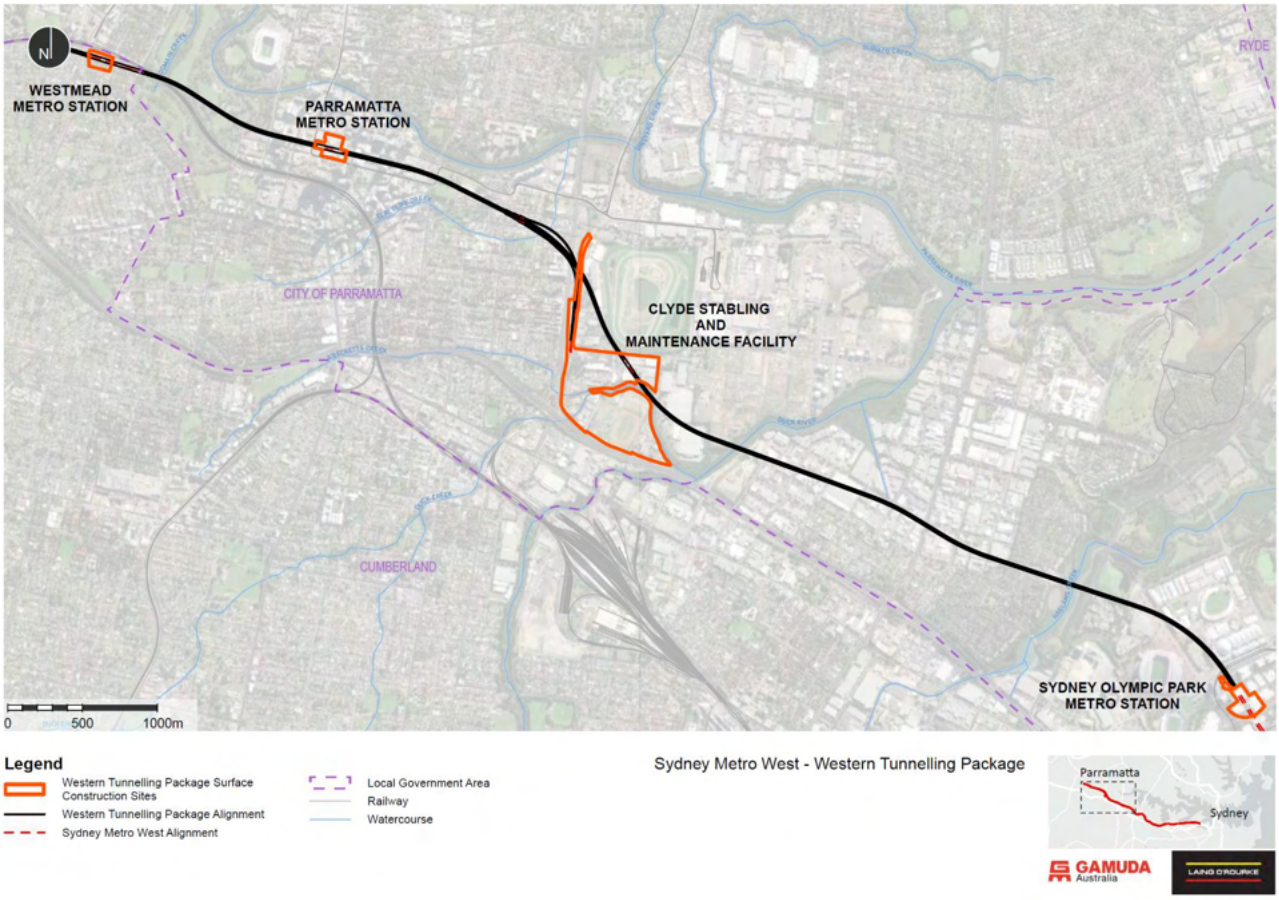

Figure 1: WTP Project Map Overview

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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 second six-month period of construction, from the 19th of July 2023 to 19th January 2024.

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 EPL in force in respect of the CSSI contains different requirements in relation to the NSW WQO, in which case those requirements must be complied with.	This document
CEMF 12.2	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 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	Section 3.4, 3.6 and 4

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Reference	Requirement	Document Reference
	discharges and would include sampling for key indicators of concern.	
SWQMoP	During construction, surface water quality data will be collected, tabulated and assessed against baseline conditions and performance criteria	This report
SWQMoP	The six-monthly monitoring reports will be submitted to the Planning Secretary, the ER, EPA and Sydney Water within 40 days of the reporting period unless otherwise agreed with the Planning Secretary	Section 1.3

1.3 Endorsement and publication

In accordance with the SWQMoP, this report will be issued for information to the Planning Secretary of the DPHI, the Environmental Representative (ER), Environment Protection Authority (EPA) and Sydney Water within 40 business days of the reporting period.

In line with MCoA B11(e), a copy of the Construction Monitoring Report will be published on the project website within a week following submission to DPE.

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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 2 as being relevant to the WTP's three 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

[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.

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 commissioned for use. Water collected from activities at the Westmead site is discharged through the water treatment plant into the local stormwater system which also migrates into Domain Creek. Water from Domain Creek then drains directly into the Parramatta River and, ultimately, into Sydney Harbour.

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 Parramatta 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.

Water collected from the activities at Clyde Maintenance and Stabling Facility (MSF) is discharged through a water treatment plant directly into Duck River, avoiding the smaller creek catchments of Duck Creek and A'Becketts Creek as per the requirements of the Water Pollution Impact Assessment provided to the EPA. Stabilised surface water runoff is collected in protected stormwater pits which flow into Duck Creek and A'Becketts Creek which are tributaries of Duck River. Duck River drains into the Parramatta River then eventually the greater Sydney Harbour catchment

During this reporting period, groundwater has been intersected in the shaft excavation at the Clyde Dive Site and within the Rosehill box excavation, as well as within the Westmead box and cavern excavations. Groundwater is being then treated at either the Rosehill long term WTP and Westmead WTP for discharge through the licensed discharge points at Duck River and Domain

creek respectively (Environment Protection Licence (EPL) discharge Point 2 & 3), Alternatively water has been taken offsite to be disposed of at a licenced facility or re-used on site to support tunnelling operations in the context of Westmead Construction Site.

2.2 Project activities undertaken during the reporting .

Construction activities undertaken during the reporting period are summarised in Table 3 below. Only three sites haddischarged water offsite during the reporting period. As part of the Project construction, up to three water treatment plants are currently anticipated to be commissioned as outlined in Table 4.

Table 3: Construction activities undertaken during the reporting period

SITE	CONSTRUCTION ACTIVTIES	OFFSITE DISCHARGE
Westmead	• Protecting and/or relocating utilities • Establishing Water Treatment Plant (WTP) • Establishing concrete slabs or piling platforms • Establishing spoil shed (structure) • Box Excavation Ground Support – Ground Anchors, Shotcrete & Rock Bolts • Box Excavation (from surface) • Box Excavation (with Hydraulic Hammers) • Box Excavation (with acoustic shed/cover) • Box Excavation – rock-bolting/shotcrete (with acoustic shed/cover) • Mined Tunnel Excavation • Gantry crane operation • Installation of Monitoring Equipment • Tunnel supporting activities • General operation of ancillary facility	Yes
Parramatta	• Archaeological clearance • Removal and/or relocating utilities • Establishing Water Treatment Plant (WTP) • Establishing concrete slabs or piling platforms and D-Wall Infrastructure – Approved Hours • D-Wall Infrastructure – OOHW 1 • Station Box D-Wall Excavation & Construction – Approved Hours • Station Box D-Reduced Fleet 1 • Station Box D-Reduced Fleet 2 • Station box pile break back/trim • FRP (Form, Reo & Pour) – Concrete Works Capping Beam • Box excavation Ground Support – Internal Struts & Waler Installation • Box Excavation to ~26m • Delivery of equipment/general truck movements. • General operation of ancillary facilities.	No

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SITE	CONSTRUCTION ACTIVTIES	OFFSITE DISCHARGE
Clyde Dive	• Construction site establishment • Piling • Establishing concrete slabs/acoustic shed • Bulk earthworks of the dive structure • Haul road construction. • Form Reo Pour (FRP) • General operation of ancillary facilities • Spur Tunnel Excavation • Minor utilities relocations • Remediation of contaminated hotspots	Yes, transfer to Rosehill's Water Treatment Plant
Clyde MSF	• Excavation of the utility service corridor • Remediation of contaminated hotspots • PASS Treatment • Construction of ERSED controls including dewatering system • Bulk earthworks • General operation of ancillary facility • Utility adjustment works. • Construction of the bridging structure abutments • FRP works • Excavation of low flow channels • Excavation of flood relief culvert • Piling and abutments	Yes, transfer to Rosehill's Water Treatment Plant
Rosehill	• Diaphragm wall (D-Wall) construction • Box excavation • FRP works • Delivery of equipment • General operation of ancillary facility • TBM Construction • Water discharge and construction/commissioning of the long term water treatment plant	Yes, transfer to Rosehill's Water Treatment Plant.
Sydney Olympic Park	• Site Establishment • FRP Works • Nozzle Construction	Yes, transfer to AF Joint Venture Water Treatment Plant

Table 4: Water treatment plants to be commissioned for the Project

Water treatment plant	Discharge point	Status during reporting period
Rosehill long term construction water treatment plant	Duck River (Point 4)	Plant was operational during the reporting period.
Parramatta construction water treatment plant	Parramatta River, downstream of the Charles Street weir (Point 5)	Commissioning commenced 11th of December 2023. Plant not commissioned.

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Water treatment plant	Discharge point	Status during reporting period
Westmead construction water treatment plant	Parramatta River, stormwater system on Alexandra Avenue (Point 3)	Commissioning commenced 8th of January 2024. Plant operating at full capacity from the 12th of January 2024 until the 19th January 2024. Water has been reused and not discharged off-site since.

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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 discussion 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.

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, calibration was checked periodically throughout the monitoring events to ensure that the multiprobe device was reading accurately.

Further to the above analysis, all samples collected by GLC will also be subject to a Quality Assurance and Quality Control testing regime 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
- Rinsate 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	Standards	Responsibility
Monthly Water Quality Monitoring	Monthly	WQOs ANZG 2018	Environmental Coordinator/Manager
Wet Weather Water Quality Monitoring	Occur on average once a quarter, within 48 hours (where practical) of a rainfall vent that is > 25 mm of rain over a 24-hour period in the local catchment	WQOs ANZG 2018	Environmental Coordinator/Manager
Incident Response	At any time in response to a complaint or incident	WQOs ANZG 2018	Environmental Coordinator/Manager

Seven 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
20/07/2023	Monthly	WQOs ANZG 2018	All sampling points captured
31/08/2023	Monthly	WQOs ANZG 2018	All sampling points captured
26/09/2023	Monthly	WQOs ANZG 2018	All sampling points captured
19/10/2023	Monthly	WQOs ANZG 2018	All sampling points captured
24/11/2023	Monthly	WQOs ANZG 2018	All sampling points captured, except for November due to no access to SW01
14/12/2023	Monthly	WQOs ANZG 2018	All sampling points captured
18/01/2024	Monthly	WQOs ANZG 2018	All sampling points captured

3.4 Monitoring locations

The surface water sampling locations are detailed in Table 7 below and shown graphically in Figure 2 and Figure 3. Where there are extraneous factors limiting access to specific monitoring points, representative monitoring locations that differ slightly to the SWQMoP would be selected as was the case for SW03 and SW08.

In accordance with the recommendations of the previous monitoring report, two additional sampling locations have been added including SW10 and SW11 from April 2023 and June 2023 respectively (Refer Figure 2). SW10 acts as an upstream sample location for the Westmead Construction Site whilst SW11 acts as a future downstream sampling point for the Parramatta construction site due to the realignment of the Parramatta water treatment plant discharge line that achieved construction completion during the reporting period. Sample location SW04 and SW05 were sampled in this monitoring period for consistency with previous monitoring rounds however they will be removed from the SWQMoP once the Parramatta water treatment plant is commissioned and operating. These changes would be adopted in the SWQMoP.

Table 7: Sydney Metro West - WTP surface water sampling locations

Sample Name	Waterway	Rationale	Nearest Access Point	Coordinates
SW01-WTP	Duck Creek	Upstream of Clyde MSF Construction sites	Kay Street	33°49’50.82”S 151° 1’19.32”E
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

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Sample Name	Waterway	Rationale	Nearest Access Point	Coordinates
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
SW05-WTP	Parramatta River	General streamflow sample	Parramatta River Walk (upstream Elizabeth Street Footbridge)	33°48’45.57”S 151° 0’30.41”E
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
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

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Figure 2: Sydney Metro West - WTP western surface water sampling locations (Parramatta and Westmead). New sample locations in yellow.

Figure 3: Sydney Metro West - WTP eastern surface water sampling locations (Clyde MSF)

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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 toxicant parameters were sampled in accordance with Section 7.4.2 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	None visible on surface	None visible on surface
Toxicants (listed below)	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. Surface water monitoring sourced from other projects is detailed in Table 9.

Although these results will give an indication of pre-construction water quality, it should be noted that in most instances not directly comparable to WTP sampling locations sampled in this report and should only be used as a reference point.

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)	0.5–10	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

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To provide more accurate baseline data for comparison throughout construction of the Project, a total of six pre-construction sampling rounds were undertaken at the nominated sampling points in the SWMP. Laboratory reports containing data from the pre-construction sampling rounds is attached to this report in ***Attachment 1*** and compared against the assessment criteria**.** As the GLC SWQMoP has collected a significant volume of like for like 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 sample locations. This is indicative that water quality is poor in the sampled catchments.
- Several toxicant parameters including nutrients, heavy metals and PFAS were also consistently recorded outside the adopted assessment criteria. This is likely attributed to the historic large-scale commercial/industrial practices undertaken in the catchments and also upstream.
- All waterways sampled as part of the surface water sampling regime are also part of the local stormwater catchments accepting large flows of stormwater runoff from the greater Parramatta area.

Refer to ***Attachment 1*** 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
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
	Manganese	230 µg/L	80 µg/L
	Zinc	35 µg/L	8 µg/L
SW03	Turbidity	80.8 NTU	0.5 – 10 NTU
	Dissolved Oxygen	36.3 %	80 – 110 %
	Phosphorus	0.1 mg/L	0.03 mg/L
	Copper	6 µg/L	1.3 µg/L
	Manganese	99 µg/L	80 µg/L
	Zinc	47 µg/L	8 µg/L
SW04	Turbidity	73.6 NTU	6 – 10 NTU
	Dissolved Oxygen	61 %	85 – 110 %

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Sample Location	Parameter	Max Concentration Recorded	Assessment Criteria
	Phosphorus	0.5 mg/L	0.035 mg/L
	Total Nitrogen	3.6 mg/L	2.4 mg/L
	Copper	3 µg/L	1.4 µg/L
	Zinc	10 µg/L	8 µg/L
SW05	Turbidity	84.6 NTU	6 – 10 NTU
	Dissolved Oxygen	54.5 %	85 – 110 %
	Phosphorus	0.1 mg/L	0.035 mg/L
	Total Nitrogen	3.5 mg/L	2.4 mg/L
	Copper	3 µg/L	1.4 µg/L
	Zinc	9 µg/L	8 µg/L
SW06	Turbidity	114 NTU	6 – 10 NTU
	Dissolved Oxygen	52.9 %	85 – 110 %
	Phosphorus	0.1 mg/L	0.035 mg/L
	Manganese	81 µg/L	80 µg/L
	Zinc	9 µg/L	8 µg/L
SW07	Turbidity	28.3 NTU	6 – 10 NTU
	Dissolved Oxygen	41.1 %	85 – 110 %
	Phosphorus	0.1 mg/L	0.035 mg/L
	Chromium	1 µg/L	0.001 µg/L
	Copper	6 µg/L	1.4 µg/L
	Zinc	700 µg/L	8 µg/L
SW08	Turbidity	104 NTU	0.5 – 10 NTU
	Dissolved Oxygen	19.9 %	80 – 110 %
	Phosphorus	0.3 mg/L	0.03 mg/L
	Copper	7 µg/L	1.3 µg/L
	Manganese	110 µg/L	80 µg/L
	Zinc	510 µg/L	8 µg/L
SW09	Turbidity	70.7 NTU	0.5 – 10 NTU
	Dissolved Oxygen	49.7 %	80 – 110 %
	Phosphorus	0.1 mg/L	0.03 mg/L
	Copper	6 µg/L	1.3 µg/L
	Manganese	100 µg/L	80 µg/L
	Zinc	450 µg/L	8 µg/L

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4 RESULTS

4.1 Rainfall summary

Rainfall statistics from the monitoring period are displayed in Figure 4***.*** Notably high rainfall was recorded in the month of January 2024. The rest recorded lower than average rainfall.

Overall, the monitoring period is considered to be drier than the monthly average rainfall statistics.

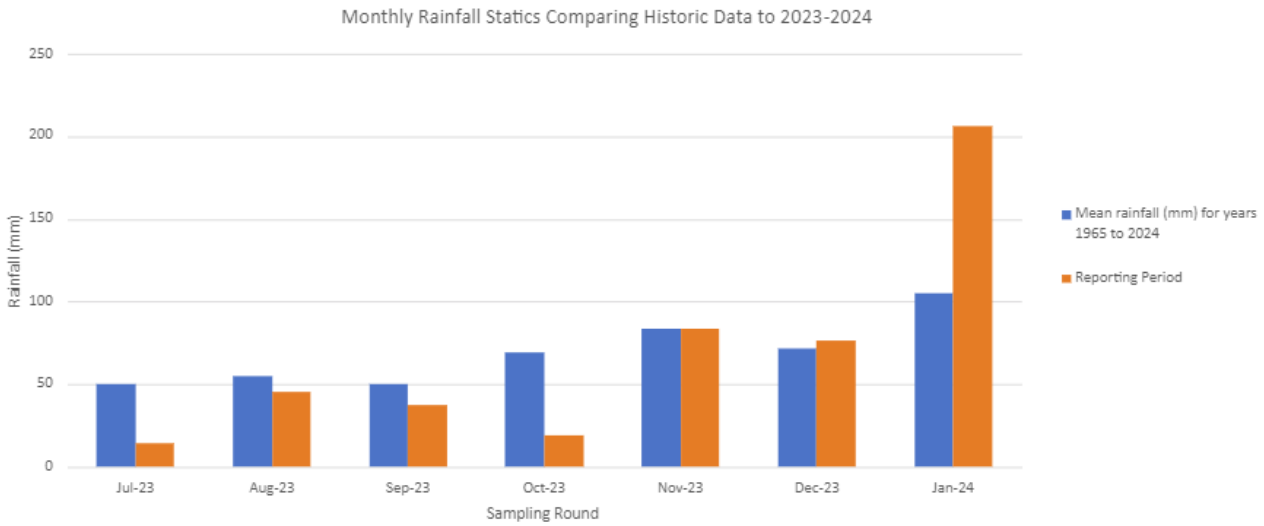

Figure 4: Rainfall statistics recorded during the monitoring period compared against historic averages

4.2 Monitoring results

Tabulated monitoring results are attached to this report in ***Attachment 1***. Monitoring data has been compared against the relevant WQOs and ANZG 2018 assessment criteria. Laboratory certificates are attached in ***Attachment 2***.

Consistent with the pre-construction sampling, several parameters were recorded in excess of the assessment criteria in all sampling points. Those results are discussed in detail in Section 5.

5 DISCUSSION

5.1 Assessment of results

Where results were returned outside the performance criteria, they were assessed in accordance with the four-step process detailed in the SWQMoP and discussed below.

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 11. As such, further analysis of these parameters was undertaken in accordance with Step 2 of the Surface Water Quality Monitoring Program, see below.

Table 11: Number of parameters recorded outside the assessment criteria in each sampling round

Sample Point	Number of Parameters Recorded Outside the Assessment Criteria						
	July-23	Aug-23	Sept-23	Oct-23	Nov-23	Dec-23	Jan-24
SW01	4	5	4	6	NA[1]	9	7
SW02	4	5	5	5	4	5	5
SW03	9	5	5	5	4	5	5
SW04	7	7	6	8	5	7	6
SW05	9	6	5	9	6	5	7
SW06	8	5	3	3	3	5	5
SW07	8	8	5	5	7	5	8
SW08	6	7	5	4	6	4	7
SW09	2	6	5	5	5	5	7
SW10	8	7	5	5	7	7	8
SW11	9	7	8	6	6	10	8

[1] SW01 not sampled – location inaccessible.

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 are consistent with, or less than 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.

A comparison of upstream and downstream results where there was an exceedance of the assessment criteria. Following the assessment under Step 2, it was identified that there were 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 as outlined in Table 12 below. This occurred only in samples collected from Clyde MSF and Parramatta sampling locations.

Table 12: Samples where downstream values exceeded upstream values.

Sampling Round	Parameter	Assessment Criteria	Upstream Point	Upstream Result	Downstream Point	Downstream Result	Exceedance Number
Jul-23	Turbidity (Lab)	0.5 – 10.0 (NTU)	SW08	4 NTU	SW03	201 NTU	1
Jul-23	Turbidity	6.0 – 10.0 (NTU)	SW10	9.8 NTU	SW07	47.5 NTU	2
Jul-23	Turbidity	6.0 – 10.0 (NTU)	SW07	8.6 NTU	SW04	255 NTU	3
Aug-23	Cobalt (dissolved)	1 µg/L	SW01	<1 µg/L	SW02	2 µg/L	4
Sep-23	Zinc (dissolved)	8 µg/L	SW06	4 µg/L	SW11	48 µg/L	5
Oct-23	Turbidity	6.0 – 10.0 (NTU)	SW07	4.4 NTU	SW04	26.5 NTU	6
Oct-23	pH	7.0 – 8.5	SW07	8.29 pH	SW04	8.62 pH	7
Oct-23	Turbidity	0.5 – 10 (NTU)	SW06	4.9 NTU	SW11	44.6 NTU	8
Oct-23	DO %	80 – 110 %	SW03	82 %	SW08	160 %	9
Nov-23	pH	7.0 – 8.5	SW07	7.95 pH	SW04	6.19 pH	10
Nov-23	Mercury (dissolved)	0.06 µg/L	SW04	< 0.05 µg/L	SW05	0.07 µg/L	11
Dec-23	pH	7.0 – 8.5	SW08	8.12	SW03	6.93	12

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Sampling Round	Parameter	Assessment Criteria	Upstream Point	Upstream Result	Downstream Point	Downstream Result	Exceedance Number
Dec-23	Copper (dissolved)	1.4 µg/L	SW07	1	SW04	4	13
Dec-23	pH	7.0 – 8.5	SW05	7.11	SW06	6.3	14
Dec-23	Nitrogen (total)	2.4 mg/L	SW06	0.4	SW11	17	15
Jan-24	Turbidity	6.0 - 10	SW10	8.9	SW07	15.8	16

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 12, exceedances of criteria were investigated and are explained below with upstream sampling points preceding the downstream sampling points:

Exceedance one – SW08 to SW03 – July 2023 – Turbidity (lab)

While the high NTU value at SW03 is concerning, these observed results are unlikely to be attributed to GLC works on account SW08 is located at the furthest extent of Clyde MSF and would capture any construction related turbidity impacts. SW08 is also located within Duck creek, prior to the confluence with Duck river within which SW03 is located. This suggests that higher turbidity values observed downstream within SW03 however is likely due to influencing factors/activities within Duck River itself.

Exceedance two – SW10 to SW07 – July 2023 – Turbidity (field)

Higher turbidity levels observed downstream are likely a product of heavy rainfall that occurred in the days prior to the sampling date. Turbidity (lab) results at SW07 and SW10- averaged higher than previous sampling periods.

Further, the Westmead construction site was not discharging water offsite during the reporting period which suggests the reduced water quality is not a direct result of construction activities.

Exceedance three – SW07 to SW04 – July 2023 - Turbidity (field)

Higher turbidity levels observed downstream are likely a product of heavy rainfall that occurred in the days prior to the sampling date. This is further supported by the fact Turbidity (field) results on the sampling date was higher than observed on previous monitoring events. This holds true for both the upstream sampling point (SW07) which was also higher than previous monitoring events.

It should also be noted that the Westmead construction site was not discharging water offsite during the reporting period, suggesting the reduced water quality is not a direct result of construction activities.

Exceedance four – SW01 to SW02 – August 2023 – Cobalt (dissolved)

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While the downstream cobalt (dissolved) value was higher than upstream value during the August 2023 monitoring event, this result was consistent with the baseline data, indicating that the elevated cobalt (dissolved) concentration observed was not due to construction activities.

Exceedance five – SW06 to SW11 – September 2023 – Zinc (dissolved)

While the downstream zinc (dissolved) value was higher than the upstream value during the September 2023 monitoring event, this result was consistent with the baseline d indicating that the elevated zinc (dissolved) concentration was not due to construction activities.

It should also be noted that the Parramatta Construction Site water treatment plant was not discharging during the reporting period and therefore could not have contributed to the observed results.

Exceedance six – SW07 to SW04 – October 2023 – Turbidity (field)

Higher turbidity levels observed downstream are likely a product of heavy rainfall that occurred in the days prior to the sampling date. This is further supported by the fact Turbidity (field) results on the sampling date was higher than observed on previous monitoring events. This holds true for both the upstream sampling point (SW07) which was also higher than previous monitoring events.

Exceedance seven – SW07 to SW04 – October 2023 – pH (field)

The pH level recorded in SW04 was slightly higher than baseline levels which were slightly acidic. A water sample was collected at the same time as undertaking field readings and sent to a NATA accredited laboratory. The laboratory sample returned a pH level within the adopted assessment criteria indicating the field probe was recording results lower than expected.

Exceedance eight – SW06 to SW11 – October 2023 - Turbidity (field)

During sampling, the tide was particularly low making all sampling points shallower than usual. This introduced the risk of increasing turbidity by sifting up the riverbed during water sampling, which would likely support the increased turbidity levels observed during field sampling.

It should also be noted that the Parramatta Construction Site water treatment plant was not discharging during the reporting period and therefore could not have contributed to the observed results.

Exceedance nine – SW03 to SW08 – October 2023 – DO (Dissolved Oxygen) %

Particularly high dissolved oxygen was observed between SW03 and SW08 during the October 2023 sampling event. Given these values are tested ex-situ, It is possible that the action of sampling caused increased aeration of the water giving higher than normal results.

Dissolved oxygen levels recorded to date have been erratic and do not show any discernible trend based on known extraneous factors such as rainfall, construction etc. It is unlikely that elevated dissolved oxygen levels are in relation to construction activities being undertaken at the Clyde MSF site.

Exceedance ten – SW07 to SW04 – November 2023 – pH (field)

The pH level recorded in SW04 was slightly lower than baseline levels which were already slightly acidic. The sample sent to the NATA accredited laboratory for testing however returned a pH level within the adopted assessment criteria, indicating the field probe was recording results lower than expected.

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Exceedance eleven – SW04 to SW05 – November 2023 – Mercury (dissolved)

Dissolved mercury results from the November 2023 sampling round were compared against baseline data. The results recorded during the November 2023 sampling round were consistent with baseline monitoring results indicating that elevated dissolved mercury concentration unlikely to be a product of construction activities.

Exceedance twelve – SW08 to SW03 – December 2023 – pH (field)

The pH level recorded in SW03 was slightly lower than baseline levels which were slightly alkaline. A water sample was collected at the same time as undertaking field readings and sent to a NATA accredited laboratory. The laboratory sample returned a pH level within the adopted assessment criteria indicating the field probe was recording results higher than expected.

Exceedance thirteen – SW07 to SW04 – December 2023 – Copper (dissolved)

Dissolved copper results from the December 2023 sampling round were compared against baseline data. The results recorded during the December 2023 sampling round were consistent with baseline monitoring results indicating that the observed elevated dissolved copper concentration, is likely not a product of construction activities.

It should also be noted that the Westmead construction site was not discharging water offsite during the reporting period, suggesting the reduced water quality is not a direct result of construction activities.

Exceedance fourteen – SW05 to SW06 – December 2023 – pH

The pH level recorded in SW06 was slightly lower than baseline levels which were already slightly acidic. The sample sent to the NATA accredited laboratory for testing however returned a pH level within the adopted assessment criteria, indicating the field probe was recording results lower than expected.

Exceedance fifteen – SW06 to SW11 – December 2023 – Nitrogen (total).

Total Nitrogen from the December 2023 sampling period for SW11 was found to be higher than the Assessment Criteria and to the upstream sampling point at SW06. Once compared to the baseline data however, the Total Nitrogen was found to be consistent with baseline monitoring results, indicating that elevated total nitrogen concentration are not a product of construction activities.

It should also be noted that the Parramatta Construction Site water treatment plant was not discharging during the reporting period and therefore could not have contributed to the observed results.

Exceedance sixteen - SW10 to SW07 – January 2024 (Turbidity)

Higher turbidity levels observed downstream are likely a product of heavy rainfall that occurred in the days prior to the sampling date. This is further supported by the fact Turbidity (field) results on the sampling date was higher than observed on previous monitoring events. This holds true for both the upstream sampling point (SW10) which was also higher than previous monitoring events.

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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

1. 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.
2. Surface Water quality monitoring point 4 would be considered for removal given the addition of SW11 and be documented in the SWQMoP.
3. The SWQMoP would be updated to include the additional Surface Water quality Monitoring points at SW10 and SW11.
4. SW01 would be moved to be placed in an area that is completely upstream of all GLC related construction works.
5. Removal of SW04 and SW05 monitoring points, given SW07 and SW11 are now available.
6. The SWQMoP would also be updated to include any monitoring requirements associated with GLC undertaking works at Sydney Olympic Park.

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6 CONCLUSION

Results obtained from this monitoring period indicate that there has not been a degradation of the surrounding surface water network as a result of construction. Results are generally consistent with the adopted assessment criteria and pre-construction baseline water quality data implying any deviations from the adopted screening criteria are not attributed to GLC's construction activities.

ATTACHMENTS

Attachment 1 – Tabulated data

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

	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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
	nalyte			Lab Report No.	295817	296605	297165	297794	298951	299608	328536	331897	334046	335748	n/a	30324	341875
WQO	pH	pH Units	7.0 - 8.5		7.51	7.99	7.32	7.67	8.08	7.69	9.66	8.87	7.99	7.89	n/a	8.93	7.89
WQO	Electrical Conductivity milisemiens/cm	mS/cm)	NA		5.06	1.5	20.6	14.6	5.7	0.344	21.2	0.401	6.38	5	n/a	7.53	0.475
WQO	Turbidity	NTU	0.5 - 10		7.4	32.5	50.9	3.5	0.5	41	6.9	82.4	4.2	34	n/a	30	25.1
WQO	DO %	%	80-110		24.3	42.3	19.7	35.7	33.2	97	115	51.5	36.4	143	n/a	13.49	55.9
WQO	Oil & Grease	Visual	None Visible		None visible	None visible	None visible	None visible	None visible	None visible	None visible	non visible	non visible	non visible	n/a	Visible sheen	non visible
WQO	pH (Lab)	Units	7.0 - 8.5		7.3	7.9	7	7.5	7.5	7.2	7.3	7.2	7.7	7.2	n/a	7.5	7.6
WQO	Electrical Conductivity (Lab)	mS/cm)	NA		4.7	15	18	13	5.7	0.33	20,000	980	6,300	4600	n/a	7300	600
WQO	Turbidity (Lab)	NTU	0.5 - 10		3	5.6	5.4	3	3.6	15	2.6	7	2.5	2.4	n/a	5.3	16
WQO	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	Water stagnant, low flow and shallow	Still water, algae visible	dark green water, no odour, no sheen	stagnant water - odourous of decaying vegetation	Unable to access monitoring point due to site activites being undertaken in creek line	Rubbish, oily sheen, light flow, greenish-brown	Browny-green haze, light currenrt, no odour
Toxicants	**Nutrients**																
Toxicants	Ammonia (as N)	mg/L	0.91		0.68	0.16	0.73	0.49	0.36	0.48	0.2	0.22	0.37	0.12	n/a	0.32	0.046
Toxicants	Nitrate (as N)	mg/L	2.4		0.21	0.57	0.02	0.42	0.038	0.94	0.17	0.52	0.25	<0.005	n/a	0.056	2.4
Toxicants	Nitrite (as N)	mg/L	-		0.049	0.051	0.044	0.05	0.047	0.025	0.053	0.042	0.067	<0.005	n/a	0.065	0.045
Toxicants	Total Oxidised Nitrogen	mg/L	2.4		0.259	0.621	0.064	0.47	0.085	0.965	0.2	0.2	0.3	<0.005	n/a	0.1	2.4
Toxicants	Phosphorus	mg/L	0.03		0.2	0.1	0.3	0.2	0.2	0.3	0.1	0.2	0.2	0.11	n/a	0.4	0.2
Toxicants	Total Nitrogen (as N)*	mg/L	2.4		1.5	1.3	1.5	1.3	1	2.7	0.8	1.9	1.4	1	n/a	2.5	3.2
Toxicants	**Heavy Metals**																
Toxicants	Arsenic (dissolved)	ug/L	-		2	1	1	1	<1	2	<1	<1	2	<1	n/a	2	2
Toxicants	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	n/a	<0.1	<0.1
Toxicants	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	1	<1	<1	<1	<1	<1	<1	n/a	<1	1
Toxicants	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	n/a	<0.005	<0.005
Toxicants	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	n/a	<0.005	<0.005
Toxicants	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<1	<1	<1	<1	n/a	2	<1
Toxicants	Copper (dissolved)	ug/L	1.3		2	2	<1	2	<1	6	1	6	4	4	n/a	6	7
Toxicants	Iron (dissolved)	ug/L	-		110	80	530	80	110	250	100	130	340	310	n/a	400	190
Toxicants	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	1	<1	<1	<1	1	n/a	1	1
Toxicants	Manganese (dissolved)	ug/L	80		270	30	350	120	100	15	72	25	89	99	n/a	210	25
Toxicants	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	n/a	<0.05	<0.05
Toxicants	Nickel (dissolved)	ug/L	7		1	2	1	<1	1	1	1	<1	2	1	n/a	3	2
Toxicants	Zinc (dissolved)	ug/L	8		16	14	35	8	10	45	14	37	30	35	n/a	81	42
Toxicants	**PFAS Parameters**																
Toxicants	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	n/a	<0.02	<0.0004
Toxicants	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	n/a	<0.01	0.0005
Toxicants	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.02	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	n/a	0.01	0.015
Toxicants	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.03	0.03	0.02	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	n/a	0.01	0.014
Toxicants	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.11	0.13	0.07	0.08	0.06	0.04	0.01	<0.01	<0.01	<0.01	n/a	0.03	0.097
Toxicants	**Polycyclic Aromatic Hydrocarbons**																
Toxicants	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Benzo(a)pyrene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	n/a	<0.5	<0.5
Toxicants	Benzo(b,j+k)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	n/a	<0.2	<0.2
Toxicants	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Indeno(1.2.3-cd)pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.2	<0.1	<0.1	<0.1	n/a	<0.1	<1
Toxicants	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<0.1	<0.1	<0.1	n/a	<0.1	<0.1
Toxicants	**Total Recoverable Hydrocarbons**																
Toxicants	Naphthalene	ug/L	-		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	<1	<1
Toxicants	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	62	<50	<50	<50	<50	n/a	120	<50
Toxicants	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	62	<50	<50	<50	<50	n/a	120	<50
Toxicants	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	220	<50	<50	<50	<50	n/a	430	<50
Toxicants	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	160	<100	<100	<100	<100	n/a	310	<100
Toxicants	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	n/a	<100	<100
Toxicants	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	66	<50	<50	<50	<50	n/a	100	<50
Toxicants	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	190	<50	<50	<50	<50	n/a	380	<50
Toxicants	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	120	<100	<100	<100	<100	n/a	270	<100
Toxicants	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	n/a	<100	<100
Toxicants	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	n/a	<10	<10
Toxicants	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	n/a	<10	<10
Toxicants	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	n/a	<10	<10
Toxicants	**Volatile Organics**																
Toxicants	Benzene	ug/L	500		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	<1	<1
Toxicants	Ethylbenzene	ug/L	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	<1	<1
Toxicants	m&p-Xylenes	ug/L	75		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	n/a	<2	<2
Toxicants	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	<1	<1
Toxicants	Toluene	ug/L	180		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	n/a	3	<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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2021	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
Analyte				Lab Report No.	295817	296605	297165	297794	298951	299608	328536	331897	334046	335748	338658	340324	341875
WQO	pH	pH Units	7.0 - 8.5		7.31	7.23	7.45	7.55	7.73	7.79	9.71	7.7	7.4	8.07	7.41	9.1	7.93
	Electrical Conductivity	mS/cm)	NA		14.2	32.4	38	38.8	42.9	0.329	29	16.3	30	18.6	18.7	29.6	0.487
	Turbidity	NTU	0.5 - 10		3.4	13.3	3.3	0	0	60.5	4.8	44.6	0	8.4	26	5.3	66.8
	DO%	%	80-110		13.3	18.5	28.3	43.7	52.3	70.9	156	62.5	15.2	406	82	49.2	59.1
	Oil & Grease	Visual	None Visible		None Visible	None Visible	None Visible	None Visible	None Visible	None Visible	not visible	Not visible	non visible	non visible	NA	None Visible	None Visible
	pH (lab)	Units	7.0 - 8.5		7.2	7.6	7.3	7.3	7.3	7.5	7.4	7.1	7.4	7.2	7.2	7.6	7.6
	Electrical Conductivity (lab)	ug/L	NA		12000	5500	21000	30000	30000	350	27,000	15	31,000	4,600	13,000	28,000	450
	Turbidity (lab)	NTU	0.5 - 10		3	3.3	1.6	4	1.8	46	2.2	4.8	5.9	2.4	9	3.4	35
	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	Water was clear and had a strong odour.	ater clear, slow flo	clear water, low flow, no sheen	stagnant water - odourous of decaying vegetation	stagnant water, odourous of decaying vegetation, mosquitos abundant	Brakish, brown-yellow, swampish, smells foul	Turbid brown, salty odour, low/negligible current waste debris
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.91		0.38	0.09	0.37	0.11	0.22	0.22	0.13	0.17	0.25	0.077	0.043	0.086	0.26
	Nitrate (as N)	mg/L	2.4*		0.4	0.5	0.16	0.24	0.17	0.89	0.18	0.48	0.03	0.006	0.15	0.01	1.3
	Nitrite (as N)	mg/L	-		0.055	0.047	0.041	0.028	0.024	0.025	0.024	0.032	0.009	<0.005	0.027	0.005	0.038
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.455	0.547	0.201	0.268	0.194	0.915	0.2	1.3	0.04	0.01	0.2	0.02	1.4
	Phosphorus	mg/L	0.03		0.1	0.08	0.1	0.08	0.09	0.2	0.09	0.03	0.2	0.1	0.086	0.3	0.2
	Total Nitrogen (as N)*	mg/L	2.4*		1	1.3	1	0.6	0.6	1.7	0.6	0.8	1	0.8	0.8	0.8	2.1
	Heavy Metals																
	Arsenic (dissolved)	ug/L	-		2	1	<1	1	1	2	<1	<1	1	7	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	0.2	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	1	<1	<1	<1	<2	<1	4	<1	<1	<1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1								<1	<2	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		1	2	<1	1	<1	5	1	4	4	7	5	1	5
	Iron (dissolved)	ug/L	-		70	100	90	50	60	200	50	90	170	700	200	40	70
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	1	<1	<2	<1	2	<1	<1	<1
	Manganese (dissolved)	ug/L	80		140	47	230	67	84	11	58	45	160	140	64	140	<5
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.06	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		<1	2	1	<1	1	<1	1	1	3	1	2	1	1
	Zinc (dissolved)	ug/L	8		18	20	28	11	22	35	29	30	22	42	38	17	24
	PFAS Parameters																
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0006
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.07	0.08	0.04	0.03	0.03	0.03	0.01	<0.01	0.01	<0.01	<0.01	0.01	0.036
	Polycyclic Aromatic Hydrocarbons																
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<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	<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	<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	<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	<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	<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	<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	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<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	<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	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<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	<1
	TRH >C10-C16	ug/L	-		<50	<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	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH >C34-C40	ug/L	-		<100	<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	<50	<50	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<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	<100
	TRH C29-C36	ug/L	-		<100	<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	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<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	<10
	Volatile Organics																
	Benzene	ug/L	500		<1	<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	<1
	m&p-Xylenes	ug/L	75		<2	<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	<1
	Toluene	ug/L	180		<1	<1	<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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
Analyte				Lab Report No.	295817	296605	297165	297794	298951	299608	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		7.45	7.48	7.44	7.8	8	7.74	9.73	7.75	7.63	8.31	7.31	6.93	8.13
	Electrical Conductivity	mS/cm)	NA		29.2	12.8	35.2	38.5	31.4	0.538	1.02	7.56	44.4	18.4	7.6	39.5	0.431
	Turbidity	NTU	0.5 - 10		6.4	48.3	4.7	2.9	1.6	80.8	201	32.3	2.4	25	19.5	5.1	73.9
	DO%	%	80-110		45.6	47.3	36.3	61.5	57.4	108.8	149	62.5	68.6	430	95	73.1	63.7
	Oil & Grease	Visual	None Visible		None Visible	Slight sheen	Slight sheen	Slight sheen	None Visible	None Visible	Visible	none visible	none visible	none visible	none visible	none visible	visible
	pH (lab)	Units	7.0 - 8.5		7.2	7.5	7.3	7.6	7.3	7.4	7.5	7.3	7.6	7.6	7.3	7.7	7.3
	Electrical Conductivity (lab)	mS/cm)	NA		26	12	26	35	25	0.55	39	13	44	22	13,000	37,000	410
	Turbidity (lab)	NTU	0.5 - 10		5.7	15	2.4	4.1	2.5	26	2.5	8.3	7.5	0.9	9	4.4	37
	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	clear, no odour, low fl		clear, no odour, no sheen, low flow	Water was stagnant, decaying vegetation odour	Low flow rate, fish were present, flowing downstream	No odour, low flow, slight pollution on top	borwn turbid, low flow, small debris visible floating on the surface, oily sheen, brackish
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.91		0.25	0.13	0.24	0.066	0.42	0.49	0.078	0.2	0.051	0.081	0.044	0.038	0.26
	Nitrate (as N)	mg/L	2.4*		0.22	0.39	0.19	0.13	0.29	1	0.054	0.32	0.03	0.062	0.14	<0.005	1.1
	Nitrite (as N)	mg/L	-		0.023	0.025	0.026	0.011	0.028	0.031	0.008	0.031	0.007	0.015	0.023	<0.005	0.033
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.243	0.415	0.216	0.141	0.318	1.031	0.06	0.99	0.04	0.08	0.2	0.006	1.2
	Phosphorus	mg/L	0.03		0.1	0.09	0.07	0.07	0.08	0.3	0.08	0.3	0.1	0.03	0.082	0.2	0.2
	Total Nitrogen (as N)*	mg/L	2.4*		0.8	1	0.7	0.5	0.8	2.4	0.4	0.6	0.5	0.7	0.2	0.5	2.4
	Heavy Metals																
	Arsenic (dissolved)	ug/L	-		2	2	1	1	<1	2	<5	10	2	1	<1	3	1
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<.1	<0.1	<0.1	<0.1	<0.5	<1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	1	<1	2	<5	<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	<0.005	<0.005	<0.005	<0.005	<1	<0.005	<0.005
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<1	<0.005	<0.005	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<5	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		<1	2	<1	1	<1	6	<5	4	2	4	3	1	5
	Iron (dissolved)	ug/L	-		20	80	30	<10	20	300	<50	130	95	70	160	20	180
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	1	<5	<1	<1	<1	<1	<1	1
	Manganese (dissolved)	ug/L	80		67	61	82	40	99	19	44	68	95	97	74	82	17
	Mercury (dissolved)	ug/L	0.1		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.06	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		<1	1	1	<1	<1	1	<5	<1	2	2	<1	1	1
	Zinc (dissolved)	ug/L	8		12	24	30	7	13	47	20	30	21	24	32	10	24
	PFAS Parameters																
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0007
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.002
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	0.02	<0.01	<0.01	0.01	0.02	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.0098
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.02	0.02	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0094
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.03	0.05	0.03	0.03	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.027
	Polycyclic Aromatic Hydrocarbons																
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<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	<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	<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	<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	<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	<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	<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	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<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	<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	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<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	<1
	TRH >C10-C16	ug/L	-		<50	<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	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	100	<50	<50	<50	<50	<50	<50	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	100	<100	<100	<100	<100	<100	<100	<100
	TRH >C34-C40	ug/L	-		<100	<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	<50	<50	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<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	<100
	TRH C29-C36	ug/L	-		<50	<50	<50	<50	<50	<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	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<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	<10
	Volatile Organics																
	Benzene	ug/L	500		<1	<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	<1
	m&p-Xylenes	ug/L	75		<2	<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	<1

	SW04 Sampling Results	Units	ANZG (2018) Toxicant default guidelines for Frfeshwater Environments	Sample Round	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Pre-Construction	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	Not Tested	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		7.79	8.03	7.7	8.01	8.18	-	10.41	7.96	8.02	8.62	6.19	7.25	8.42
WQO	Electrical Conductivity	mS/cm	0.125 - 2.2		0.468	0.564	0.879	0.788	1.89	-	0.723	0.404	0.598	0.335	0.375	0.398	0.307
WQO	Turbidity	NTU	6.0-10.0		29	73.6	38.1	43.5	16.2	-	8.6	50.6	16.7	26.5	11	12.1	108
WQO	DO%	%	85-110		112.4	63.6	61	64.4	67.4	-	144.1	62.1	73.7	287	99	66.5	111.5
WQO	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
WQO	pH (Lab)	Units	7.0 - 8.5		7.9	7.9	8	7.9	7.8	-	7.9	7.9	7.9	7.6	7.7	8	7.4
WQO	Electrical Conductivity (Lab)	(mS/cm)	0.125 - 2.200		0.43	0.41	0.88	0.66	1.8	-	0.71	0.39	0.57	0.41	0.36	0.4	0.29
WQO	Turbidity (lab)	NTU	6.0-10.0		8.6	15	7.8	13	5	-	4.3	6.1	3.7	2	5.4	6.5	56
WQO	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		cloudy, still	slight brown, no odour, no sheen, low flow	water flowing down towards the Harbour	low flow, high tide due to rainfall	No odour, medium flow, green-merky visual	light brown merky colour, high water volume level up to the footpath upon survey
Toxicants	**Nutrients**																
Toxicants	Ammonia (as N)	mg/L	0.9		0.19	0.058	0.51	0.5	0.045	-	0.012	0.2	0.12	0.009	0.06	0.027	0.12
Toxicants	Nitrate (as N)	mg/L	2.4		0.66	0.63	0.54	0.78	0.44	-	0.39	0.64	0.11	<0.005	0.02	0.04	1.4
Toxicants	Nitrite (as N)	mg/L	-		0.028	0.023	0.054	0.1	0.022	-	0.021	0.042	0.011	<0.005	<0.005	0.008	0.026
Toxicants	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.688	0.653	0.594	0.88	0.462	-	0.4	0.69	0.1	<0.005	0.03	0.05	1.4
Toxicants	Phosphorus	mg/L	0.035		0.08	<0.05	<0.05	0.08	0.5	-	0.06	0.1	0.05	0.08	<0.05	0.1	0.2
Toxicants	Total Nitrogen (as N)*	mg/L	2.4		1	1	3.6	2.3	0.7	-	0.7	1.4	0.5	0.4	0.4	1.1	2.3
Toxicants	**Heavy Metals**																
Toxicants	Arsenic (dissolved)	ug/L	13		<1	<1	<1	<1	<1	-	<1	1	<1	<1	<1	1	2
Toxicants	Cadmium (dissolved)	ug/L	0.2		<0.1	<0.1	<0.1	<0.1	0.2	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Chromium (dissolved)	ug/L	0.001		<1	<1	<1	<1	<1	-	<1	2	<1	<1	<1	<1	1
Toxicants	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toxicants	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toxicants	Cobalt (dissolved)	ug/L	1.4							-	<1	<1	<1	<1	<1	<1	<1
Toxicants	Copper (dissolved)	ug/L	1.4		2	3	2	3	<1	-	2	9	3	2	<1	4	6
Toxicants	Iron (dissolved)	ug/L	-		540	310	200	210	50	-	110	240	34	150	180	140	390
Toxicants	Lead (dissolved)	ug/L	3.4		1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
Toxicants	Manganese (dissolved)	ug/L	1900		89	35	26	59	53	-	13	37	34	7	24	24	20
Toxicants	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
Toxicants	Nickel (dissolved)	ug/L	11		1	1	<1	<1	<1	-	<1	<1	1	<1	<1	1	2
Toxicants	Zinc (dissolved)	ug/L	8		10	9	8	7	5	-	10	22	4	9	5	18	18
Toxicants	**PFAS Parameters**																
Toxicants	1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004
Toxicants	1H.1H.2H.2H-perfluorooctanesulfonic acid (6:2 FTSA)	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.002
Toxicants	Perfluorooctanoic acid (PFOA)	ug/L	220		0.01	0.01	0.01	0.01	0.02	-	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.012
Toxicants	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.01	0.02	0.02	0.02	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Toxicants	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.03	0.02	0.03	0.05	0.03	-	0.01	<0.01	0.01	0.01	0.01	0.02	0.025
Toxicants	**Polycyclic Aromatic Hydrocarbons**																
Toxicants	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Benzo(a)pyrene	ug/L	0.1		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	-	<0.5	<0.5	<0.5	<0.1	<0.1	<0.1	<0.5
Toxicants	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxicants	Benzo(g.h.i)perylene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Chrysene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Fluorene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	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	<0.1
Toxicants	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	-	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
Toxicants	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Pyrene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	**Total Recoverable Hydrocarbons**																
Toxicants	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
Toxicants	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10	<10
Toxicants	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10	<10
Toxicants	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	-	<10	<10	<10	<10	<10	<10	<10
Toxicants	**Volatile Organics**																
Toxicants	Benzene	ug/L	950		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
Toxicants	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
Toxicants	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	-	<2	<2	<2	<2	<2	<2	<2
Toxicants	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
Toxicants	Toluene	ug/L	-		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
Analyte				Lab Report No.	295817	296605	297165	297794	298951	Not Tested	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		7.78	7.81	7.77	7.79	8.4	-	9.86	7.98	7.94	8.51	6.77	7.11	8.26
	Electrical Conductivity	mS/cm)	0.125 - 2.2		0.461	0.427	0.872	0.729	2	-	0.04	0.398	0.57	0.408	0.377	0.427	0.314
	Turbidity	NTU	6.0-10.0		22	84.6	39.8	15.2	9.4	-	255	34.7	2.6	10.3	6.5	8.8	106
	DO%	%	85-110		59	63.1	54.5	55.6	82.1	-	151.4	69.1	54.1	136	96	71.2	111.3
	Oil & Grease	Visual	None Visible		None visible	None visible	None visible	None visible	None visible	-	None visible	non visible	non visible	non visible	non visible.	none visible	none visible
	pH	Units	7.0 - 8.5		7.8	7.8	7.9	7.8	7.9	-	7.7	7.6	7.9	6.3	7.7	7.9	7.2
	Electrical Conductivity	(mS/cm)	0.125 - 2.200		0.44	0.41	0.88	0.67	1.9	-	0.68	0.39	0.56	0.42	0.36	0.42	0.3
	Turbidity	NTU	6.0-10.0		16	13	3.6	4.9	4.2	-	2.3	6.2	4.2	5.6	4.3	5	44
	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	-		cloudy, Still	slight brown, no odour, no sheen, low flow	No oil, medium flow	low flow rate, high tide due to rainfall	No odour, medium flow, green/brown, merky visual	brown trubid colour, high water voloume level. medium-strong flow. slurry/faeces odour
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.90		0.17	0.085	0.51	0.6	0.048	-	0.011	0.16	0.11	0.008	0.06	0.033	0.15
	Nitrate (as N)	mg/L	2.4		0.65	0.47	0.54	0.85	0.44	-	0.4	0.46	0.077	<0.005	0.03	0.17	1.4
	Nitrite (as N)	mg/L	-		0.026	0.018	0.053	0.11	0.023	-	0.021	0.032	0.009	<0.005	<0.005	<0.005	0.016
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.676	0.488	0.593	0.96	0.463	-	0.4	0.5	0.09	<0.005	0.003	0.2	1.4
	Phosphorus	mg/L	0.035		0.08	0.07	0.06	0.09	0.1	-	0.05	0.09	0.07	0.08	<0.05	0.08	0.2
	Total Nitrogen (as N)*	mg/L	2.4		1	0.9	3.5	2.4	0.7	-	0.7	1	0.6	0.4	0.4	1.6	2.4
	Heavy Metals																
	Arsenic (dissolved)	ug/L	13*		<1	<1	<1	<1	<1	-	<1	<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	0.001		<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	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1.4		-	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.4		3	2	2	3	<1	-	3	6	3	3	2	2	6
	Iron (dissolved)	ug/L	-		480	310	190	190	40	-	120	260	27	450	180	160	400
	Lead (dissolved)	ug/L	3.4		<1	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	1900		77	34	54	52	40	-	15	45	27	88	20	23	20
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	0.07	<0.05	<0.05
	Nickel (dissolved)	ug/L	11		<1	<1	<1	<1	<1	-	<1	<1	1	1	<1	<1	2
	Zinc (dissolved)	ug/L	8		9	7	8	3	<1	-	17	12	4	24	5	5	17
	PFAS Parameters																
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.002
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.01	0.02	0.01	0.02	-	<0.01	0.01	0.01	0.01	0.01	0.01	0.013
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	<0.01	0.02	0.02	0.02	-	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.04	0.03	0.03	0.05	0.04	-	0.01	0.01	0.01	0.01	0.01	0.01	0.024
	Polycyclic Aromatic Hydrocarbons																
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Benzo(a)pyrene	ug/L	0.1		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1	<0.1	<0.1	<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	<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	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	-	<0.1	<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	<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	<0.1
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	-	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	-	<0.1	<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	<0.1	<0.1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	87	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	87	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	90	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<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	140	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	-	<50	<50	<50	<50	<50	140	<50
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<100	<100
	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	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

	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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	Not Tested	328536	331897	334046	335748	338658	320324	341875
20	pH	pH Units	7.0 - 8.5		7.39	7.38	7.64	7.8	8.06	-	10.69	7.3	7.89	7.82	6.67	6.3	8.29
	Electrical Conductivity	mS/cm	NA		18.9	24.8	31.6	38.7	37.2	-	0	3.1	0.57	29.2	16	32.4	0.308
	Turbidity	NTU	0.5 - 10		9.4	114	18.6	4.8	5.7	-	252	37.1	6	4.9	9.8	10.6	110
	DO	%	80-110		52.9	58.9	69	55.8	72	-	128.9	67.6	50.8	306	139	70.9	99.3
	Oil & Grease	Visual	None Visible		None visible	None visible	Slight sheen	None visible	None visible	-	None Visible	none visible	none visible	none visible	none visible	none visible	none visible
	pH	Units	7.0 - 8.5		7.3	7.4	7.5	7.5	7.6	-	7.5	7.4	7.9	7.6	7.6	7.7	7.3
	Electrical Conductivity	(mS/cm)	NA		15	23	25	35	36	-	38	21	1	30	0.36	30	0.29
	Turbidity	NTU	0.5 - 10		5.4	4.9	2.2	11	4.4	-	2.6	6.3	4.4	0.5	8.5	5.7	65
	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		cloudy, low flow	slight brown, no odour, no sheen, low flow	No odour, strong flow from weir	surface water levels had risen due to rainfall. water running out of the weir was rapid causing foam	Weir at 1m depth, hazy brown in colour, salty smell	brown colour, strong flow through weir, large amount of artificial and vegetation debris, strong odour of slurry and faeces
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.91		0.29	0.27	0.25	0.2	0.13	-	0.19	0.18	0.092	0.074	0.046	0.033	0.13
	Nitrate (as N)	mg/L	2.4*		0.37	0.21	0.19	0.17	0.063	-	0.065	0.3	0.055	0.02	0.01	0.005	1.4
	Nitrite (as N)	mg/L	-		0.023	0.02	0.025	0.021	<0.005	-	0.007	0.022	0.008	<0.005	<0.005	<0.005	0.025
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.393	0.23	0.215	0.191	0.063	-	0.07	0.3	0.06	0.02	0.01	0.007	1.4
	Phosphorus	mg/L	0.03		0.09	0.07	0.08	0.1	0.09	-	0.09	0.1	0.06	0.1	0.1	0.3	0.2
	Total Nitrogen (as N)*	mg/L	2.4*		0.8	0.7	1.2	0.6	0.5	-	0.5	1.2	0.6	0.5	0.4	0.4	2.3
	Heavy Metals																
	Arsenic (dissolved)	ug/L	-		1	1	<1	1	1	-	<5	<1	<1	1	<1	2	2
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	-	<5	<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	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<5	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		1	<1	1	<1	<1	-	<5	3	3	1	1	1	6
	Iron (dissolved)	ug/L	-		110	70	40	<10	<10	-	<50	80	120	50	100	30	390
	Lead (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	-	<5	<1	<1	<1	<1	<1	<1
	Manganese (dissolved)	ug/L	80		81	56	45	36	42	-	55	61	22	61	53	120	19
	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	-	<5	<1	1	2	1	1	2
	Zinc (dissolved)	ug/L	8		8	7	9	5	<1	-	18	16	4	12	6	8	18
	PFAS Parameters																
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	-	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.002
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.01	<0.01	0.01	0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.02	0.02	0.01	0.01	<0.01	-	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.026
	Polycyclic Aromatic Hydrocarbons																
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	-	<0.1	<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	<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	<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	<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	<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	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	-	<0.1	<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	<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	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	-	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	-	<0.1	<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	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	-	<0.1	<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	-	<50	<50	<50	<50	<50	<50	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	-	<100	<100	<100	<100	<100	<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	<50	<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	-		<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

	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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
	Analyte			Lab Report No.	295817	296605	297165	297794	298951	299608	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		7.62	7.69	7.19	7.82	7.95	7.08	10.77	8.19	7.84	8.29	7.95	7.31	7.87
WQO	Electrical Conductivity	mS/cm	0.125 - 2.2		0.875	0.86	0.821	0.967	0.934	0.344	0.437	0.367	0.548	1.63	0.248	0.654	0.545
WQO	Turbidity	NTU	6.0-10.0		2.8	28.3	3.3	6.7	5.2	23.6	14.5	61.8	5.7	4.4	25	11.1	15.8
WQO	DO	%	85-110		46.7	52.4	41.1	53.1	63.7	73	102	77.8	10.6	184	115	29.7	76.4
WQO	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
WQO	pH (Lab)	Units	7.0 - 8.5		7.8	8	7.9	7.8	7.9	7.6	7.7	7.3	7.8	7.5	7.4	8.3	7.6
WQO	Electrical Conductivity (Lab)	(mS/cm)	0.125 - 2.200		0.82	0.8	0.84	0.98	1.1	0.35	0.44	0.35	1	0.94	0.24	0.65	0.51
WQO	Turbidity (Lab)	NTU	6.0-10.0		3.4	3.7	4.3	2.8	2.1	21	12	7	10	3.5	12	4.5	14
WQO	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		clear water, no odour, no sheen	clear water, no odour, no sheen	Murky water, slight odour to water, no sheen	stagnant flow, leaf litter	No odour, green hazy, no/slow flow	glight greeny-bown haze, modertae flow, average volume, visible fish present
Toxicants	**Nutrients**																
Toxicants	Ammonia (as N)	mg/L	0.9		0.12	0.034	0.057	0.053	0.036	0.033	0.05	0.025	0.18	0.26	0.014	0.14	0.06
Toxicants	Nitrate (as N)	mg/L	2.4		0.35	0.33	0.26	0.34	0.24	1.2	0.2	0.45	<0.005	0.007	0.15	0.03	2.1
Toxicants	Nitrite (as N)	mg/L	-		0.02	0.022	0.015	0.011	0.006	0.013	0.009	0.027	<0.005	<0.005	0.016	0.015	0.051
Toxicants	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.37	0.352	0.275	0.351	0.246	1.213	0.2	0.5	<0.005	0.01	0.2	0.04	2.2
Toxicants	Phosphorus	mg/L	0.035		0.1	0.09	0.09	0.07	0.1	0.1	0.1	0.1	0.2	0.08	0.1	0.1	0.2
Toxicants	Total Nitrogen (as N)*	mg/L	2.4		0.7	0.8	0.7	0.6	0.5	1.5	0.6	0.5	1	1	0.6	0.8	3.2
Toxicants	**Heavy Metals**																
Toxicants	Arsenic (dissolved)	ug/L	13*		1	1	<1	<1	<1	2	<1	<1	3	1	<1	2	2
Toxicants	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	<0.1
Toxicants	Chromium (dissolved)	ug/L	0.001		<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	2
Toxicants	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toxicants	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Toxicants	Cobalt (dissolved)	ug/L	1.4		-	-	-	-	-	-	<1	<1	3	1	<1	<1	<1
Toxicants	Copper (dissolved)	ug/L	1.4		2	1	<1	1	<1	6	2	5	<1	1	6	1	8
Toxicants	Iron (dissolved)	ug/L	-		150	200	240	150	240	440	520	340	480	420	430	150	310
Toxicants	Lead (dissolved)	ug/L	3.4		<1	<1	<1	<1	<1	2	<1	<1	<1	<1	1	<1	1
Toxicants	Manganese (dissolved)	ug/L	1900		110	100	61	48	30	13	64	42	1300	300	43	170	32
Toxicants	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	<0.05
Toxicants	Nickel (dissolved)	ug/L	11		<1	1	<1	<1	<1	1	1	1	3	2	1	2	2
Toxicants	Zinc (dissolved)	ug/L	8		9	9	7	<1	<1	700	11	15	6	16	21	6	25
Toxicants	**PFAS Parameters**																
Toxicants	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004
Toxicants	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0008
Toxicants	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	0.013
Toxicants	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.02	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.014
Toxicants	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.03	0.02	0.02	0.02	0.01	0.01	0.02	<0.01	0.04	<0.01	<0.01	0.02	0.027
Toxicants	**Polycyclic Aromatic Hydrocarbons**																
Toxicants	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Acenaphthylene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Anthracene	ug/L	0.01		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Benz(a)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	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	<0.1
Toxicants	Benzo(a)pyrene TEQ	ug/L	-		<5	<5	<5	<5	<5	<5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toxicants	Benzo(b&j)fluoranthene	ug/L	-		<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxicants	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	<0.1
Toxicants	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Dibenz(a.h)anthracene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Fluorene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	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	<0.1
Toxicants	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
Toxicants	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Pyrene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxicants	**Total Recoverable Hydrocarbons**																
Toxicants	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxicants	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Toxicants	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Toxicants	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toxicants	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toxicants	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Toxicants	**Volatile Organics**																
Toxicants	Benzene	ug/L	950		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxicants	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxicants	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Toxicants	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toxicants	Toluene	ug/L	-		<1	<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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
Analyte				Lab Report No.	295817	296605	297165	297794	298951	299608	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		7.1	7.26	7.55	7.52	7.64	7.72	9.59	7.75	7.67	8.12	7.41	8.12	8.07
	Electrical Conductivity	mS/cm)	NA		19	12.8	27.8	36.7	25.9	0.384	39.9	7.56	37.2	20.4	0.092	32.9	0.475
	Turbidity	NTU	0.5 - 10		4	50.5	7.9	-	0.2	104	4	37.3	0.8	7.7	57	4.2	62.8
	DO	%	80-110		19.9	38	33.7	42.1	39.1	74.7	109	62.5	45.3	147	160	42.1	69
	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	visible
	pH (Lab)	Units	7.0 - 8.5		7.2	7.4	7.2	7.3	7.3	7.4	7.3	7.2	7.4	7.5	7.4	7.7	7.4
	Electrical Conductivity (Lab)	ug/L	NA		9800	12000	25000	28000	31000	360	36	0.75	37,000	20,000	240	31,000	440
	Turbidity (Lab)	NTU	0.5 - 10		7.4	19	3	2.6	3.1	35	39	11	2.9	1.2	12	3.4	33
	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		low flow, clear	slight green, moderate flow, no odour, no sheen	stagnant, fish present, low flow	water had a low flow rate. discharge line was discharging periodically during monitoring. fish were present.	High water level, brown, brackish, mediumm flow, no odour	turbid brown, oily sheen, slow light curfrent, visible small debris in the water
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.91		0.25	0.17	0.22	0.15	0.24	0.3	0.13	0.27	0.094	0.6	0.014	0.062	0.25
	Nitrate (as N)	mg/L	2.4*		0.45	0.39	0.23	0.22	0.21	1	0.078	0.33	0.05	0.069	0.092	0.06	1.3
	Nitrite (as N)	mg/L	-		0.033	0.021	0.024	0.015	0.018	0.022	0.008	0.028	0.006	0.016	0.014	<0.005	0.035
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		0.483	0.411	0.254	0.235	0.228	1.022	0.09	0.4	0.06	0.09	0.1	0.06	1.3
	Phosphorus	mg/L	0.03		0.09	0.09	0.09	0.09	0.07	0.3	0.2	0.1	0.09	0.03	0.1	0.3	0.2
	Total Nitrogen (as N)*	mg/L	2.4*		0.9	1	0.8	0.6	0.7	2.4	0.5	1.2	0.5	0.6	0.6	0.6	2.2
	Heavy Metals																
	Arsenic (dissolved)	ug/L	-		2	2	1	1	1	2	<5	<1	1	1	<1	3	1
	Cadmium (dissolved)	ug/L	0.7		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	4.4		<1	<1	<1	<1	<1	<1	<5	<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	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chromium (trivalent)	mg/L	27		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1		-	-	-	-	-	-	<5	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		2	2	1	1	<1	7	<5	2	3	1	3	1	5
	Iron (dissolved)	ug/L	-		180	260	20	50	20	370	60	350	50	110	430	30	180
	Lead (dissolved)	ug/L	4.4		1	2	<1	<1	<1	2	<5	1	<1	<1	1	<1	<1
	Manganese (dissolved)	ug/L	80		110	64	74	70	77	13	61	110	110	91	43	140	15
	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	<0.05
	Nickel (dissolved)	ug/L	7		1	1	1	<1	1	1	<5	1	2	2	<1	2	1
	Zinc (dissolved)	ug/L	8		26	28	26	13	18	510	30	19	30	24	22	18	23
	PFAS Parameters																
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.0005
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0007
	Perfluorooctanoic acid (PFOA)	ug/L	220		0.02	<0.01	0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		0.03	0.01	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.07	0.04	0.04	0.03	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.038
	Polycyclic Aromatic Hydrocarbons																
	Acenaphthene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<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	<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	<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	<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	<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	<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	<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	<0.1
	Chrysene	ug/L	-		<1	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Fluoranthene	ug/L	1		<1	<1	<1	<1	<1	<1	<0.1	<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	<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	<0.1
	Naphthalene	ug/L	50		<1	<1	<1	<1	<1	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
	Phenanthrene	ug/L	0.6		<1	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Total PAH*	ug/L	-		Nil	Nil	Nil	Nil	Nil	Nil	<0.1	<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	<1
	TRH >C10-C16	ug/L	-		<50	<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	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	TRH >C16-C34	ug/L	-		<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
	TRH >C34-C40	ug/L	-		<100	<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	<50	<50	<50
	TRH C10-C36 (Total)	ug/L	-		<50	<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	<100
	TRH C29-C36	ug/L	-		<100	<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	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<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	<10
	Volatile Organics																
	Benzene	ug/L	500		<1	<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	<1
	m&p-Xylenes	ug/L	75		<2	<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	<1
	Toluene	ug/L	180		<1	<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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	17/05/2022	27/05/2022	3/06/2022	10/06/2022	24/06/2022	4/07/2022	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
Analyte				Lab Report No.	295817	296605	297165	297794	298951	299608	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		N/A	8.16	8.19	8.08	8.22	7.8		8.87	8.04	8.1	8.08	9.59	8.05
	Electrical Conductivity	mS/cm	NA		N/A	1.88	3.02	5.78	4.31	0.417		0.401	8.34	3.11	7.6	3.03	0.605
	Turbidity	NTU	0.5 - 10		N/A	27.1	14.8	1.7	0.9	70.7		82.4	1.2	27.8	24.4	15.3	23.8
	DO	%	80-110		N/A	63.1	49.7	60.7	53.3	103.8		51.5	60.3	150.9	145	81.1	78.6
	Oil & Grease	Visual	None Visible		N/A	Sheen visible	Sheen visible	Sheen visible	Sheen visible	None Visible	Visible	none visible	none visible	visible	none visible	Oily sheen visible	none visible
	pH lab	Units	7.0 - 8.5		N/A	8.1	8.1	8	7.9	7.6	8.1	7.3	8	7.8	7.5	7.9	7.7
	Electrical Conductivity lab	mS/cm	NA		N/A	1.6	2.9	5.1	3.6	0.35	3.3	0.35	8,100	3.8	200	3,000	570
	Turbidity lab	NTU	0.5 - 10		N/A	2.1	3.5	2.7	2.6	23	4.4	9.1	2.4	4.1	12	10	13
	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	Water was turbid with biofilm ontop. Stagnat water	ll water, algae visib	green dark water, moderate flow, no odour, no sheen	Water stagnant - some odour detetced (decaying vegetation), biofilm present on surface, water birds seen diving into water to collect prey	water was stagnant and low tide. water had decaying vegetation odour	Oily sheen visible, debris, slow flow, effluent smell	low flow, very weedy, small debrism, neutral odour
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.91		N/A	0.039	0.17	0.26	0.33	0.057	0.25	0.17	<0.005	0.11	<0.005	0.008	0.042
	Nitrate (as N)	mg/L	2.4*		N/A	0.77	1.2	1.9	1.1	1.1	0.41	0.65	0.02	0.03	0.4	0.03	2.3
	Nitrite (as N)	mg/L	-		N/A	0.051	0.068	0.094	0.077	0.019	0.054	0.057	<0.005	0.009	0.02	0.034	0.036
	Total Oxidised Nitrogen (NOx)	mg/L	2.4*		N/A	0.821	1.268	1.994	1.177	1.119	0.5	0.71	0.03	0.04	0.4	0.07	2.4
	Phosphorus	mg/L	0.03		N/A	0.05	0.09	0.06	0.07	0.1	0.09	0.2	0.2	0.3	0.2	0.2	0.1
	Total Nitrogen (as N)*	mg/L	2.4*		N/A	1.3	2	2.3	1.6	1.5	1	1.7	0.9	1	0.2	1.5	3.1
	Heavy Metals																
	Arsenic (dissolved)	ug/L	-		N/A	1	<1	<1	<1	2	<1	<1	2	1	<1	2	2
	Cadmium (dissolved)	ug/L	0.7		N/A	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<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	<0.1	<1	2
	Chromium (hexavalent Cr6+ Low Level)	mg/L	4.4		N/A	<0.001	0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chromium (trivalent)	mg/L	27		N/A	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1		N/A	-	-	-	-	-	<1	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.3		N/A	2	2	3	1	6	3	10	2	3	11	7	8
	Iron (dissolved)	ug/L	-		N/A	60	20	20	60	250	40	160	160	260	550	200	140
	Lead (dissolved)	ug/L	4.4		N/A	<1	<1	<1	<1	1	<1	2	<1	<1	3	<1	<1
	Manganese (dissolved)	ug/L	80		N/A	100	62	76	74	10	66	20	260	180	32	73	20
	Mercury (dissolved)	ug/L	0.1		N/A	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.05	<0.05	0.07	<0.05	<0.05
	Nickel (dissolved)	ug/L	7		N/A	2	2	<1	2	<1	<1	2	2	2	2	3	2
	Zinc (dissolved)	ug/L	8		N/A	16	18	11	16	450	11	41	12	24	55	22	32
	PFAS Parameters																
	8:2 FTSA	ug/L	-		N/A	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02		<0.02	<0.0004
	6:2 FTSA	ug/L	-		N/A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		<0.01	0.001
	Perfluorooctanoic acid (PFOA)	ug/L	220		N/A	0.02	0.02	0.02	0.02	<0.01	<0.01	<0.01	0.01	0.02		0.02	0.019
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		N/A	0.02	0.04	0.04	0.02	<0.01	<0.01	<0.01	<0.01	0.01		0.01	0.015
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		N/A	0.04	0.08	0.06	0.05	0.02	<0.01	<0.01	0.01	0.02		0.03	0.035
	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	<0.1
	Acenaphthylene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<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	<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	<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	<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	<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	<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	<0.1
	Chrysene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<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	<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	<0.1
	Fluorene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Naphthalene	ug/L	50		N/A	<1	<1	<1	<1	<1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1
	Pyrene	ug/L	-		N/A	<1	<1	<1	<1	<1	<0.1	<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	<0.1
	Total Recoverable Hydrocarbons																
	Naphthalene	ug/L	-		N/A	<1	<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	90	<50	<50	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	<50	90	<50	<50	<50
	TRH >C10-C40 (total)*	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	110	220	150	150	<50
	TRH >C16-C34	ug/L	-		N/A	<100	<100	<100	<100	<100	<100	<100	110	130	150	150	<100
	TRH >C34-C40	ug/L	-		N/A	<100	<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	91	<50	<50	<50
	TRH C10-C36 (Total)	ug/L	-		N/A	<50	<50	<50	<50	<50	<50	<50	<50	210	140	140	<50
	TRH C15-C28	ug/L	-		N/A	<100	<100	<100	<100	<100	<100	<100	<100	120	140	140	<100
	TRH C29-C36	ug/L	-		N/A	<100	<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	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		N/A	<10	<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	<10
	Volatile Organics																
	Benzene	ug/L	500		N/A	<1	<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	<1
	m&p-Xylenes	ug/L	75		N/A	<2	<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	<1
	Toluene	ug/L	180		N/A	<1	<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	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24
				Sample Date	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024
Analyte				Lab Report No.	328536	331897	334046	335748	338658	320324	341875
WQO	pH	pH Units	7.0 - 8.5		9.78	7.83	7.29	7.95	8.42	6.58	7.95
	Electrical Conductivity	mS/cm	0.125 - 2.2		0.303	0.354	0.372	0.381	0.196	0.287	0.547
	Turbidity	NTU	6.0-10.0		9.8	47.5	18	40	38.3	39.3	8.9
	DO	%	85-110		44.9	71.2	76.5	102	24.1	19.2	54.7
	Oil & Grease	Visual	None Visible		None visible	none visible	none visible	None visible	None visible	none visible	none visible
	pH lab	Units	7.0 - 8.5		7.4	7.5	7.5	7.1	7.2	7.1	7.3
	Electrical Conductivity lab	(mS/cm)	125 - 2200		0.3	0.35	0.38	0.33	0.2	0.29	0.51
	Turbidity lab	NTU	6.0-10.0		16	9	15	23	12	52	7.6
	Observations (Tide/Physical Appearance)		-			still, cloudy	green brown, iron sheen, algae growth, no odour	Water flow was minimal and stagnant. Also had odour of decaying vegetation	Stagnant, rainfall last two days, birds present	Slight sheen visible, very brown, no flow	greeny-brown coulour, high level, slow flow
Toxicants	**Nutrients**										
	Ammonia (as N)	mg/L	0.9		0.61	0.1	0.049	<0.005	0.047	0.12	0.12
	Nitrate (as N)	mg/L	2.4		0.01	0.39	0.009	<0.005	0.16	0.06	2.5
	Nitrite (as N)	mg/L	-		0.006	0.034	0.049	<0.005	0.02	<0.005	0.067
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.02	0.4	0.01	<0.005	0.2	0.06	2.5
	Phosphorus	mg/L	0.035		0.3	0.1	0.6	0.4	0.2	0.52	0.2
	Total Nitrogen (as N)*	mg/L	2.4		1.2	0.6	1.2	0.9	0.7	1	3.9
	Heavy Metals										
	Arsenic (dissolved)	ug/L	13*		1	<1	1	<1	<1	1	3
	Cadmium (dissolved)	ug/L	0.2		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	Chromium (dissolved)	ug/L	0.001		<1	<1	<1	<1	<1	<1	1
	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Cobalt (dissolved)	ug/L	1.4		<1	<1	<1	<1	<1	<1	<1
	Copper (dissolved)	ug/L	1.4		2	6	<1	<1	5	<1	8
	Iron (dissolved)	ug/L	-		1,600	490	1400	720	340	840	330
	Lead (dissolved)	ug/L	3.4		<1	<1	<1	<1	1	<1	1
	Manganese (dissolved)	ug/L	1900		250	60	390	170	41	190	36
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	Nickel (dissolved)	ug/L	11		1	1	2	<1	<1	1	2
	Zinc (dissolved)	ug/L	8		16	20	<1	12	22	6	32
	PFAS Parameters										
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	0.01	0.01	<0.01	<0.01	0.01	0.013
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	0.015
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		0.01	0.02	0.02	<0.01	<0.01	0.02	0.026
	Polycyclic Aromatic Hydrocarbons										
	Acenaphthene	ug/L	-		<0.1	<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	<0.1
	Anthracene	ug/L	0.01		<0.1	<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	<0.1
	Benzo(a)pyrene	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1
	Benzo(a)pyrene TEQ	ug/L	-		<0.5	<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	0.3	<0.2
	Benzo(g.h.i)perylene	ug/L	-		<0.1	<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	<0.1
	Dibenz(a.h)anthracene	ug/L	-		<0.1	<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	0.2	<0.1
	Fluorene	ug/L	-		<0.1	<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	<0.1
	Naphthalene	ug/L	16		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1
	Phenanthrene	ug/L	0.6		<0.1	<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	0.2	<0.1
	Total PAH*	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	1.2	<0.1
	Total Recoverable Hydrocarbons										
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1	<1
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	99	<50
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	99	<50
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	980	<50
	TRH >C16-C34	ug/L	-		<100	170	110	<100	<100	680	<100
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	200	<100
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	77	<50
	TRH C10-C36 (Total)	ug/L	-		<50	120	120	<50	<50	920	<50
	TRH C15-C28	ug/L	-		<100	120	120	<100	<100	380	<100
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	460	<100
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10
	Volatile Organics										
	Benzene	ug/L	950		<1	<1	<1	<1	<1	<1	<1
	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	<1	<1
	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	<2	<2
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1
	Toluene	ug/L	-		<1	<1	<1	<1	<1	<1	<1

SW11 Sampling Results		Units	ANZG (2018) Toxicant default guidelines for Marine Environments	Sample Round	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24						
				Sample Date	20/07/2023	31/08/2023	26/09/2023	19/10/2023	24/11/2023	14/12/2023	18/01/2024						
Analyte				Lab Report No.		331897	334046	335748	338658	320324	341875						
WQO	pH	pH Units	7.0 - 8.5		10.01	7.6	7.42	7.95	7.31	6.88	8.3						
	Electrical Conductivity	mS/cm	NA		40.1	18.7	42.2	19.1	18.6	32.1	0.315						
	Turbidity	NTU	0.5 - 10		4.1	30.9	0	44.6	8.3	3.1	117						
	DO	%	80-110		116	61.4	113	139	114	72.7	111.3						
	Oil & Grease	Visual	None Visible		None visible	none visible	none visible	none visible	none visible	none visible	none visible						
	pH lab	Units	7.0 - 8.5		7.5	7.5	7.5	7.6	7.6	6.3	7.5						
	Electrical Conductivity lab	(mS/cm)	NA		37	18	42	36	17	32	0.3						
	Turbidity lab	NTU	0.5 - 10		2.0	6.2	2.2	1.3	3.2	3.4	69						
	Observations (Tide/Physical Appearance)		-			flowing, clean water	slight green water, low flow, no odour, no sheen		water levels were high, works on the bridge were being conducted at the time.	Salty smell, hazy green/brown, low flow	browny-grey turbid, floating debris, medium flow, earthy odour, slightly oily						
Toxicants	**Nutrients**																
	Ammonia (as N)	mg/L	0.9		0.18	0.17	0.16	0.073	0.1	0.043	0.13						
	Nitrate (as N)	mg/L	2.4		0.086	0.31	0.1	0.04	0.04	0.16	1.4						
	Nitrite (as N)	mg/L	-		0.007	0.024	0.01	0.006	<0.005	0.007	0.025						
	Total Oxidised Nitrogen (NOx)	mg/L	2.4		0.09	0.3	0.1	0.05	0.05	0.2	1.4						
	Phosphorus	mg/L	0.035		0.08	0.09	0.07	0.1	0.07	0.2	0.2						
	Total Nitrogen (as N)*	mg/L	2.4		0.5	1.2	1.4	0.5	0.5	17	2.4						
	Heavy Metals																
	Arsenic (dissolved)	ug/L	13*		<5	<1	1	1	1	2	2						
	Cadmium (dissolved)	ug/L	0.2		<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1						
	Chromium (dissolved)	ug/L	0.001		<5	<1	1	<1	<1	<1	1						
	Chromium (hexavalent Cr6+ Low Level)	mg/L	0.001		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005						
	Chromium (trivalent)	mg/L	0.0033		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005						
	Cobalt (dissolved)	ug/L	1.4		<5	<1	<1	<1	<1	<1	<1						
	Copper (dissolved)	ug/L	1.4		<5	4	4	1	2	2	6						
	Iron (dissolved)	ug/L	-		<50	90	20	30	110	20	430						
	Lead (dissolved)	ug/L	3.4		<5	<1	<1	<1	<1	<1	<1						
	Manganese (dissolved)	ug/L	1900		40	62	110	63	48	95	19						
	Mercury (dissolved)	ug/L	0.06		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05						
	Nickel (dissolved)	ug/L	11		<5	1	2	1	<1	1	2						
	Zinc (dissolved)	ug/L	8		13	16	48	13	10	11	17						
	PFAS Parameters																
	8:2 FTSA	ug/L	-		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.0004						
	6:2 FTSA	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.002						
	Perfluorooctanoic acid (PFOA)	ug/L	220		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.013						
	Perfluorohexanesulfonic acid (PFHxS)	ug/L	-		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.011						
	Perfluorooctanesulfonic acid (PFOS)	ug/L	0.13		<0.01	0.01	0.01	<0.01	0.01	<0.01	0.022						
	Polycyclic Aromatic Hydrocarbons																
	Acenaphthene	ug/L	-		<0.1	<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	<0.1						
	Anthracene	ug/L	0.01		<0.1	<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	0.4	<0.1						
	Benzo(a)pyrene	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	0.3	<0.1						
	Benzo(a)pyrene TEQ	ug/L	-		<0.5	<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	0.5	<0.2						
	Benzo(g.h.i)perylene	ug/L	-		<0.1	<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	0.3	<0.1						
	Dibenz(a.h)anthracene	ug/L	-		<0.1	<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	0.7	<0.1						
	Fluorene	ug/L	-		<0.1	<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	<0.1						
	Naphthalene	ug/L	16		<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<1						
	Phenanthrene	ug/L	0.6		<0.1	<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	0.7	<0.1						
	Total PAH*	ug/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	3	<0.1						
	Total Recoverable Hydrocarbons																
	Naphthalene	ug/L	16		<1	<1	<1	<1	<1	<1	<1						
	TRH >C10-C16	ug/L	-		<50	<50	<50	<50	<50	<50	<50						
	TRH >C10-C16 less Naphthalene (F2)	ug/L	-		<50	<50	<50	<50	<50	<50	<50						
	TRH >C10-C40 (total)*	ug/L	-		<50	<50	<50	<50	<50	<50	<50						
	TRH >C16-C34	ug/L	-		<100	<100	170	<100	<100	<100	<100						
	TRH >C34-C40	ug/L	-		<100	<100	<100	<100	<100	<100	<100						
	TRH C10-C14	ug/L	-		<50	<50	<50	<50	<50	<50	<50						
	TRH C10-C36 (Total)	ug/L	-		<50	<50	<50	<50	<50	<50	<50						
	TRH C15-C28	ug/L	-		<100	<100	<100	<100	<100	<100	<100						
	TRH C29-C36	ug/L	-		<100	<100	<100	<100	<100	<100	<100						
	TRH C6-C10	ug/L	-		<10	<10	<10	<10	<10	<10	<10						
	TRH C6-C10 less BTEX (F1)	ug/L	-		<10	<10	<10	<10	<10	<10	<10						
	TRH C6-C9	ug/L	-		<10	<10	<10	<10	<10	<10	<10						
	Volatile Organics																
	Benzene	ug/L	950		<1	<1	<1	<1	<1	<1	<1						
	Ethylbenzene	ug/L	-		<1	<1	<1	<1	<1	<1	<1						
	m&p-Xylenes	ug/L	200		<2	<2	<2	<2	<2	<2	<2						
	o-Xylene	ug/L	350		<1	<1	<1	<1	<1	<1	<1						
	Toluene	ug/L	-		<1	<1	<1	<1	<1	<1	<1						

Attachment 2 – Laboratory Certificates

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

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 328536

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
Attention	Josephine Balado
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**SC210108.01, WTP - Surface Water Monitoring**
Number of Samples	11 Water
Date samples received	20/07/2023
Date completed instructions received	20/07/2023

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	27/07/2023
Date of Issue	27/07/2023

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

Results Approved By
Alexander Mitchell Maclean, Senior Chemist
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager
Steven Luong, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
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	%	109	107	111	108	108
Surrogate toluene-d8	%	102	101	102	102	102
Surrogate 4-BFB	%	105	103	106	104	103

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
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	%	110	108	109	106	107
Surrogate toluene-d8	%	102	101	102	102	101
Surrogate 4-BFB	%	104	105	105	102	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date extracted	-	21/07/2023
Date analysed	-	24/07/2023
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	%	109
Surrogate toluene-d8	%	102
Surrogate 4-BFB	%	103

svTRH (C10-C40) in Water						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
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	%	69	66	66	66	66

svTRH (C10-C40) in Water						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
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	660	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	660	<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	680	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	160	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	840	<50
Surrogate o-Terphenyl	%	65	74	74	67	62

svTRH (C10-C40) in Water		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	25/07/2023
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	%	80

PAHs in Water						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
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	%	75	67	72	69	69

PAHs in Water						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
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	%	70	73	62	69	66

PAHs in Water		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	25/07/2023
Naphthalene	µg/L	<0.2
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	%	86

Miscellaneous Inorganics						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
pH	pH Units	7.3	7.4	7.5	7.9	7.7
Electrical Conductivity	µS/cm	20,000	27,000	39,000	710	680
Turbidity	NTU	2.6	2.2	2.5	4.3	2.3
Total Suspended Solids	mg/L	6	<5	10	10	8
Salinity as NaCl *	mg/L	13,000	18,000	25,000	460	440
Total Nitrogen in water	mg/L	0.8	0.6	0.4	0.7	0.7
NOx as N in water	mg/L	0.2	0.2	0.06	0.4	0.4
Ammonia as N in water	mg/L	0.20	0.13	0.078	0.012	0.011
Phosphate as P in water	mg/L	0.05	0.04	0.02	0.005	<0.005
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
TKN in water	mg/L	0.5	0.4	0.3	0.3	0.3
Nitrate as N in water	mg/L	0.17	0.18	0.054	0.39	0.40
Nitrite as N in water	mg/L	0.053	0.024	0.008	0.021	0.021

Miscellaneous Inorganics						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
pH	pH Units	7.5	7.7	7.3	8.1	7.4
Electrical Conductivity	µS/cm	38,000	440	36,000	3,300	300
Turbidity	NTU	2.6	12	39	4.4	16
Total Suspended Solids	mg/L	10	24	70	<5	20
Salinity as NaCl *	mg/L	24,000	280	24,000	2,200	190
Total Nitrogen in water	mg/L	0.5	0.6	0.5	1	1.2
NOx as N in water	mg/L	0.07	0.2	0.09	0.5	0.02
Ammonia as N in water	mg/L	0.19	0.050	0.13	0.25	0.61
Phosphate as P in water	mg/L	0.03	0.075	0.03	0.04	0.16
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
TKN in water	mg/L	0.4	0.4	0.4	0.5	1.2
Nitrate as N in water	mg/L	0.065	0.20	0.078	0.41	0.01
Nitrite as N in water	mg/L	0.007	0.009	0.008	0.054	0.006

Miscellaneous Inorganics		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date prepared	-	20/07/2023
Date analysed	-	20/07/2023
pH	pH Units	7.5
Electrical Conductivity	µS/cm	37,000
Turbidity	NTU	2.0
Total Suspended Solids	mg/L	<5
Salinity as NaCl *	mg/L	24,000
Total Nitrogen in water	mg/L	0.5
NOx as N in water	mg/L	0.09
Ammonia as N in water	mg/L	0.18
Phosphate as P in water	mg/L	0.03
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005
TKN in water	mg/L	0.4
Nitrate as N in water	mg/L	0.086
Nitrite as N in water	mg/L	0.007

All metals in water-dissolved						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Aluminium-Dissolved	µg/L	10	<10	<50	20	20
Arsenic-Dissolved	µg/L	<1	<1	<5	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.5	<0.1	0.1
Chromium-Dissolved	µg/L	<1	<1	<5	<1	<1
Cobalt-Dissolved	µg/L	<1	<1	<5	<1	<1
Copper-Dissolved	µg/L	1	1	<5	2	3
Iron-Dissolved	µg/L	100	50	<50	110	120
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	72	58	44	13	15
Nickel-Dissolved	µg/L	1	1	<5	<1	<1
Lead-Dissolved	µg/L	<1	<1	<5	<1	<1
Zinc-Dissolved	µg/L	14	29	20	10	17

All metals in water-dissolved						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Aluminium-Dissolved	µg/L	<50	20	<50	20	40
Arsenic-Dissolved	µg/L	<5	<1	<5	<1	1
Cadmium-Dissolved	µg/L	<0.5	<0.1	<0.5	<0.1	<0.1
Chromium-Dissolved	µg/L	<5	<1	<5	<1	<1
Cobalt-Dissolved	µg/L	<5	<1	<5	<1	<1
Copper-Dissolved	µg/L	<5	2	<5	3	2
Iron-Dissolved	µg/L	<50	520	60	40	1,600
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	55	64	61	66	250
Nickel-Dissolved	µg/L	<5	1	<5	<1	1
Lead-Dissolved	µg/L	<5	<1	<5	<1	<1
Zinc-Dissolved	µg/L	18	11	30	11	16

All metals in water-dissolved		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date prepared	-	24/07/2023
Date analysed	-	24/07/2023
Aluminium-Dissolved	µg/L	<50
Arsenic-Dissolved	µg/L	<5
Cadmium-Dissolved	µg/L	<0.5
Chromium-Dissolved	µg/L	<5
Cobalt-Dissolved	µg/L	<5
Copper-Dissolved	µg/L	<5
Iron-Dissolved	µg/L	<50
Mercury-Dissolved	µg/L	<0.05
Manganese-Dissolved	µg/L	40
Nickel-Dissolved	µg/L	<5
Lead-Dissolved	µg/L	<5
Zinc-Dissolved	µg/L	13

Metals in Waters - Acid extractable						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Phosphorus - Total	mg/L	0.1	0.09	0.08	0.06	0.05

Metals in Waters - Acid extractable						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Phosphorus - Total	mg/L	0.09	0.1	0.2	0.09	0.3

Metals in Waters - Acid extractable		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date prepared	-	24/07/2023
Date analysed	-	25/07/2023
Phosphorus - Total	mg/L	0.08

PFAS in Waters Short						
Our Reference		328536-1	328536-2	328536-3	328536-4	328536-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	0.01	0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	0.01	<0.01	0.01	0.01
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*	%	98	97	95	93	96
Surrogate $^{13}C_2$ *PFOA*	%	96	100	103	97	100
Extracted ISTD $^{18}O_2$ *PFHxS*	%	98	102	100	101	103
Extracted ISTD $^{13}C_4$ *PFOS*	%	103	103	105	108	105
Extracted ISTD $^{13}C_4$ *PFOA*	%	105	104	98	113	112
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	85	81	72	104	108
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	99	87	84	116	108
Total Positive PFHxS & PFOS	µg/L	0.01	0.01	<0.01	0.02	0.02
Total Positive PFOA & PFOS	µg/L	0.01	0.01	<0.01	0.01	0.01
Total Positive PFAS	µg/L	0.01	0.01	<0.01	0.02	0.02

PFAS in Waters Short						
Our Reference		328536-6	328536-7	328536-8	328536-9	328536-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.02	0.01	<0.01	0.01
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*	%	102	96	96	99	97
Surrogate $^{13}C_2$ *PFOA*	%	101	100	98	101	104
Extracted ISTD $^{18}O_2$ *PFHxS*	%	105	101	99	105	102
Extracted ISTD $^{13}C_4$ *PFOS*	%	105	103	100	99	102
Extracted ISTD $^{13}C_4$ *PFOA*	%	105	111	100	108	110
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	71	119	73	108	131
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	76	110	79	116	138
Total Positive PFHxS & PFOS	µg/L	<0.01	0.02	0.01	<0.01	0.01
Total Positive PFOA & PFOS	µg/L	<0.01	0.02	0.01	<0.01	0.01
Total Positive PFAS	µg/L	<0.01	0.02	0.01	<0.01	0.01

PFAS in Waters Short		
Our Reference		328536-11
Your Reference	UNITS	SW11
Date Sampled		20/07/2023
Type of sample		Water
Date prepared	-	21/07/2023
Date analysed	-	21/07/2023
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*	%	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	102
Extracted ISTD $^{13}C_4$ *PFOS*	%	100
Extracted ISTD $^{13}C_4$ *PFOA*	%	108
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	85
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	101
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 in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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-024	Hexavalent Chromium (Cr6+) - determined colourimetrically. Waters samples are filtered on receipt prior to analysis.
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).
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.
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.

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: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[NT]
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	103	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	103	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	105	[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	96	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	106	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	101	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	109	1	109	104	5	106	[NT]
Surrogate toluene-d8	%		Org-023	101	1	102	100	2	103	[NT]
Surrogate 4-BFB	%		Org-023	106	1	105	105	0	99	[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]	10	21/07/2023	21/07/2023		[NT]	[NT]
Date analysed	-			[NT]	10	24/07/2023	24/07/2023		[NT]	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	[NT]	10	<10	<10	0	[NT]	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	[NT]	10	<10	<10	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	[NT]	10	<2	<2	0	[NT]	[NT]
o-xylene	µg/L	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
Naphthalene	µg/L	1	Org-023	[NT]	10	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	10	107	100	7	[NT]	[NT]
Surrogate toluene-d8	%		Org-023	[NT]	10	101	100	1	[NT]	[NT]
Surrogate 4-BFB	%		Org-023	[NT]	10	103	103	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328536-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	97	86
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	101	92
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	114	89
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	97	86
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	101	92
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	114	89
Surrogate o-Terphenyl	%		Org-020	67	1	69	64	8	73	68

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	24/07/2023	24/07/2023		[NT]	[NT]
Date analysed	-			[NT]	11	25/07/2023	25/07/2023		[NT]	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	11	80	77	4	[NT]	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328536-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Naphthalene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	67	83
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	66	76
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	62	77
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	65	79
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	63	81
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	64	86
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	79	80
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	71	77
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	71	1	75	64	16	69	68

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	24/07/2023	24/07/2023		[NT]	[NT]
Date analysed	-			[NT]	11	25/07/2023	25/07/2023		[NT]	[NT]
Naphthalene	µg/L	0.2	Org-022/025	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	11	86	81	6	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328536-2
Date prepared	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Date analysed	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
pH	pH Units		Inorg-001	[NT]	1	7.3	7.4	1	98	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	20000	20000	0	100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	2.6	2.5	4	85	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	6	[NT]		97	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	<1	1	13000	13000	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.8	0.7	13	100	107
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.2	0.2	0	97	77
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.20	0.19	5	99	88
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.05	0.05	0	115	91
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	Inorg-024	<0.005	1	<0.005	<0.005	0	104	108
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-024	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.5	0.5	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.17	0.17	0	97	77
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.053	0.055	4	104	98

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	20/07/2023	20/07/2023		[NT]	[NT]
Date analysed	-			[NT]	10	20/07/2023	20/07/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	10	7.4	7.4	0	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	10	300	300	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	10	16	15	6	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	10	20	[NT]		[NT]	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	[NT]	10	190	190	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	10	1.2	1.2	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.02	0.01	67	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	10	0.61	0.61	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	10	0.16	0.16	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	Inorg-024	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-024	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	10	1.2	1.2	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.01	0.009	11	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.006	0.005	18	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	20/07/2023	20/07/2023		[NT]	[NT]
Date analysed	-			[NT]	11	20/07/2023	20/07/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	7.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	37000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	2.0	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	<5	<5	0	[NT]	[NT]
Salinity as NaCl *	mg/L	1	Inorg-002	[NT]	11	24000	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	0.5	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.09	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.18	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.03	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	Inorg-024	[NT]	11	<0.005	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-024	[NT]	11	<0.005	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	0.4	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.086	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.007	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	328536-2
Date prepared	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	10	10	0	116	106
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	100
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	95	96
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	118
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	111
Copper-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	97	101
Iron-Dissolved	µg/L	10	Metals-022	<10	1	100	90	11	106	111
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	113	110
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	72	71	1	104	116
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	98	103
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	93	81
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	14	13	7	103	102

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	24/07/2023	24/07/2023		[NT]	[NT]
Date analysed	-			[NT]	11	24/07/2023	24/07/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	11	<50	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	11	<5	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	11	<0.5	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	11	<5	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	11	<5	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	11	<5	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	11	<50	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	11	40	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	11	<5	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	11	<5	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	11	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	328536-2
Date prepared	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.1	0.1	0	102	113

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	24/07/2023	24/07/2023		[NT]	[NT]
Date analysed	-			[NT]	11	25/07/2023	25/07/2023		[NT]	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	[NT]	11	0.08	0.08	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328536-2
Date prepared	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	99	104
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	0.01	<0.01	0	105	103
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	98
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	98
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	103	104
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	101	1	98	102	4	97	102
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	102	1	96	101	5	102	100
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	102	1	98	104	6	98	98
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	100	1	103	104	1	97	100
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	107	1	105	108	3	101	100
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	109	1	85	95	11	104	75
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	110	1	99	99	0	109	85

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-dissolved - The PQL has been raised 5 times for #3, 6, 8 and 11 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.

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 331897

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
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	11 Water
Date samples received	31/08/2023
Date completed instructions received	31/08/2023

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	07/09/2023
Date of Issue	07/09/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Phalak Inthakesone, Organics Development Manager, Sydney
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/09/2023	01/09/2023	01/09/2023	01/09/2023	01/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
TRH C_6 - C_9	µg/L	18	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	18	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	18	<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	%	100	103	106	103	103
Surrogate Toluene-d8	%	99	98	99	97	97
Surrogate 4-Bromofluorobenzene	%	104	106	108	106	104

vTRH(C6-C10)/BTEXN in Water						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	01/09/2023	01/09/2023	01/09/2023	01/09/2023	01/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
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	%	105	102	103	102	102
Surrogate Toluene-d8	%	98	96	97	97	97
Surrogate 4-Bromofluorobenzene	%	104	106	104	105	105

vTRH(C6-C10)/BTEXN in Water		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date extracted	-	01/09/2023
Date analysed	-	04/09/2023
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	%	105
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	106

svTRH (C10-C40) in Water						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	05/09/2023
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	%	98	62	77	76	85

svTRH (C10-C40) in Water						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	05/09/2023	05/09/2023	05/09/2023	05/09/2023	05/09/2023
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	%	60	93	68	70	79

svTRH (C10-C40) in Water		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date extracted	-	04/09/2023
Date analysed	-	05/09/2023
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	%	64

PAHs in Water						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
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	%	75	75	70	70	75

PAHs in Water						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	04/09/2023	04/09/2023	06/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	07/09/2023	04/09/2023	04/09/2023
Naphthalene	µg/L	<0.2	<0.2	<0.1	<0.2	<0.2
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	%	72	110	80	75	66

PAHs in Water		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date extracted	-	04/09/2023
Date analysed	-	04/09/2023
Naphthalene	µg/L	<0.2
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	%	69

Miscellaneous Inorganics						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Date analysed	-	31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
pH	pH Units	7.2	7.1	7.3	7.9	7.6
Electrical Conductivity	µS/cm	980	15,000	13,000	390	390
Turbidity	NTU	7.0	4.8	8.3	6.1	6.2
Total Suspended Solids	mg/L	14	16	19	17	14
Salinity as NaCl*	g/L	0.6	10	8.7	0.3	0.3
Total Nitrogen in water	mg/L	1.9	1.3	0.99	1.4	1
NOx as N in water	mg/L	0.56	0.50	0.4	0.69	0.5
Nitrate as N in water	mg/L	0.52	0.48	0.32	0.64	0.46
Nitrite as N in water	mg/L	0.042	0.032	0.031	0.042	0.032
Ammonia as N in water	mg/L	0.22	0.17	0.20	0.14	0.16
Phosphate as P in water	mg/L	0.04	0.03	0.01	0.02	<0.005
TKN in water	mg/L	1.4	0.8	0.6	0.7	0.5
Organic Nitrogen as N	mg/L	1.1	0.6	0.4	0.5	0.3
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Date analysed	-	31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
pH	pH Units	7.4	7.3	7.2	7.3	7.5
Electrical Conductivity	µS/cm	21,000	350	7,200	350	350
Turbidity	NTU	6.3	7.0	11	9.1	9.0
Total Suspended Solids	mg/L	23	20	29	19	12
Salinity as NaCl*	g/L	13	0.2	4.7	0.2	0.2
Total Nitrogen in water	mg/L	1.2	1	1.2	1.7	1.0
NOx as N in water	mg/L	0.3	0.5	0.4	0.71	0.4
Nitrate as N in water	mg/L	0.30	0.45	0.33	0.65	0.39
Nitrite as N in water	mg/L	0.022	0.027	0.028	0.057	0.034
Ammonia as N in water	mg/L	0.18	0.025	0.27	0.17	0.10
Phosphate as P in water	mg/L	0.009	0.01	<0.005	0.053	0.03
TKN in water	mg/L	0.9	0.5	0.9	1	0.6
Organic Nitrogen as N	mg/L	0.7	0.5	0.6	0.8	0.5
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date prepared	-	31/08/2023
Date analysed	-	31/08/2023
pH	pH Units	7.5
Electrical Conductivity	µS/cm	18,000
Turbidity	NTU	6.2
Total Suspended Solids	mg/L	16
Salinity as NaCl*	g/L	12
Total Nitrogen in water	mg/L	1.2
NOx as N in water	mg/L	0.3
Nitrate as N in water	mg/L	0.31
Nitrite as N in water	mg/L	0.024
Ammonia as N in water	mg/L	0.17
Phosphate as P in water	mg/L	0.006
TKN in water	mg/L	0.8
Organic Nitrogen as N	mg/L	0.7
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

All metals in water-dissolved						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Aluminium-Dissolved	µg/L	60	20	10	90	30
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	2	<1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	6	4	4	9	6
Iron-Dissolved	µg/L	130	90	130	240	260
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	25	45	68	37	45
Nickel-Dissolved	µg/L	<1	1	<1	<1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	37	30	29	22	12

All metals in water-dissolved						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Aluminium-Dissolved	µg/L	10	80	10	150	110
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	5	2	10	6
Iron-Dissolved	µg/L	80	340	350	160	490
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	61	42	110	20	60
Nickel-Dissolved	µg/L	<1	1	1	<1	1
Lead-Dissolved	µg/L	<1	<1	1	2	<1
Zinc-Dissolved	µg/L	16	15	19	41	20

All metals in water-dissolved		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date prepared	-	04/09/2023
Date analysed	-	04/09/2023
Aluminium-Dissolved	µg/L	10
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	4
Iron-Dissolved	µg/L	90
Mercury-Dissolved	µg/L	<0.05
Manganese-Dissolved	µg/L	62
Nickel-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	16

All metals in water - total						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Aluminium-Total	µg/L	430	360	320	470	240
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	2	<1
Copper-Total	µg/L	9	10	8	13	6
Iron-Total	µg/L	540	570	860	820	720
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	29	56	74	66	78
Nickel-Total	µg/L	2	3	3	3	3
Lead-Total	µg/L	3	2	4	2	2
Zinc-Total	µg/L	55	57	52	52	31

All metals in water - total						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Aluminium-Total	µg/L	260	560	480	720	460
Arsenic-Total	µg/L	1	<1	2	<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	2	<1	2	2	<1
Copper-Total	µg/L	5	8	8	14	7
Iron-Total	µg/L	730	970	1,800	800	1,000
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	88	51	120	37	62
Nickel-Total	µg/L	2	2	4	3	2
Lead-Total	µg/L	2	3	7	4	2
Zinc-Total	µg/L	30	27	78	68	27

All metals in water - total		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date prepared	-	04/09/2023
Date analysed	-	04/09/2023
Aluminium-Total	µg/L	190
Arsenic-Total	µg/L	1
Cadmium-Total	µg/L	<0.1
Cobalt-Total	µg/L	<1
Chromium-Total	µg/L	2
Copper-Total	µg/L	5
Iron-Total	µg/L	590
Mercury-Total	µg/L	<0.05
Manganese-Total	µg/L	83
Nickel-Total	µg/L	3
Lead-Total	µg/L	2
Zinc-Total	µg/L	28

Metals in Waters - Acid extractable						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Phosphorus - Total	mg/L	0.2	0.1	0.3	0.1	0.09

Metals in Waters - Acid extractable						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Date analysed	-	04/09/2023	04/09/2023	04/09/2023	04/09/2023	04/09/2023
Phosphorus - Total	mg/L	0.1	0.1	0.1	0.2	0.1

Metals in Waters - Acid extractable		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date prepared	-	04/09/2023
Date analysed	-	04/09/2023
Phosphorus - Total	mg/L	0.09

PFAS in Waters Short						
Our Reference		331897-1	331897-2	331897-3	331897-4	331897-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/09/2023	01/09/2023	01/09/2023	01/09/2023	01/09/2023
Date analysed	-	01/09/2023	01/09/2023	01/09/2023	01/09/2023	01/09/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	0.01	0.02	0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	0.02	0.01
6:2 FTS	µg/L	<0.01	<0.01	0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	96	95	96	99	93
Surrogate $^{13}C_2$ *PFOA*	%	100	101	103	98	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	96	95	97	96	94
Extracted ISTD $^{13}C_4$ *PFOS*	%	102	101	101	96	101
Extracted ISTD $^{13}C_4$ *PFOA*	%	110	104	104	106	104
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	129	98	98	109	114
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	133	107	94	107	119
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	0.01	0.02	0.01
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01	0.01	0.04	0.03
Total Positive PFAS	µg/L	<0.01	<0.01	0.03	0.04	0.03

PFAS in Waters Short						
Our Reference		331897-6	331897-7	331897-8	331897-9	331897-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		31/08/2023	31/08/2023	31/08/2023	31/08/2023	31/08/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	01/09/2023	01/09/2023	01/09/2023	01/09/2023	01/09/2023
Date analysed	-	01/09/2023	01/09/2023	01/09/2023	01/09/2023	01/09/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	0.02	0.01	<0.01	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*	%	94	94	92	97	97
Surrogate $^{13}C_2$ *PFOA*	%	102	103	101	101	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	95	97	93	94	92
Extracted ISTD $^{13}C_4$ *PFOS*	%	102	101	101	98	97
Extracted ISTD $^{13}C_4$ *PFOA*	%	103	106	101	105	104
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	86	112	98	127	112
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	89	117	101	120	116
Total Positive PFHxS & PFOS	µg/L	0.01	0.02	0.01	<0.01	0.02
Total Positive PFOA & PFOS	µg/L	0.01	0.02	0.01	<0.01	0.02
Total Positive PFAS	µg/L	0.01	0.02	0.01	<0.01	0.02

PFAS in Waters Short		
Our Reference		331897-11
Your Reference	UNITS	SW11
Date Sampled		31/08/2023
Type of sample		Water
Date prepared	-	01/09/2023
Date analysed	-	01/09/2023
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*	%	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	95
Extracted ISTD $^{13}C_4$ *PFOS*	%	99
Extracted ISTD $^{13}C_4$ *PFOA*	%	98
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	84
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	90
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 in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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.
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.

Method ID	Methodology Summary
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	-			01/09/2023	1	01/09/2023	05/09/2023		01/09/2023	[NT]
Date analysed	-			04/09/2023	1	04/09/2023	06/09/2023		04/09/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	18	16	12	98	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	18	18	0	98	[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	103	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	91	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	96	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	95	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	1	100	103	3	97	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	99	100	1	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	104	1	104	108	4	101	[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	-			[NT]	2	01/09/2023	05/09/2023		01/09/2023	[NT]
Date analysed	-			[NT]	2	04/09/2023	06/09/2023		04/09/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	[NT]	2	<10	<10	0	103	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	[NT]	2	<10	<10	0	103	[NT]
Benzene	µg/L	1	Org-023	[NT]	2	<1	<1	0	105	[NT]
Toluene	µg/L	1	Org-023	[NT]	2	<1	<1	0	107	[NT]
Ethylbenzene	µg/L	1	Org-023	[NT]	2	<1	<1	0	94	[NT]
m+p-xylene	µg/L	2	Org-023	[NT]	2	<2	<2	0	99	[NT]
o-xylene	µg/L	1	Org-023	[NT]	2	<1	<1	0	98	[NT]
Naphthalene	µg/L	1	Org-023	[NT]	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	2	103	103	0	100	[NT]
Surrogate Toluene-d8	%		Org-023	[NT]	2	98	97	1	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	2	106	108	2	103	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	331897-2
Date extracted	-			04/09/2023	5	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Date analysed	-			05/09/2023	5	05/09/2023	04/09/2023		04/09/2023	04/09/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	5	<50	<50	0	91	90
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	5	<100	<100	0	105	102
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	5	<100	<100	0	100	109
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	5	<50	<50	0	91	90
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	5	<100	<100	0	105	102
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	5	<100	<100	0	100	109
Surrogate o-Terphenyl	%		Org-020	84	5	85	85	0	69	65

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			[NT]	11	04/09/2023	04/09/2023		04/09/2023	[NT]
Date analysed	-			[NT]	11	05/09/2023	05/09/2023		05/09/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	11	<50	<50	0	83	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	11	<100	<100	0	90	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	11	<100	<100	0	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	11	<50	<50	0	83	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	11	<100	<100	0	90	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	11	<100	<100	0	86	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	11	64	65	2	71	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	331897-2
Date extracted	-			04/09/2023	1	04/09/2023	06/09/2023		04/09/2023	04/09/2023
Date analysed	-			04/09/2023	1	04/09/2023	07/09/2023		04/09/2023	04/09/2023
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.2	<0.1	67	69	80
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	80
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	69
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	83
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	85	79
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	64
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	84	80
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	70	70
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	90	1	75	74	1	77	61

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	04/09/2023	04/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	04/09/2023	04/09/2023		[NT]	[NT]
Naphthalene	µg/L	0.1	Org-022/025	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	11	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	11	69	75	8	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	331897-1
Date prepared	-			31/08/2023	1	31/08/2023	31/08/2023		31/08/2023	[NT]
Date analysed	-			31/08/2023	1	31/08/2023	31/08/2023		31/08/2023	[NT]
pH	pH Units		Inorg-001	[NT]	1	7.2	[NT]		100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	980	[NT]		100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	7.0	7.0	0	108	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	14	[NT]		86	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<1	1	0.6	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.9	[NT]		98	100
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.56	0.57	2	110	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.52	0.53	2	110	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.042	0.042	0	111	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.22	0.22	0	109	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.04	0.04	0	93	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	1.4	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	1.1	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	115	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	331897-2
Date prepared	-			[NT]	2	31/08/2023	31/08/2023		[NT]	31/08/2023
Date analysed	-			[NT]	2	31/08/2023	31/08/2023		[NT]	31/08/2023
pH	pH Units		Inorg-001	[NT]	2	7.1	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	2	15000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	2	4.8	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	2	16	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	2	10	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	2	1.3	1.3	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.50	[NT]		[NT]	70
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.48	[NT]		[NT]	70
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.032	[NT]		[NT]	96
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	2	0.17	[NT]		[NT]	86
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	2	0.03	[NT]		[NT]	79
TKN in water	mg/L	0.1	Inorg-062	[NT]	2	0.8	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	2	0.6	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	2	<0.005	[NT]		[NT]	108

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	331897-2
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	2	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	31/08/2023	31/08/2023		[NT]	[NT]
Date analysed	-			[NT]	10	31/08/2023	31/08/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	10	7.5	7.5	0	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	10	350	350	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	10	9.0	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	10	12	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	10	0.2	0.2	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	10	1.0	1.0	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.4	0.4	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.39	0.39	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.034	0.034	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	10	0.10	0.11	10	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	10	0.03	0.03	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	10	0.6	0.6	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	10	0.5	0.5	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[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	31/08/2023	31/08/2023		[NT]	[NT]
Date analysed	-			[NT]	11	31/08/2023	31/08/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	7.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	18000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	6.2	6.2	0	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	16	14	13	[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	11	12	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	1.2	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.3	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.31	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.024	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.17	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.006	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	0.8	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	0.7	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	11	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	331897-2
Date prepared	-			04/09/2023	1	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Date analysed	-			04/09/2023	1	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	60	60	0	103	105
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	103
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	102	104
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	104	121
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	104	115
Copper-Dissolved	µg/L	1	Metals-022	<1	1	6	6	0	104	107
Iron-Dissolved	µg/L	10	Metals-022	<10	1	130	120	8	101	127
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		87	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	25	25	0	102	121
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	102	109
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	94
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	37	36	3	104	111

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	331897-4
Date prepared	-			[NT]	3	04/09/2023	04/09/2023		[NT]	04/09/2023
Date analysed	-			[NT]	3	04/09/2023	04/09/2023		[NT]	04/09/2023
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	<1	[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	4	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	3	130	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	3	<0.05	<0.05	0	[NT]	90
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	3	68	[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	29	[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]	10	04/09/2023	04/09/2023		[NT]	[NT]
Date analysed	-			[NT]	10	04/09/2023	04/09/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	10	110	110	0	[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	10	6	6	0	[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	10	490	490	0	[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	10	<0.05	[NT]		[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	10	60	59	2	[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	10	1	1	0	[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	10	20	19	5	[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]	11	04/09/2023	04/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	04/09/2023	04/09/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	11	10	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	11	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	11	4	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	11	90	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	11	62	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	11	1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	11	16	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	331897-3
Date prepared	-			04/09/2023	1	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Date analysed	-			04/09/2023	1	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Aluminium-Total	µg/L	10	Metals-022	<10	1	430	440	2	109	#
Arsenic-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	98	104
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	103
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	98	116
Chromium-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	95	121
Copper-Total	µg/L	1	Metals-022	<1	1	9	10	11	99	108
Iron-Total	µg/L	10	Metals-022	<10	1	540	530	2	104	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		102	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	29	30	3	89	117
Nickel-Total	µg/L	1	Metals-022	<1	1	2	2	0	97	109
Lead-Total	µg/L	1	Metals-022	<1	1	3	3	0	101	96
Zinc-Total	µg/L	1	Metals-022	<1	1	55	55	0	96	102

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	331897-4
Date prepared	-			[NT]	3	04/09/2023	04/09/2023		[NT]	04/09/2023
Date analysed	-			[NT]	3	04/09/2023	04/09/2023		[NT]	04/09/2023
Aluminium-Total	µg/L	10	Metals-022	[NT]	3	320	[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	2	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	3	8	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	3	860	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	3	<0.05	<0.05	0	[NT]	104
Manganese-Total	µg/L	5	Metals-022	[NT]	3	74	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	3	3	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	3	4	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	3	52	[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]	10	04/09/2023	04/09/2023		[NT]	[NT]
Date analysed	-			[NT]	10	04/09/2023	04/09/2023		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	10	460	440	4	[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	10	1	1	0	[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	10	7	7	0	[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	10	1000	1100	10	[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	10	<0.05	[NT]		[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	10	62	61	2	[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	10	2	2	0	[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	10	2	2	0	[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	10	27	27	0	[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]	11	04/09/2023	04/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	04/09/2023	04/09/2023		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	11	190	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	11	1	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	11	<0.1	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	11	2	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	11	5	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	11	590	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	11	83	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	11	3	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	11	2	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	11	28	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	331897-2
Date prepared	-			04/09/2023	1	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Date analysed	-			04/09/2023	1	04/09/2023	04/09/2023		04/09/2023	04/09/2023
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.2	0.1	67	97	107

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	04/09/2023	04/09/2023		[NT]	[NT]
Date analysed	-			[NT]	10	04/09/2023	04/09/2023		[NT]	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	[NT]	10	0.1	0.1	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	331897-2
Date prepared	-			01/09/2023	1	01/09/2023	01/09/2023		01/09/2023	01/09/2023
Date analysed	-			01/09/2023	1	01/09/2023	01/09/2023		01/09/2023	01/09/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	109	109
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	106	109
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	114	111
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	114	105
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	113	114
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	98	1	96	99	3	97	100
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	100	1	100	98	2	101	99
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	97	1	96	94	2	96	94
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	99	1	102	98	4	100	97
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	102	1	110	112	2	100	102
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	112	1	129	125	3	106	92
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	119	1	133	129	3	113	91

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	01/09/2023	01/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	01/09/2023	01/09/2023		[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	96	0	[NT]	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	[NT]	11	101	99	2	[NT]	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	[NT]	11	95	93	2	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	[NT]	11	99	98	1	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	[NT]	11	98	102	4	[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	84	90	7	[NT]	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	[NT]	11	90	90	0	[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

All metals in water - total - # 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.

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 334046

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
Attention	Hala Abdelhadi, Theodore Adcock
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**WTP - Surface Water Monitoring**
Number of Samples	11 Water
Date samples received	26/09/2023
Date completed instructions received	26/09/2023

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	05/10/2023
Date of Issue	05/10/2023

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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, Air Toxics Team Leader
Diego Bigolin, Inorganics Supervisor
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Tim Toll, Chemist (FAS)

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
Date analysed	-	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
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	%	104	104	104	103	103
Surrogate Toluene-d8	%	100	99	99	99	98
Surrogate 4-Bromofluorobenzene	%	102	101	102	100	101

vTRH(C6-C10)/BTEXN in Water						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
Date analysed	-	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
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	%	103	103	103	103	102
Surrogate Toluene-d8	%	99	99	99	99	99
Surrogate 4-Bromofluorobenzene	%	100	100	101	100	101

vTRH(C6-C10)/BTEXN in Water		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date extracted	-	28/09/2023
Date analysed	-	28/09/2023
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	%	105
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	101

svTRH (C10-C40) in Water						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	04/10/2023	04/10/2023
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	%	94	72	99	90	98

svTRH (C10-C40) in Water						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Date analysed	-	04/10/2023	04/10/2023	04/10/2023	04/10/2023	04/10/2023
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	110	170
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	110	170
Surrogate o-Terphenyl	%	99	103	93	86	88

svTRH (C10-C40) in Water		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date extracted	-	03/10/2023
Date analysed	-	04/10/2023
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	%	96

PAHs in Water						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
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	%	108	82	117	104	101

PAHs in Water						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
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	%	106	112	108	101	96

PAHs in Water		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date extracted	-	03/10/2023
Date analysed	-	03/10/2023
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	%	107

Miscellaneous Inorganics						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/09/2023	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Date analysed	-	27/09/2023	27/09/2023	27/09/2023	27/09/2023	27/09/2023
pH	pH Units	7.7	7.4	7.6	7.9	7.9
Electrical Conductivity	µS/cm	6,300	31,000	44,000	570	560
Turbidity	NTU	2.5	5.9	7.5	3.7	4.2
Total Suspended Solids	mg/L	8	10	18	6	11
Salinity as NaCl*	g/L	4.1	20	28	0.4	0.4
Total Nitrogen in water	mg/L	1.4	1.0	0.5	0.5	0.6
NOx as N in water	mg/L	0.3	0.04	0.04	0.1	0.09
Nitrate as N in water	mg/L	0.25	0.03	0.03	0.11	0.077
Nitrite as N in water	mg/L	0.067	0.009	0.007	0.011	0.009
Ammonia as N in water	mg/L	0.37	0.25	0.051	0.12	0.11
Phosphate as P in water	mg/L	0.085	0.056	0.04	<0.005	<0.005
TKN in water	mg/L	1.1	1	0.5	0.4	0.5
Organic Nitrogen as N	mg/L	0.7	0.7	0.4	0.3	0.4
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/09/2023	27/09/2023	27/09/2023	27/09/2023	27/09/2023
Date analysed	-	27/09/2023	27/09/2023	27/09/2023	27/09/2023	27/09/2023
pH	pH Units	7.9	7.8	7.4	8.0	7.5
Electrical Conductivity	µS/cm	570	550	37,000	8,100	380
Turbidity	NTU	4.4	10	2.9	2.4	15
Total Suspended Solids	mg/L	12	18	10	8	72
Salinity as NaCl*	g/L	0.4	0.4	24	5.2	0.2
Total Nitrogen in water	mg/L	0.6	1.0	0.5	0.9	1.2
NOx as N in water	mg/L	0.06	<0.005	0.06	0.03	0.01
Nitrate as N in water	mg/L	0.055	<0.005	0.05	0.02	0.009
Nitrite as N in water	mg/L	0.008	<0.005	0.006	<0.005	<0.005
Ammonia as N in water	mg/L	0.092	0.18	0.094	<0.005	0.049
Phosphate as P in water	mg/L	<0.005	0.03	0.02	0.054	0.03
TKN in water	mg/L	0.5	1.0	0.4	0.9	1.2
Organic Nitrogen as N	mg/L	0.4	0.8	0.3	0.9	1.1
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date prepared	-	27/09/2023
Date analysed	-	27/09/2023
pH	pH Units	7.5
Electrical Conductivity	µS/cm	42,000
Turbidity	NTU	2.2
Total Suspended Solids	mg/L	18
Salinity as NaCl*	g/L	27
Total Nitrogen in water	mg/L	1.4
NOx as N in water	mg/L	0.1
Nitrate as N in water	mg/L	0.10
Nitrite as N in water	mg/L	0.010
Ammonia as N in water	mg/L	0.16
Phosphate as P in water	mg/L	0.04
TKN in water	mg/L	1.3
Organic Nitrogen as N	mg/L	1.0
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

All metals in water-dissolved						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Aluminium-Dissolved	µg/L	20	20	<10	30	30
Arsenic-Dissolved	µg/L	2	1	2	<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	4	4	2	3	3
Iron-Dissolved	µg/L	340	170	60	120	120
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	89	160	95	34	27
Nickel-Dissolved	µg/L	2	3	2	1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	30	22	21	4	4

All metals in water-dissolved						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Aluminium-Dissolved	µg/L	20	<10	<10	<10	<10
Arsenic-Dissolved	µg/L	<1	3	1	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	3	<1	<1	<1
Copper-Dissolved	µg/L	3	<1	3	2	<1
Iron-Dissolved	µg/L	120	480	50	160	1,400
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	22	1,300	110	260	390
Nickel-Dissolved	µg/L	1	3	2	2	2
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	4	6	30	12	<1

All metals in water-dissolved		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date prepared	-	29/09/2023
Date analysed	-	03/10/2023
Aluminium-Dissolved	µg/L	<10
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	4
Iron-Dissolved	µg/L	20
Mercury-Dissolved	µg/L	<0.05
Manganese-Dissolved	µg/L	110
Nickel-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	48

All metals in water - total						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Aluminium-Total	µg/L	90	40	240	120	180
Arsenic-Total	µg/L	1	1	2	<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	4	<1	<1
Copper-Total	µg/L	4	3	4	3	4
Iron-Total	µg/L	430	390	520	260	340
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	100	150	93	50	54
Nickel-Total	µg/L	2	2	3	1	1
Lead-Total	µg/L	2	<1	3	<1	1
Zinc-Total	µg/L	30	37	37	8	12

All metals in water - total						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Aluminium-Total	µg/L	170	80	60	20	120
Arsenic-Total	µg/L	<1	2	1	2	2
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	<1	2	<1	<1	2
Chromium-Total	µg/L	<1	<1	1	<1	<1
Copper-Total	µg/L	4	<1	3	2	3
Iron-Total	µg/L	380	1,400	320	330	4,600
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	50	1,400	110	250	1,100
Nickel-Total	µg/L	1	3	2	2	4
Lead-Total	µg/L	1	<1	1	<1	1
Zinc-Total	µg/L	16	6	35	11	11

All metals in water - total		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date prepared	-	29/09/2023
Date analysed	-	03/10/2023
Aluminium-Total	µg/L	100
Arsenic-Total	µg/L	1
Cadmium-Total	µg/L	<0.1
Cobalt-Total	µg/L	<1
Chromium-Total	µg/L	2
Copper-Total	µg/L	5
Iron-Total	µg/L	260
Mercury-Total	µg/L	<0.05
Manganese-Total	µg/L	100
Nickel-Total	µg/L	4
Lead-Total	µg/L	<1
Zinc-Total	µg/L	50

Metals in Waters - Acid extractable						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Phosphorus - Total	mg/L	0.2	0.2	0.1	0.05	0.07

Metals in Waters - Acid extractable						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Date analysed	-	03/10/2023	03/10/2023	03/10/2023	03/10/2023	03/10/2023
Phosphorus - Total	mg/L	0.06	0.2	0.09	0.2	0.60

Metals in Waters - Acid extractable		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date prepared	-	29/09/2023
Date analysed	-	03/10/2023
Phosphorus - Total	mg/L	0.07

PFAS in Waters Short						
Our Reference		334046-1	334046-2	334046-3	334046-4	334046-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
Date analysed	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.01	<0.01	0.01	0.01
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*	%	98	100	97	95	100
Surrogate $^{13}C_2$ *PFOA*	%	87	90	85	95	92
Extracted ISTD $^{18}O_2$ *PFHxS*	%	85	79	78	86	89
Extracted ISTD $^{13}C_4$ *PFOS*	%	96	92	97	103	98
Extracted ISTD $^{13}C_4$ *PFOA*	%	90	85	82	93	97
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	64	44	35	86	93
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	82	56	53	102	110
Total Positive PFHxS & PFOS	µg/L	<0.01	0.01	<0.01	0.01	0.01
Total Positive PFOA & PFOS	µg/L	<0.01	0.01	<0.01	0.01	0.02
Total Positive PFAS	µg/L	<0.01	0.01	<0.01	0.01	0.02

PFAS in Waters Short						
Our Reference		334046-6	334046-7	334046-8	334046-9	334046-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		26/09/2023	26/09/2023	26/09/2023	26/09/2023	26/09/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	28/09/2023	28/09/2023	28/09/2023	28/09/2023	28/09/2023
Date analysed	-	29/09/2023	29/09/2023	29/09/2023	29/09/2023	29/09/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	0.02	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	0.04	<0.01	0.01	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*	%	93	95	100	99	96
Surrogate $^{13}C_2$ *PFOA*	%	96	94	85	85	95
Extracted ISTD $^{18}O_2$ *PFHxS*	%	91	85	78	83	83
Extracted ISTD $^{13}C_4$ *PFOS*	%	99	98	95	100	100
Extracted ISTD $^{13}C_4$ *PFOA*	%	95	94	82	97	96
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	101	108	41	64	107
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	112	122	56	76	119
Total Positive PFHxS & PFOS	µg/L	0.01	0.05	<0.01	0.01	0.02
Total Positive PFOA & PFOS	µg/L	0.01	0.05	<0.01	0.02	0.03
Total Positive PFAS	µg/L	0.01	0.07	<0.01	0.02	0.03

PFAS in Waters Short		
Our Reference		334046-11
Your Reference	UNITS	SW11
Date Sampled		26/09/2023
Type of sample		Water
Date prepared	-	28/09/2023
Date analysed	-	29/09/2023
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*	%	87
Extracted ISTD $^{18}O_2$ *PFHxS*	%	79
Extracted ISTD $^{13}C_4$ *PFOS*	%	98
Extracted ISTD $^{13}C_4$ *PFOA*	%	82
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	39
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	51
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 in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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 determinined 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-W5	[NT]
Date extracted	-			28/09/2023	1	28/09/2023	03/10/2023		28/09/2023	[NT]
Date analysed	-			28/09/2023	1	28/09/2023	04/10/2023		28/09/2023	[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	100	[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	106	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	108	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	105	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	1	104	101	3	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	100	99	1	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	1	102	102	0	96	[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	28/09/2023	03/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	28/09/2023	04/10/2023		[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	105	102	3	[NT]	[NT]
Surrogate Toluene-d8	%		Org-023	[NT]	11	99	100	1	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	11	101	101	0	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	334046-2
Date extracted	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
Date analysed	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	95	106
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	99	111
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	105
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	95	106
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	99	111
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	105
Surrogate o-Terphenyl	%		Org-020	91	1	94	94	0	95	72

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	10	03/10/2023	03/10/2023		[NT]	[NT]
Date analysed	-			[NT]	10	04/10/2023	04/10/2023		[NT]	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	10	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	10	120	150	22	[NT]	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	10	<100	<100	0	[NT]	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	10	<50	<50	0	[NT]	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	10	170	190	11	[NT]	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	10	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	10	88	91	3	[NT]	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	334046-2
Date extracted	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
Date analysed	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	102
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	72	92
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	79	100
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	99
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	79	100
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	83	106
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	68	88
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	98	129
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	93	1	108	101	7	100	112

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	10	03/10/2023	03/10/2023		[NT]	[NT]
Date analysed	-			[NT]	10	03/10/2023	03/10/2023		[NT]	[NT]
Naphthalene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Anthracene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	10	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	10	96	102	6	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	334046-2
Date prepared	-			27/09/2023	1	27/09/2023	27/09/2023		27/09/2023	27/09/2023
Date analysed	-			27/09/2023	1	27/09/2023	27/09/2023		27/09/2023	27/09/2023
pH	pH Units		Inorg-001	[NT]	1	7.7	7.7	0	100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	6300	6300	0	106	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	2.5	2.4	4	97	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	8	[NT]		88	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	4.1	4.1	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.4	1.4	0	94	99
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.3	0.3	0	103	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.25	0.25	0	103	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.067	0.067	0	100	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.37	0.36	3	105	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.085	0.085	0	94	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	1.1	1.1	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.7	0.7	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	103	108
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	334046-6
Date prepared	-			[NT]	7	27/09/2023	27/09/2023		[NT]	27/09/2023
Date analysed	-			[NT]	7	27/09/2023	27/09/2023		[NT]	27/09/2023
pH	pH Units		Inorg-001	[NT]	7	7.8	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	7	550	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	7	10	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	7	18	17	6	[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	7	0.4	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	7	1.0	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	7	<0.005	[NT]		[NT]	92
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	7	<0.005	[NT]		[NT]	92
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	7	<0.005	[NT]		[NT]	95
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	7	0.18	[NT]		[NT]	110
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	7	0.03	[NT]		[NT]	91
TKN in water	mg/L	0.1	Inorg-062	[NT]	7	1.0	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	7	0.8	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	7	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	334046-6
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	7	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	27/09/2023	27/09/2023		[NT]	[NT]
Date analysed	-			[NT]	10	27/09/2023	27/09/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	10	7.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	10	380	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	10	15	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	10	72	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	10	0.2	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	10	1.2	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.01	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.009	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	10	<0.005	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	10	0.049	0.049	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	10	0.03	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	10	1.2	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	10	1.1	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[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	27/09/2023	27/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	27/09/2023	27/09/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	7.5	7.5	0	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	42000	42000	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	2.2	2.0	10	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	18	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	11	27	27	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	1.4	1.4	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.1	0.1	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.10	0.11	10	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.010	0.014	33	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.16	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.04	0.04	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	1.3	1.2	8	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	1.0	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	334046-2
Date prepared	-			29/09/2023	1	29/09/2023	29/09/2023		29/09/2023	29/09/2023
Date analysed	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	20	20	0	113	85
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	2	1	67	117	117
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	112	114
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	116	114
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	118	128
Copper-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	120	113
Iron-Dissolved	µg/L	10	Metals-022	<10	1	340	330	3	112	#
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	101	104
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	89	86	3	114	#
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	113	113
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	117	106
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	30	29	3	118	121

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	334046-2
Date prepared	-			29/09/2023	1	29/09/2023	29/09/2023		29/09/2023	29/09/2023
Date analysed	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
Aluminium-Total	µg/L	10	Metals-022	<10	1	90	100	11	94	102
Arsenic-Total	µg/L	1	Metals-022	<1	1	1	1	0	98	100
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	95	106
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	100	117
Chromium-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	94	125
Copper-Total	µg/L	1	Metals-022	<1	1	4	5	22	100	104
Iron-Total	µg/L	10	Metals-022	<10	1	430	490	13	96	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	97	99
Manganese-Total	µg/L	5	Metals-022	<5	1	100	100	0	93	#
Nickel-Total	µg/L	1	Metals-022	<1	1	2	2	0	97	115
Lead-Total	µg/L	1	Metals-022	<1	1	2	2	0	103	89
Zinc-Total	µg/L	1	Metals-022	<1	1	30	33	10	97	110

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	29/09/2023	29/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	03/10/2023	03/10/2023		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	11	100	120	18	[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]
Cobalt-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	11	2	3	40	[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	11	5	5	0	[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	11	260	260	0	[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	11	100	110	10	[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	11	4	3	29	[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	11	50	51	2	[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	334046-2
Date prepared	-			29/09/2023	1	29/09/2023	29/09/2023		29/09/2023	29/09/2023
Date analysed	-			03/10/2023	1	03/10/2023	03/10/2023		03/10/2023	03/10/2023
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.2	0.2	0	107	101

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	29/09/2023	29/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	03/10/2023	03/10/2023		[NT]	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	[NT]	11	0.07	0.1	35	[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	-			28/09/2023	1	28/09/2023	28/09/2023		28/09/2023	[NT]
Date analysed	-			29/09/2023	1	29/09/2023	29/09/2023		29/09/2023	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	119	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	109	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	115	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	108	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	120	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	94	1	98	94	4	100	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	101	1	87	90	3	103	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	89	1	85	81	5	82	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	100	1	96	98	2	91	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	97	1	90	93	3	90	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	102	1	64	66	3	96	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	124	1	82	82	0	107	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	28/09/2023	28/09/2023		[NT]	[NT]
Date analysed	-			[NT]	11	29/09/2023	29/09/2023		[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	95	1	[NT]	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	[NT]	11	87	84	4	[NT]	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	[NT]	11	79	80	1	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	[NT]	11	98	100	2	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	[NT]	11	82	83	1	[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	39	36	8	[NT]	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	[NT]	11	51	62	19	[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

All metals in water - total - # 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.

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).

All metals in water-dissolved - # 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.

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 335748

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
Attention	Josephine Balado
Address	Suite 26.01, 100 Miller Street, NORTH SYDNEY, NSW, 2060

Sample Details

Your Reference	**SC210108.01, WTP - Surface Water Monitoring**
Number of Samples	11 Water
Date samples received	19/10/2023
Date completed instructions received	19/10/2023

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	26/10/2023
Date of Issue	26/10/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Phalak Inthakesone, Organics Development Manager, Sydney
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	23/10/2023	23/10/2023	23/10/2023	23/10/2023	23/10/2023
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	%	102	103	103	102	102
Surrogate Toluene-d8	%	99	99	99	99	98
Surrogate 4-Bromofluorobenzene	%	101	101	102	102	102

vTRH(C6-C10)/BTEXN in Water						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	23/10/2023	23/10/2023	23/10/2023	23/10/2023	23/10/2023
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	%	102	102	103	102	101
Surrogate Toluene-d8	%	98	98	98	98	98
Surrogate 4-Bromofluorobenzene	%	103	103	102	102	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date extracted	-	20/10/2023
Date analysed	-	23/10/2023
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	%	102
Surrogate Toluene-d8	%	98
Surrogate 4-Bromofluorobenzene	%	102

svTRH (C10-C40) in Water						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Date analysed	-	24/10/2023	25/10/2023	25/10/2023	25/10/2023	25/10/2023
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	%	76	70	94	68	77

svTRH (C10-C40) in Water						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Date analysed	-	25/10/2023	25/10/2023	25/10/2023	25/10/2023	25/10/2023
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	91	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	120	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	210	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	90	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	90	<50
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	130	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	220	<50
Surrogate o-Terphenyl	%	90	82	100	91	73

svTRH (C10-C40) in Water		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date extracted	-	24/10/2023
Date analysed	-	25/10/2023
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	%	79

PAHs in Water						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Date analysed	-	25/10/2023	25/10/2023	25/10/2023	25/10/2023	25/10/2023
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	%	77	86	97	69	95

PAHs in Water						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/10/2023	24/10/2023	24/10/2023	24/10/2023	24/10/2023
Date analysed	-	25/10/2023	25/10/2023	25/10/2023	25/10/2023	25/10/2023
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	96	110	89	86

PAHs in Water		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date extracted	-	24/10/2023
Date analysed	-	25/10/2023
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		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Date analysed	-	19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
pH	pH Units	7.2	7.3	7.6	7.6	6.3
Electrical Conductivity	µS/cm	4,600	18,000	22,000	410	420
Turbidity	NTU	2.4	1.0	0.9	2.0	5.6
Total Suspended Solids	mg/L	12	13	10	14	18
Salinity as NaCl*	g/L	3.0	12	14	0.3	0.3
Total Nitrogen in water	mg/L	1.0	0.8	0.7	0.4	0.4
NOx as N in water	mg/L	<0.005	0.01	0.08	<0.005	<0.005
Nitrate as N in water	mg/L	<0.005	0.006	0.062	<0.005	<0.005
Nitrite as N in water	mg/L	<0.005	<0.005	0.015	<0.005	<0.005
Ammonia as N in water	mg/L	0.12	0.077	0.081	0.009	0.008
Phosphate as P in water	mg/L	0.11	0.10	0.03	<0.005	<0.005
TKN in water	mg/L	1.0	0.8	0.6	0.4	0.4
Organic Nitrogen as N	mg/L	0.9	0.8	0.5	0.4	0.4
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Date analysed	-	19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
pH	pH Units	7.6	7.5	7.5	7.8	7.1
Electrical Conductivity	µS/cm	30,000	940	20,000	3,800	330
Turbidity	NTU	0.5	3.5	1.2	4.1	23
Total Suspended Solids	mg/L	10	10	13	14	59
Salinity as NaCl*	g/L	19	0.6	13	2.5	0.2
Total Nitrogen in water	mg/L	0.5	1.0	0.6	1.0	0.9
NOx as N in water	mg/L	0.02	0.01	0.09	0.04	<0.005
Nitrate as N in water	mg/L	0.02	0.007	0.069	0.03	<0.005
Nitrite as N in water	mg/L	<0.005	<0.005	0.016	0.009	<0.005
Ammonia as N in water	mg/L	0.074	0.26	0.11	0.11	<0.005
Phosphate as P in water	mg/L	0.02	0.02	0.03	0.11	0.057
TKN in water	mg/L	0.5	1.0	0.5	1.0	0.9
Organic Nitrogen as N	mg/L	0.4	0.7	0.4	0.9	0.9
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date prepared	-	19/10/2023
Date analysed	-	19/10/2023
pH	pH Units	7.6
Electrical Conductivity	µS/cm	36,000
Turbidity	NTU	1.3
Total Suspended Solids	mg/L	9
Salinity as NaCl*	g/L	23
Total Nitrogen in water	mg/L	0.5
NOx as N in water	mg/L	0.05
Nitrate as N in water	mg/L	0.04
Nitrite as N in water	mg/L	0.006
Ammonia as N in water	mg/L	0.073
Phosphate as P in water	mg/L	0.04
TKN in water	mg/L	0.4
Organic Nitrogen as N	mg/L	0.3
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

All metals in water-dissolved						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Aluminium-Dissolved	µg/L	30	230	<10	20	30
Arsenic-Dissolved	µg/L	<1	7	1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	0.2	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	4	1	<1	<1
Cobalt-Dissolved	µg/L	<1	2	<1	<1	<1
Copper-Dissolved	µg/L	4	33	4	2	2
Iron-Dissolved	µg/L	310	2,400	70	150	130
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	99	150	97	7	5
Nickel-Dissolved	µg/L	1	3	2	<1	<1
Lead-Dissolved	µg/L	1	8	<1	<1	<1
Zinc-Dissolved	µg/L	35	150	24	9	11

All metals in water-dissolved						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Aluminium-Dissolved	µg/L	10	<10	10	20	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	1	<1	<1
Cobalt-Dissolved	µg/L	<1	1	<1	<1	<1
Copper-Dissolved	µg/L	1	1	2	3	<1
Iron-Dissolved	µg/L	50	420	110	260	720
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	61	300	91	180	170
Nickel-Dissolved	µg/L	2	2	1	2	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	12	16	24	24	12

All metals in water-dissolved		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date prepared	-	20/10/2023
Date analysed	-	20/10/2023
Aluminium-Dissolved	µg/L	<10
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	1
Iron-Dissolved	µg/L	30
Mercury-Dissolved	µg/L	<0.05
Manganese-Dissolved	µg/L	63
Nickel-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	13

All metals in water - total						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Aluminium-Total	µg/L	80	80	70	160	140
Arsenic-Total	µg/L	1	2	2	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	7	7	4	5	3
Iron-Total	µg/L	570	700	460	560	450
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	110	140	100	88	88
Nickel-Total	µg/L	1	1	1	<1	1
Lead-Total	µg/L	2	2	1	1	<1
Zinc-Total	µg/L	51	42	26	18	24

All metals in water - total						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Aluminium-Total	µg/L	70	80	100	80	150
Arsenic-Total	µg/L	1	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	<1
Chromium-Total	µg/L	<1	1	2	<1	<1
Copper-Total	µg/L	2	2	6	6	3
Iron-Total	µg/L	310	930	900	770	1,600
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	83	380	100	260	220
Nickel-Total	µg/L	1	3	2	2	1
Lead-Total	µg/L	<1	<1	3	1	2
Zinc-Total	µg/L	16	16	30	33	25

All metals in water - total		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date prepared	-	20/10/2023
Date analysed	-	20/10/2023
Aluminium-Total	µg/L	40
Arsenic-Total	µg/L	1
Cadmium-Total	µg/L	<0.1
Cobalt-Total	µg/L	<1
Chromium-Total	µg/L	<1
Copper-Total	µg/L	1
Iron-Total	µg/L	180
Mercury-Total	µg/L	<0.05
Manganese-Total	µg/L	71
Nickel-Total	µg/L	1
Lead-Total	µg/L	<1
Zinc-Total	µg/L	13

Metals in Waters - Acid extractable						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Phosphorus - Total	mg/L	0.3	0.3	0.2	0.08	0.08

Metals in Waters - Acid extractable						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Phosphorus - Total	mg/L	0.1	0.08	0.2	0.3	0.4

Metals in Waters - Acid extractable		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date prepared	-	20/10/2023
Date analysed	-	20/10/2023
Phosphorus - Total	mg/L	0.1

PFAS in Waters Short						
Our Reference		335748-1	335748-2	335748-3	335748-4	335748-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	0.02	0.02	0.01	0.01
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*	%	84	71	79	83	82
Surrogate $^{13}C_2$ *PFOA*	%	95	103	98	94	96
Extracted ISTD $^{18}O_2$ *PFHxS*	%	93	78	79	87	88
Extracted ISTD $^{13}C_4$ *PFOS*	%	111	116	111	112	112
Extracted ISTD $^{13}C_4$ *PFOA*	%	93	67	67	93	96
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	74	46	42	98	109
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	84	61	59	96	109
Total Positive PFHxS & PFOS	µg/L	0.01	0.02	0.02	0.01	0.01
Total Positive PFOA & PFOS	µg/L	0.02	0.03	0.02	0.02	0.02
Total Positive PFAS	µg/L	0.02	0.03	0.02	0.02	0.02

PFAS in Waters Short						
Our Reference		335748-6	335748-7	335748-8	335748-9	335748-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		19/10/2023	19/10/2023	19/10/2023	19/10/2023	19/10/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Date analysed	-	20/10/2023	20/10/2023	20/10/2023	20/10/2023	20/10/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.02	0.01	0.02	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	0.02	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	83	79	83	80	86
Surrogate $^{13}C_2$ *PFOA*	%	108	98	103	94	94
Extracted ISTD $^{18}O_2$ *PFHxS*	%	84	83	79	85	92
Extracted ISTD $^{13}C_4$ *PFOS*	%	117	116	116	117	109
Extracted ISTD $^{13}C_4$ *PFOA*	%	64	92	69	88	100
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	37	112	41	89	116
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	55	106	58	112	113
Total Positive PFHxS & PFOS	µg/L	<0.01	0.02	0.01	0.03	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	0.02	0.01	0.03	<0.01
Total Positive PFAS	µg/L	<0.01	0.02	0.01	0.04	<0.01

PFAS in Waters Short		
Our Reference		335748-11
Your Reference	UNITS	SW11
Date Sampled		19/10/2023
Type of sample		Water
Date prepared	-	20/10/2023
Date analysed	-	20/10/2023
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*	%	80
Surrogate $^{13}C_2$ *PFOA*	%	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	81
Extracted ISTD $^{13}C_4$ *PFOS*	%	115
Extracted ISTD $^{13}C_4$ *PFOA*	%	60
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	29
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	38
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 in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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 determinined 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-W7	[NT]
Date extracted	-			20/10/2023	1	20/10/2023	24/10/2023		20/10/2023	[NT]
Date analysed	-			23/10/2023	1	23/10/2023	25/10/2023		23/10/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	102	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	102	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	101	[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	101	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	102	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	1	102	94	8	90	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	99	92	7	94	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	102	1	101	109	8	100	[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	20/10/2023	24/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	23/10/2023	25/10/2023		[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	102	95	7	[NT]	[NT]
Surrogate Toluene-d8	%		Org-023	[NT]	11	98	92	6	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	11	102	108	6	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	335748-2
Date extracted	-			24/10/2023	1	24/10/2023	24/10/2023		24/10/2023	24/10/2023
Date analysed	-			24/10/2023	1	24/10/2023	25/10/2023		24/10/2023	25/10/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	110	89
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	120	99
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	97
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	110	89
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	120	99
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	97
Surrogate o-Terphenyl	%		Org-020	84	1	76	84	10	98	83

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	24/10/2023	24/10/2023		[NT]	[NT]
Date analysed	-			[NT]	9	25/10/2023	25/10/2023		[NT]	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	9	91	72	23	[NT]	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	9	120	<100	18	[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	90	72	22	[NT]	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	9	130	110	17	[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	91	80	13	[NT]	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	335748-2
Date extracted	-			24/10/2023	1	24/10/2023	24/10/2023		24/10/2023	24/10/2023
Date analysed	-			25/10/2023	1	25/10/2023	25/10/2023		25/10/2023	25/10/2023
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	103	96
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	89	85
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	91
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	88
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	93	91
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	90
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	89	85
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	124	124
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	98	1	77	83	8	88	92

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	9	24/10/2023	24/10/2023		[NT]	[NT]
Date analysed	-			[NT]	9	25/10/2023	25/10/2023		[NT]	[NT]
Naphthalene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Anthracene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	9	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	9	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	9	89	90	1	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	335748-2
Date prepared	-			19/10/2023	1	19/10/2023	19/10/2023		19/10/2023	19/10/2023
Date analysed	-			19/10/2023	1	19/10/2023	19/10/2023		19/10/2023	19/10/2023
pH	pH Units		Inorg-001	[NT]	1	7.2	[NT]		101	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	4600	[NT]		103	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	2.4	[NT]		100	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	12	[NT]		90	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	3.0	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.0	1.1	10	100	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		95	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		95	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		108	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.12	[NT]		102	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.11	[NT]		93	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	1.0	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.9	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	102	91
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	335748-11
Date prepared	-			[NT]	2	19/10/2023	19/10/2023		[NT]	19/10/2023
Date analysed	-			[NT]	2	19/10/2023	19/10/2023		[NT]	19/10/2023
pH	pH Units		Inorg-001	[NT]	2	7.3	7.3	0	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	2	18000	18000	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	2	1.0	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	2	13	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	2	12	12	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	2	0.8	[NT]		[NT]	81
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.01	[NT]		[NT]	85
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.006	[NT]		[NT]	85
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	2	<0.005	[NT]		[NT]	110
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	2	0.077	[NT]		[NT]	93
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	2	0.10	[NT]		[NT]	90
TKN in water	mg/L	0.1	Inorg-062	[NT]	2	0.8	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	2	0.8	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	2	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	335748-11
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	2	<0.005	[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	19/10/2023	19/10/2023		[NT]	[NT]
Date analysed	-			[NT]	3	19/10/2023	19/10/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	3	7.6	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	3	22000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	3	0.9	0.8	12	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	3	10	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	3	14	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	3	0.7	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	3	0.08	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	3	0.062	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	3	0.015	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	3	0.081	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	3	0.03	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	3	0.6	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	3	0.5	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	3	<0.005	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	3	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	19/10/2023	19/10/2023		[NT]	[NT]
Date analysed	-			[NT]	10	19/10/2023	19/10/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	10	7.1	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	10	330	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	10	23	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	10	59	54	9	[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	10	0.2	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	10	0.9	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	10	<0.005	<0.005	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	10	0.057	0.058	2	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	10	0.9	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	10	0.9	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	10	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	19/10/2023	19/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	19/10/2023	19/10/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	7.6	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	36000	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	1.3	1.6	21	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	9	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	11	23	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	0.5	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.05	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.04	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.006	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.073	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.04	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	0.4	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	0.3	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	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	0.005	Inorg-118	[NT]	11	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	335748-2
Date prepared	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Date analysed	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	30	30	0	89	#
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	92	90
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	93	99
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	90	112
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	107
Copper-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	96	90
Iron-Dissolved	µg/L	10	Metals-022	<10	1	310	300	3	89	#
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	113	120
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	99	100	1	90	111
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	2	67	92	104
Lead-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	94	74
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	35	42	18	95	88

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	20/10/2023	20/10/2023		[NT]	[NT]
Date analysed	-			[NT]	10	20/10/2023	20/10/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	10	20	20	0	[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	10	<0.1	<0.1	0	[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	10	720	700	3	[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	10	<0.05	[NT]		[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	10	170	160	6	[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	10	<1	<1	0	[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	10	12	12	0	[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]	11	20/10/2023	20/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	20/10/2023	20/10/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	11	<10	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	11	1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	11	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	11	1	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	11	30	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	11	63	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	11	1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	11	13	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	335748-2
Date prepared	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Date analysed	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Aluminium-Total	µg/L	10	Metals-022	<10	1	80	90	12	113	##
Arsenic-Total	µg/L	1	Metals-022	<1	1	1	1	0	103	107
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	101	104
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	104	105
Chromium-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	120	126
Copper-Total	µg/L	1	Metals-022	<1	1	7	7	0	106	102
Iron-Total	µg/L	10	Metals-022	<10	1	570	590	3	109	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	113	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	110	110	0	103	129
Nickel-Total	µg/L	1	Metals-022	<1	1	1	1	0	103	112
Lead-Total	µg/L	1	Metals-022	<1	1	2	2	0	102	84
Zinc-Total	µg/L	1	Metals-022	<1	1	51	54	6	109	116

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	20/10/2023	20/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	20/10/2023	20/10/2023		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	11	40	40	0	[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]
Cobalt-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	11	<1	1	0	[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	11	1	2	67	[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	11	180	180	0	[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	11	71	71	0	[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	11	1	1	0	[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	11	13	14	7	[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	335748-3
Date prepared	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Date analysed	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.3	0.3	0	99	116

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	20/10/2023	20/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	20/10/2023	20/10/2023		[NT]	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	[NT]	11	0.1	0.1	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	335748-2
Date prepared	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Date analysed	-			20/10/2023	1	20/10/2023	20/10/2023		20/10/2023	20/10/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	111	116
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	0.01	0.01	0	103	72
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	0.01	<0.01	0	112	117
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	110	101
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	99	113
Surrogate $^{13}C_8$ PFOS	%		Org-029	96	1	84	79	6	95	65
Surrogate $^{13}C_2$ PFOA	%		Org-029	98	1	95	96	1	96	109
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	98	1	93	89	4	98	76
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	107	1	111	112	1	107	115
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	101	1	93	89	4	98	65
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	103	1	74	79	7	101	48
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	118	1	84	92	9	115	52

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	20/10/2023	20/10/2023		[NT]	[NT]
Date analysed	-			[NT]	11	20/10/2023	20/10/2023		[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	80	84	5	[NT]	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	[NT]	11	101	104	3	[NT]	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	[NT]	11	81	76	6	[NT]	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	[NT]	11	115	110	4	[NT]	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	[NT]	11	60	57	5	[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	29	26	11	[NT]	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	[NT]	11	38	28	30	[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

PFAS: 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).

All metals in water-dissolved - # 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.

All metals in water - total:
- # 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.
- ## Low spike recovery was obtained for this sample. The sample was re-digested and re-spiked and the low recovery was confirmed. This is due to matrix interferences. However, an acceptable recovery was obtained for the LCS.

TRACE METALS: In theory the total metal content should be higher than the dissolved metal content. However, in some samples this is not the case. The sample has been re-analysed for both Total and Dissolved metals and results have been confirmed.

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 338658

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
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	10 Water
Date samples received	24/11/2023
Date completed instructions received	24/11/2023

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	01/12/2023
Date of Issue	04/12/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Hannah Nguyen, Metals Supervisor
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Phalak Inthakesone, Organics Development Manager, Sydney
Priya Samarawickrama, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
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	%	97	101	100	97	101
Surrogate Toluene-d8	%	99	101	100	99	101
Surrogate 4-Bromofluorobenzene	%	102	102	103	102	103

vTRH(C6-C10)/BTEXN in Water						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
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	%	100	100	100	98	100
Surrogate Toluene-d8	%	103	101	101	99	102
Surrogate 4-Bromofluorobenzene	%	102	101	102	103	100

svTRH (C10-C40) in Water						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	130	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	130	<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	200	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	200	<50	<50	<50	<50
Surrogate o-Terphenyl	%	85	73	73	101	75

svTRH (C10-C40) in Water						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	210	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	210	<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	240	120	110	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	240	120	110	<50
Surrogate o-Terphenyl	%	69	87	88	82	77

PAHs in Water						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
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	%	82	75	70	80	78

PAHs in Water						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
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	%	70	86	82	78	67

Miscellaneous Inorganics						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
pH	pH Units	7.2	7.3	7.7	7.7	7.6
Electrical Conductivity	µS/cm	13,000	13,000	360	360	19,000
Turbidity	NTU	9.0	9.0	5.4	4.3	8.5
Total Suspended Solids	mg/L	35	29	<10	<10	28
Salinity as NaCl*	g/L	8.2	8.6	0.2	0.2	12
Total Nitrogen in water	mg/L	0.8	0.7	0.4	0.4	0.4
NOx as N in water	mg/L	0.2	0.2	0.03	0.03	0.01
Nitrate as N in water	mg/L	0.15	0.14	0.02	0.03	0.01
Nitrite as N in water	mg/L	0.027	0.023	<0.005	<0.005	<0.005
Ammonia as N in water	mg/L	0.043	0.044	0.060	0.052	0.046
Phosphate as P in water	mg/L	0.086	0.082	<0.005	0.006	0.02
TKN in water	mg/L	0.7	0.5	0.3	0.3	0.4
Organic Nitrogen as N	mg/L	0.6	0.5	0.3	0.3	0.3
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Date analysed	-	24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
pH	pH Units	7.4	7.5	7.5	7.2	7.6
Electrical Conductivity	µS/cm	240	10,000	360	200	17,000
Turbidity	NTU	12	47	11	12	3.2
Total Suspended Solids	mg/L	13	79	22	11	27
Salinity as NaCl*	g/L	0.2	6.6	0.2	0.1	11
Total Nitrogen in water	mg/L	0.6	0.6	0.9	0.7	0.5
NOx as N in water	mg/L	0.2	0.1	0.4	0.2	0.05
Nitrate as N in water	mg/L	0.15	0.092	0.40	0.16	0.04
Nitrite as N in water	mg/L	0.016	0.014	0.035	0.020	<0.005
Ammonia as N in water	mg/L	0.014	0.079	<0.005	0.047	0.10
Phosphate as P in water	mg/L	0.075	0.01	0.072	0.092	0.03
TKN in water	mg/L	0.5	0.5	0.5	0.5	0.4
Organic Nitrogen as N	mg/L	0.4	0.5	0.5	0.5	0.3
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

All metals in water-dissolved						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023
Date analysed	-	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023
Aluminium-Dissolved	µg/L	40	30	40	40	30
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	5	3	2	2	2
Iron-Dissolved	µg/L	200	160	180	180	100
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	0.07	0.07
Manganese-Dissolved	µg/L	64	74	24	20	53
Nickel-Dissolved	µg/L	2	<1	<1	<1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	38	32	5	5	6

All metals in water-dissolved						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023
Date analysed	-	27/11/2023	27/11/2023	27/11/2023	27/11/2023	27/11/2023
Aluminium-Dissolved	µg/L	120	30	80	80	30
Arsenic-Dissolved	µg/L	<1	2	<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	6	3	9	5	2
Iron-Dissolved	µg/L	430	300	160	340	110
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	43	110	18	41	48
Nickel-Dissolved	µg/L	1	<1	<1	<1	<1
Lead-Dissolved	µg/L	1	1	1	1	<1
Zinc-Dissolved	µg/L	21	22	43	22	10

All metals in water - total						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Aluminium-Total	µg/L	440	300	210	120	190
Arsenic-Total	µg/L	1	2	1	<1	2
Cadmium-Total	µg/L	<0.1	<0.1	0.3	<0.1	<0.1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Chromium-Total	µg/L	1	2	<1	<1	1
Copper-Total	µg/L	8	7	3	2	3
Iron-Total	µg/L	650	690	560	410	730
Mercury-Total	µg/L	<0.05	0.05	<0.05	0.06	0.07
Manganese-Total	µg/L	80	100	76	58	100
Nickel-Total	µg/L	2	2	2	1	2
Lead-Total	µg/L	2	2	1	<1	2
Zinc-Total	µg/L	34	49	7	4	9

All metals in water - total						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Aluminium-Total	µg/L	370	900	520	410	70
Arsenic-Total	µg/L	1	2	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	2	2	1	<1
Copper-Total	µg/L	7	8	11	8	2
Iron-Total	µg/L	780	1,900	550	710	370
Mercury-Total	µg/L	<0.05	0.07	0.07	<0.05	<0.05
Manganese-Total	µg/L	54	160	32	52	74
Nickel-Total	µg/L	2	4	2	2	1
Lead-Total	µg/L	2	5	3	3	<1
Zinc-Total	µg/L	23	53	55	31	12

Metals in Waters - Acid extractable						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Phosphorus - Total	mg/L	0.2	0.2	<0.05	<0.05	0.1

Metals in Waters - Acid extractable						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Date analysed	-	29/11/2023	29/11/2023	29/11/2023	29/11/2023	29/11/2023
Phosphorus - Total	mg/L	0.1	0.2	0.1	0.2	0.07

PFAS in Waters Short						
Our Reference		338658-1	338658-2	338658-3	338658-4	338658-5
Your Reference	UNITS	SW02	SW03	SW04	SW05	SW06
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	0.02	<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*	%	105	102	105	106	101
Surrogate $^{13}C_2$ *PFOA*	%	103	97	103	100	105
Extracted ISTD $^{18}O_2$ *PFHxS*	%	97	93	93	94	98
Extracted ISTD $^{13}C_4$ *PFOS*	%	99	99	96	97	101
Extracted ISTD $^{13}C_4$ *PFOA*	%	114	113	115	115	109
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	126	108	139	128	107
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	118	120	135	125	120
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	0.02	<0.01	0.01	<0.01
Total Positive PFAS	µg/L	<0.01	0.03	<0.01	0.01	<0.01

PFAS in Waters Short						
Our Reference		338658-6	338658-7	338658-8	338658-9	338658-10
Your Reference	UNITS	SW07	SW08	SW09	SW10	SW11
Date Sampled		24/11/2023	24/11/2023	24/11/2023	24/11/2023	24/11/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Date analysed	-	28/11/2023	28/11/2023	28/11/2023	28/11/2023	28/11/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	<0.01	<0.01	<0.01	0.01
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*	%	102	102	109	106	106
Surrogate $^{13}C_2$ *PFOA*	%	104	103	100	102	102
Extracted ISTD $^{18}O_2$ *PFHxS*	%	93	97	92	99	96
Extracted ISTD $^{13}C_4$ *PFOS*	%	96	100	92	100	97
Extracted ISTD $^{13}C_4$ *PFOA*	%	113	115	120	124	110
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	132	127	144	141	105
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	125	136	130	143	118
Total Positive PFHxS & PFOS	µg/L	0.01	<0.01	<0.01	<0.01	0.01
Total Positive PFOA & PFOS	µg/L	0.01	<0.01	<0.01	<0.01	0.01
Total Positive PFAS	µg/L	0.01	<0.01	<0.01	<0.01	0.01

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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 determinined 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-W6	[NT]
Date extracted	-			28/11/2023	1	28/11/2023	30/11/2023		28/11/2023	[NT]
Date analysed	-			29/11/2023	1	29/11/2023	01/12/2023		29/11/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	111	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	111	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	107	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	112	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	114	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	114	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	1	97	104	7	98	[NT]
Surrogate Toluene-d8	%		Org-023	98	1	99	99	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	102	1	102	107	5	103	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338658-3
Date extracted	-			28/11/2023	1	28/11/2023	28/11/2023		28/11/2023	28/11/2023
Date analysed	-			29/11/2023	1	28/11/2023	28/11/2023		28/11/2023	28/11/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	88	109
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	130	<100	26	91	109
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	104
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	88	109
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	200	<100	67	91	109
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	104
Surrogate o-Terphenyl	%		Org-020	73	1	85	77	10	81	103

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			28/11/2023	1	28/11/2023	28/11/2023		28/11/2023	[NT]
Date analysed	-			29/11/2023	1	29/11/2023	29/11/2023		29/11/2023	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	[NT]
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	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	74	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	69	[NT]
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	71	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	[NT]
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	78	[NT]
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	101	[NT]
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	81	1	82	81	1	69	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338658-2
Date prepared	-			24/11/2023	1	24/11/2023	24/11/2023		24/11/2023	24/11/2023
Date analysed	-			24/11/2023	1	24/11/2023	24/11/2023		24/11/2023	24/11/2023
pH	pH Units		Inorg-001	[NT]	1	7.2	7.2	0	101	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	13000	13000	0	100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	9.0	9.7	7	100	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	35	[NT]		93	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	8.2	8.2	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.8	0.8	0	104	113
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.2	[NT]		98	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.15	[NT]		98	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.027	[NT]		105	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.043	[NT]		98	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.086	[NT]		104	[NT]
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+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	107	105
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	4	24/11/2023	24/11/2023		[NT]	[NT]
Date analysed	-			[NT]	4	24/11/2023	24/11/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	4	7.7	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	4	360	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	4	4.3	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	4	<10	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	4	0.2	[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	0.03	0.03	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	4	0.03	0.03	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	4	<0.005	<0.005	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	4	0.052	0.054	4	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	4	0.006	0.006	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	4	0.3	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	4	0.3	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	4	<0.005	[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	0.005	Inorg-118	[NT]	4	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	24/11/2023	24/11/2023		[NT]	[NT]
Date analysed	-			[NT]	10	24/11/2023	24/11/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	10	7.6	7.7	1	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	10	17000	17000	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	10	3.2	[NT]		[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	10	27	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	10	11	11	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	10	0.5	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.05	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	10	0.04	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	10	<0.005	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	10	0.10	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	10	0.03	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	10	0.4	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	10	0.3	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[NT]		[NT]	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	10	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	[NT]
Date prepared	-			27/11/2023	1	27/11/2023	27/11/2023		27/11/2023	[NT]
Date analysed	-			27/11/2023	1	27/11/2023	27/11/2023		27/11/2023	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	40	40	0	90	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	91	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	96	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	104	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	5	5	0	96	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	200	200	0	104	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	112	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	64	66	3	95	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	98	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	38	37	3	105	[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]	4	27/11/2023	27/11/2023		[NT]	[NT]
Date analysed	-			[NT]	4	27/11/2023	27/11/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	4	40	[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	180	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	4	0.07	0.07	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	4	20	[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	5	[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]	5	27/11/2023	27/11/2023		[NT]	[NT]
Date analysed	-			[NT]	5	27/11/2023	27/11/2023		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	5	30	[NT]		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	5	<1	[NT]		[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	5	<0.1	[NT]		[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	5	<1	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	5	<1	[NT]		[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	5	2	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	5	100	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	5	0.07	0.07	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	5	53	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	5	1	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	5	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	5	6	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338658-2
Date prepared	-			29/11/2023	1	29/11/2023	29/11/2023		29/11/2023	29/11/2023
Date analysed	-			29/11/2023	1	29/11/2023	29/11/2023		29/11/2023	29/11/2023
Aluminium-Total	µg/L	10	Metals-022	<10	1	440	420	5	113	#
Arsenic-Total	µg/L	1	Metals-022	<1	1	1	1	0	97	110
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	0.2	67	96	109
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	92	117
Chromium-Total	µg/L	1	Metals-022	<1	1	1	2	67	96	129
Copper-Total	µg/L	1	Metals-022	<1	1	8	8	0	93	108
Iron-Total	µg/L	10	Metals-022	<10	1	650	630	3	100	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	108	106
Manganese-Total	µg/L	5	Metals-022	<5	1	80	75	6	97	121
Nickel-Total	µg/L	1	Metals-022	<1	1	2	2	0	97	117
Lead-Total	µg/L	1	Metals-022	<1	1	2	2	0	99	93
Zinc-Total	µg/L	1	Metals-022	<1	1	34	33	3	99	115

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	10	29/11/2023	29/11/2023		[NT]	[NT]
Date analysed	-			[NT]	10	29/11/2023	29/11/2023		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	10	70	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	10	1	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	10	0.1	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	10	<1	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	10	<1	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	10	2	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	10	370	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	10	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	10	74	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	10	1	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	10	<1	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	10	12	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	338658-3
Date prepared	-			29/11/2023	1	29/11/2023	29/11/2023		29/11/2023	29/11/2023
Date analysed	-			29/11/2023	1	29/11/2023	29/11/2023		29/11/2023	29/11/2023
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.2	0.2	0	105	96

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			28/11/2023	1	28/11/2023	28/11/2023		28/11/2023	[NT]
Date analysed	-			28/11/2023	1	28/11/2023	28/11/2023		28/11/2023	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	112	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	0.01	0	116	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	106	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	95	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	107	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	100	1	105	96	9	101	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	109	1	103	99	4	104	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	92	1	97	96	1	93	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	101	1	99	103	4	99	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	113	1	114	112	2	106	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	131	1	126	116	8	117	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	129	1	118	124	5	121	[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 element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Total Suspended Solids: PQL has been raised due to the small volume of sample supplied.

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 340324

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
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	11 Water
Date samples received	14/12/2023
Date completed instructions received	14/12/2023

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	21/12/2023
Date of Issue	22/12/2023

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

Results Approved By
Diego Bigolin, Inorganics Supervisor
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Sean McAlary, Chemist (FAS)
Tim Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Date analysed	-	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023
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	3	<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	%	102	102	103	102	102
Surrogate Toluene-d8	%	100	100	101	100	100
Surrogate 4-Bromofluorobenzene	%	99	101	101	100	101

vTRH(C6-C10)/BTEXN in Water						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Date analysed	-	20/12/2023	20/12/2023	20/12/2023	20/12/2023	20/12/2023
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	%	103	102	103	102	102
Surrogate Toluene-d8	%	100	102	101	101	100
Surrogate 4-Bromofluorobenzene	%	101	99	102	101	100

vTRH(C6-C10)/BTEXN in Water		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date extracted	-	19/12/2023
Date analysed	-	20/12/2023
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	%	102
Surrogate Toluene-d8	%	100
Surrogate 4-Bromofluorobenzene	%	102

svTRH (C10-C40) in Water						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
Date analysed	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
TRH C_{10} - C_{14}	µg/L	99	<50	<50	<50	140
TRH C_{15} - C_{28}	µg/L	260	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	360	<50	<50	<50	140
TRH >C_{10} - C_{16}	µg/L	110	<50	<50	<50	87
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	110	<50	<50	<50	87
TRH >C_{16} - C_{34}	µg/L	300	<100	<100	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	410	<50	<50	<50	90
Surrogate o-Terphenyl	%	84	92	82	99	102

svTRH (C10-C40) in Water						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
Date analysed	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	77
TRH C_{15} - C_{28}	µg/L	<100	<100	<100	140	380
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	460
Total +ve TRH (C10-C36)	µg/L	<50	<50	<50	140	920
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50	<50	99
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50	<50	99
TRH >C_{16} - C_{34}	µg/L	<100	<100	<100	150	680
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	200
Total +ve TRH (>C10-C40)	µg/L	<50	<50	<50	150	980
Surrogate o-Terphenyl	%	79	84	89	74	72

svTRH (C10-C40) in Water		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date extracted	-	21/12/2023
Date analysed	-	21/12/2023
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		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
Date analysed	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
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	%	83	84	92	88	92

PAHs in Water						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
Date analysed	-	21/12/2023	21/12/2023	21/12/2023	21/12/2023	21/12/2023
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	0.2
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	0.2
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	0.3
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	0.2
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	1.2
Surrogate p-Terphenyl-d14	%	91	90	99	80	75

PAHs in Water			
Our Reference		340324-11	340324-12
Your Reference	UNITS	SW11	SW11 - [TRIPLICATE]
Date Sampled		14/12/2023	14/12/2023
Type of sample		Water	Water
Date extracted	-	21/12/2023	21/12/2023
Date analysed	-	21/12/2023	21/12/2023
Naphthalene	µg/L	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1
Fluoranthene	µg/L	<0.1	0.2
Pyrene	µg/L	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	0.20
Surrogate p-Terphenyl-d14	%	82	74

Miscellaneous Inorganics						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023
Date analysed	-	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023
pH	pH Units	7.4	7.6	7.7	8.0	7.9
Electrical Conductivity	µS/cm	7,300	28,000	37,000	400	420
Turbidity	NTU	5.3	3.4	4.4	6.5	5.0
Total Suspended Solids	mg/L	16	12	15	13	10
Salinity as NaCl*	g/L	4.8	18	24	0.3	0.3
Total Nitrogen in water	mg/L	2.5	0.8	0.5	1.1	1.6
NOx as N in water	mg/L	0.1	0.02	0.006	0.05	0.2
Nitrate as N in water	mg/L	0.056	0.01	<0.005	0.04	0.17
Nitrite as N in water	mg/L	0.065	0.005	<0.005	0.008	<0.005
Ammonia as N in water	mg/L	0.32	0.086	0.038	0.027	0.033
Phosphate as P in water	mg/L	0.084	0.19	0.072	<0.005	<0.005
TKN in water	mg/L	2.4	0.7	0.5	1.0	1.4
Organic Nitrogen as N	mg/L	2.1	0.6	0.4	1	1.4
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023
Date analysed	-	15/12/2023	15/12/2023	15/12/2023	15/12/2023	15/12/2023
pH	pH Units	7.7	8.3	7.7	7.9	7.1
Electrical Conductivity	µS/cm	30,000	650	31,000	3,000	290
Turbidity	NTU	5.7	4.5	3.4	10	52
Total Suspended Solids	mg/L	<10	11	<10	36	71
Salinity as NaCl*	g/L	20	0.4	20	2.0	0.2
Total Nitrogen in water	mg/L	0.4	0.8	0.6	1.5	1.0
NOx as N in water	mg/L	0.007	0.04	0.06	0.07	0.06
Nitrate as N in water	mg/L	0.005	0.03	0.060	0.03	0.060
Nitrite as N in water	mg/L	<0.005	0.015	<0.005	0.034	<0.005
Ammonia as N in water	mg/L	0.033	0.14	0.062	0.008	0.12
Phosphate as P in water	mg/L	0.18	0.006	0.17	0.005	0.05
TKN in water	mg/L	0.4	0.7	0.5	1.4	1
Organic Nitrogen as N	mg/L	0.4	0.6	0.4	1.4	0.8
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date prepared	-	15/12/2023
Date analysed	-	15/12/2023
pH	pH Units	6.3
Electrical Conductivity	µS/cm	32,000
Turbidity	NTU	3.3
Total Suspended Solids	mg/L	<10
Salinity as NaCl*	g/L	21
Total Nitrogen in water	mg/L	17
NOx as N in water	mg/L	0.2
Nitrate as N in water	mg/L	0.16
Nitrite as N in water	mg/L	0.007
Ammonia as N in water	mg/L	0.043
Phosphate as P in water	mg/L	0.10
TKN in water	mg/L	17
Organic Nitrogen as N	mg/L	17
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

All metals in water-dissolved						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Date analysed	-	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Aluminium-Dissolved	µg/L	30	<10	10	40	30
Arsenic-Dissolved	µg/L	2	2	3	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	2	<1	<1	<1	<1
Copper-Dissolved	µg/L	6	1	1	4	2
Iron-Dissolved	µg/L	400	40	20	140	160
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	210	140	82	24	23
Nickel-Dissolved	µg/L	3	1	1	1	<1
Lead-Dissolved	µg/L	1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	81	17	10	18	5

All metals in water-dissolved						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Date analysed	-	19/12/2023	19/12/2023	19/12/2023	19/12/2023	19/12/2023
Aluminium-Dissolved	µg/L	10	10	<10	30	30
Arsenic-Dissolved	µg/L	2	2	3	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	<1
Copper-Dissolved	µg/L	1	1	1	7	<1
Iron-Dissolved	µg/L	30	150	30	200	840
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	120	170	140	73	190
Nickel-Dissolved	µg/L	1	2	2	3	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	8	6	18	22	6

All metals in water-dissolved		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date prepared	-	19/12/2023
Date analysed	-	19/12/2023
Aluminium-Dissolved	µg/L	<10
Arsenic-Dissolved	µg/L	2
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
Manganese-Dissolved	µg/L	95
Nickel-Dissolved	µg/L	1
Lead-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	11

All metals in water - total						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Date analysed	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Aluminium-Total	µg/L	220	50	130	180	90
Arsenic-Total	µg/L	5	4	3	2	2
Cadmium-Total	µg/L	0.2	<0.1	<0.1	<0.1	<0.1
Cobalt-Total	µg/L	2	<1	<1	<1	<1
Chromium-Total	µg/L	1	<1	2	<1	<1
Copper-Total	µg/L	12	3	3	6	4
Iron-Total	µg/L	710	270	320	450	320
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	200	150	91	67	65
Nickel-Total	µg/L	4	2	2	2	2
Lead-Total	µg/L	3	<1	2	2	1
Zinc-Total	µg/L	150	35	21	35	29

All metals in water - total						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Date analysed	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Aluminium-Total	µg/L	150	130	60	110	2,000
Arsenic-Total	µg/L	3	3	3	3	3
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	0.2
Cobalt-Total	µg/L	<1	<1	<1	<1	2
Chromium-Total	µg/L	1	<1	<1	<1	4
Copper-Total	µg/L	2	2	2	9	21
Iron-Total	µg/L	490	680	310	510	4,300
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	130	120	150	100	220
Nickel-Total	µg/L	2	3	2	3	5
Lead-Total	µg/L	1	<1	1	2	19
Zinc-Total	µg/L	20	18	33	44	160

All metals in water - total		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date prepared	-	18/12/2023
Date analysed	-	18/12/2023
Aluminium-Total	µg/L	100
Arsenic-Total	µg/L	2
Cadmium-Total	µg/L	<0.1
Cobalt-Total	µg/L	<1
Chromium-Total	µg/L	<1
Copper-Total	µg/L	4
Iron-Total	µg/L	460
Mercury-Total	µg/L	<0.05
Manganese-Total	µg/L	130
Nickel-Total	µg/L	2
Lead-Total	µg/L	2
Zinc-Total	µg/L	39

Metals in Waters - Acid extractable						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Date analysed	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Phosphorus - Total	mg/L	0.4	0.3	0.2	0.1	0.08

Metals in Waters - Acid extractable						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Date analysed	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Phosphorus - Total	mg/L	0.3	0.1	0.3	0.2	0.52

Metals in Waters - Acid extractable		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date prepared	-	18/12/2023
Date analysed	-	18/12/2023
Phosphorus - Total	mg/L	0.2

PFAS in Waters Short						
Our Reference		340324-1	340324-2	340324-3	340324-4	340324-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Date analysed	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.02	0.01	0.01	0.02	0.01
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*	%	101	99	100	99	94
Surrogate $^{13}C_2$ *PFOA*	%	105	100	100	104	100
Extracted ISTD $^{18}O_2$ *PFHxS*	%	96	97	98	101	99
Extracted ISTD $^{13}C_4$ *PFOS*	%	112	110	110	112	116
Extracted ISTD $^{13}C_4$ *PFOA*	%	118	115	116	117	119
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	140	91	108	141	117
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	155	137	130	119	154
Total Positive PFHxS & PFOS	µg/L	0.02	0.01	0.01	0.02	0.01
Total Positive PFOA & PFOS	µg/L	0.03	0.01	0.01	0.03	0.01
Total Positive PFAS	µg/L	0.03	0.01	0.01	0.03	0.01

PFAS in Waters Short						
Our Reference		340324-6	340324-7	340324-8	340324-9	340324-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		14/12/2023	14/12/2023	14/12/2023	14/12/2023	14/12/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Date analysed	-	18/12/2023	18/12/2023	18/12/2023	18/12/2023	18/12/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.02	0.02	0.03	0.02
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	0.02	0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	99	100	106	95	104
Surrogate $^{13}C_2$ *PFOA*	%	105	101	101	96	106
Extracted ISTD $^{18}O_2$ *PFHxS*	%	98	95	100	96	99
Extracted ISTD $^{13}C_4$ *PFOS*	%	113	110	105	111	105
Extracted ISTD $^{13}C_4$ *PFOA*	%	111	117	115	130	117
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	104	128	106	160	143
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	114	171	106	139	131
Total Positive PFHxS & PFOS	µg/L	<0.01	0.02	0.02	0.04	0.02
Total Positive PFOA & PFOS	µg/L	<0.01	0.02	0.02	0.04	0.03
Total Positive PFAS	µg/L	<0.01	0.02	0.02	0.05	0.03

PFAS in Waters Short		
Our Reference		340324-11
Your Reference	UNITS	SW11
Date Sampled		14/12/2023
Type of sample		Water
Date prepared	-	18/12/2023
Date analysed	-	18/12/2023
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*	%	100
Extracted ISTD $^{18}O_2$ *PFHxS*	%	98
Extracted ISTD $^{13}C_4$ *PFOS*	%	113
Extracted ISTD $^{13}C_4$ *PFOA*	%	113
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	111
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	115
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 in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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 determinined 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	-			19/12/2023	1	19/12/2023	20/12/2023		19/12/2023	[NT]
Date analysed	-			20/12/2023	1	20/12/2023	21/12/2023		20/12/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	88	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	88	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	85	[NT]
Toluene	µg/L	1	Org-023	<1	1	3	3	0	86	[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	91	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	88	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	1	102	102	0	100	[NT]
Surrogate Toluene-d8	%		Org-023	100	1	100	100	0	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	99	1	99	103	4	94	[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	19/12/2023	20/12/2023		[NT]	[NT]
Date analysed	-			[NT]	11	20/12/2023	21/12/2023		[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	102	104	2	[NT]	[NT]
Surrogate Toluene-d8	%		Org-023	[NT]	11	100	100	0	[NT]	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	11	102	103	1	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	340324-2
Date extracted	-			21/12/2023	1	21/12/2023	21/12/2023		21/12/2023	21/12/2023
Date analysed	-			21/12/2023	1	21/12/2023	21/12/2023		21/12/2023	21/12/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	99	100	1	117	112
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	260	270	4	117	121
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	101
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	110	120	9	117	112
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	300	310	3	117	121
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	101
Surrogate o-Terphenyl	%		Org-020	92	1	84	88	5	97	96

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	21/12/2023	21/12/2023		[NT]	[NT]
Date analysed	-			[NT]	11	21/12/2023	21/12/2023		[NT]	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	11	<50	<50	0	[NT]	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	11	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	11	73	68	7	[NT]	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	340324-2
Date extracted	-			21/12/2023	1	21/12/2023	21/12/2023		21/12/2023	21/12/2023
Date analysed	-			21/12/2023	1	21/12/2023	21/12/2023		21/12/2023	21/12/2023
Naphthalene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	87	102
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	80	96
Fluorene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	86	104
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	82	98
Anthracene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	80	98
Pyrene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	85	102
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	70	83
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	92	111
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	95	1	83	87	5	81	95

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	11	21/12/2023	21/12/2023		[NT]	[NT]
Date analysed	-			[NT]	11	21/12/2023	21/12/2023		[NT]	[NT]
Naphthalene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	0.7	150	[NT]	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	0.7	150	[NT]	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	0.4	120	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	0.3	100	[NT]	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	11	<0.2	0.5	86	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	0.3	100	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	11	<0.1	0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	11	82	75	9	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	340324-2
Date prepared	-			15/12/2023	1	15/12/2023	15/12/2023		15/12/2023	15/12/2023
Date analysed	-			15/12/2023	1	15/12/2023	15/12/2023		15/12/2023	15/12/2023
pH	pH Units		Inorg-001	[NT]	1	7.4	7.5	1	97	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	7300	7300	0	92	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	5.3	4.9	8	100	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	16	[NT]		102	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	4.8	4.7	2	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	2.5	2.5	0	93	92
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.1	0.1	0	96	93
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.056	0.050	11	96	93
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.065	0.065	0	119	119
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.32	0.31	3	96	90
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.084	0.084	0	114	#
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	2.4	2.4	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	2.1	2.1	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	98	107
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	15/12/2023	15/12/2023		[NT]	[NT]
Date analysed	-			[NT]	11	15/12/2023	15/12/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	6.3	6.3	0	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	32000	31000	3	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	3.3	3.4	3	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	<10	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	11	21	20	5	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	17	17	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.2	0.2	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.16	0.16	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.007	0.007	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.043	0.038	12	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.10	0.10	0	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	17	17	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	17	17	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	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	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	340324-2
Date prepared	-			19/12/2023	1	19/12/2023	19/12/2023		19/12/2023	19/12/2023
Date analysed	-			19/12/2023	1	19/12/2023	19/12/2023		19/12/2023	19/12/2023
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	30	30	0	92	84
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	97	94
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	106
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	83	107
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	94	102
Copper-Dissolved	µg/L	1	Metals-022	<1	1	6	6	0	94	93
Iron-Dissolved	µg/L	10	Metals-022	<10	1	400	370	8	92	116
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	92	77
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	210	190	10	89	113
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	89	102
Lead-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	96	76
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	81	70	15	98	110

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	340324-2
Date prepared	-			18/12/2023	1	18/12/2023	18/12/2023		18/12/2023	18/12/2023
Date analysed	-			18/12/2023	1	18/12/2023	18/12/2023		18/12/2023	18/12/2023
Aluminium-Total	µg/L	10	Metals-022	<10	1	220	180	20	92	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	1	5	4	22	101	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	0.2	0.2	0	102	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	1	2	2	0	93	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	1	1	0	82	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	12	12	0	96	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	710	700	1	91	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	96	74
Manganese-Total	µg/L	5	Metals-022	<5	1	200	200	0	86	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	4	4	0	91	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	3	3	0	104	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	150	150	0	98	[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]	10	18/12/2023	18/12/2023		[NT]	[NT]
Date analysed	-			[NT]	10	18/12/2023	18/12/2023		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	10	2000	[NT]		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	10	3	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	10	0.2	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	10	2	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	10	4	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	10	21	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	10	4300	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	10	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	10	220	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	10	5	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	10	19	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	10	160	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	340324-2
Date prepared	-			18/12/2023	1	18/12/2023	18/12/2023		18/12/2023	18/12/2023
Date analysed	-			18/12/2023	1	18/12/2023	18/12/2023		18/12/2023	18/12/2023
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.4	0.4	0	109	126

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	18/12/2023	18/12/2023		[NT]	[NT]
Date analysed	-			[NT]	11	18/12/2023	18/12/2023		[NT]	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	[NT]	11	0.2	0.2	0	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	340324-2
Date prepared	-			18/12/2023	1	18/12/2023	18/12/2023		18/12/2023	18/12/2023
Date analysed	-			18/12/2023	1	18/12/2023	18/12/2023		18/12/2023	18/12/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	0.01	0	106	103
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	0.02	0.03	40	107	97
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	0.01	0.01	0	96	94
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	83	95
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	122	88
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	96	1	101	99	2	104	101
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	101	1	105	103	2	103	104
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	94	1	96	96	0	96	97
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	107	1	112	113	1	101	110
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	109	1	118	120	2	111	112
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	127	1	140	134	4	139	108
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	139	1	155	153	1	125	154

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	18/12/2023	18/12/2023		[NT]	[NT]
Date analysed	-			[NT]	11	18/12/2023	18/12/2023		[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	102	6	[NT]	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	[NT]	11	100	103	3	[NT]	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	[NT]	11	98	100	2	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	[NT]	11	113	108	5	[NT]	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	[NT]	11	113	112	1	[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	111	112	1	[NT]	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	[NT]	11	115	116	1	[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

MISC_INORG:# Percent recovery is not applicable due to the high concentration of the analyte/s in the sample/s. 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).

Total Suspended Solids - PQL has been raised due to the small volume of sample supplied.

PAHs in Water - The laboratory RPD acceptance criteria has been exceeded for 340324-11. Therefore a triplicate result has been issued as laboratory sample number 340324-12.

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 341875

Client Details

Client	Gamuda Australia (t/a Gamuda Berhad)
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	11 Water
Date samples received	18/01/2024
Date completed instructions received	18/01/2024

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	25/01/2024
Date of Issue	01/02/2024
Reissue Details	This report replaces R00 created on 25/01/2024 due to: revised report with amended pH/EC for sample #5 reported .
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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
Diego Bigolin, Inorganics Supervisor
Hannah Nguyen, Metals Supervisor
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Tim Toll, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

vTRH(C6-C10)/BTEXN in Water						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Date analysed	-	25/01/2024	25/01/2024	25/01/2024	25/01/2024	25/01/2024
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	%	109	106	106	107	105
Surrogate Toluene-d8	%	100	101	100	99	99
Surrogate 4-Bromofluorobenzene	%	87	86	84	85	86

vTRH(C6-C10)/BTEXN in Water						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Date analysed	-	25/01/2024	25/01/2024	25/01/2024	25/01/2024	25/01/2024
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	%	107	107	106	110	108
Surrogate Toluene-d8	%	100	100	99	99	99
Surrogate 4-Bromofluorobenzene	%	85	84	88	84	84

vTRH(C6-C10)/BTEXN in Water		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date extracted	-	24/01/2024
Date analysed	-	25/01/2024
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	%	107
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	84

svTRH (C10-C40) in Water						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Date analysed	-	24/01/2024	24/01/2024	25/01/2024	25/01/2024	25/01/2024
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	%	92	92	87	86	86

svTRH (C10-C40) in Water						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Date analysed	-	25/01/2024	25/01/2024	25/01/2024	25/01/2024	25/01/2024
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	%	83	85	88	86	82

svTRH (C10-C40) in Water		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date extracted	-	24/01/2024
Date analysed	-	25/01/2024
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	%	86

PAHs in Water						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Date analysed	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
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	%	108	102	94	98	102

PAHs in Water						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Date analysed	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
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	%	95	94	96	102	92

PAHs in Water		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date extracted	-	24/01/2024
Date analysed	-	24/01/2024
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	%	98

Miscellaneous Inorganics						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Date analysed	-	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
pH	pH Units	7.6	7.6	7.3	7.4	7.2
Electrical Conductivity	µS/cm	600	450	410	290	300
Turbidity	NTU	16	35	37	56	44
Total Suspended Solids	mg/L	14	22	26	37	48
Salinity as NaCl*	g/L	0.4	0.3	0.3	0.2	0.7
Total Nitrogen in water	mg/L	3.2	2.1	2.4	2.3	2.4
NOx as N in water	mg/L	2.4	1.4	1.2	1.4	1.4
Nitrate as N in water	mg/L	2.4	1.3	1.1	1.4	1.4
Nitrite as N in water	mg/L	0.045	0.038	0.033	0.026	0.016
Ammonia as N in water	mg/L	0.046	0.26	0.26	0.12	0.15
Phosphate as P in water	mg/L	0.093	0.13	0.096	0.069	0.15
TKN in water	mg/L	0.8	0.7	1.2	0.9	1.0
Organic Nitrogen as N	mg/L	0.7	0.4	1	0.8	0.9
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Date analysed	-	18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
pH	pH Units	7.3	7.6	7.4	7.7	7.3
Electrical Conductivity	µS/cm	290	510	440	570	510
Turbidity	NTU	65	14	33	13	7.8
Total Suspended Solids	mg/L	38	7	20	8	6
Salinity as NaCl*	g/L	0.2	0.3	0.3	0.4	0.3
Total Nitrogen in water	mg/L	2.3	3.2	2.2	3.1	3.9
NOx as N in water	mg/L	1.4	2.2	1.3	2.4	2.5
Nitrate as N in water	mg/L	1.4	2.1	1.3	2.3	2.5
Nitrite as N in water	mg/L	0.025	0.051	0.035	0.036	0.067
Ammonia as N in water	mg/L	0.13	0.060	0.25	0.042	0.12
Phosphate as P in water	mg/L	0.077	0.15	0.11	0.087	0.21
TKN in water	mg/L	0.9	1	0.9	0.7	1.3
Organic Nitrogen as N	mg/L	0.8	0.9	0.7	0.7	1.2
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date prepared	-	18/01/2024
Date analysed	-	18/01/2024
pH	pH Units	7.5
Electrical Conductivity	µS/cm	300
Turbidity	NTU	69
Total Suspended Solids	mg/L	42
Salinity as NaCl*	g/L	0.2
Total Nitrogen in water	mg/L	2.4
NOx as N in water	mg/L	1.4
Nitrate as N in water	mg/L	1.4
Nitrite as N in water	mg/L	0.025
Ammonia as N in water	mg/L	0.13
Phosphate as P in water	mg/L	0.076
TKN in water	mg/L	1.0
Organic Nitrogen as N	mg/L	0.9
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005

All metals in water-dissolved						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Date analysed	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Aluminium-Dissolved	µg/L	130	20	200	430	490
Arsenic-Dissolved	µg/L	2	2	1	2	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	7	5	5	6	6
Iron-Dissolved	µg/L	190	70	180	390	400
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	25	<5	17	20	20
Nickel-Dissolved	µg/L	2	1	1	2	2
Lead-Dissolved	µg/L	1	<1	1	<1	<1
Zinc-Dissolved	µg/L	42	24	24	18	17

All metals in water-dissolved						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Date analysed	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Aluminium-Dissolved	µg/L	440	180	160	140	230
Arsenic-Dissolved	µg/L	2	2	1	2	3
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	1	2	<1	2	1
Cobalt-Dissolved	µg/L	<1	<1	<1	<1	<1
Copper-Dissolved	µg/L	6	8	5	8	8
Iron-Dissolved	µg/L	390	310	180	140	330
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	19	32	15	20	36
Nickel-Dissolved	µg/L	2	2	1	2	2
Lead-Dissolved	µg/L	<1	1	<1	<1	1
Zinc-Dissolved	µg/L	18	25	23	32	32

All metals in water-dissolved		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date prepared	-	22/01/2024
Date analysed	-	22/01/2024
Aluminium-Dissolved	µg/L	480
Arsenic-Dissolved	µg/L	2
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	1
Cobalt-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	6
Iron-Dissolved	µg/L	430
Mercury-Dissolved	µg/L	<0.05
Manganese-Dissolved	µg/L	19
Nickel-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Zinc-Dissolved	µg/L	17

All metals in water - total						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Date analysed	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Aluminium-Total	µg/L	330	470	640	850	750
Arsenic-Total	µg/L	2	3	2	2	2
Cadmium-Total	µg/L	0.1	0.1	<0.1	<0.1	<0.1
Chromium-Total	µg/L	<1	3	2	1	1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Copper-Total	µg/L	9	9	8	8	7
Iron-Total	µg/L	410	580	730	1,000	870
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	29	27	26	40	37
Nickel-Total	µg/L	2	3	2	2	2
Lead-Total	µg/L	3	4	5	3	3
Zinc-Total	µg/L	59	48	42	39	37

All metals in water - total						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Date analysed	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Aluminium-Total	µg/L	790	290	550	320	150
Arsenic-Total	µg/L	2	2	2	2	3
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Total	µg/L	1	<1	<1	1	<1
Cobalt-Total	µg/L	<1	<1	<1	<1	<1
Copper-Total	µg/L	7	9	7	8	7
Iron-Total	µg/L	900	460	600	380	240
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	37	34	20	25	35
Nickel-Total	µg/L	2	2	1	2	2
Lead-Total	µg/L	3	3	4	3	1
Zinc-Total	µg/L	36	29	36	45	32

All metals in water - total		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date prepared	-	22/01/2024
Date analysed	-	24/01/2024
Aluminium-Total	µg/L	760
Arsenic-Total	µg/L	2
Cadmium-Total	µg/L	<0.1
Chromium-Total	µg/L	1
Cobalt-Total	µg/L	<1
Copper-Total	µg/L	7
Iron-Total	µg/L	910
Mercury-Total	µg/L	<0.05
Manganese-Total	µg/L	42
Nickel-Total	µg/L	2
Lead-Total	µg/L	3
Zinc-Total	µg/L	39

Metals in Waters - Acid extractable						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Date analysed	-	23/01/2024	23/01/2024	23/01/2024	23/01/2024	23/01/2024
Phosphorus - Total	mg/L	0.2	0.2	0.2	0.2	0.2

Metals in Waters - Acid extractable						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	22/01/2024	22/01/2024	22/01/2024	22/01/2024	22/01/2024
Date analysed	-	23/01/2024	23/01/2024	23/01/2024	23/01/2024	23/01/2024
Phosphorus - Total	mg/L	0.2	0.2	0.2	0.1	0.2

Metals in Waters - Acid extractable		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date prepared	-	22/01/2024
Date analysed	-	23/01/2024
Phosphorus - Total	mg/L	0.2

PFAS in Water TRACE Short						
Our Reference		341875-1	341875-2	341875-3	341875-4	341875-5
Your Reference	UNITS	SW01	SW02	SW03	SW04	SW05
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	23/01/2024	23/01/2024	23/01/2024	23/01/2024	23/01/2024
Date analysed	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	24/01/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.014	0.011	0.0094	0.010	0.010
Perfluorooctanesulfonic acid PFOS	µg/L	0.097	0.036	0.027	0.025	0.024
Perfluorooctanoic acid PFOA	µg/L	0.015	0.010	0.0098	0.012	0.013
6:2 FTS	µg/L	0.0005	0.001	0.002	0.002	0.002
8:2 FTS	µg/L	<0.0004	0.0006	0.0007	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	103	94	99	99	102
Surrogate $^{13}C_2$ *PFOA*	%	102	102	103	105	103
Extracted ISTD $^{18}O_2$ *PFHxS*	%	77	81	80	84	83
Extracted ISTD $^{13}C_4$ *PFOS*	%	99	80	78	81	82
Extracted ISTD $^{13}C_4$ *PFOA*	%	86	92	95	91	93
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	195	#	#	180	191
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	179	#	186	#	#
Total Positive PFHxS & PFOS	µg/L	0.11	0.047	0.036	0.035	0.035
Total Positive PFOS & PFOA	µg/L	0.11	0.046	0.037	0.038	0.037
Total Positive PFAS	µg/L	0.13	0.059	0.049	0.050	0.050

PFAS in Water TRACE Short						
Our Reference		341875-6	341875-7	341875-8	341875-9	341875-10
Your Reference	UNITS	SW06	SW07	SW08	SW09	SW10
Date Sampled		18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	23/01/2024	23/01/2024	23/01/2024	23/01/2024	23/01/2024
Date analysed	-	24/01/2024	24/01/2024	24/01/2024	24/01/2024	23/01/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.010	0.014	0.011	0.015	0.011
Perfluorooctanesulfonic acid PFOS	µg/L	0.025	0.027	0.038	0.035	0.026
Perfluorooctanoic acid PFOA	µg/L	0.013	0.013	0.010	0.019	0.013
6:2 FTS	µg/L	0.002	0.0008	0.0007	0.001	0.001
8:2 FTS	µg/L	<0.0004	<0.0004	0.0005	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	105	96	102	98	105
Surrogate $^{13}C_2$ *PFOA*	%	106	104	103	105	107
Extracted ISTD $^{18}O_2$ *PFHxS*	%	83	80	85	81	85
Extracted ISTD $^{13}C_4$ *PFOS*	%	79	83	83	81	79
Extracted ISTD $^{13}C_4$ *PFOA*	%	87	90	102	94	94
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	192	#	#	#	#
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	#	#	#	#	#
Total Positive PFHxS & PFOS	µg/L	0.035	0.041	0.049	0.050	0.037
Total Positive PFOS & PFOA	µg/L	0.037	0.040	0.048	0.054	0.039
Total Positive PFAS	µg/L	0.050	0.055	0.060	0.070	0.052

PFAS in Water TRACE Short		
Our Reference		341875-11
Your Reference	UNITS	SW11
Date Sampled		18/01/2024
Type of sample		Water
Date prepared	-	23/01/2024
Date analysed	-	23/01/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0095
Perfluorooctanesulfonic acid PFOS	µg/L	0.022
Perfluorooctanoic acid PFOA	µg/L	0.013
6:2 FTS	µg/L	0.002
8:2 FTS	µg/L	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	97
Surrogate $^{13}C_2$ *PFOA*	%	106
Extracted ISTD $^{18}O_2$ *PFHxS*	%	87
Extracted ISTD $^{13}C_4$ *PFOS*	%	88
Extracted ISTD $^{13}C_4$ *PFOA*	%	100
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	#
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	#
Total Positive PFHxS & PFOS	µg/L	0.032
Total Positive PFOS & PFOA	µg/L	0.036
Total Positive PFAS	µg/L	0.047

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
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 determinined 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	-			24/01/2024	[NT]	[NT]	[NT]	[NT]	24/01/2024	[NT]
Date analysed	-			25/01/2024	[NT]	[NT]	[NT]	[NT]	25/01/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	124	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	124	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	124	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	127	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	123	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	123	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	122	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	87	[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-W3	[NT]
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	24/01/2024	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	25/01/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	118	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	118	[NT]
Benzene	µg/L	1	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	127	[NT]
Toluene	µg/L	1	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	122	[NT]
Ethylbenzene	µg/L	1	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	115	[NT]
m+p-xylene	µg/L	2	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	114	[NT]
o-xylene	µg/L	1	Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	115	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate Toluene-d8	%		Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	[NT]	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	341875-2
Date extracted	-			24/01/2024	1	24/01/2024	24/01/2024		24/01/2024	24/01/2024
Date analysed	-			25/01/2024	1	24/01/2024	24/01/2024		24/01/2024	25/01/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	93	98
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	96	105
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	101
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	93	98
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	96	105
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	101
Surrogate o-Terphenyl	%		Org-020	102	1	92	92	0	85	95

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			[NT]	4	24/01/2024	24/01/2024		24/01/2024	[NT]
Date analysed	-			[NT]	4	25/01/2024	25/01/2024		25/01/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	4	<50	<50	0	89	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	4	<100	<100	0	91	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	4	<100	<100	0	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	4	<50	<50	0	89	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	4	<100	<100	0	91	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	4	<100	<100	0	86	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	4	86	73	16	84	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	341875-2
Date extracted	-			24/01/2024	1	24/01/2024	24/01/2024		24/01/2024	24/01/2024
Date analysed	-			24/01/2024	1	24/01/2024	24/01/2024		24/01/2024	24/01/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	128	119
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	107	98
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	109	100
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	92
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	107	98
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	111	103
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	89	83
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	98	94
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	108	1	108	110	2	123	112

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	4	24/01/2024	24/01/2024		[NT]	[NT]
Date analysed	-			[NT]	4	24/01/2024	24/01/2024		[NT]	[NT]
Naphthalene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Fluorene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Anthracene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Pyrene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	[NT]	4	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	[NT]	4	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	[NT]	4	98	81	19	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	341875-2
Date prepared	-			18/01/2024	1	18/01/2024	18/01/2024		18/01/2024	18/01/2024
Date analysed	-			18/01/2024	1	18/01/2024	18/01/2024		18/01/2024	18/01/2024
pH	pH Units		Inorg-001	[NT]	1	7.6	7.7	1	102	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	600	600	0	100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	16	16	0	97	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	14	[NT]		99	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	<0.001	1	0.4	0.4	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	3.2	3.2	0	101	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	2.4	2.3	4	96	91
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	2.4	2.3	4	96	91
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.045	0.045	0	105	104
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.046	0.053	14	95	78
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.093	0.094	1	110	100
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.8	0.9	12	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.7	0.8	13	[NT]	[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	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	341875-5
Date prepared	-			[NT]	11	18/01/2024	18/01/2024		[NT]	18/01/2024
Date analysed	-			[NT]	11	18/01/2024	18/01/2024		[NT]	18/01/2024
pH	pH Units		Inorg-001	[NT]	11	7.5	7.5	0	[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	300	300	0	[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	11	69	68	1	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	11	42	[NT]		[NT]	[NT]
Salinity as NaCl*	g/L	0.001	Inorg-002	[NT]	11	0.2	0.2	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	2.4	2.3	4	[NT]	116
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	1.4	1.4	0	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	1.4	1.4	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.025	0.025	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	0.13	0.13	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.076	0.077	1	[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	1.0	0.9	11	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	0.9	0.8	12	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	341875-5
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	341875-6
Date prepared	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	18/01/2024
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	18/01/2024
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	114

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	341875-2
Date prepared	-			22/01/2024	1	22/01/2024	22/01/2024		22/01/2024	22/01/2024
Date analysed	-			22/01/2024	1	22/01/2024	22/01/2024		22/01/2024	22/01/2024
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	130	130	0	101	79
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	90	92
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	89	92
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	93	97
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	95	93
Copper-Dissolved	µg/L	1	Metals-022	<1	1	7	7	0	94	92
Iron-Dissolved	µg/L	10	Metals-022	<10	1	190	190	0	94	84
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	96	78
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	25	25	0	96	99
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	92	96
Lead-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	92	91
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	42	42	0	95	99

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	22/01/2024	22/01/2024		[NT]	[NT]
Date analysed	-			[NT]	11	22/01/2024	22/01/2024		[NT]	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	[NT]	11	480	500	4	[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	11	2	2	0	[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	11	<0.1	<0.1	0	[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	11	1	1	0	[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	11	6	6	0	[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	11	430	420	2	[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	11	19	19	0	[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	11	2	2	0	[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	11	<1	<1	0	[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	11	17	18	6	[NT]	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	341875-2
Date prepared	-			22/01/2024	1	22/01/2024	22/01/2024		22/01/2024	22/01/2024
Date analysed	-			24/01/2024	1	24/01/2024	24/01/2024		24/01/2024	24/01/2024
Aluminium-Total	µg/L	10	Metals-022	<10	1	330	320	3	97	#
Arsenic-Total	µg/L	1	Metals-022	<1	1	2	2	0	99	103
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	0.1	0.1	0	96	104
Chromium-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	85	94
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	98	93
Copper-Total	µg/L	1	Metals-022	<1	1	9	9	0	98	94
Iron-Total	µg/L	10	Metals-022	<10	1	410	430	5	95	#
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	97	84
Manganese-Total	µg/L	5	Metals-022	<5	1	29	29	0	97	96
Nickel-Total	µg/L	1	Metals-022	<1	1	2	2	0	93	99
Lead-Total	µg/L	1	Metals-022	<1	1	3	3	0	104	100
Zinc-Total	µg/L	1	Metals-022	<1	1	59	59	0	98	113

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	22/01/2024	22/01/2024		[NT]	[NT]
Date analysed	-			[NT]	11	24/01/2024	24/01/2024		[NT]	[NT]
Aluminium-Total	µg/L	10	Metals-022	[NT]	11	760	920	19	[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	11	2	2	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	2	67	[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	7	7	0	[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	11	910	1100	19	[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	11	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	11	42	42	0	[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	11	2	2	0	[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	11	3	4	29	[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	11	39	39	0	[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	341875-3
Date prepared	-			22/01/2024	1	22/01/2024	22/01/2024		22/01/2024	22/01/2024
Date analysed	-			23/01/2024	1	23/01/2024	23/01/2024		23/01/2024	23/01/2024
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.2	0.2	0	96	100

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	11	22/01/2024	22/01/2024		[NT]	[NT]
Date analysed	-			[NT]	11	23/01/2024	23/01/2024		[NT]	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	[NT]	11	0.2	0.2	0	[NT]	[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	-			23/01/2024	[NT]	[NT]	[NT]	[NT]	23/01/2024	[NT]
Date analysed	-			23/01/2024	[NT]	[NT]	[NT]	[NT]	23/01/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	104	[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]	103	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	106	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	83	[NT]	[NT]	[NT]	[NT]	80	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	78	[NT]	[NT]	[NT]	[NT]	72	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	136	[NT]	[NT]	[NT]	[NT]	129	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	182	[NT]	[NT]	[NT]	[NT]	155	[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: no filtered, preserved sample was received, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
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).
All metals in water - total - # 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.

TRACE METALS: In theory the total metal content should be higher than the dissolved metal content. However, in some samples this is not the case. The sample has been re-analysed for both Total and Dissolved metals and results have been confirmed.

Sample SW05 the pH/EC was determined from 100mL amber bottle as per client request.

Attachment C – Groundwater Monitoring Report

Groundwater Monitoring Six Monthly Report 3

Sydney Metro West – Western Tunnelling Package

July 2023 to January 2024

ISSUE DATE: 12 APRIL 2024

Document Details

Document Title	**Groundwater Monitoring Six Monthly Report 3**
Project Name	**Sydney Metro West – Western Tunnelling Package**
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ABN	36 636 433 522
Project Address	**L8, 60 Station Street, Parramatta NSW 2150**

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TABLE OF CONTENTS

Terms and Definitions 4

1 INTRODUCTION 5
Project Description 5
1.1 Groundwater Monitoring Objective 5
1.2 Project Requirements 7

2 DESCRIPTION OF WORKS 9

3 MONITORING METHODOLOGY 11
3.1 Groundwater Monitoring Network 11
3.2 Gauging and Sampling Methodology 22
3.3 Laboratory Analysis 23
3.4 Quality Assurance/Quality Control Plan 24
3.5 Water Treatment Plants 25

4 PERFORMANCE CRITERIA 26
4.1 Groundwater Level Monitoring 26
4.2 Groundwater Quality Monitoring 27
4.3 Rosehill Water Treatment Plant 28
4.4 Westmead Water Treatment Plant 29

5 RESULTS 30
5.1 Registered Groundwater Bores 30
5.2 GWMW Condition Assessment 30
5.3 Groundwater Levels 31
5.4 Groundwater Quality 37
5.5 Water Treatment Plant 58

6 CONCLUSION 65

7 REFERENCES 67

APPENDIX A – FIGURES 68

APPENDIX B – TABLES 69

APPENDIX C – HYDROGRAPHS 70

APPENDIX D – FIELD DATA SHEETS 71

APPENDIX E – LABORATORY DOCUMENTATION 73

APPENDIX F – CALIBRATION CERTIFICATES 76

APPENDIX G – NOVEMBER 2023 GROUNDWATER LEVEL TRIGGER MONITORING MEMO 79

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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 (formerly DPE)
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	Sydney Metro West Western Tunnelling Package works (The Project)

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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 groundwater monitoring program is to ensure that impacts to groundwater are minimised during construction of the Western Tunnelling Package (WTP). Additionally, the program 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. B) and the Groundwater Management Plan (SMWSTWTP-GLO-1NL-EN-PLN-000002, Rev. B).

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 19 July 2023 to 19 January 2024.

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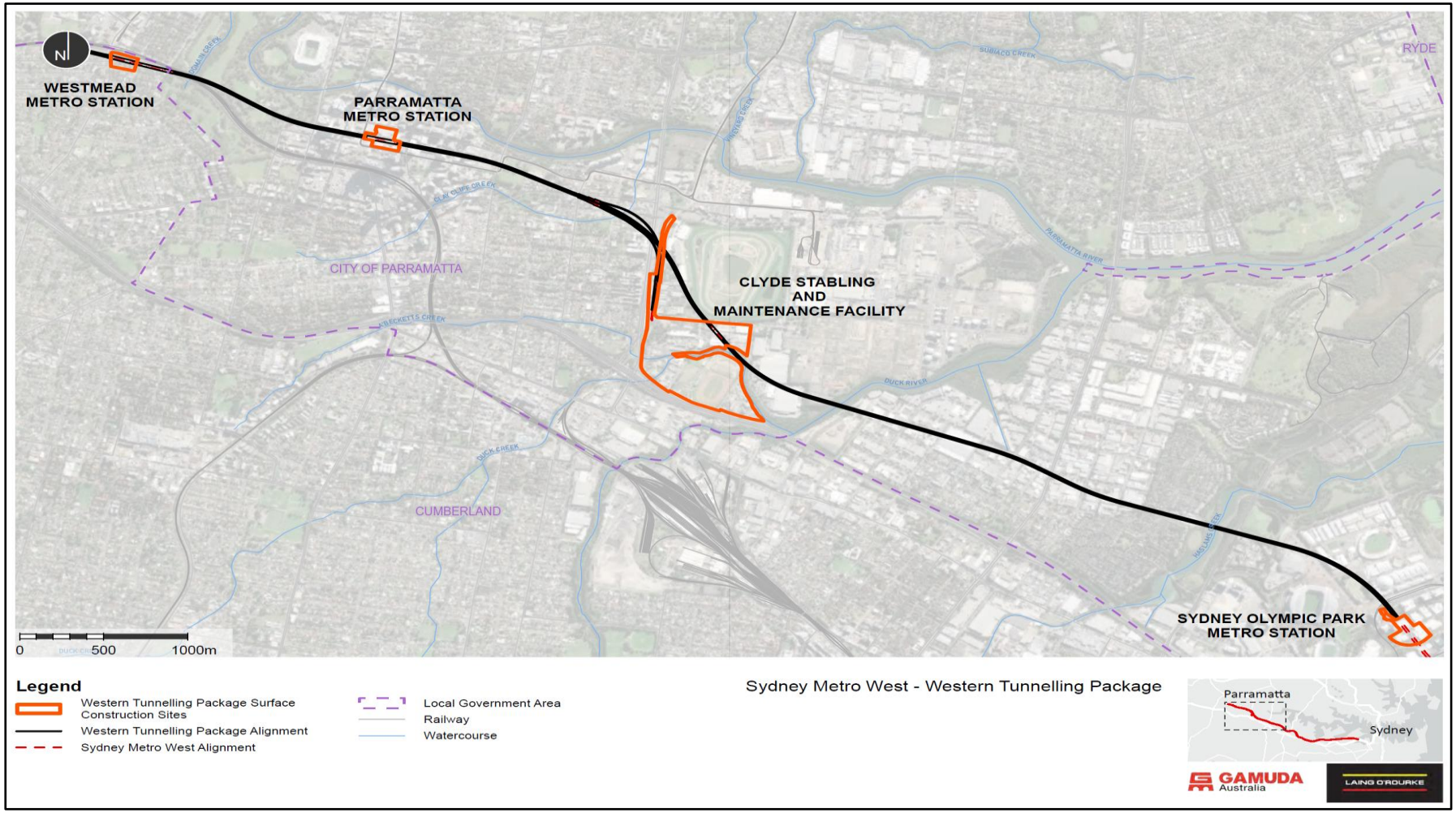

Figure 1 WTP Project Map Overview

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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 19 July 2023 to 19 January 2024. Groundwater monitoring event (GME) data from July 2023, October 2023, and trigger monitoring completed in November 2023 are included within this report (Appendix G).

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
	The static groundwater level will be measured and recorded at each standpipe piezometer each month using an oil/water interface probe	Section 5.3.1

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Reference	Requirement	Document Reference
	to verify the continuous data recorded by dataloggers and identify any non-aqueous phase liquid (NAPL) contamination.	
	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 5.4.1
	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
	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
	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:	Section 5.5 Section 5.6

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Reference	Requirement	Document Reference
	• 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	
	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	Construction of Acoustic Shed Construction and Commissioning of Water Treatment Plant Adjacent offsite I&M works Adjacent offsite Utility Works Station Box & Tunnel Concrete Delivery and Structural Works General operation of ancillary facilities Bulk excavation work. Mined tunnel excavations
Parramatta	Removal and/or relocating utilities General operation of ancillary facilities Diaphragm wall (D-Wall) excavation Archaeological clearance Bulk excavation commencement
Clyde Dive[1]	Piling for Dive structure Bulk earthworks General operation of ancillary facilities Mined tunnel excavations Concreting works for base slabs
Clyde MSF[1]	Haul roads and site amenities Earthworks Utility trench and services corridor Water conveyance structure – construction Unwin Street Diversion – construction General operation of ancillary facility Utility adjustment works

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Site	Construction activities
	Vegetation removal Spoil haulage
Rosehill[1]	FRP concrete work Delivery of equipment General operation of ancillary facility Water treatment plant installation Tunnel Boring Machine excavation Segment shed construction Spoil haulage
Sydney Olympic Park	Site establishment

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

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3 MONITORING METHODOLOGY

The following was undertaken during the July 2023, October 2023 Quarterly Monitoring Events, and November 2023 Trigger Monitoring Event:

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 performance criteria/guideline values
- Preparation of factual groundwater monitoring reports (July 2023 and October 2023)
- Preparation of trigger monitoring reports (November 2023)

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 July 2023 and October 2023 monitoring events, 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.

The groundwater monitoring network accessed during July 2023 and October 2023 monitoring events is presented in **Table 3** and shown in **Appendix A – Figures**.

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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 issue/ destroyed
July 2023	Clyde MSF	SMW_WTP_BH25_w	Y	18/07/2023	-	X	X	-
July 2023	Clyde MSF	SMW_WTP_BH25_s	Y	18/07/2023	X	X	-	-
July 2023	Clyde MSF	SMW_ENV224_w	Y	18/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_ENV148_w	Y	18/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_WTP_BH26_w	Y	18/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_WTP_BH27_w	Y	18/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_ENV227_w	Y	18/07/2023	X	X	-	-
July 2023	Clyde MSF	SMW_ENV264_w	Y	18/07/2023	-	X	-	-
July 2023	Clyde MSF	SMW_ENV264_s	Y	18/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_ENV226_w	Y	18/07/2023	-	-	-	X
July 2023	Clyde MSF	CZ1_BH13	N	18/07/2023	X	X	-	-
July 2023	Clyde MSF	SMW_ENV234_w	Y	18/07/2023	-	-	-	X

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
July 2023	Clyde MSF	CZ5_MW16	N	18/07/2023	X	X	-	-
July 2023	Clyde MSF	SMW_ENV210_w	Y	18/07/2023	X	X	-	-
July 2023	Clyde MSF	GALC-MW12	N	20/07/2023	X	X	-	-
July 2023	Clyde MSF	SMW_ENV083_w	N	19/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_ENV088_w	N	19/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_ENV284_w	Y	19/07/2023	-	-	-	X
July 2023	Clyde MSF	CZ4w_MW08	N	19/07/2023	-	-	-	X
July 2023	Clyde MSF	CZ5_MW26	N	19/07/2023	-	-	-	X
July 2023	Clyde MSF	CZ6_MW05	N	19/07/2023	-	-	-	X
July 2023	Clyde MSF	GALC-MW76	N	19/07/2023	-	-	-	X
July 2023	Clyde MSF	SMW_ENV039_w	N	19/07/2023	X	X	X	-
July 2023	Rosehill	CZ4e_MW01	N	19/07/2023	X	X	-	-

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
July 2023	Rosehill	CZ4e_MW02	N	19/07/2023	-	X	-	-
July 2023	Rosehill	CZ4e_MW03	N	19/07/2023	X	X	-	-
July 2023	Rosehill	SMW_ENV042_w	N	19/07/2023	X	X	X	-
July 2023	Rosehill	SMW_BH010_w	N	19/07/2023	-	X	X	-
July 2023	Rosehill	SMW_WTP_BH13_w	N	19/07/2023	X	X	-	-
July 2023	Clyde Dive	GALC-MW18	N	20/07/2023	X	X	-	-
July 2023	Clyde Dive	GALC-MW17	N	20/07/2023	-	X	-	-
July 2023	Clyde Dive	GALC-MW16-a	N	20/07/2023	-	X	-	-
July 2023	Clyde Dive	GALC-MW16-b	N	20/07/2023	-	X	-	-
July 2023	Clyde Dive	SMW_BH057_s	Y	25/07/2023	X	X	X	-
July 2023	Clyde Dive	SMW_BH057_w	Y	25/07/2023	-	X	X	-
July 2023	Clyde Dive	SMW_ENV009_w	Y	25/07/2023	-	-	-	X

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July 2023	Clyde Dive	SMW_ENV010_w	N	25/07/2023	X	X	-	-
July 2023	Clyde Dive	SMW_ADD_BH02_w	Y	25/07/2023	X	X	X	-
July 2023	Westmead	SMW_WTP_BH02_w	N	21/07/2023	X	X	X	-
July 2023	Westmead	SMW_WTP_BH03A_w	Y	21/07/2023	X	X	X	-
July 2023	Westmead	GALC-MW47	N	24/07/2023	-	X	-	-
July 2023	Westmead	GALC-MW39	N	21/07/2023	-	-	-	X
July 2023	Westmead	GALC-MW38	N	21/07/2023	-	X	-	-
July 2023	Westmead	SMW_BH008_w	Y	24/07/2023	-	X	X	-
July 2023	Parramatta	SMW_BH002_w	Y	24/07/2023	-	X	X	-
July 2023	Parramatta	SMW_BH003_s	Y	24/07/2023	-	-	-	X
July 2023	Parramatta	GALC-MW33	N	24/07/2023	-	X	-	-
July 2023	Parramatta	GALC-MW32	N	24/07/2023	-	X	-	-

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
July 2023	Parramatta	PM_GDP_N	N	24/07/2023	-	X	-	-
July 2023	Parramatta	PM_GDP_S	N	24/07/2023	-	-	-	X
July 2023	Parramatta	PM_BH14	N	24/07/2023	X	X	X	-
July 2023	Parramatta	PM_BH18	N	24/07/2023	-	-	-	X
July 2023	Parramatta	PM_BH57	N	24/07/2023	-	X	-	-
July 2023	Parramatta	PM_BH21	N	24/07/2023	-	X	-	-
July 2023	Parramatta	GALC-MW31	N	24/07/2023	-	X	-	-
July 2023	Parramatta	GALC-MW79	N	24/07/2023	-	-	-	X
July 2023	Parramatta	PM_BH15	N	24/07/2023	X	X	-	-
July 2023	Parramatta	SMW_BH004_w	Y	25/07/2023	-	X	X	-
July 2023	Parramatta	SMW_BH004_s	Y	25/07/2023	X	X	X	-
July 2023	Sydney Olympic Park (SOP)	SMW_WTP_BH23_w	N	21/07/2023	-	X	-	-

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
July 2023	SOP	SMW_WTP_BH22_w	N	21/07/2023	-	X	X	-
October 2023	Clyde MSF	CZ1_BH13	N	06/10/2023	X	X	-	-
October 2023	Clyde MSF	CZ5_MW09	N	09/10/2023	X	X	-	-
October 2023	Clyde MSF	CZ5_MW16	N	06/10/2023	X	X	-	-
October 2023	Clyde MSF	GALC-MW12	N	06/10/2023	X	X	-	-
October 2023	Clyde MSF	SMW_ENV148_w	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV149_w	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV210_w	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV224_w	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV227_g*	Y	06/10/2023	X	X	-	-
October 2023	Clyde MSF	SMW_ENV264_s	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV264_w	Y	06/10/2023	-	X	-	-

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
October 2023	Clyde MSF	SMW_WTP_BH25_s	Y	06/10/2023	X	X	-	-
October 2023	Clyde MSF	SMW_WTP_BH25_w	Y	06/10/2023	-	X	X	-
October 2023	Clyde MSF	SMW_WTP_BH26_w	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_WTP_BH27_w	Y	06/10/2023	-	-	-	X
October 2023	Clyde MSF	CZ4w_MW08	N	06/10/2023	-	-	-	X
October 2023	Clyde MSF	CZ5_MW26	N	06/10/2023	-	-	-	X
October 2023	Clyde MSF	CZ6_MW02	N	06/10/2023	-	-	-	X
October 2023	Clyde MSF	CZ6_MW05	N	06/10/2023	-	-	-	X
October 2023	Clyde MSF	GALC-MW76	N	06/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV039_w	N	09/10/2023	X	X	X	-
October 2023	Clyde MSF	SMW_ENV083_w	N	09/10/2023	-	-	-	X
October 2023	Clyde MSF	SMW_ENV088_w	N	09/10/2023	-	-	-	X

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
October 2023	Clyde MSF	SMW_ENV284_w	Y	09/10/2023	-	-	-	X
October 2023	Rosehill	CZ4e_MW01	N	09/10/2023	-	-	-	X
October 2023	Rosehill	CZ4e_MW02	N	09/10/2023	X	X	-	-
October 2023	Rosehill	CZ4e_MW03	N	09/10/2023	X	X	-	-
October 2023	Rosehill	SMW_BH010_w	N	10/10/2023	-	X	X	-
October 2023	Rosehill	SMW_ENV042_w	Y	10/10/2023	X	X	X	-
October 2023	Rosehill	SMW_ENV145_w	Y	09/10/2023	-	X	X	-
October 2023	Rosehill	SMW_WTP_BH13_w	N	09/10/2023	X	X	-	-
October 2023	Clyde Dive	GALC-MW16_s	N	10/10/2023	-	X	-	-
October 2023	Clyde Dive	GALC-MW16_w	N	10/10/2023	X	X	-	-
October 2023	Clyde Dive	GALC-MW17	N	10/10/2023	-	X	-	-
October 2023	Clyde Dive	GALC-MW18	N	10/10/2023	X	X	-	-
October 2023	Clyde Dive	SMW_ADD_BH02_w	Y	13/10/2023	-	X	X	-

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
October 2023	Clyde Dive	SMW_BH057_s	Y	13/10/2023	X	X	X	-
October 2023	Clyde Dive	SMW_BH057_w	Y	13/10/2023	X	X	X	-
October 2023	Clyde Dive	SMW_ENV009_w	Y	13/10/2023	X	X	X	-
October 2023	Clyde Dive	SMW_ENV010_w	N	13/10/2023	-	X	-	-
October 2023	Parramatta	GALC-MW26A	N	12/10/2023	-	X	-	-
October 2023	Parramatta	GALC-MW26	N	12/10/2023	-	X	-	-
October 2023	Parramatta	GALC-MW31	N	12/10/2023	-	X	-	-
October 2023	Parramatta	GALC-MW32	N	12/10/2023	-	X	-	-
October 2023	Parramatta	GALC-MW33	N	12/10/2023	-	X	-	-
October 2023	Parramatta	GALC-MW79	N	12/10/2023	-	-	-	X
October 2023	Parramatta	PM_BH14	N	12/10/2023	X	X	X	-
October 2023	Parramatta	PM_BH15	N	12/10/2023	X	X	-	-
October 2023	Parramatta	PM_BH18	N	12/10/2023	-	-	-	X
October 2023	Parramatta	PM_BH21	N	12/10/2023	-	X	-	-
October 2023	Parramatta	PM_BH57	N	12/10/2023	-	-	-	X
October 2023	Parramatta	SMW_BH002_w	Y	12/10/2023	-	X	X	-
October 2023	Parramatta	SMW_BH003_s	Y	12/10/2023	-	-	-	X
October 2023	Parramatta	SMW_BH004_s	Y	11/10/2023	X	X	X	-
October 2023	Parramatta	SMW_BH004_w	Y	12/10/2023	-	X	X	-

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Round	Monitoring Zone	GWMW ID	July 2022 baseline GWMW?	Monitoring Date	Water Quality	Manual Water Level	Level logger	Access issue/ destroyed
October 2023	Westmead	GALC-MW36	N	11/10/2023	-	-	-	X
October 2023	Westmead	GALC-MW38	N	11/10/2023	-	X	-	-
October 2023	Westmead	GALC-MW47	N	11/10/2023	-	X	-	-
October 2023	Westmead	SMW_BH008_w	Y	11/10/2023	-	X	X	-
October 2023	Westmead	SMW_WTP_BH02_w	N	11/10/2023	X	X	X	-
October 2023	Westmead	SMW_WTP_BH03A_w	Y	11/10/2023	X	X	X	-
October 2023	SOP	SMW_WTP_BH22_w	N	11/10/2023	-	X	X	-
October 2023	SOP	SMW_WTP_BH23_w	N	11/10/2023	-	X	-	-
**SMW_ENV227_g was previously identified as “SMW_ENV227_w” in July 2023 monitoring round								

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3.1.1 Salinity Monitoring Network

Saline intrusion monitoring is achieved by:

- 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 monitoring event.

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

Table 3 The details 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.
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).

Action	Description/details
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

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- Extended Heavy Metals Suite – Aluminium (Al), 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 Oxidized Nitrogen, Nitrate, Nitrite, Total Ammonia, Ammonium, Total Phosphorous, Total Reactive Phosphorous, Total Reactive Phosphorous, Total Kjeldahl Nitrogen
- Total petroleum hydrocarbons (TPH) – C6 - C10, >C10 - C16, etc.
- Aromatic Hydrocarbons (BTEXN) – Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Volatile Organic Compounds (VOCs)
- Per- and Poly-Fluoroalkyl Substances (PFAS).

3.4 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, 2022a) 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.
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.

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Action	Description/details
	Data validation sheets for each laboratory batch are presented in **Appendix E – Laboratory Documentation**

3.5 Water Treatment Plants

During the reporting period (19 July 2023 to 19 January 2024), the Rosehill Permanent Water Treatment Plant and Westmead Permanent Water Treatment Plants were operational across the project.

3.5.1 Operations during the reporting period

3.5.1.1 Rosehill temporary Water Treatment Plant

The Rosehill temporary water treatment plant, identified as Point 2 under EPL 21676, was decommissioned in July 2023. There was no water discharged from this plant during the reporting period.

3.5.1.2 Westmead Water Treatment Plant

The Westmead water treatment plant, identified as Point 3, was commissioned on 9th January 2024. It was operating to discharge until 24th 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 Water Treatment Plant comprised of groundwater and stormwater runoff. Four sampling events occurred during the reporting period.

3.5.1.3 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. Sixteen 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.

3.5.1.4 Parramatta Water Treatment Plant

The Parramatta water treatment plant, identified as Point 5 under EPL 21676, was not operational during the reporting period.

3.5.2 Water sampling methodology

The following was undertaken as part of the Rosehill and Westmead Water Treatment Plant post-commissioning sampling:

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- 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 Representative 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.

4 PERFORMANCE CRITERIA

4.1 Groundwater Level Monitoring

Seasonal fluctuation considered within the EIS and supplementary reports will facilitate the assessment and comparison between groundwater level decrease and the predicted drawdown from 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 2m 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 presented below in **Table 7**, 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 780m NNW
Parramatta	Grey Box - Cumberland Plain Woodland 590m WNW	GW108661 565m 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	GW305646

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Site	High priority GDE	Nearest water supply bore
	1.3 km NNE	3.3 km WSW

4.2 Groundwater Quality Monitoring

The following criteria were adopted as the indicator values for the performance criteria for groundwater quality. Any changes in groundwater quality will be measured relative to these performance criteria:

- ANZG (2018) 95% Species Protection Criteria for marine water, with criteria for toxicants known to bioaccumulate (mercury and cadmium) assessed based on the 99% species protection criteria. The National Institute of Water and Atmospheric Research (NIWA 2013) value for nitrate toxicity in freshwater is adopted for both fresh and marine water systems.
- NEPM (2013) Groundwater Investigation Levels for marine water and freshwater (Parramatta and Westmead).
- ANZECC (2000) Default Guideline Values for estuaries (Clyde and Clyde – Rosehill) and freshwater (Parramatta and Westmead), with criteria for total nitrogen of 0.3 mg/L, and total phosphorus of 0.03 mg/L.
- PFAS NEMP 2.0 (2020) Interim Marine Water 95% Level of Protection for perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).

Additional investigation and monitoring will be triggered when changes in groundwater concentrations or levels are identified in accordance with the triggers identified in **Table 8**.

Table 8 Groundwater Triggers

Trigger No.	Details
1	A parameter exceeding trigger values, 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 2 events) to more than 2x its baseline value in any GWMW, where the baseline value exceeds the NEPM GIL trigger values
3	A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in GWMWs adjacent to excavations, where the baseline value exceeds the ANZECC (2000) or ANZG (2018) trigger value

4.2.1 Salinity

To assess for the potential of saline intrusion, the following is defined as reportable changes in salinity:

- An increase of salinity (as electrical conductivity, EC) to more than 2x the recorded 95th percentile value prior to construction
- Salinity measurements will be assessed from stabilised in-situ EC readings (i.e., the last reading taken before sampling).

4.2.2 Acid Sulfate Soils

To assess for the activation of acid sulfate soils (ASS), a Schoeller diagram will be generated. A Schoeller diagram will plot major anion, cation and pH values to identify deviations in the

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concentrations of base anion/cations from baseline conditions to construction works. Total alkalinity, measured in groundwater, decreasing below 30 mg/l as $CaCO_3$ is considered to represent a reduction in the acid buffering capacity of the soil.

If the pH reduces by one (1) 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

In the Project 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**.

Table 9 Rosehill Permanent Water Treatment Plant, Point 4 Discharge Criteria

Point	Pollutant	Unit of Measure	Limit
4	Ammonia	µg/l	910
4	Arsenic (total)*	µg/l	241
4	Cadmium*	µg/l	0.7
4	Chromium (hexavalent)	µg/l	15
4	Cobalt	µg/l	5
4	Copper	µg/l	1.3
4	Electric conductivity*,[2]	µS/cm	N/A
4	Iron*	µg/l	3000
4	Lead*	µg/l	4.4
4	Manganese*	µg/l	1900
4	Mercury*	µg/l	0.1
4	Nickel*	µg/l	7
4	Nitrate + nitrite (oxidised nitrogen)	µg/l	1200
4	Nitrogen (total)	µg/l	1200
4	Oil and grease*	Visible	Non-Visible
4	Perfluorooctane sulphonate (PFOS)	µg/l	0.13[4]
4	Phosphorus (total)	µg/l	90
4	Turbidity*	NTU	20
4	Zinc	µg/l	12

*Not specified as part of condition L2, point 4, in the EPL (21676).

1. Freshwater value for arsenic (As(iii)) adopted.
2. No criteria for Electrical conductivity (salinity) exists for marine environments.
3. Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Iron.
4. PFAS National Environmental Management Plan, Version 2.0 – January 2020.
5. No relevant criteria for Total Recoverable Hydrocarbons (TRH) under ANZG 2018 or Condition L2 of EPL 21676. The detection of hydrocarbons in monitoring data will trigger further investigation.

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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

Point	Parameter	Units	Criteria
3	Ammonia	µg/l	200
3	Arsenic (total)	µg/l	131
3	Cadmium	µg/l	0.2
3	Calcium	µg/l	-
3	Chromium (VI)	µg/l	1.0
3	Chromium (III)	µg/l	27
3	Cobalt	µg/l	1.4
3	Copper	µg/l	1.4
3	Electric conductivity	µS/cm	2,2003
3	Iron	µg/l	3002
3	Lead	µg/l	3.4
3	Manganese	µg/l	1,900
3	Magnesium	µg/l	-
3	Mercury	µg/l	0.06
3	Nickel	µg/l	11
3	Nitrate (as N)	µg/l	2,4001
3	Nitrate + nitrite (oxidised nitrogen)	µg/l	200
3	Nitrogen (total)	µg/l	1,000
3	Oil and grease	Visible	None visible
3	Perfluorooctane sulphonate (PFOS)	µg/l	0.13
3	pH	pH	6.5 – 8.5
3	Phosphorus (total)	µg/l	25
3	Sodium	µg/l	300,0004
3	TPH C10-C36 Fraction	µg/l	100
3	TPH C6-C9 Fraction	µg/l	100
3	Turbidity	NTU	20
3	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. Criteria adopted from ANZG (2018) / ANZECC (2000) for recreational waters

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5 RESULTS

5.1 Registered Groundwater Bores

A review of the registered groundwater bores in the 3 km data 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 January 2023 and April 2023 monitoring rounds. The assessment was unable to locate several GWMWs as detailed in **Table 11**. 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 11 GWMW Condition Assessment

GWMW ID	Details
July 2023 monitoring event	
SMW_ENV224_w	Unable to locate due to construction activities
SMW_ENV148_w	Unable to open due to broken bolt on gatic cover
SMW_WTP_BH26_w	Unable to locate due to construction activities
SMW_WTP_BH27_w	Unable to locate due to construction activities
CZ5_MW26	Unable to access due to construction activities
SMW_ENV088_w	Unable to access due to construction activities
GALC-MW76	Unable to access due to construction activities
CZ6_MW05	Unable to access due to construction activities
SMW_ENV083_w	Unable to access due to construction activities
SMW_ENV284_w	Unable to access due to construction activities
CZ4w_MW08	Unable to access due to construction activities
GALC-MW79	Unable to access due to construction activities
PM_MW018	Unable to access due to construction activities
SMW_BH003_s	Unable to access due to construction activities
SMW_ENV009_w	Unable to open due to stuck bolt on gatic cover
GALC-MW39	Unable to access due to construction activities
PM_GDP_s	Unable to access due to construction activities
SMW_ENV264_s	Unable to access due to construction activities
SMW_ENV226_w	Unable to access due to construction activities

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GWMW ID	Details
SMW_ENV234_w	Unable to access due to construction activities
October 2023 monitoring event	
CZ4e_MW01	GWMW has been decommissioned (concreted)
CZ4w_MW08	Unable to locate GWMW due to construction activities
CZ5_MW26	Unable to access GWMW due to construction activities
CZ6_MW02	Unable to locate GWMW due to construction activities
CZ6_MW05	Unable to access GWMW due to construction activities
GALC-MW18	Unable to gauge GWMW due to angled PVC tubing
GALC-MW36	Unable to access GWMW due to construction activities
GALC-MW76	Unable to access GWMW due to construction activities
GALC-MW79	Unable to locate GWMW due to construction activities
PM_BH18	Unable to locate GWMW due to construction activities
PM_BH57	Unable to locate GWMW due to construction activities
SMW_BH003_s	Unable to locate GWMW due to construction activities
SMW_ENV083_w	Unable to access GWMW due to construction activities
SMW_ENV088_w	Unable to access GWMW due to construction activities
SMW_ENV148_w	Unable to access GWMW due to construction activities
SMW_ENV149_w	Unable to access GWMW due to broken bolts
SMW_ENV210_w	Unable to locate GWMW due to construction activities
SMW_ENV224_w	Unable to access GWMW due to construction activities
SMW_ENV264_s	Unable to access GWMW due to broken bolts
SMW_ENV284_w	GWMW has been destroyed
SMW_WTP_BH26_w	Unable to access GWMW due to construction activities
SMW_WTP_BH27_w	Unable to access GWMW due to construction activities

5.3 Groundwater Levels

5.3.1 Manual Groundwater Level Monitoring

Water levels were manually measured at GWMWs during the July 2023 and October 2023 monitoring events. The results are presented in **Table 12**. 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 a suitably qualified field staff and reviewed by a suitably qualified hydrogeologist.

Table 12 Manual Groundwater Level Monitoring

GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
SMW_WTP_BH25_w	18/07/2023	5.4	10.1	6.7	-1.2

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GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
SMW_WTP_BH25_s	18/07/2023	5.5	5.7	2.9	2.6
SMW_ENV227_w	18/07/2023	5.6	3.4	2.8	2.8
SMW_ENV264_w	18/07/2023	5.6	6.1	2.1	3.5
GALC-MW12	20/07/2023	2.1	10.5	2.8	-0.7
CZ1_BH13	18/07/2023	Not surveyed	9.7	2.9	Not surveyed
CZ5_MW16	18/07/2023	4.1	5.9	2.1	2.0
SMW_ENV210_w	18/07/2023	3.9	5.9	0.9	3.1
CZ4e_MW01	19/07/2023	5.0	5.9	1.3	3.7
CZ4e_MW02	19/07/2023	Not surveyed	6.0	2.2	Not surveyed
CZ4e_MW03	19/07/2023	Not surveyed	4.3	1.5	Not surveyed
SMW_ENV042_w	19/07/2023	4.4	10.3	5.7	-1.4
SMW_BH010_w	19/07/2023	4.4	27.2	7.2	-2.9
SMW_ENV039_w	19/07/2023	6.4	10.3	5.8	0.6
SMW_WTP_BH13_w	19/07/2023	5.2	7.3	1.9	3.3
GALC-MW18	20/07/2023	7.41	-	-	Tubing bent
GALC-MW17	20/07/2023		21.7	14.6	
GALC-MW16-a	20/07/2023	10.1	11.5	9.2	-1.4
GALC-MW16-b	20/07/2023	10.1	22.3	11.0	-0.9
GALC-MW38	21/07/2023	33.3	41.0	17.2	16.1
SMW_WTP_BH02_w	21/07/2023	35.7	20.7	6.2	29.4
SMW_WTP_BH03A_w	21/07/2023	26.2	21.9	7.3	18.9
SMW_WTP_BH23_w	21/07/2023	10.2	30.0	6.0	4.1
SMW_WTP_BH22_w	21/07/2023	16.2	24.9	1.7	14.5
SMW_BH002_w	24/07/2023	8.9	32.1	10.4	-1.6
GALC-MW33	24/07/2023	11.4	33.3	9.0	2.4
GALC-MW32	24/07/2023	11.6	30.1	8.5	3.1
PM_GDP_N	24/07/2023	Not surveyed	7.0	0.0	Not surveyed
PM_BH14	24/07/2023	Not surveyed	5.9	5.3	Not surveyed
PM_BH57	24/07/2023	Not surveyed	4.9	1.1	Not surveyed
PM_BH21	24/07/2023	Not surveyed	6.9	1.2	Not surveyed
GALC-MW31	24/07/2023	10.2	33.0	3.0	7.2
PM_BH15	24/07/2023	Not surveyed	10.0	5.1	Not surveyed
SMW_BH008_w	24/07/2023	21.1	17.2	5.4	15.8
GALC-MW47	24/07/2023	36.9	15.7	10.3	46.6
SMW_BH004_w	25/07/2023	8.6	23.8	9.5	-0.8
SMW_BH004_s	25/07/2023	8.7	11.3	5.0	3.7
SMW_BH057_s	25/07/2023	3.7	4.6	2.4	1.2
SMW_BH057_w	25/07/2023	3.6	27.1	11.5	-7.9

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GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
SMW_ENV010_w	25/07/2023	4.2	7.0	2.5	1.7
SMW_ADD_BH02_w	25/07/2023	13.5	30.0	26.9	-13.5
GALC-MW16_s	10/10/2023	10.45	11.22	Dry	Dry
GALC-MW16_w	10/10/2023	10.50	19.58	11.39	-0.89
GALC-MW17	10/10/2023	15.03	21.70	14.94	0.09
SMW_ADD_BH02_w	13/10/2023	13.50	30.76	26.71	-13.21
SMW_BH057_s	13/10/2023	3.70	4.56	2.57	1.13
SMW_BH057_w	13/10/2023	3.60	23.80	12.86	-9.26
SMW_ENV009_w	13/10/2023	4.15	7.10	2.54	1.61
SMW_ENV010_w	13/10/2023	4.20	6.99	2.84	1.36
CZ1_BH13	6/10/2023	Not surveyed	9.67	2.56	Not surveyed
CZ5_MW09	9/10/2023	Not surveyed	4.95	1.00	Not surveyed
CZ5_MW16	6/10/2023	4.10	5.90	1.08	3.02
GALC-MW12	6/10/2023	2.00	10.40	2.56	-0.56
SMW_ENV227_g	6/10/2023	5.60	3.40	2.59	3.02
SMW_ENV264_w	6/10/2023	5.60	6.05	1.75	3.86
SMW_WTP_BH25_s	6/10/2023	5.50	5.67	3.07	2.43
SMW_WTP_BH25_w	6/10/2023	5.40	10.11	7.37	-1.97
SMW_ENV039_w	9/10/2023	6.40	10.32	5.82	0.59
GALC-MW26_s	12/10/2023	9.57	8.64	4.23	5.34
GALC-MW26_w	12/10/2023	9.48	30.16	8.96	0.52
GALC-MW31	12/10/2023	10.24	26.58	7.88	2.36
GALC-MW32	12/10/2023	11.62	30.30	8.48	3.14
GALC-MW33	12/10/2023	11.44	33.08	8.94	2.50
PM_BH14	12/10/2023	Not surveyed	5.94	5.44	Not surveyed
PM_BH15	12/10/2023	Not surveyed	9.99	5.20	Not surveyed
PM_BH21	12/10/2023	Not surveyed	6.93	1.13	Not surveyed
SMW_BH002_w	12/10/2023	8.90	34.26	10.25	-1.35
SMW_BH004_s	11/10/2023	8.70	11.23	5.04	3.66
SMW_BH004_w	12/10/2023	8.60	24.19	9.12	-0.52
CZ4e_MW02	9/10/2023	Not surveyed	5.95	2.06	Not surveyed
CZ4e_MW03	9/10/2023	Not surveyed	4.36	1.02	Not surveyed
SMW_BH010_w	10/10/2023	4.40	27.19	7.97	-3.57
SMW_ENV042_w	10/10/2023	4.40	10.30	6.49	-2.09
SMW_ENV145_w	9/10/2023	4.64	14.63	8.25	-3.61
SMW_WTP_BH13_w	9/10/2023	5.20	7.28	2.23	2.97
SMW_WTP_BH22_w	11/10/2023	16.20	24.90	1.88	14.33
SMW_WTP_BH23_w	11/10/2023	10.20	29.94	6.20	4.00

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GWMW ID	Date	TOC (mAHD)	Total Depth (mbTOC)	SWL (mbTOC)	SWL (mAHD)
GALC-MW38	11/10/2023	33.33	36.08	17.43	15.91
GALC-MW47	11/10/2023	36.93	14.85	11.83	25.10
SMW_BH008_w	13/10/2023	21.10	18.02	8.44	12.66
SMW_WTP_BH02_w	11/10/2023	35.70	20.67	6.25	29.45
SMW_WTP_BH03A_w	11/10/2023	26.20	21.84	10.31	15.90

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 13**.

Table 13 Groundwater Drawdown at Select Locations (data from October 2023 monitoring event)

Site	GWMW ID	Latest Monitoring Round	Pre-construction average SWL (mAHD)	Historical SWL variance (mAHD)	Monitoring period SWL (mAHD)
Westmead	SMW_BH008_w	Oct 2023	19.0	19.9 to 18.6	16.3
	SMW_WTP_BH03A	Oct 2023	22.6	23.3 to 21.7	15.9
	SMW_WTP_BH02	Oct 2023	29.2	29.4 to 29.0	29.4
Parramatta	SMW_BH002	July 2023	-1.5	0 to -2.2	-1.5
	SMW_BH004_s	Oct 2023	4.0	4.7 to 3.4	3.6
	SMW_BH004_w	Oct 2023	-0.5	0.2 to -1.4	-0.5
	PM_BH14	Oct 2023	6.0	6.5 to 5.5	4.9
Clyde	SMW_ADD_BH02	Oct 2023	1.7	2.8 to 1.5	-13.1
	SMW_BH057_s	Oct 2023	2.2	3.3 to 1.7	1.3
	SMW_BH057_w	Oct 2023	2.0	2.3 to 1.8	-9.2
	SMW_ENV009_w	Oct 2023	2.4	3.2 to 2.2	1.6
	SMW_ENV039_w	Oct 2023	2.0	2.0	0.5
Rosehill	SMW_WTP_BH25_w	Oct 2023	3.0	3.0*	-2.0
	SMW_BH010_w	Oct 2023	3.0	3.3 to 2.4	-3.5
	SMW_ENV042	Oct 2023	2.3	2.9 to 2.0	-2.2
	SMW_ENV145	Oct 2023	3.5	3.8 to 3.1	-3.5

Salinity and conductivity trends are consistent across the monitoring period.

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 14**.

Table 14 Reportable change in groundwater level

Monitoring zone	GWMW ID	Aquifer	Typical pre-construction GWL (mAHD)	Construction GWL – October 2023 (mAHD)	Drawdown (m)	Drawdown threshold (m), as per modelling report
Clyde - zone 1 Rosehill	SMW_WTP_BH25_w	Not reported	3	-2	5	<1
Clyde - Zone 2b Rosehill	SMW_BH010_w	Not reported	3	-3.5	6.5	<1
Clyde - Zone 2b Rosehill	SMW_ENV042_w	Not reported	2.3	-2.2	4.5	<1
	SMW_ENV145_w	Not reported	3.5	-3.5	7	<1
Clyde - Zone 3a	SMW_ADD_BH02_w	Ashfield shale	1.7	-13.1	14.9	3.5
	SMW_BH057_w	Ashfield shale	2	-9.2	11.2	2.5

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.

5.3.3 Performance Criteria Assessment – November 2023 GME

To assess the reportable changes in groundwater level, trigger response monitoring was undertaken in November 2023. The objective of monitoring was to determine whether the six (6) GWMWs were representative of groundwater conditions in their respective area. This assessment was undertaken by a suitably qualified hydrogeologist.

Where groundwater levels in the GWMWs are considered representative, the performance criteria exceedance were confirmed, and recommendations were provided. If the groundwater levels in the GWMWs were not representative, an alternative GWMWs for monitoring were identified and implemented into the following quarterly GME.

Two GWMWs, SMW_ADD_BH02_w and SMW_ENV042_w, were not considered to be representative of groundwater levels in the area and therefore replacement GWMWs to monitor regional groundwater have been identified. GALC-MW16_w is recommended as a suitable replacement for SMW_ADD_BH02_w and a new well is to be drilled to replace SMW_ENV042_w Conclusions from the groundwater level monitoring are shown in **Table 15**. The technical memo regarding these trigger monitoring is detailed in **Appendix G** – November 2023 Groundwater level trigger monitoring memo.

Table 15 Results and recommendations from the November trigger response monitoring

Location	GWMW	Representative?	Justification	Recommended action
Rosehill	SMW_WTP_BH25_w	Y	GWMW was purged dry to assess whether it was representative. Recharge	Observed drawdown does not indicate potential for unacceptable

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Location	GWMW	Representative?	Justification	Recommended action
			identified, therefore GWMW considered representative of groundwater conditions	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_ENV042_w	N	GWMW was purged dry to assess whether it was representative. Recharge not identified, therefore GWMW considered representative of groundwater conditions	It is recommended that replacement GWMW to be drilled in a similar location and within the same screened unit (in progress) Confirm with GLC's groundwater modelling consultant that <1 m drawdown is correct for adoption as trigger value for this GWMW
	SMW_ENV145_w	Y	Due to depth of GWMW it was not purged Comparison with adjacent GWMWs of the same aquifer shows groundwater levels in this GWMW can be considered representative	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	Y	Due to depth of GWMW it was not purged No adjacent GWMWs screened in the same aquifer Therefore, it is assumed that groundwater levels in this GWMW can be considered representative	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	Y	Due to depth of GWMW it was not purged Comparison with adjacent GWMWs of the same aquifer shows groundwater levels in this GWMW can be considered representative	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 quarterly groundwater monitoring program

Location	GWMW	Representative?	Justification	Recommended action
	SMW_ADD_BH02_w	N	Due to depth of GWMW it was not purged Comparison with adjacent GWMWs of the same aquifer shows groundwater levels in this GWMW cannot be considered representative	GALC-MW16_w is recommended as a suitable replacement for SMW_ADD_BH02_w Confirm with GLC's groundwater modelling consultant that modelled drawdown is correct for adoption as trigger value for this GWMW

5.4 Groundwater Quality

A summary of groundwater exceedances against the generic water quality criteria is provided in **Table 16** (July 2023 event) and **Table 17** (October 2023 event)**.**

Table 16 Generic criteria exceedances (July 2023)

GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
CZ1_BH13	Clyde MSF	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	0.5
		Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.005	0.03
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.08
CZ4e_MW01	Rosehill	Copper (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.3	4
			NEPM 2013 Table 1C GILs, Marine Waters		1.3	4
		Nickel (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	70	11
			NEPM 2013 Table 1C GILs, Marine Waters		7	11
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	38
			NEPM 2013 Table 1C GILs, Marine Waters		15	38
CZ4e_MW03	Rosehill	Nickel (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	70	15
			NEPM 2013 Table 1C GILs, Marine Waters		7	15
		Phosphorus	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.03	0.05
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	30
			NEPM 2013 Table 1C GILs, Marine Waters		15	30

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GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
CZ5_MW16	Clyde MSF	Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.015	0.02
		Ammonia as N (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	mg/L	0.91	2.1
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	2.1
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	15
			NEPM 2013 Table 1C GILs, Marine Waters		15	15
GALC-MW12	Clyde MSF	Ammonia as N (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	mg/L	0.91	2.4
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	3.2
		Phosphorus	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.03	0.07
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	22
			NEPM 2013 Table 1C GILs, Marine Waters		15	22
PM_BH14	Parramatta	Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.04	3.5
		Nitrate (as N) (filtered)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	3.5
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.5	4.4
		Copper (filtered)	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.4	21
			NEPM 2013 Table 1C GILs, Fresh Waters		1.4	21
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.13
PM_BH15	Parramatta	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.02	0.04
		Phosphorus	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.5	0.51
SMW_ADD_BH02	Clyde Zone 3a	Ammonia as N (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	mg/L	0.91	3.8
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	4.1
		Copper (filtered)	ANZG (2018) Marine Water 95% LOSP	µg/L	1.3	1,000

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GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
			Toxicant DGVs (March 2021)			
			NEPM 2013 Table 1C GILs, Marine Waters		1.3	1,000
		Nickel (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	70	39
			NEPM 2013 Table 1C GILs, Marine Waters		7	39
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	43
			NEPM 2013 Table 1C GILs, Marine Waters		15	43
SMW_BH004_s	Parramatta	Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.04	8.2
		Nitrate (as N) (filtered)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	8
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.5	9.2
		Copper (filtered)	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.4	10
			NEPM 2013 Table 1C GILs, Fresh Waters		1.4	10
		Zinc (filtered)	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)	µg/L	8	29
			NEPM 2013 Table 1C GILs, Fresh Waters		8	29
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.02
SMW_BH057_s	Clyde Dive	Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.015	0.03
		Copper (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.3	82
			NEPM 2013 Table 1C GILs, Marine Waters		1.3	82
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.02
SMW_ENV010	Clyde Dive	Ammonia as N (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	mg/L	0.91	4.3
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	5.3
SMW_ENV039	Clyde Dive	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	0.7
SMW_ENV042	Rosehill	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	1.3

GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
		Copper (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.3	210
			NEPM 2013 Table 1C GILs, Marine Waters		1.3	210
		Nickel (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	70	12
			NEPM 2013 Table 1C GILs, Marine Waters		7	12
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	32
			NEPM 2013 Table 1C GILs, Marine Waters		15	32
SMW_ENV210_w	Clyde MSF	Cadmium (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	5.5	0.3
			NEPM 2013 Table 1C GILs, Marine Waters		0.7	0.3
		Copper (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.3	5
			NEPM 2013 Table 1C GILs, Marine Waters		1.3	5
		Nickel (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	70	36
			NEPM 2013 Table 1C GILs, Marine Waters		7	36
		Zinc (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	µg/L	15	130
			NEPM 2013 Table 1C GILs, Marine Waters		15	130
SMW_ENV227_w	Clyde MSF	Ammonia as N (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	mg/L	0.91	11
		Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.015	0.3
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	13
		Phosphorus	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.03	0.1
SMW_WTP_BH02	Westmead	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.5	1.1
		Copper (filtered)	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.4	4

GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
			NEPM 2013 Table 1C GILs, Fresh Waters		1.4	4
SMW_WTP_BH03A	Westmead	Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.04	0.3
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.5	1.5
		Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 SE Aust Triggers - FW Lowland rivers	mg/L	0.02	0.04
		Copper (filtered)	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)	µg/L	1.4	5
			NEPM 2013 Table 1C GILs, Fresh Waters		1.4	5
		Zinc (filtered)	ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)	µg/L	8	26
			NEPM 2013 Table 1C GILs, Fresh Waters		8	26
SMW_WTP_BH25_s	Clyde MSF	Ammonia as N (filtered)	ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)	mg/L	0.91	16
		Nitrogen (Total Oxidised)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.015	0.3
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	17
		Phosphorus	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.03	0.1
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.02

Table 17 Generic criteria exceedances (October 2023)

GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
CZ1_BH13	Clyde MSF	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	3.5
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023), NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	8
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8	29
CZ4e_MW02	Rosehill	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	4.97

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GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
		Nickel (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	7	30
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	15	57
CZ4e_MW03	Rosehill	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	5.54
		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	12
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	15	30
CZ5_MW09	Clyde MSF	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	5.74
		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	10
CZ5_MW16	Clyde MSF	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.08
		Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	1.29
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	2.5
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	14
GALC-MW12	Clyde MSF	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.18
		Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	4.19

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GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	6.1
GALC-MW16_w	Clyde Dive	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.08
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	1.8
GALC-MW18	Clyde Dive	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.02
SMW_BH057_s	Clyde Dive	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.13
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023), NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	36
		Zinc (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	8	11
SMW_BH057_w	Clyde Dive	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.49
		Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	2.66
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	2.6
		Reactive Phosphorus as P (Orthophosphate as P)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.005	0.01
		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	15
SMW_ENV009_w	Clyde Dive	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.71

GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
		Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	6.26
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	7.5
SMW_ENV039_w	Rosehill	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.11
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	0.7
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023), NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	394
SMW_ENV042_w	Rosehill	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	5.61
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	1.4
		Copper (filtered)	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023), NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	9
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Marine Waters	µg/L	8	19
SMW_ENV227_w	Clyde MSF east	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	6.72
		Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	9.53
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	13
SMW_WTP_BH13_w	Rosehill	pH (Field)	ANZECC 2000 SE Aust Triggers - Estuaries	pH unit	7-8.5	5.87
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	0.4

GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
SMW_WTP_BH25_s	Clyde MSF east	Ammonia as N	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	mg/L	0.91	12.3
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Estuaries	mg/L	0.3	16.1
		Chlorobenzene	ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)	µg/L	55	911
PM_BH14	Parramatta	pH (Field)	ANZECC 2000 SE Aust Triggers - Lowland River	pH unit	6.5-8	6.29
		Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	5.43
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Lowland River	mg/L	0.5	6.6
		Copper (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	8
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.08
PM_BH15	Parramatta	pH (Field)	ANZECC 2000 SE Aust Triggers - Lowland River	pH unit	6.5-8	5.73
		Aluminium (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023), NEPM 2013 Table 1C GILs, Fresh Waters	mg/L	0.055	0.07
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	25
SMW_BH004_s	Parramatta	pH (Field)	ANZECC 2000 SE Aust Triggers - Lowland River	pH unit	6.5-8	6.17
		Nitrate (as N)	NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species	mg/L	2.4	7.4
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Lowland River	mg/L	0.5	8.2
		Copper (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	49

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GWMW ID	GWMW Location	Analyte	Guideline	Unit	Criteria	Value
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	27
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Freshwater 99%	µg/L	0.00023	0.02
SMW_WTP_BH02_w	Westmead	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Lowland River	mg/L	0.5	0.8
		Reactive Phosphorus as P (Orthophosphate as P)	ANZECC 2000 SE Aust Triggers - Lowland River	mg/L	0.02	0.07
		Aluminium (filtered)	ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023), NEPM 2013 Table 1C GILs, Fresh Waters	mg/L	0.055	0.36
		Copper (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	33
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	14
SMW_WTP_BH03A	Westmead	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers - Lowland River	mg/L	0.5	0.6
		Copper (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	10
		Zinc (filtered)	NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	8	27

5.4.1 Performance Criteria Assessment

5.4.1.1 July 2023 GME

Reportable changes in groundwater quality identified during the July 2023 monitoring event are presented in **Table 18**. This assessment was undertaken by a suitably qualified hydrogeologist.

Table 18 Reportable changes in groundwater quality (July 2023)

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Apr 23 (R3)	Jul 23 (R4)	Reportable change type* (#)
Clyde dive	SMW_ADD	Ammonia as N (filtered)	ANZG (2018)	mg/L	0.91	0.43 (July 2022)	2.7	3.8	1, 3

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Apr 23 (R3)	Jul 23 (R4)	Reportable change type* (#)
	_BH02		Marine Water 95%						
Westmead	SMW_WTP_BH03a	Nitrogen (Total)	ANZECC 2000 FW Lowland river	mg/L	0.5	0.2 (January 2023)	0.8	1.5	1, 3
		Reactive Phosphorus as P		mg/L	0.02	<0.005 (January 2023)	0.04	0.04	1, 3

*As per **Table 8**, detailed below:
1: A parameter exceeding trigger values, 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 2 events) to more than 2x its baseline value in any monitoring bore, where the baseline value exceeds the NEPM GIL trigger values
3: A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in monitoring bores adjacent to excavations, where the baseline value exceeds the ANZECC (2000) or ANZG (2018) trigger value

The following potential increasing trends, provided in **Table 19**, were identified in the July 2023 GME, and were reviewed in the October 2023 GME (**Section 5.4.1.2**) to identify if increases in concentration are present over a sustained period of time (i.e., for at least two consecutive (2) events).

Table 19 Potential increasing trends (July 2023 GME)

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Most recent GME value	Current GME value (July 2023)	Reportable change type* (#)
Clyde MSF east	CZ1-BH13	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 SE Aust Triggers - Estuary	mg/L	0.005	0.006 (July 2022)	<0.005 (April 2023)	0.03	3
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.002 (July 2022)	<0.01 (April 2023)	0.08	1
Parramatta	PM_BH14	Copper (filtered)	ANZG (2018) Freshwater 95%, NEPM 2013 Table 1C GILs, Fresh Waters	µg/L	1.4	2 (July 2022)	2 (April 2023)	21	2, 3
	PM_BH15	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 FW Lowland river	mg/L	0.02	<0.005 (October 2022)	<0.005 (January 2023)	0.04	1
		Phosphorus		mg/L	0.5	<0.05 (October 2022)	<0.05 (January 2023)	0.51	1

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Most recent GME value	Current GME value (July 2023)	Reportable change type* (#)
Clyde dive	SMW_ADD_BH02	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers – Estuaries	mg/L	0.3	1.4 (July 2022)	2.7 (April 2023)	4.1	2,3
		Copper (filtered)	ANZG (2018) Marine Water 95%, NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	260 (July 2022)	32 (April 2023)	1,000	2, 3
	SMW_BH057_s	Copper (filtered)	ANZG (2018) Marine Water 95%	µg/L	1.4	<1 (July 2022)		82	3
West mead	SMW_WTP_BH03a_w	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 FW Lowland River	mg/L	0.023	<0.005 (January 2023)	0.04 (April 2023)	0.04	1

*As per **Table 8**, detailed below:
1: A parameter exceeding trigger values, 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 2 events) to more than 2x its baseline value in any monitoring bore, where the baseline value exceeds the NEPM GIL trigger values
3: A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in monitoring bores adjacent to excavations, where the baseline value exceeds the ANZECC (2000) or ANZG (2018) trigger value.

The April 2023 GME identified potential increases which have been checked (where possible) during this GME and are presented in **Table 20**. Potential increasing trends for two wells (SMW_ADD_BH02 and PM_BH14) have been confirmed during this event as per **Table 18**.

Table 20 Previously identified increasing trends.

GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Jan 23	Apr 23	Jul 23	Comment
SMW_ENV039	Copper	NEPM 2013 Table 1C GILs, Marine Waters, ANZG (2018) Marine Water 95%	µg/L	1.3	1 (July 2022)	2	350	<1	No longer an exceedance
SMW_ENV224	Phosphorus	ANZECC (2000) - Estuaries	mg/L	0.03	<0.05 (July 2022)	<0.05	0.05	<0.05	Not checked due to construction activities. SMW_ENV227_w used as replacement, no longer an

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GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Jan 23	Apr 23	Jul 23	Comment
									exceedance
CZ6_MW05	Nitrogen (Total Oxidised)	ANZECC (2000) - Estuaries	mg/L	0.015	-	<0.005	0.2	<0.005	Not checked in due to construction activities (located with stockpile between haul roads). GALC-MW12 used as replacement, no longer an exceedance

5.4.1.2 October 2023 GME

Reportable changes in groundwater quality identified during the October 2023 Monitoring event are presented in **Table 21**. This assessment was undertaken by a suitably qualified hydrogeologist.

Table 21 Reportable changes in groundwater quality (October 2023)

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline	Apr 23	Jul 23	Oct 23	No.*
Clyde dive	SMW_BH057_s	Copper (filtered)	ANZG (2018) Marine 95%	µg/L	1.3	<1 (Jul 22)	-	82	36	1
West mead	SMW_WTP_BH03A_w**	Nitrogen (Total)	ANZECC 2000 Lowland River	mg/L	0.5	0.2 (Jan 23)	0.8	1.5	0.6	1
Parramatta	PM_BH14	Copper (filtered)	ANZG (2018) Fresh 95%	µg/L	1.4	2 (Jul 22)	2	21	8	2, 3

*As per **Table 8**, detailed below:

1: A parameter exceeding trigger values, which has been recorded during baseline monitoring as non-detect or below guideline value criteria

2: A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in any monitoring bore, where the baseline value exceeds the NEPM GIL trigger values

3: A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in monitoring bores adjacent to excavations, where the baseline value exceeds the ANZECC (2000) or ANZG (2018) trigger value.

NA No data available. SMW_ADD_BH02_w was not sampled in R5.

**This was identified as a reportable change in the July 2023 GME

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The following potential trends, provided in **Table 22**, were identified in the October 2023 GME, and will be reviewed in the January 2024 GME to identify if increases in concentrations are present over a sustained period of time (i.e., for at least two consecutive (2) events).

Table 22 Potential increasing trends (October 2023 GME)

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Most recent GME value (Jul 23)	Oct 23 GME value	Report-able change type* (No.)
Clyde – zone 1	CZ1_BH13	Nitrogen (Total)	ANZECC 2000 SE Aust Triggers – Estuary	mg/L	0.3	1.5 (July 22)	0.5	3.5	2, 3
		Copper (filtered)	ANZG (2018) Marine Water 95%	µg/L	1.3	3 (July 22)	<1	8	2, 3
Westmead	SMW_WTP_BH03A_w	Copper (filtered)	ANZG (2018) Freshwater 95%	µg/L	1.4	3 (Jan 23)	5	10	2, 3
Parramatta	SMW-BH004-s**	Zinc (filtered)	ANZG (2018) Freshwater 95%	µg/L	8	15 (Oct 22)	29	27	2, 3
		Copper (filtered)	ANZG (2018) Freshwater 95%,	µg/L	1.4	25 (Jul 22)	10	49	2, 3

*As per **Table 8**, detailed below:

1: A parameter exceeding trigger values, which has been recorded during baseline monitoring as non-detect or below guideline value criteria

2: A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in any monitoring bore, where the baseline value exceeds the NEPM GIL trigger values

3: A parameter increasing in concentration over a sustained period (i.e., for at least 2 events) to more than 2x its baseline value in monitoring bores adjacent to excavations, where the baseline value exceeds the ANZECC (2000) or ANZG (2018) trigger value.

N.A. No data available

**This GWMW has reported zinc concentrations close to greater than two (2) x the baseline value for the most recent two GMEs. This is not considered an exceedance; however, it is important to note.

The July 2023 GME identified potential increases which were checked during the GME, and results are presented in **Table 23**. Potential increasing trends for two wells (SMW_BH057_s, and PM_BH14) has been confirmed during this event as per **Table 21**.

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Table 23 Previously identified rising trends

Monitoring zone	GWMW ID	Analyte	Guideline	Unit	Criteria	Baseline value	Apr 23	Jul 23	Oct 23	Comment
Clyde MSF east	CZ1-BH13	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 SE Aust Triggers – Estuary	mg/L	0.005	0.006 (Jul 22)	<0.005	0.03	<0.01	No longer a rising trend. No action required
		Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	0.002 (Jul 22)	<0.01	0.08	<0.05	No longer a rising trend. No action required
	SMW_WTP_BH25_s	Perfluorooctanesulfonic acid (PFOS)	PFAS NEMP 2020 Interim Marine 99%	µg/L	0.00023	<0.05 (Jul 22)	0.05	0.02	<0.05	No longer a reportable change. No action required
Parramatta	PM_BH15	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 FW Lowland River	mg/L	0.02	<0.005 (Oct 22)	<0.005 (R2)	0.04	<0.01	No longer a rising trend. No action required
		Phosphorus		mg/L	0.5	<0.05 (Oct 22)	<0.05 (R2)	0.51	<0.05	
Clyde dive	SMW_ADD_BH02_w	Ammonia as N (filtered)	ANZG (2018) Marine Water 95%	mg/L	0.91	0.43 (Jul 22)	2.7	3.8	N.A.	SMW_ADD_BH02_w was not sampled in R5, further monitoring in November 2023
		Nitrogen (Total)	ANZECC 2000 SE Aust Triggers – Estuaries	mg/L	0.3	1.4 (Jul 22)	2.7	4.1	N.A.	
		Copper (filtered)	ANZG (2018) Marine Water 95%, NEPM 2013 Table 1C GILs, Marine Waters	µg/L	1.3	260 (Jul 22)	32	1,000	N.A.	
Westmead	SMW_WTP_BH03A_w*	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	ANZECC 2000 FW Lowland River	mg/L	0.02	<0.005 (Jan 23)	0.04	0.04	<0.01	No longer a reportable change. Additional monitoring in November 2023 to confirm whether a reportable change

N.A. No data available

*This was a reportable change in the July 2023 GME

5.4.2 Salinity

5.4.2.1 July 2023 GME

An assessment of ongoing changes in salinity has been completed, with the GWMWs in **Table 24** having reportable changes. This assessment was undertaken by a suitably qualified hydrogeologist.

Table 24 Reportable changes in July 2023 for salinity in the form of electrical conductivity (µS/cm)

Monitoring zone	GWMW ID	Jul 22 - Baseline	Oct 22	Jan 23	Apr 23	Jul 23
Clyde dive	SMW_ADD_BH02	2,814*	66	158	17,069	18,877
Westmead	SMW_WTP_BH02	-	-	707	1,468	13,303
	SMW_WTP_BH03A	-	-	120	49	750
Rosehill	SMW_WTP_BH13	1,325	950	7,049	11,206	11,280

*EC = TDS * 0.67
A reportable change in salinity is:
An increase of salinity (as EC) to more than 2x the recorded 95th percentile value prior to construction

5.4.2.2 October 2023 GME

An assessment of ongoing salinity has been completed, with the GWMWs in **Table 25** having reportable changes. This assessment was undertaken by a suitably qualified hydrogeologist.

Table 25 Reportable changes in October 2023 for salinity in the form of electrical conductivity (µS/cm)

Monitoring zone	GWMW ID	Jul 22 – baseline	Oct 22	Jan 23	Apr 23	Jul 23	Oct 23
Westmead	SMW_WTP_BH03A_w	NA	NA	120	49	**750**	**363**
Rosehill	SMW_WTP_BH13_w	1,325	950	**7,049**	**11,206**	**11,280**	**9,525**

* EC = TDS X 0.67
NA No data available
A reportable change in salinity is shown in salinity is:
An increase of salinity (as EC) to more than 2x the recorded 95th percentile baseline value
Bold cells relate to an value more than 2x the recorded 95th percentile baseline value

The July 2023 GME identified reportable changes in the field EC measurements for SMW_WTP_BH02_w, as shown in **Table 26**. However, the EC measurement from the October 2023 GME shows that this change is no longer considered reportable.

Table 26 Previously identified reportable changes in ongoing salinity in the form of electrical conductivity (µS/cm)

Monitoring zone	GWMW ID	Jul 22	Oct 22	Jan 23	Apr 23	Jul 23	Oct 23
Westmead	SMW_WTP_BH02_w	-	-	707	**1,468**	**13,303**	1,272

Bold cells relate to an value more than 2x the recorded 95th percentile baseline value

5.4.3 Acid Sulfate Soils

5.4.3.1 July 2023 GME

An assessment of in-situ pH has been completed, with the GWMW in **Table 27** having a reportable change. This assessment was undertaken by a suitably qualified hydrogeologist.

Table 27 Reportable changes in in-situ pH measurements

Monitoring zone	GWMW ID	Jan 23	Apr 23	Jul 23
Westmead	SMW_WTP_BH02	9.5	9.6	**7.0**
If the pH reduces by one (1) unit as compared to the baseline pH range prior to excavation, this indicates that ASS has been activated				

5.4.3.2 October 2023 GME

This assessment was undertaken by a suitably qualified hydrogeologist. No reportable changes in pH measurements were identified in the October 2023 GME. The July 2023 GME report identified reportable change in the field pH measurement for SMW_WTP_BH02. However, the results from the October 2023 GME show that the pH value has returned to within 1 pH of the baseline value, as shown in **Table 28**.

Table 28 October 2023 in-situ pH measurements

Monitoring zone	GWMW ID	Jan 23	Apr 23	Jul 23	Oct 23
Westmead	SMW_WTP_BH02_w	9.5	9.6	**7.0**	9.2
*SMW_WTP_BH02 was first sampled in Jan 23 and is therefore its baseline value If the pH reduces by one (1) unit as compared to the baseline pH range prior to excavation, this indicates that ASS has been activated (identified in **bold**)					

5.4.4 Summary of reportable changes in groundwater quality and November 2023 trigger response monitoring

This assessment was undertaken by a suitably qualified hydrogeologist.

All reportable changes in groundwater quality, identified in either the July 2023 or October 2023 GME were assessed during additional trigger monitoring in November 2023 to confirm whether these exceedances are reportable changes in groundwater quality. Following further assessment, analysis and comparison with other relevant data, a summary of remaining reportable changes identified in either the July 2023 or October 2023 GME, their status, and the proposed action is detailed in **Table 29**.

The objective of the trigger monitoring was to determine whether additional management actions are required at these GWMWs. If the results from the additional groundwater assessment were similar to the results from the July/October 2023 GMEs and above the performance criteria, a further investigation and management action plan may be required. If the water quality results from the GWMWs do not match the results from the July/October 2023 monitoring, and are below the performance criteria, then no further actions are required under the GMP, and the GWMWs will continue to be monitored under the quarterly monitoring program.

Results from the trigger monitoring are shown in **Table 30** with the following recommendations identified.

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Table 29 Groundwater quality reportable changes from July and October 2023 GMEs

GWMW	July 2023 reportable change	October 2023 reportable change	Action
SMW_ADD_BH02	Groundwater quality trigger due to ammonia	Sample not able to be taken	Additional sample and in-situ EC measurement taken in November 2023 to identify whether a management response is required
	Groundwater quality trigger for salinity		
SMW_WTP_BH03A_w	Groundwater quality trigger for nitrogen and reactive phosphorus	Groundwater quality trigger for nitrogen only	Additional sample (testing for nitrogen, reactive phosphorus) and in-situ EC measurement taken in November 2023 to identify whether a management response is required
	Groundwater quality trigger for salinity	Groundwater quality trigger for salinity	
SMW_BH057_s	Potential rising trend for copper noted	Groundwater quality trigger for copper identified	Additional sample (testing for copper) taken in November 2023 to identify whether a management response is required
PM_BH14	Potential rising trend for copper noted	Groundwater quality trigger for copper identified	Additional sample (testing for copper) taken in November 2023 to identify whether a management response is required
SMW_WTP_BH13_w	Groundwater quality trigger for salinity	Groundwater quality trigger for salinity	In-situ EC measurement taken in November 2023 to identify whether a management response is required
SMW_WTP_BH02_w	Groundwater quality trigger for salinity	No groundwater trigger for salinity identified	In-situ EC and pH measurement and additional sample (testing for pH and salinity) taken in November 2023 to identify whether a management response is required
	Drop in pH by 2 pH units	pH returned to within 1 pH unit of the baseline	

Table 30 Previously identified reportable changes compared with November 2023 GME assessment

Location	GWMW	Analyte	Trigger value source	Unit	Trigger value	Apr 23	Jul 23	Oct 23	Nov 23	GMP requirement
Rosehill / Clyde dive	SMW_ADD_BH02_w	EC	2 × Baseline value (R0 – July 2022)	µS/cm	5,628	**17,069**	**18,877**	N.A.	**10,179**	EC and ammonia concentration exceeds the trigger value over three monitoring periods; GWMW not considered representative of groundwater. Use GALC-
		Ammonia	ANZG (2018) Marine Water 95% (baseline concentration below standard)	mg/L	0.91	**2.7**	**3.8**	N.A.	**3.42**	

Location	GWMW	Analyte	Trigger value source	Unit	Trigger value	Apr 23	Jul 23	Oct 23	Nov 23	GMP requirement
										MW16 as representative GWMW for this well
	SMW_BH057_s	Copper	ANZG (2018) Marine 95% (baseline concentration below standard)	µg/L	1.3	<1	**82**	**36**	**4**	Concentration exceeds the trigger value over three monitoring periods; further investigation required. Further investigation involves continued sampling as part of the monitoring and trigger works, and also re-determination of trigger values with more robust baseline data set (area based trigger values as opposed to GWMW specific triggers). No management response currently required[1].
	SMW_WTP_BH13_w	EC	2 × Baseline value (R0 – July 2022)	µS/cm	2,650	**11,206**	**11,280**	**9,525**	**10,654**	EC exceeds the trigger value over four monitoring periods; further investigation required Further investigation involves continued sampling as part of the monitoring and trigger works, and also re-determination of trigger values with more robust baseline data set (area-based trigger values as opposed to GWMW specific triggers).

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Location	GWMW	Analyte	Trigger value source	Unit	Trigger value	Apr 23	Jul 23	Oct 23	Nov 23	GMP requirement
										No management response currently required[1].
Westmead	SMW_WTP_BH02_w	EC	2 × Baseline value (R2 – January 2023)	µS/cm	1,414	**1,468**	**13,303**	1,272	**7,988**	EC and pH drop exceeds the trigger value over one monitoring period: review result in the next quarterly monitoring event.
		pH	Acid sulfate soil (ASS) indication	pH unit	<8.53*	9.64	**6.97**	9.20	**7.3**	
	SMW_WTP_BH03A_w	EC	2 × Baseline value (R2 – January 2023)	µS/cm	240	**1,614**	**15,228**	**363**	**10,348**	EC exceeds the trigger value over four monitoring periods; further investigation management response required. Further investigation involves continued sampling as part of the monitoring and trigger works, and also re-determination of trigger values with more robust baseline data set (area-based trigger values as opposed to GWMW specific triggers). No management response currently required[1].
		Reactive Phosphorus as P	ANZECC 2000 Lowland River (baseline concentration below standard)	mg/L	0.02	**0.04**	**0.04**	<0.01	<0.01	No longer a reportable change; no action required.
		Nitrogen (Total)	ANZECC 2000 Lowland River (Baseline	mg/L	0.5	**0.8re**	**1.5**	**0.6**	**3.1**	Result exceeds the trigger value over four monitoring

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Location	GWMW	Analyte	Trigger value source	Unit	Trigger value	Apr 23	Jul 23	Oct 23	Nov 23	GMP requirement
			concentration below standard)							periods; further investigation required. Further investigation involves continued sampling as part of the monitoring and trigger works, and also re-determination of trigger values with more robust baseline data set (area-based trigger values as opposed to GWMW specific triggers). No management response currently required[1].
Parramatta	PM_BH14	Copper	2 x Baseline value (R0 – July 2022)	µg/L	4	1	**21**	**8**	1	No longer a reportable change; No action required.

* If the pH reduces by one (1) unit as compared to the baseline pH range prior to excavation, this indicates that ASS has been activated. The baseline pH value for SMW_WTP_BH02_w is 9.53 (January 2023 GME), therefore the trigger value is any pH value below 8.53

Bold indicates an exceedance of the trigger value

1 = the GMP determines that a management response is required if one of the three conditions are being met:

- The contaminant concentrations present a significant immediate risk to human health or the environment requiring immediate response, or
- The contaminants have been introduced to groundwater directly as a result of construction activities (e.g., on site leaks and spills), or
- Contaminant migration is occurring resulting in degradation of groundwater quality within and around sensitive receptors (including [groundwater dependent ecosystem] GDEs and groundwater supply bores)

At present these trigger values do not meet these conditions, therefore only further investigation is required.

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5.5 Water Treatment Plant

5.5.1 Results

5.5.1.1 Rosehill temporary Water Treatment Plant

During the reporting period, sixteen 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 results are specified in **Table 31**.

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Table 31 Post Treatment Rosehill WTP Sampling Results within Reporting Period

Lab Report Number			329951	330085	330309	330761	331237	332043	333031	334408	335201
Sample Date			8/08/2023	9/08/2023	10/08/2023	17/08/2023	23/08/2023	01/09/2023	14/09/2023	27/09/2023	12/10/2023
Parameter	**Units**	**Criteria**									
Ammonia	µg/l	*910*	190	440	6	18	160	35	240	800	530
Arsenic (total)	µg/l	*241*	<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	<0.1
Chromium (VI)	µg/l	*15*	<5	<5	<5	<5	<5	<5	10	<5	20
Cobalt	µg/l	*5*	2	1	1	<1	<1	<1	<1	<1	<1
Copper	µg/l	*1.3*	<1	<1	<1	<1	<1	<1	1	<1	<1
Electric conductivity	µS/cm	*N/A*[2]	9900	11000	11000	8300	7600	6800	8600	8200	8600
Iron	µg/l	*3000*	<10	<10	<10	<10	<10	<10	10	<10	<10
Lead	µg/l	*4.4*	<1	<1	<1	<1	<1	<1	<1	<1	<1
Manganese	µg/l	*1900*	30	32	140	160	73	30	11	18	<5
Mercury	µg/l	*0.1*	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel	µg/l	*7*	<1	<1	<1	<1	<1	<1	2	<1	<1
Nitrate	µg/l	*2,400*	30	30	10	<5	10	72	150	<5	<5
Nitrogen (total)	µg/l	*1,200*	300	500	<100	100	200	200	1200	1000	3100
Oil and grease	Visible	*None visible*	None visible	None visible	None visible	None visible	None visible	None visible	None visible	None visible	None visible
Oxidised nitrogen	µg/l	*1,200*	100	70	30	<5	20	100	300	30	400
PFOS	µg/l	*0.13t*[4]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
pH	pH	*6.5 – 8.5*	7.8	7.6	7.8	7.8	7.6	7.7	7.5	7.5	7.7
Phosphorus (total)	µg/l	*90*	<50	<50	<50	<50	<50	<50	<5	<50	<50
Turbidity	NTU	*20*	0.6	0.4	0.6	0.8	0.2	0.4	1	0.2	0.4
Zinc	µg/l	*12*	3	1	2	<1	3	1	3	<1	<1

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Lab Report Number			335559	335883	336267	337766	338038	338591	340572	341112	341241
Sample Date			17/10/2023	20/10/2023	25/10/2023	14/11/2023	17/11/2023	23/11/2023	18/12/2023	8/1/2024	10/1/2024
Parameter	**Units**	**Criteria**									
Ammonia	µg/l	*910*	110	310	210	2400	240	21	120	-	-
Arsenic (total)	µg/l	*241*	<1	<1	<1	<1	-	<1	<1	-	-
Cadmium	µg/l	*0.7*	<0.1	<0.1	<0.1	<0.1	-	<0.1	0.1	-	-
Chromium (VI)	µg/l	*15*	30	10	<5	<5	-	12	20	30	12
Cobalt	µg/l	*5*	<1	<1	<1	<1	-	<1	<1	-	-
Copper	µg/l	*1.3*	<1	1	<1	<1	-	<1	<1	-	-
Electric conductivity	µS/cm	*N/A*[2]	8000	7200	7600	7300	-	6400	8600	-	-
Iron	µg/l	*3000*	<10	<10	<10	<10	-	<10	<10	-	-
Lead	µg/l	*4.4*	<1	<1	<1	<1	-	<1	<1	-	-
Manganese	µg/l	*1900*	<5	31	<5	6	-	<5	<5	-	-
Mercury	µg/l	*0.1*	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-	-
Nickel	µg/l	*7*	<1	<1	6	<1	-	<1	<1	-	-
Nitrate	µg/l	*2,400*	<5	<5	<5	<5	-	150	1100	-	-
Nitrogen (total)	µg/l	*1,200*	700	800	800	4800	2000	800	1200	-	-
Oil and grease	Visible	*None visible*	None visible	None visible	None visible	None visible	None visible	None visible	None visible	-	-
Oxidised nitrogen	µg/l	*1,200*	600	100	200	1500	1700	760	1100	-	-
PFOS	µg/l	*0.13t*[4]	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	-	-
pH	pH	*6.5 – 8.5*	7.4	7.3	7.3	7.4	-	7.4	7	-	-
Phosphorus (total)	µg/l	*90*	<50	<50	<50	<50	-	10	30	-	-
Turbidity	NTU	*20*	0.3	0.4	0.7	0.6	-	1.8	<0.1	-	-
Zinc	µg/l	*12*	<1	2	3	1	-	2	<1	-	-

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Lab Report Number			341342	341471	341539	341656	341869	342371
Sample Date			11/1/2024	12/01/2024	15/01/2024	16/1/2024	18/01/2024	25/01/2024
Parameter	**Units**	**Criteria**						
Ammonia	µg/l	*910*	-	-	-	-	110	340
Arsenic (total)	µg/l	*241*	-	-	-	-	1	-
Cadmium	µg/l	*0.7*	-	-	-	-	<0.1	-
Chromium (VI)	µg/l	*15*	11	12	28	9	<5	-
Cobalt	µg/l	*5*	-	-	-	-	<1	-
Copper	µg/l	*1.3*	-	-	-	-	<1	-
Electric conductivity	µS/cm	*N/A*[2]	-	-	-	-	3600	-
Iron	µg/l	*3000*	-	-	-	-	10	-
Lead	µg/l	*4.4*	-	-	-	-	<1	-
Manganese	µg/l	*1900*	-	-	-	-	<5	-
Mercury	µg/l	*0.1*	-	-	-	-	<0.05	-
Nickel	µg/l	*7*	-	-	-	-	<1	-
Nitrate	µg/l	*2,400*	-	-	-	-	230	520
Nitrogen (total)	µg/l	*1,200*	-	-	-	-	1700	900
Oil and grease	Visible	*None visible*	-	-	-	-	None visible	-
Oxidised nitrogen	µg/l	*1,200*	-	-	-	-	200	530
PFOS	µg/l	*0.13t*[4]	-	-	-	-	0.01	-
pH	pH	*6.5 – 8.5*	-	-	-	-	7.4	-
Phosphorus (total)	µg/l	*90*	-	-	-	-	50	<50
Turbidity	NTU	*20*	-	-	-	-	1.7	-
Zinc	µg/l	*12*	-	-	-	-	2	-

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5.5.1.2 Westmead Water Treatment Plant

During the reporting period, four 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 results are specified in **Table 32**.

Table 32 Westmead Permanent Treatment Plant Post Treatment Results

Lab Report Number			341123	341206	341277	341546
Sample Date			8/01/2024	9/01/2024	10/01/2024	15/01/2024
Parameter	**Units**	**Criteria**				
Oil and Grease	Visible	Not visible	None Visible	None Visible	None Visible	None Visible
pH	pH	6.5 - 8.5	7.82	8.09	8.17	7.85
TSS	mg/l	50	<20	<10	<5	<20
Ammonia	µg/l	200	46	29	25	60
Arsenic (total)	µg/l	13[1]	<1	<1	<1	<1
Benzene	µg/l	-	<1	<1	<1	<1
Cadmium	µg/l	0.2	<0.1	<0.1	<0.1	<0.1
Calcium	µg/l	-	600	500	<500	500
Chromium (VI)	µg/l	1	<1	<1	<1	<1
Chromium (III)	µg/l	27	<5	<5	<5	<5
Cobalt	µg/l	1.4	<1	<1	<1	<1
Copper	µg/l	1.4	1	<1	<1	<1
Electric conductivity	µS/cm	2,200[3]	660	540	390	410
Iron	µg/l	300[2]	<10	<10	<10	<10
Lead	µg/l	3.4	<1	<1	<1	<1
Magnesium	µg/l	-	<500	<500	<500	<500
Manganese	µg/l	1,900	<5	<5	<5	<5
Mercury	µg/l	0.06	<0.05	<0.05	<0.05	<0.05
Nickel	µg/l	11	<1	<1	<1	<1
Nitrate	µg/l	2,400[1]	50	40	30	40
Nitrate + Nitrite (Oxidised Nitrogen)	µg/l	200	60	40	40	40
Nitrogen (total) Revised	µg/l	1,000	500	400	400	400
PFOS	µg/l	0.13	<0.01	<0.01	<0.01	<0.01
Phosphorus (total)	µg/l	25	<10	<10	10	<10
Sodium	µg/l	300,000[4]	9,700	7,400	6,000	7,400
TPH C10-C36 Fraction	µg/l	100	<50	<50	<50	<50
TPH C6-C9 Fraction	µg/l	100	<10	<10	<10	<10
Turbidity	NTU	20	0.6	0.4	3.2	0.1
Zinc	µg/l	8	3	4	2	<1

5.5.2 Discussion

5.5.2.1 Rosehill temporary Water Treatment Plant

As per the results, six sampling events undertaken during the reporting period returned elevated concentrations to the discharge requirement of the EPL 21676 for the Rosehill Permanent Water Treatment Plant. All other sampling events were compliant.

Post treatment sample results collected on the 12th October 2023 indicated elevated concentrations of hexavalent chromium and total Nitrogen, of 20µg/L and 3100µg/L respectively compared to the discharge criteria for the two pollutants at 15µg/L and 1,200µg/L. In response to the elevated concentrations, further investigation and a subsequent sampling round was undertaken on the 17th October 2023. Results of the subsequent sampling round identified elevated concentrations of hexavalent chromium at 30 µg/L in the post treatment samples. A third sampling round was undertaken on the 20th October 2023, returning compliant results. Further investigation revealed that the elevated levels were a result of maintenance and performance testing underway over that period, that involved water being cycled through the treatment plant. No water was being discharged during this process. Post treatment sample results collected on the 20th of October 2023 (after performance testing had ceased) returned results below the adopted assessment criteria for all analytes tested.

Post treatment sample results collected on the 14th November 2023 indicated elevated concentrations of ammonia, total Nitrogen and oxidised nitrogen, of 2400µg/L, 4800µg/L and 1500 µg/L respectively compared to the discharge criteria for the three pollutants at 910µg/L, 1200µg/L and 1200µg/L respectively. In response to the elevated concentrations, a subsequent sampling round was undertaken on the 17th November 2023. Results of the subsequent sampling round identified elevated concentrations of notal nitrogen and oxidized nitrogen at 4800 µg/L and 1700 µg/L in the post treatment samples. On return of non-compliant results discharge to Point 4 from the WTP was ceased and maintenance operations were carried out to rectify the issue. A third sampling round was undertaken, following completion of the maintenance works, on the 23rd November 2023, returning compliant results at which point, discharging was resumed.

Post treatment sample results collected on the 18th December 2023 indicated elevated levels of hexavalent chromium, of 20µg/L compared to the discharge criteria of 15µg/L. Results were not received until 2nd January. As a result of the multiple elevated concentrations of Chromium VI GLC undertook investigations into the source of the high levels of chromium coming into the treatment plant, as well as potential methods to improve the performance of the treatment plant regarding the removal of Chromium VI. Additional targeted testing for hexavalent chromium was undertaken at a higher frequency on the 8th, 10th, 11th, 15th, and 16th January with all results returning below the discharge criteria, except for the 8th and 15th. GLC commenced investigations into current practises regarding the application and management of shotcrete and grout within the tunnelling sections of the project as these are believed to be the main sources of Chromium VI coming into the WTP.

Post treatment samples results collected on the 18th January 2024, indicated elevated levels of total Nitrogen, of 1700µg/L compared to the discharge criteria of 1200µg/L. Additional targeted testing was undertaken on the 25th January returning compliant results. The elevated nitrogen levels encountered in the initial samples collected are considered anomalous, due to the relatively high concentrations of incoming raw water found in the follow up samples which were still compliant.

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To ensure that there was no offsite impact to the environment, surface water sampling was undertaken monthly during the reporting period. Results collected from the designated upstream (SW08) and downstream (SW03) sampling points were consistent with historic sampling rounds indicating that elevated concentrations had not had a negative impact on the surrounding environment. Refer to the GLC Surface Water Quality 6-Monthly Report for July 2023 – January 2024 (SMWSTWTP-GLO-1NL-EN-RPT-000009).

5.5.2.2 Westmead Water Treatment Plant

The Westmead Permanent Water Treatment Plant was commissioned after two subsequent compliant results were returned on the 9th January 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 Westmead Permanent Water Treatment Plant.

As the Westmead station box has not encountered significant volumes of groundwater, and there is a high demand for recycled water, limited water has been discharged off site.

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6 CONCLUSION

Groundwater quality and level results from the July 2023 and October 2023 monitoring events indicate that the majority of locations are comparable to applicable baseline results. However, it is noted that the monitoring network is constantly changing, potentially due to ongoing construction works across the project. Each groundwater monitoring event 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 is also being updated to change groundwater quality triggers to be area specific, rather than GWMW specific. This will allow for managing the changes in the groundwater network.

For groundwater level monitoring, reportable changes were identified at six GWMWs. These GWMWs were 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 were no reportable changes when comparing to AIP criteria. Four of the six GWMWs were considered representative of groundwater conditions, and the recommended action was to continue monitoring of the groundwater level and drawdown.

Two GWMWs, SMW_ADD_BH02_w and SMW_ENV042_w, were not considered to be representative of groundwater levels in the area **(Section 5.3.3, Table 15)** and therefore replacement GWMWs to monitor regional groundwater were identified.

For groundwater quality, trigger response monitoring was undertaken in November 2023 to further assess exceedances identified in July and October GMEs. The trigger monitoring has identified the following:

Clyde:

- SMW_ADD_BH02_w:
  - Continued exceedances of salinity and ammonia were identified in both July and October monitoring events which would typically trigger further investigation and a management response in accordance with the GMP . However, as discussed in Section 5.3.3, this GWMW is no longer considered to be representative of groundwater conditions based on the assessment of the hydrograph and therefore a management response is not required.
- SMW_BH057_s: repeat exceedance of copper was identified in the October 2023 monitoring event. As per the GMP, further investigation is required
- SMW_WTP_BH13_w: repeat exceedances of salinity were identified in the July and October 2023 monitoring events. As per the GMP, further investigation is required

Westmead:

- SMW_WTP_BH02:
  - Exceedances of salinity and pH were identified in the July 2023 monitoring event; however, the October 2023 results reported no exceedances; therefore, ongoing quarterly monitoring is considered appropriate for this GWMW
- SMW_WTP_BH03A:
  - Continued exceedances of salinity and total nitrogen were identified in the July 2023 and October 2023 monitoring events. As per the GMP, further investigation is required
  - Continued exceedances of reactive phosphorus were not identified; therefore, ongoing quarterly monitoring is considered appropriate for reactive phosphorus.

Parramatta

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- PM_BH14: The exceedance of copper in October 2023 monitoring event was not identified in the November 2023 monitoring event . Therefore, ongoing quarterly monitoring is considered appropriate for this GWMW

Further investigation is currently underway, including a review of the existing trigger values. This review will include an update to the existing trigger values with revised trigger values incorporating additional data that was not available during the initial preparation of the GMP. Trigger values will likely change from being GWMW specific to trigger values that are area and aquifer type specific. This will allow for a more robust GWMW network (as the network is constantly changing due to site activities), and for more representative trigger values to be used. This assessment will be included as part of the revised project GMP, potentially negating the need for a management response.

Both the Westmead and Rosehill permanent Water Treatment Plants were commissioned during the reporting period. Some elevated levels of Chromium VI and total nitrogen has been identified. Investigations identified that maintenance work was underway and water was not discharged during one event. During other instances discharge to the environment was ceased and further maintenance undertaken upon the plant, with discharge continuing following confirmation that treatment was producing water where the quality was compliant with the EPL discharge criteria.

At both the Rosehill 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 on occasion.

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7 REFERENCES

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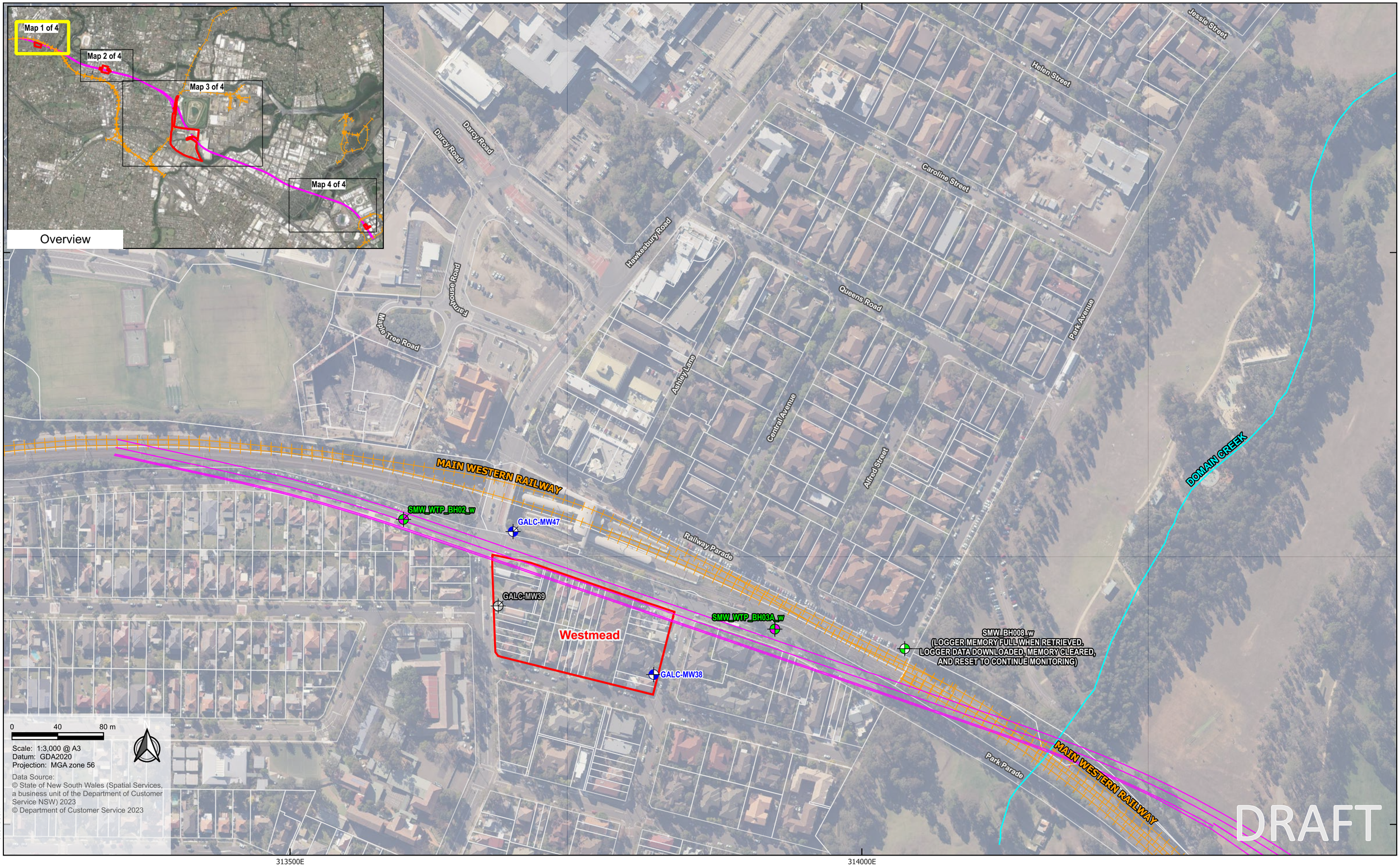
WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

APPENDIX A – FIGURES



Legend

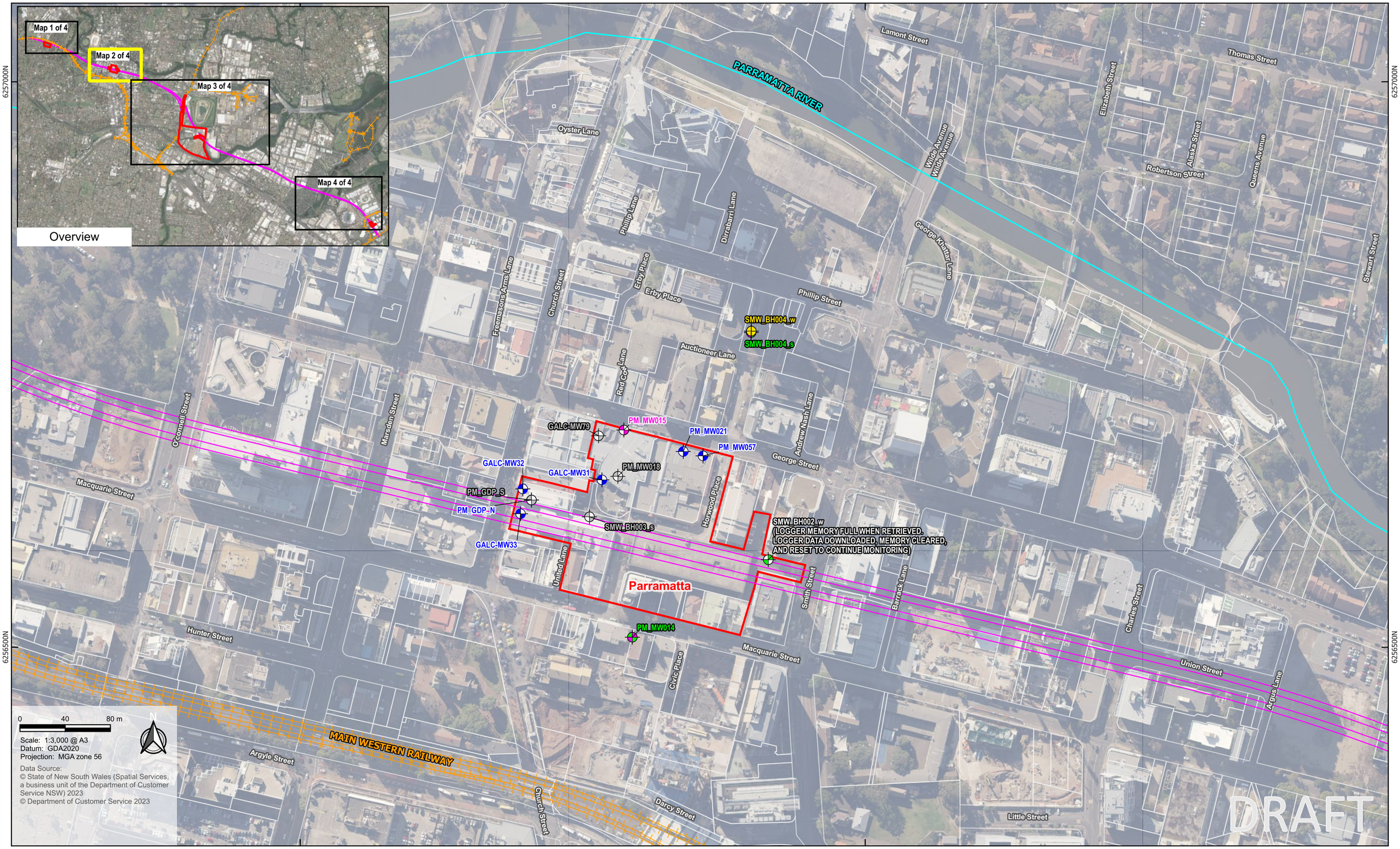
- Site boundary
- Lot boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Borehole inaccessible
- Manual water level data collected
- Manual water level, level logger data downloaded
- Manual water level, level logger, and water quality information collected

epic ENVIRONMENTAL

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round July 2023

Figure F1
Overview of groundwater monitoring wells (Page 1 of 4)

Filepath: ~GIS\Projects\2021\SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\04 July 2023 - Monitoring event R4\Figure F1 Summary of groundwater monitoring locations.qgz



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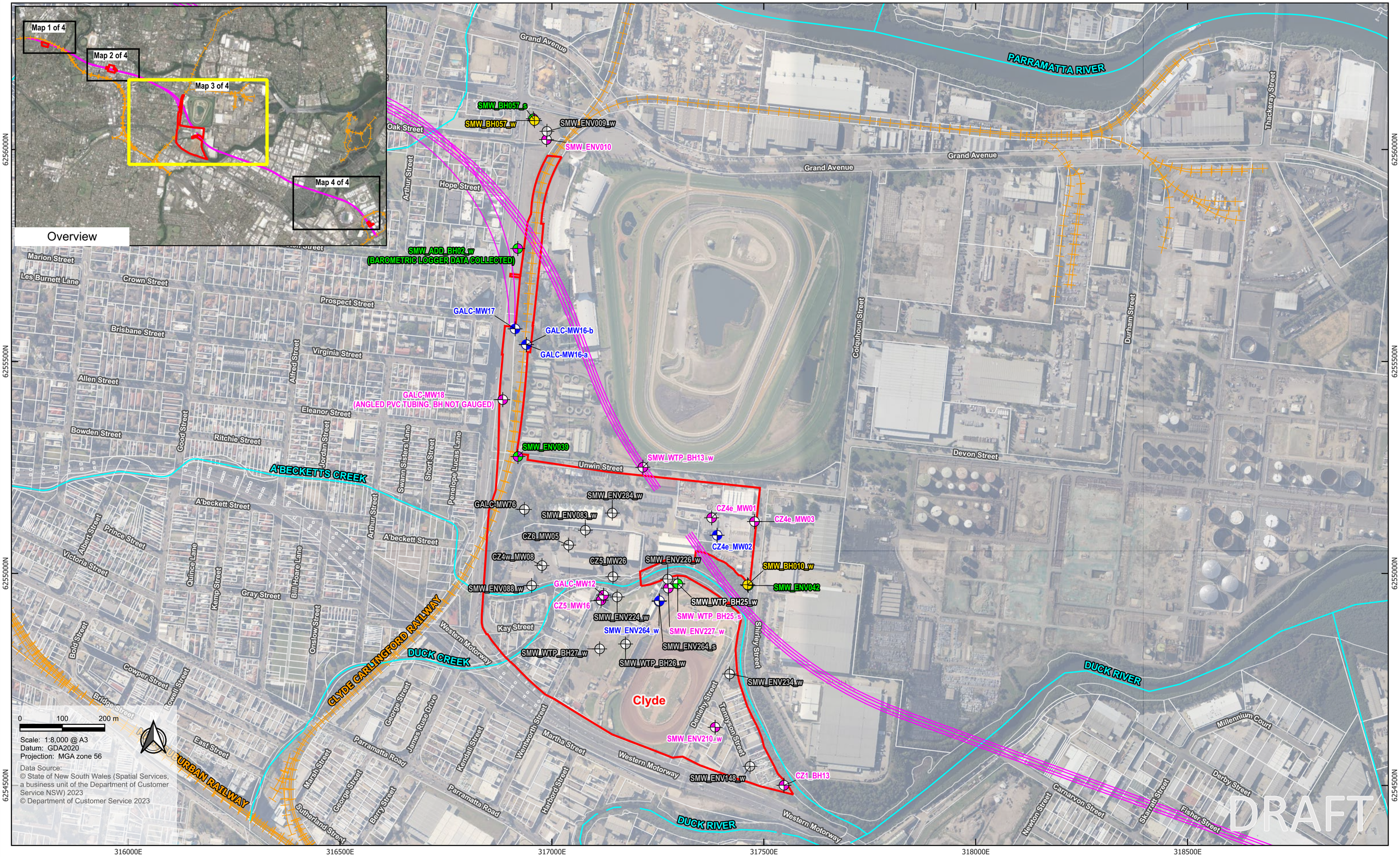
Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round July 2023

Figure F1
Overview of groundwater monitoring wells (Page 2 of 4)



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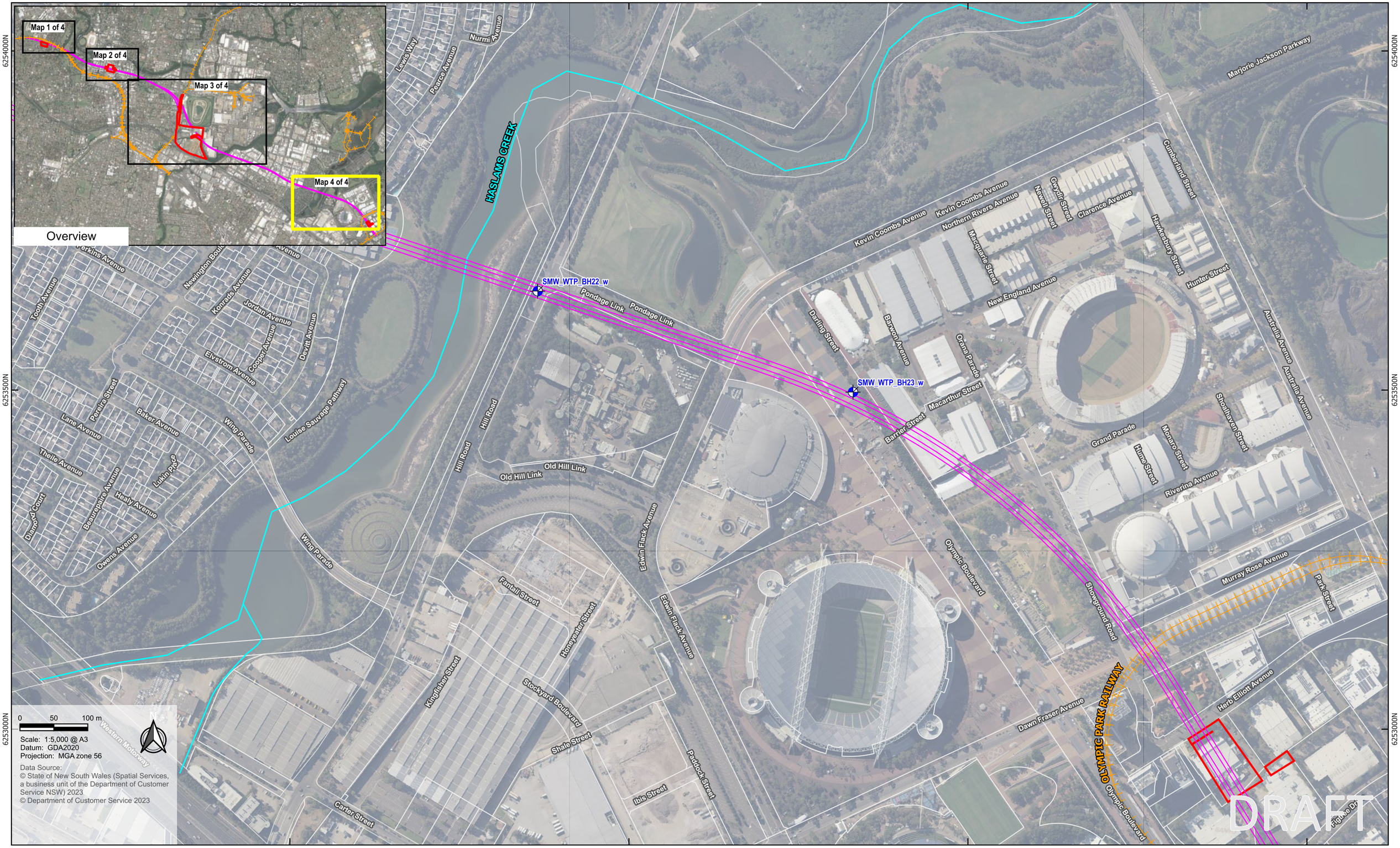
Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round July 2023

Figure F1
Overview of groundwater monitoring wells (Page 3 of 4)

Filepath: ~/GIS\Projects\2021\SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\04 July 2023 - Monitoring event R4\Figure F1 Summary of groundwater monitoring locations.qgz



Legend

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- Lot boundary
- Proposed tunnel alignment
- Watercourses
- Railways
- Manual water level data collected

epic ENVIRONMENTAL

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round July 2023

Figure F1
Overview of groundwater monitoring wells (Page 4 of 4)

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SC210108.01 Rev A 21/08/2023

Legend

- Site boundary
- Lot boundary
- Watercourses
- Railways
- Proposed tunnel alignment
- Borehole inaccessible
- Manual water level, level logger, and water quality information collected
- Only manual water level data collected

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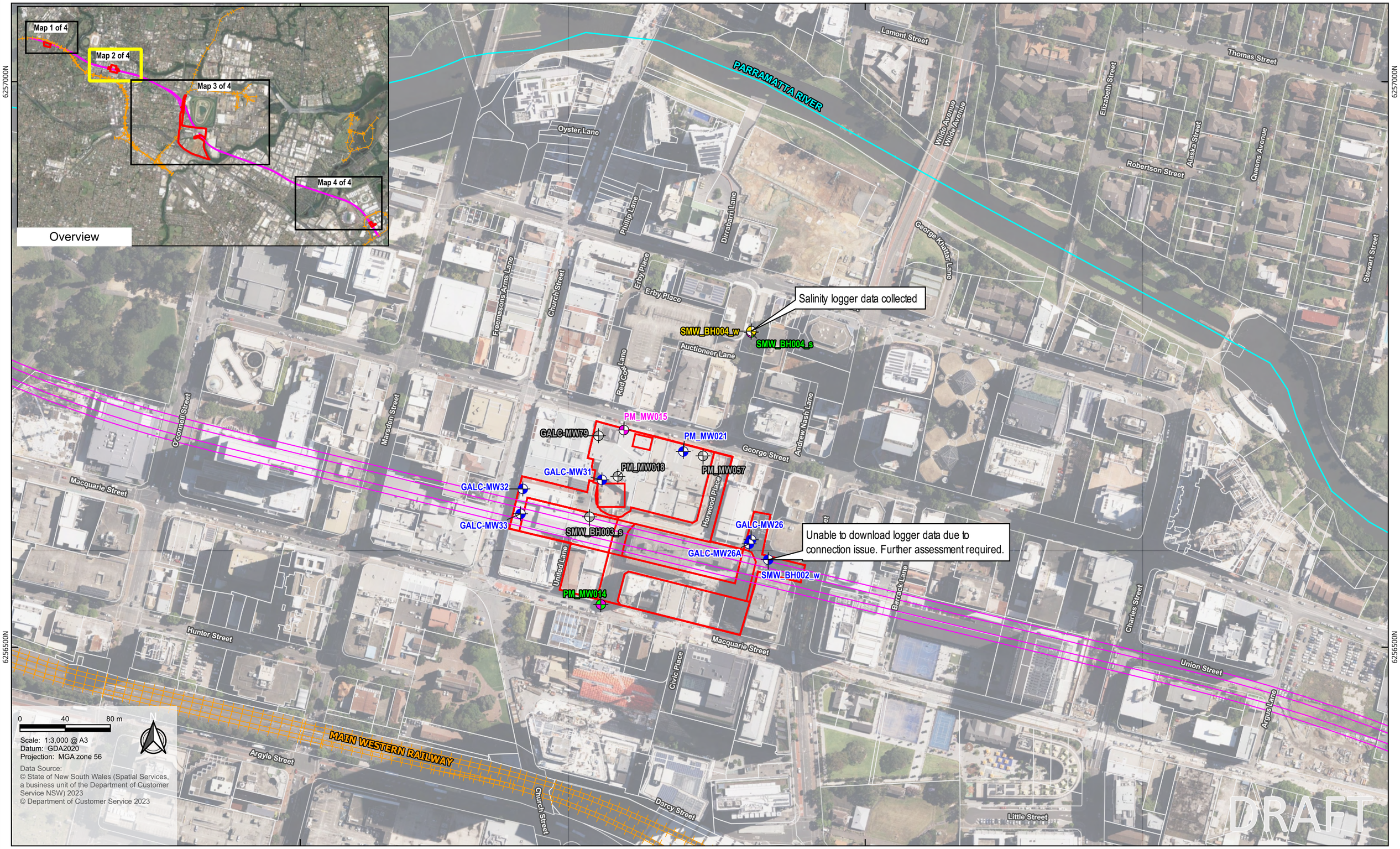
Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2023

Figure F1
Overview of groundwater monitoring wells (Page 1 of 4)

Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\05 October 2023 - Monitoring event R5\Figure F1 Groundwater monitoring program - October monitoring round.qgz



Legend

- Site boundary
- Lot boundary
- Watercourses
- Railways
- Proposed tunnel alignment
- Borehole inaccessible
- Manual water level and salinity logger data collected
- Manual water level and water quality information collected
- Manual water level, level logger, and water quality information collected
- Only manual water level data collected

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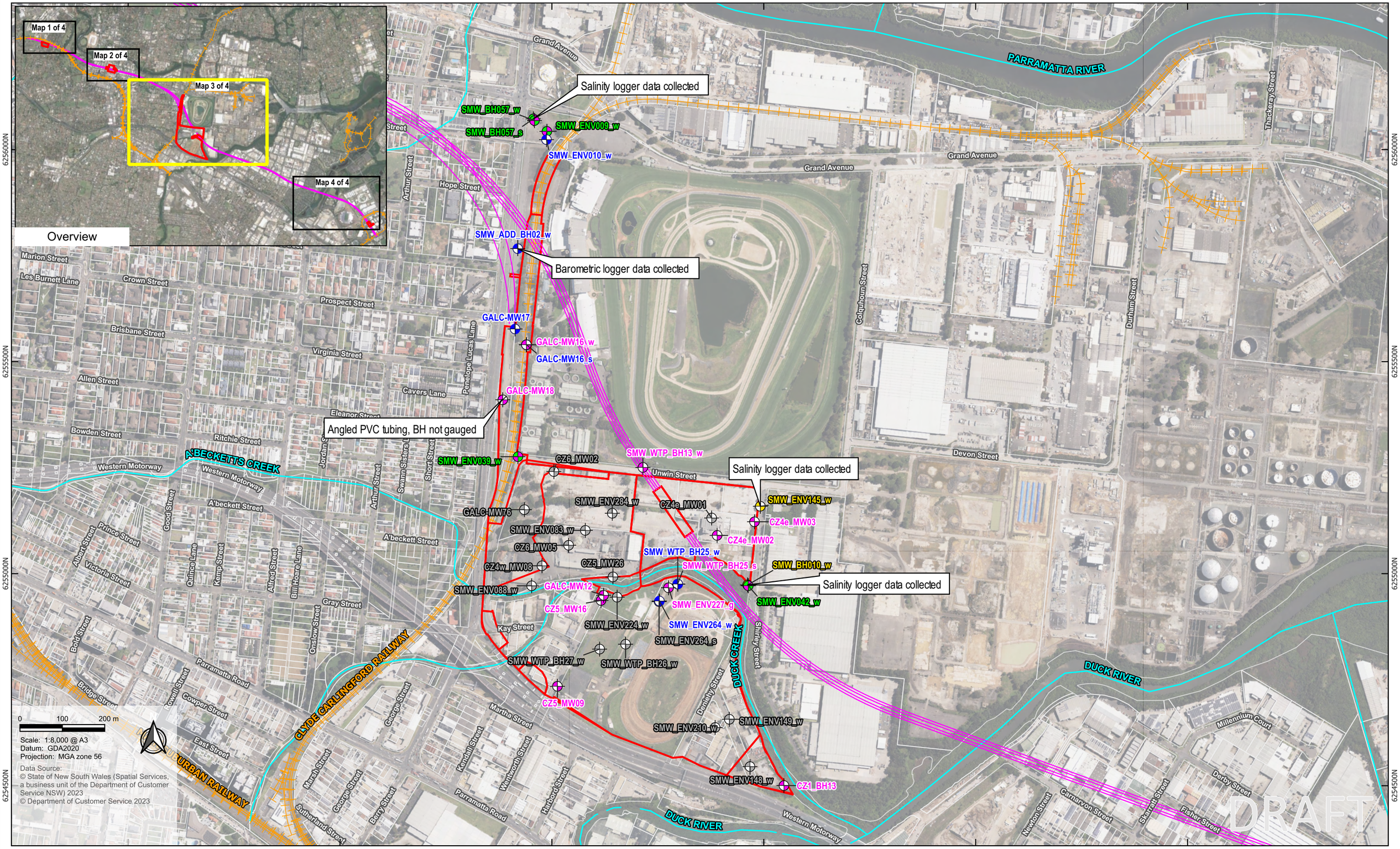
Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2023

Figure F1
Overview of groundwater monitoring wells (Page 2 of 4)

Filepath: ~SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\05 October 2023 - Monitoring event R5\Figure F1 Groundwater monitoring round.qgz



Legend

- Site boundary
- Lot boundary
- Watercourses
- Railways
- Proposed tunnel alignment
- Borehole inaccessible
- Manual water level and salinity logger data collected
- Manual water level and water quality information collected
- Manual water level, level logger, and water quality information collected
- Only manual water level data collected

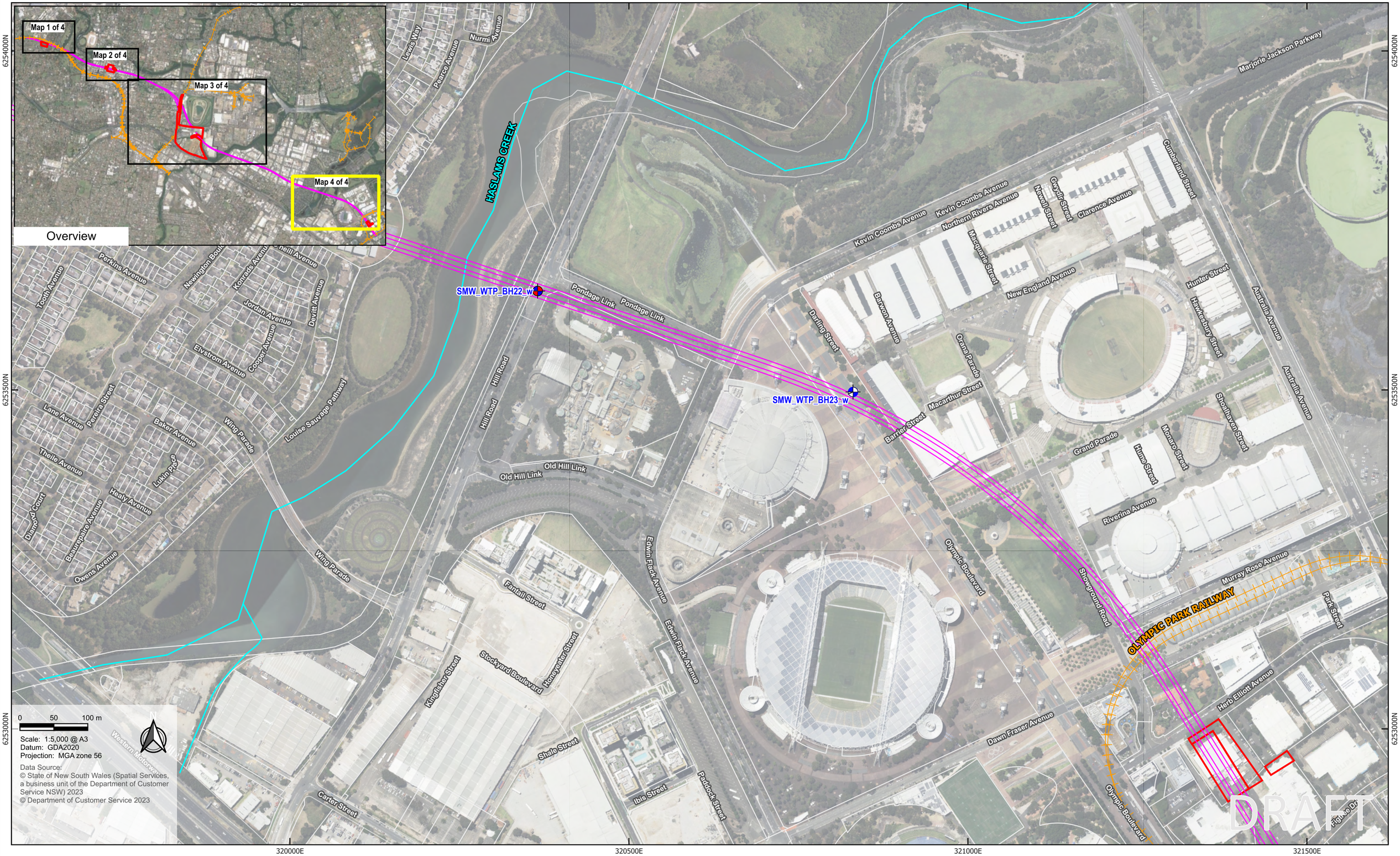
epic ENVIRONMENTAL

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2023

Figure F1
Overview of groundwater monitoring wells (Page 3 of 4)

Filepath: ~\SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\05 October 2023 - Monitoring event R5\Figure F1 Groundwater monitoring program - October monitoring round.qgz

SC210108.01 Rev A 17/11/2023



Legend

- Site boundary
- Lot boundary
- Watercourses
- Railways
- Proposed tunnel alignment
- Only manual water level data collected
- Only manual water level and level logger data collected

epic ENVIRONMENTAL

Gamuda Laing O'Rourke Consortium
Sydney Metro West Western Tunnelling Package
Groundwater Monitoring Program
Monitoring Round October 2023

Figure F1
Overview of groundwater monitoring wells (Page 4 of 4)

Filepath: ~/SC2021\SC210108.01 Gamuda SMW WTP Enviro Support\Workspaces\SC210108.03 Groundwater Monitoring Program\05 October 2023 - Monitoring event R5\Figure F1 Groundwater monitoring program - October monitoring round.qgz

SC210108.01 Rev A 17/11/2023

APPENDIX B – TABLES

Table T1. Groundwater Analytical Results – Marine (July 2023 GME)

Table T2. Groundwater Analytical Results – Freshwater (July 2023 GME)

Table T3. Rinsate and Trip Blank Results (July 2023 GME)

Table T4. RPD summary table (July 2023 GME)

Table T5. Groundwater Analytical Results – Marine (October 2023 GME)

Table T6. Groundwater Analytical Results – Freshwater (October 2023 GME)

Table T7. Rinsate and Trip Blank Results (October 2023 GME)

Table T8. RPD Summary Table (October 2023 GME)

Tablte T9. RPD Summary Table (November 2023 GME)

						NA		Physico-Chemical & Major Ions											
						Total Trimethylbenzenes	1,2,3-trimethylbenzene	pH (Lab)	Electrical Conductivity (Lab)	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Sulphate	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)
						µg/L	µg/L	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						1	1	0.01	1	5	1	1	1	1	1	1	1	0.5
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)																		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries								7-8.5										
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	-	-	6.5	-	24,000	12,000	-	2,400	<5	<5	280	280	310
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	-	-	6.3	-	3,600	1,900	-	570	<5	<5	140	140	32
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	-	-	5.9	-	14,000	7,300	-	640	<5	<5	120	120	170
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	-	-	6.7	-	2,000	730	-	180	<5	<5	500	500	100
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	-	-	7.4	-	1,900	250	-	320	<5	<5	1,100	1,100	250
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	-	-	6.4	-	6,800	2,800	-	1,300	<5	<5	430	430	120
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	-	-	6.2	-	3,600	1,600	-	840	<5	<5	130	130	63
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	-	6.6	-	21,000	10,000	-	1,900	<5	<5	440	440	350
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	-	7.06	32,000	20,000	9,800	1,650	-	<1	<1	416	416	371
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	-	-	6.6	-	20,000	10,000	-	1,900	<5	<5	430	430	360
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	-	-	5.8	-	16,000	8,800	-	1,200	<5	<5	94	94	180
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	-	-	6.4	-	6,400	3,200	-	450	<5	<5	140	140	50
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	-	-	6.0	-	9,500	4,800	-	890	<5	<5	210	210	120
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	-	-	6.3	-	4,900	2,500	-	520	<5	<5	250	250	40
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	-	-	6.4	-	13,000	4,800	-	1,900	<5	<5	820	820	490
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	-	-	6.1	-	520	110	-	160	<5	<5	150	150	13
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	-	-	6.0	-	820	140	-	220	<5	<5	230	230	8.0

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

										Inorganics								
						Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Electrical Conductivity (Non Compensated)	Hardness (filtered)	Ammonia as N	Ammonia as N (filtered)	Kjeldahl Nitrogen Total	Organic Nitrogen as N	Nitrogen (Total Oxidised)
						mg/L	mg/L	mg/L	meq/L	meq/L	%	µS/cm	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						0.5	0.5	0.5	0.01	0.01	0.01	1		0.005	0.005	0.1	0.2	0.005
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)														0.91	0.91			
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		0.015
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	710	7,500	170	-	-	3.0	32,000	3,700	-	0.53	0.5	<0.2	<0.005
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	77	1,000	29	-	-	-12	6,600	400	-	2.1	2.1	<0.2	0.02
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	520	3,400	6.8	-	-	-5.0	20,000	2,600	-	0.11	0.2	<0.2	<0.005
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	91	500	17	-	-	1.0	3,300	630	-	11	13	1.1	0.3
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	77	320	19	-	-	-4.0	2,900	930	-	16	16	<0.2	0.3
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	190	2,000	5.4	-	-	-2.0	10,000	1,100	-	0.064	0.3	0.2	<0.005
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	99	1,400	3	-	-	6.0	6,200	570	-	0.042	0.1	<0.2	<0.005
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	940	6,900	26	-	-	8.0	29,000	4,700	-	0.78	0.8	<0.2	<0.005
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	938	5,440	22	319	333	2.12	-	-	0.58	-	0.7	-	-
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	950	7,200	27	-	-	10	29,000	4,800	-	0.77	0.7	<0.2	<0.005
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	730	5,400	14	-	-	5.0	24,000	3,500	-	0.79	1.3	0.5	<0.005
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	200	2,300	8.2	-	-	8.0	10,000	960	-	0.022	0.2	<0.2	<0.005
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	260	3,200	110	-	-	3.0	14,000	1,400	-	2.4	3.2	0.7	<0.005
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	110	1,900	6.4	-	-	4.0	8,400	570	-	0.016	0.3	0.3	<0.005
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	510	2,400	54	-	-	-4.0	17,000	3,300	-	3.8	4.1	0.3	0.01
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	27	120	13	-	-	-5.0	950	140	-	0.061	0.2	<0.2	0.03
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	21	180	24	-	-	-10	1,300	110	-	4.3	5.3	1.0	<0.005

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						Nutrients												
						Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N)	Nitrite (as N) (filtered)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Aluminium (filtered)	Arsenic (filtered)	Beryllium (filtered)	Boron (filtered)
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL						0.005	0.005	0.005	0.005	0.01	0.1	0.01	0.005	0.005	0.005	0.2	0.0005	0.02
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)																		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries											0.3		0.005	0.005				
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species						2.4	2.4											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.5	-	-	0.03	-	1	<0.0005	0.75
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	-	0.02	-	<0.005	-	2.1	-	-	<0.005	-	11	<0.0005	0.42
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.2	-	-	<0.005	-	2	0.003	0.04
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	-	0.31	-	<0.005	-	13	-	-	<0.005	-	3	<0.0005	0.2
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	-	0.26	-	<0.005	-	17	-	-	<0.005	-	4	<0.0005	0.2
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.3	-	-	<0.005	-	6	0.0005	0.07
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.1	-	-	<0.005	-	<1	<0.0005	0.04
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.8	-	-	<0.005	-	3	<0.0005	0.06
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	0.02	-	<0.01	-	0.02	0.7	0.07	-	-	<0.005	<0.5	-	-
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.7	-	-	<0.005	-	<1	<0.0005	0.06
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	1.3	-	-	<0.005	-	6	<0.0005	0.1
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.2	-	-	<0.005	-	<1	<0.0005	0.06
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	3.2	-	-	<0.005	-	6	<0.0005	2
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.3	-	-	<0.005	-	4	<0.0005	0.03
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	-	<0.005	-	0.013	-	4.1	-	-	<0.005	-	9	<0.0005	0.2
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	-	0.03	-	<0.005	-	0.2	-	-	<0.005	-	<1	<0.0005	0.2
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	5.3	-	-	<0.005	-	15	<0.0005	0.87

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						Metals												
						Cadmium (filtered)	Chromium (hexavalent)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Cobalt (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)
						µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L
EQL						0.05	0.005	0.005	0.01	0.2	0.2	0.0001	0.5	0.002	0.1	0.0005	0.005	0.5
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)						5.5	0.0044	0.0044	0.027			0.001	1.3		4.4		0.4	70
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters						0.7	0.0044	0.0044	0.027			0.001	1.3		4.4		0.1	7
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.006	<1	-	<1	0.71	<0.05	2
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.01	<1	-	<1	0.1	<0.05	6
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	0.3	-	<0.005	-	-	2	0.094	5	-	2	0.8	<0.05	36
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	<0.001	<1	-	<1	0.5	<0.05	<1
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	<0.001	<1	-	<1	0.26	<0.05	<1
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.016	4	-	<1	1.8	<0.05	11
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.038	1	-	<1	2.4	<0.05	15
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.032	1	-	<1	1.8	<0.05	3
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<0.2	<0.01	-	-	-	<0.5	0.0300	<1	6.96	<0.2	1.41	-	2.6
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.035	<1	-	<1	1.9	<0.05	3
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.016	210	-	<1	0.35	<0.05	12
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.022	<1	-	<1	0.23	<0.05	7
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.004	<1	-	<1	0.37	<0.05	5
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.006	<1	-	<1	0.88	<0.05	2
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.043	1,000	-	<1	0.57	<0.05	39
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.007	82	-	<1	0.83	<0.05	3
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.014	<1	-	<1	1.3	<0.05	7

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

									BTEX									
						Phosphorus	Selenium (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10
						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
EQL						0.05	0.001	1	1	1	1	1	1	1	0.1	1	1	10
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)								15	700	180	80				70	70		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries						0.03												
NEPM 2013 Table 1C GILs, Marine Waters								15	500						50	50		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<0.05	<0.001	5	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<0.05	<0.001	15	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<0.05	<0.001	130	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	0.1	0.001	3	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	0.1	<0.001	2	1	<1	<1	<2	<1	-	<0.2	<1	-	870
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<0.05	<0.001	38	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	0.05	<0.001	30	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<0.05	<0.001	8	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<0.05	<0.001	8	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<0.05	<0.001	32	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<0.05	<0.001	4	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	0.07	<0.001	22	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<0.05	<0.001	4	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<0.05	<0.001	43	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<0.05	<0.001	8	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<0.05	<0.001	2	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						TRH						MAH						
						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
EQL						10	50	50	100	100	50	1	1	1	1	1	1	1
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)														30				
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<10	220	220	2,400	<100	2,600	<1	<1	<1	<1	<1	<1	<1
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	870	91	91	500	<100	590	<1	<1	<1	<1	<1	<1	<1
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine 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
						µg/L	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	10	1	10	1	1	1	1	1	1
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)														270	400	1,900		700
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																1,900		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<5	<5	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						Chlorinated Hydrocarbons												
						1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-Dichloroethene	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 (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)									1,900		900	1,100					240	
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<5	<5	<5	<5	-	<5	<5	<5	-	<5	<5	<5	<5
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	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	µg/L	µg/L	µg/L
EQL						10	1	10	1	1	1	2	0.5	1	1	1	1	0.2
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)							770					4,000		330	70			100
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<50	<5	<50	<5	<5	<5	-	<5	<5	<5	<5	<5	<50
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						PA												
						Benzo(b+j+k)fluoranthene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Coronene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene
						mg/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						0.0002	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.0001	0.1	0.1
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)												0.4			0.2			
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	-	-	-	<1.0	<1.0	<1.0	<1.0	-	<0.5	<0.0010	-	<1.0
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						\H												
						Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Perylene	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	mg/L	mg/L	µg/L	mg/L
EQL						0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.00005	0.05	0.0001
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)									1.4			2						
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-	<0.0005	<0.5	-
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						TPH					PCBs							
						C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	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
EQL						10	50	100	50	50	2	2	2	2	2	2	2	1
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)																		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	<10	83	2,500	<100	2,600	<2	<2	<2	<2	<2	<2	<2	-
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	870	87	530	<100	620	<5	<5	<5	<5	<5	<5	<5	-
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	-
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						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)
						µg/L	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
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)																		
PFAS NEMP 2020 Freshwater 99%								0.00023						19				
ANZECC 2000 SE Aust Triggers - Estuaries																		
NEPM 2013 Table 1C GILs, Marine Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	-	0.35	0.08	0.43	-	-	-	-	0.02	-	<0.01	<0.02	-
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	-	0.02	<0.01	0.02	-	-	-	-	0.03	-	<0.01	<0.02	-
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	0.01	-	0.02	<0.02	-
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	-	0.02	<0.01	0.02	-	-	-	-	0.02	-	<0.01	<0.02	-
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	-	0.08	0.02	0.10	-	-	-	-	0.04	-	<0.01	<0.02	-
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	-	0.03	<0.01	0.03	-	-	-	-	<0.01	-	<0.01	<0.02	-
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**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
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	-	0.02	0.02	0.04	-	-	-	-	0.01	-	<0.01	<0.02	-
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	-	0.01	<0.01	0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine 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	Acetone	Carbon disulfide	Cyclohexane	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L
EQL						0.01	0.01	0.01	10	10	10	0.01	1	0.001	10
ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)															
PFAS NEMP 2020 Freshwater 99%															
ANZECC 2000 SE Aust Triggers - Estuaries															
NEPM 2013 Table 1C GILs, Marine Waters															
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species															
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**										
328369-1		**CZ1-BH13**		**18 Jul 2023**	**Water**	-	0.1	0.45	-	-	-	-	-	<0.001	-
328369-5		**CZ5_MW16**		**18 Jul 2023**	**Water**	-	0.03	0.05	-	-	-	-	-	<0.001	-
328369-3		**SMW_ENV210_W**		**18 Jul 2023**	**Water**	-	0.01	0.04	-	-	-	-	-	<0.001	-
328369-2		**SMW_ENV227_W**		**18 Jul 2023**	**Water**	-	0.02	0.04	-	-	-	-	-	<0.001	-
328369-4		**SMW_WTP_BH25_S**		**18 Jul 2023**	**Water**	-	0.06	0.14	-	-	-	-	-	<0.001	-
328537-3		**CZ4e_MW01**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328537-4		**CZ4e_MW03**		**19 Jul 2023**	**Water**	-	<0.01	0.03	-	-	-	-	-	<0.001	-
328537-6		**QC01**	**SMW_ENV039**	**19 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
ES2324492001		**QC02**	**SMW_ENV039**	**19 Jul 2023**	**Water**	<0.01	-	-	<50	<50	<50	-	<5	-	<50
328537-5		**SMW_ENV039**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328537-1		**SMW_ENV042**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328537-2		**SMW_WTP_BH13**		**19 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328652-2		**GALC_MW12**		**20 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328652-1		**GALC_MW18**		**20 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328886-6		**SMW_ADD_BH02**		**25 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328886-4		**SMW_BH057_S**		**25 Jul 2023**	**Water**	-	0.03	0.06	-	-	-	-	-	<0.001	-
328886-5		**SMW_ENV010**		**25 Jul 2023**	**Water**	-	<0.01	0.01	-	-	-	-	-	<0.001	-

Environmental Standards

ANZG, March 2021, ANZG (2018) Marine Water 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

						NA		Physico-Chemical & Major Ions											
						Total Trimethylbenzenes	1,2,3-trimethylbenzene	pH (Lab)	Electrical Conductivity (Lab)	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Sulphate	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)
						µg/L	µg/L	-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						1	1	0.01	1	5	1	1	1	1	1	1	1	0.5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)																		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River								6.5-8										
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	-	-	7.1	-	6,800	3,000	-	190	<5	<5	960	960	130
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	-	-	7.1	-	750	330	-	66	<5	<5	140	140	18
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	-	-	6.1	-	430	160	-	32	<5	<5	60	60	7.2
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	-	-	6.3	-	370	46	-	92	<5	<5	99	99	3
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	-	-	6.0	-	260	44	-	48	<5	<5	61	61	6.4
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	-	-	6.5	-	250	46	-	48	<5	<5	62	62	6.6
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<1	<1	6.37	438	280	45	42	-	<1	<1	60	60	8

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

												Inorganics						
						Magnesium (filtered)	Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Electrical Conductivity (Non Compensated)	Hardness (filtered)	Ammonia as N	Ammonia as N (filtered)	Kjeldahl Nitrogen Total	Organic Nitrogen as N	Nitrogen (Total Oxidised)
						mg/L	mg/L	mg/L	meq/L	meq/L	%	µS/cm	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL						0.5	0.5	0.5	0.01	0.01	0.01	1		0.005	0.005	0.1	0.2	0.005
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)														0.9	0.9			
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		0.04
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	290	1,800	44	-	-	1.0	10,000	1,500	-	0.72	1.1	0.4	0.03
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	33	260	7.8	-	-	7.0	1,400	180	-	0.14	1.2	1.1	0.3
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	5.1	110	0.6	-	-	-7.0	710	39	-	0.10	0.2	<0.2	<0.005
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	4	110	1	-	-	0	580	25	-	<0.005	0.9	0.9	3.5
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	7.3	62	3	-	-	3.0	440	46	-	<0.005	0.9	0.9	8.2
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	7.3	61	3	-	-	2.0	440	47	-	<0.005	0.6	0.6	8.1
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	9	74	3	4.03	4.44	4.80	-	-	0.01	-	0.7	-	-

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						Nutrients												
						Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N)	Nitrite (as N) (filtered)	Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Aluminium (filtered)	Arsenic (filtered)	Beryllium (filtered)	Boron (filtered)
						mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L
EQL						0.005	0.005	0.005	0.005	0.01	0.1	0.01	0.005	0.005	0.005	0.2	0.0005	0.02
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)															0.055			0.37
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River											0.5		0.02	0.02				
NEPM 2013 Table 1C GILs, Fresh Waters															*0.055 | 0.055*			*0.37*
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species						2.4	2.4											
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	-	0.02	-	0.009	-	1.1	-	-	0.008	-	1	<0.0005	0.07
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	-	0.33	-	<0.005	-	1.5	-	-	0.04	-	<1	<0.0005	0.03
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	-	<0.005	-	<0.005	-	0.2	-	-	0.04	-	7	<0.0005	0.05
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	-	3.5	-	<0.005	-	4.4	-	-	<0.005	-	<1	<0.0005	0.1
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	-	8.0	-	0.18	-	9.2	-	-	0.01	-	<1	<0.0005	0.06
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	-	7.9	-	0.17	-	8.7	-	-	0.01	-	<1	<0.0005	0.06
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	8.71	-	0.16	-	8.87	9.6	0.06	<0.01	-	<0.005	<0.2	-	-

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						Metals												
						Cadmium (filtered)	Chromium (hexavalent)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (III+VI)	Chromium (III+VI) (filtered)	Cobalt (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)
						µg/L	mg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L	mg/L	µg/L	µg/L
EQL						0.05	0.005	0.005	0.01	0.2	0.2	0.0001	0.5	0.002	0.1	0.0005	0.005	0.5
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)						0.2	0.001	0.001					1.4		3.4	1.9	0.6	11
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters						*0.2*	*0.001*	*0.001*					*1.4*		*3.4*	*1.9*	*0.06*	*11*
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	<0.001	*4*	-	<1	0.19	<0.05	2
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	<0.001	*5*	-	<1	0.025	<0.05	2
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	2	0.003	<1	-	<1	0.18	<0.05	2
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	<0.001	*21*	-	<1	<0.005	<0.05	<1
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.008	*10*	-	<1	0.07	<0.05	4
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<0.1	-	<0.005	-	-	<1	0.008	*12*	-	<1	0.074	<0.05	4
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<0.05	<0.01	-	<0.01	<1	<0.2	0.0076	*7.0*	<0.002	<0.1	0.0716	<0.005	3.6

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

									BTEX								
						Phosphorus	Selenium (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10
						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
EQL						0.05	0.001	1	1	1	1	1	1	1	0.1	1	1	10
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)							0.011	8	950	180	80		350		16	16		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River						0.05												
NEPM 2013 Table 1C GILs, Fresh Waters							*0.005*	*8*	*950*				*350*	*550*	*16*	*16*		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	0.2	<0.001	7	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	0.09	<0.001	*26*	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	0.51	<0.001	2	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<0.05	0.003	2	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<0.05	0.005	*29*	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<0.05	0.005	*32*	<1	<1	<1	<2	<1	-	<0.2	<1	-	<10
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	-	-	*28*	<1	<1	<1	<1	<1	<1	<0.1	<5	<1	<20

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						TRH						MAH						
						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
EQL						10	50	50	100	100	50	1	1	1	1	1	1	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)														30				
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	<10	220	220	<100	<100	220	<1	<1	<1	<1	<1	<1	<1
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	<10	180	180	<100	<100	180	<1	<1	<1	<1	<1	<1	<1
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	<10	110	110	<100	<100	110	<1	<1	<1	<1	<1	<1	<1
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<20	<100	<100	<100	<100	<100	<1	<1	<1	<1	<1	<1	<1

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

								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
						µg/L	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	10	1	10	1	1	1	1	1	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)														270	400	6,500		700
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters																*6,500*		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<1	<1	<1	<2	<10	-	<10	<1	<1	<1	<1	<1	<1
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<1	<1	<1	<10	<10	<1	<10	<1	<1	<1	<1	<1	<1

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						Chlorinated Hydrocarbons												
						1,1-dichloropropene	1,2,3-trichloropropane	1,2-dibromo-3-chloropropane	1,2-dichloroethane	1,2-Dichloroethene	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 (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)									1,900		900	1,100					240	
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<1	<1	<1	<1	-	<1	<1	<1	<1	<1	<1	<1	<1
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						Chloroethane	Chloroform	Chloromethane	cis-1,2-dichloroethene	cis-1,3-dichloropropene	Dibromomethane	Dichloromethane	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	µg/L	µg/L	µg/L
EQL						10	1	10	1	1	1	2	0.5	1	1	1	1	0.2
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)							770					4,000		330	70			100
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	<1	<1	<1	<0.3
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	3	<1	<1	<0.3
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<10	<1	<10	<1	<1	<1	-	<0.7	<1	3	<1	<1	<0.3
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<10	<1	<10	<1	<2	<1	<2	<0.5	<1	2	<1	<2	<0.2

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

							Benzo(b+j+k)fluoranthene	2-methylnaphthalene	3-methylcholanthrene	7,12-dimethylbenz(a)anthracene	Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Coronene	Benzo(a) pyrene	Benzo(b+j)fluoranthene	Benzo(e)pyrene	Benzo(g,h,i)perylene
							mg/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							0.0002	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.0001	0.1	0.1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)													0.4			0.2			
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**														
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**		<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**		<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**		<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**		<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**		<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**		<0.0002	-	-	-	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	-	<0.1
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**		-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.0001	<0.1	<0.1

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						\H												
						Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Phenanthrene	Perylene	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	mg/L	mg/L	µg/L	mg/L
EQL						0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0005	0.00005	0.05	0.0001
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)									1.4			2						
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.0005	-	-	<0.0001
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.00005	<0.05	-

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						TPH					PCBs							
						C6-C9	C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)	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
EQL						10	50	100	50	50	2	2	2	2	2	2	2	1
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)														0.6		0.03		
PFAS NEMP 2020 Freshwater 99%																		
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters														*0.3*		*0.01*		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	<10	<50	240	<100	240	<2	<2	<2	<2	<2	<2	<2	-
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	<10	<50	220	<100	220	<2	<2	<2	<2	<2	<2	<2	-
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	<10	110	<100	<100	110	<2	<2	<2	<2	<2	<2	<2	-
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<10	<50	<100	<100	<50	<2	<2	<2	<2	<2	<2	<2	-
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<20	<50	<100	<50	<50	-	-	-	-	-	-	-	<1

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						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)
						µg/L	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
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)																		
PFAS NEMP 2020 Freshwater 99%								0.00023						19				
ANZECC 2000 SE Aust Triggers - Lowland River																		
NEPM 2013 Table 1C GILs, Fresh Waters																		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																		
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**													
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	0.03	<0.02	-
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	-	<0.01	<0.01	<0.01	-	-	-	-	<0.01	-	<0.01	<0.02	-
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	-	0.14	0.13	0.27	-	-	-	-	0.09	-	<0.01	<0.02	-
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	-	<0.01	0.02	0.02	-	-	-	-	0.04	-	<0.01	<0.02	-
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	-	<0.01	0.02	0.02	-	-	-	-	0.04	-	<0.01	<0.02	-
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	<0.02	<0.01	0.02	0.02	<0.1	<0.02	0.03	<0.02	0.03	<0.05	<0.05	<0.05	<0.05

Environmental Standards

ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

						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	Acetone	Carbon disulfide	Cyclohexane	Vinyl acetate
						µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	mg/L	µg/L
EQL						0.01	0.01	0.01	10	10	10	0.01	1	0.001	10
ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)															
PFAS NEMP 2020 Freshwater 99%															
ANZECC 2000 SE Aust Triggers - Lowland River															
NEPM 2013 Table 1C GILs, Fresh Waters															
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species															
Sample Code	**Location Code**	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**										
328652-3		**SMW_WTP_BH02**		**21 Jul 2023**	**Water**	-	<0.01	0.03	-	-	-	-	-	<0.001	-
328652-4		**SMW_WTP_BH03A**		**21 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328886-1		**PM_MW15**		**24 Jul 2023**	**Water**	-	<0.01	<0.01	-	-	-	-	-	<0.001	-
328886-2		**PM_MW14**		**24 Jul 2023**	**Water**	-	0.22	0.35	-	-	-	-	-	<0.001	-
328886-3		**SMW_BH004_S**		**25 Jul 2023**	**Water**	-	0.06	0.06	-	-	-	-	-	<0.001	-
328886-11		**QC03**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	-	0.06	0.06	-	-	-	-	-	<0.001	-
ES2325025001		**QC04**	**SMW_BH004_S**	**25 Jul 2023**	**Water**	0.08	-	-	<10	<10	<10	<0.01	<1	-	<10

Environmental Standards
ANZG, March 2021, ANZG (2018) Freshwater 95% LOSP Toxicant DGVs (March 2021)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 95%
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species

T3: QA/QC Rinsates and Trip Blanks Results (July 2023)

				Metals													BTEX			
				Arsenic (filtered)	Beryllium (filtered)	Boron (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Cobalt (filtered)	Copper (filtered)	Lead (filtered)	Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Selenium (filtered)	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)
				µg/L	mg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	0.0005	0.02	0.1	1	0.001	1	1	0.005	0.05	1	0.001	1	1	1	1	2
Lab Report Number	**Field ID**	**Date**	**Matrix Type**																	
328369	**RS01**	**18 Jul 2023**	**Water**	<1	<0.0005	<0.02	<0.1	<1	<0.001	<1	<1	<0.005	<0.05	<1	<0.001	<1	<1	<1	<1	<2
328537	**RS02**	**19 Jul 2023**	**Water**	<1	-	-	<0.1	<1	-	<1	<1	-	<0.05	<1	-	<1	-	-	-	-
328652	**RS03**	**20 Jul 2023**	**Water**	<1	<0.0005	<0.02	<0.1	<1	<0.001	<1	<1	<0.005	<0.05	<1	<0.001	<1	<1	<1	<1	<2
328652	**RS04**	**21 Jul 2023**	**Water**	<1	<0.0005	<0.02	<0.1	<1	<0.001	<1	<1	<0.005	<0.05	<1	<0.001	<1	<1	<1	<1	<2
328886	**RS05**	**25 Jul 2023**	**Water**	<1	<0.0005	<0.02	<0.1	<1	<0.001	<1	<1	<0.005	<0.05	<1	<0.001	<1	<1	<1	<1	<2
328886	**RS06**	**25 Jul 2023**	**Water**	<1	<0.0005	<0.02	<0.1	<1	<0.001	<1	<1	<0.005	<0.05	<1	<0.001	<1	<1	<1	<1	<2
328369	**TB**	**18 Jul 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2
328537	**TB**	**19 Jul 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2
328652	**TB**	**21 Jul 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2
328886	**TB**	**25 Jul 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	<1	<1	<1	<2

						TRH							TPH				
				Xylene (o)	Naphthalene (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
EQL				1	1	10	10	50	50	100	100	50	10	50	100	100	50
Lab Report Number	**Field ID**	**Date**	**Matrix Type**														
328369	**RS01**	**18 Jul 2023**	**Water**	<1	<1	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
328537	**RS02**	**19 Jul 2023**	**Water**	-	-	<10	-	<50	-	<100	<100	<50	<10	<50	<100	<100	<50
328652	**RS03**	**20 Jul 2023**	**Water**	<1	<1	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
328652	**RS04**	**21 Jul 2023**	**Water**	<1	<1	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
328886	**RS05**	**25 Jul 2023**	**Water**	<1	<1	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
328886	**RS06**	**25 Jul 2023**	**Water**	<1	<1	<10	<10	<50	<50	<100	<100	<50	<10	<50	<100	<100	<50
328369	**TB**	**18 Jul 2023**	**Water**	<1	<1	<10	<10	-	-	-	-	-	<10	-	-	-	-
328537	**TB**	**19 Jul 2023**	**Water**	<1	<1	<10	<10	-	-	-	-	-	<10	-	-	-	-
328652	**TB**	**21 Jul 2023**	**Water**	<1	<1	<10	<10	-	-	-	-	-	<10	-	-	-	-
328886	**TB**	**25 Jul 2023**	**Water**	<1	<1	<10	<10	-	-	-	-	-	<10	-	-	-	-

		Lab Report Number	328537	328537		328537	ES2324492	
		Field ID	SMW_ENV039	QC01		SMW_ENV039	QC02	
		Date	19 Jul 2023	19 Jul 2023		19 Jul 2023	19 Jul 2023	
		Matrix Type	Water	Water	RPD	Water	Water	RPD
	Unit	EQL						
NA								
Total Trimethylbenzenes	µg/L	1	-	-	-	-	-	-
1,2,3-trimethylbenzene	µg/L	1	-	-	-	-	-	-
Physico-Chemical & Major Ions								
pH (Lab)	-	0.01	6.6	6.6	0	6.6	7.06	7
Electrical Conductivity (Lab)	µS/cm	1	-	-	-	-	32,000	-
TDS	mg/L	5	20,000	21,000	5	20,000	20,000	0
Chloride	mg/L	1	10,000	10,000	0	10,000	9,800	2
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	1	-	-	-	-	1,650	-
Sulphate	mg/L	1	1,900	1,900	0	1,900	-	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<5	<5	0	<5	<1	0
Carbonate as CaCO3	mg/L	1	<5	<5	0	<5	<1	0
Bicarbonate as CaCO3	mg/L	1	430	440	2	430	416	3
Alkalinity (total) as CaCO3	mg/L	1	430	440	2	430	416	3
Calcium (filtered)	mg/L	0.5	360	350	3	360	371	3
Magnesium (filtered)	mg/L	0.5	950	940	1	950	938	1
Sodium (filtered)	mg/L	0.5	7,200	6,900	4	7,200	5,440	28
Potassium (filtered)	mg/L	0.5	27	26	4	27	22	20
Anions Total	meq/L	0.01	-	-	-	-	319	-
Cations Total	meq/L	0.01	-	-	-	-	333	-
Ionic Balance	%	0.01	10	8.0	22	10	2.12	130
Inorganics								
Electrical Conductivity (Non Compensated)	µS/cm	1	29,000	29,000	0	29,000	-	-
Hardness (filtered)	mgCaCO3/L		4,800	4,700	2	4,800	-	-
Nutrients								
Ammonia as N	mg/L	0.005	-	-	-	-	0.58	-
Ammonia as N (filtered)	mg/L	0.005	0.77	0.78	1	0.77	-	-
Kjeldahl Nitrogen Total	mg/L	0.1	0.7	0.8	13	0.7	0.7	0
Organic Nitrogen as N	mg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Nitrogen (Total Oxidised)	mg/L	0.005	<0.005	<0.005	0	<0.005	-	-
Nitrate (as N)	mg/L	0.005	-	-	-	-	0.02	-
Nitrate (as N) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	-	-
Nitrite (as N)	mg/L	0.005	-	-	-	-	<0.01	-
Nitrite (as N) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	-	-
Nitrite + Nitrate as N	mg/L	0.01	-	-	-	-	0.02	-
Nitrogen (Total)	mg/L	0.1	0.7	0.8	13	0.7	0.7	0
Total Phosphorus as P (Organic Phosphate as P)	mg/L	0.01	-	-	-	-	0.07	-
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	0.005	-	-	-	-	-	-
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	-	-
Metals								
Aluminium (filtered)	mg/L	0.005	-	-	-	-	<0.005	-
Arsenic (filtered)	µg/L	0.2	<1	3	100	<1	<0.5	0
Beryllium (filtered)	mg/L	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
Boron (filtered)	mg/L	0.02	0.06	0.06	0	0.06	-	-
Cadmium (filtered)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.2	0
Chromium (hexavalent)	mg/L	0.005	-	-	-	-	<0.01	-
Chromium (hexavalent) (filtered)	mg/L	0.005	<0.005	<0.005	0	<0.005	-	-
Chromium (Trivalent)	mg/L	0.01	-	-	-	-	-	-
Chromium (III+VI)	µg/L	0.2	-	-	-	-	-	-
Chromium (III+VI) (filtered)	µg/L	0.2	<1	<1	0	<1	<0.5	0
Cobalt (filtered)	mg/L	0.0001	0.035	0.032	9	0.035	0.0300	15
Copper (filtered)	µg/L	0.5	<1	1	0	<1	<1	0
Iron (filtered)	mg/L	0.002	-	-	-	-	6.96	-
Lead (filtered)	µg/L	0.1	<1	<1	0	<1	<0.2	0
Manganese (filtered)	mg/L	0.0005	1.9	1.8	5	1.9	1.41	30
Mercury (filtered)	µg/L	0.005	<0.05	<0.05	0	<0.05	-	-
Nickel (filtered)	µg/L	0.5	3	3	0	3	2.6	14
Phosphorus	mg/L	0.05	<0.05	<0.05	0	<0.05	-	-
Selenium (filtered)	mg/L	0.001	<0.001	<0.001	0	<0.001	-	-
Zinc (filtered)	µg/L	1	8	8	0	8	<5	46
BTEX								
Benzene	µg/L	1	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<1	<1	0	<1	<2	0
Ethylbenzene	µg/L	1	<1	<1	0	<1	<2	0
Xylene (m & p)	µg/L	1	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<1	<1	0	<1	<2	0
Xylene Total	µg/L	1	-	-	-	-	<2	-
Naphthalene	µg/L	0.1	<0.2	<0.2	0	<0.2	<1.0	0
Naphthalene (BTEX)	µg/L	1	<1	<1	0	<1	<5	0
Total BTEX	µg/L	1	-	-	-	-	<1	-
TRH								
C6-C10	µg/L	10	<10	<10	0	<10	<20	0
C6-C10 (F1 minus BTEX)	µg/L	10	<10	<10	0	<10	<20	0
C10-C16	µg/L	50	<50	<50	0	<50	<100	0

		Lab Report Number	328537	328537		328537	ES2324492	
		Field ID	SMW_ENV039	QC01		SMW_ENV039	QC02	
		Date	19 Jul 2023	19 Jul 2023		19 Jul 2023	19 Jul 2023	
		Matrix Type	Water	Water	RPD	Water	Water	RPD
	Unit	EQL						
C10-C16 (F2 minus Naphthalene)	µg/L	50	<50	<50	0	<50	<100	0
C16-C34	µg/L	100	<100	<100	0	<100	<100	0
C34-C40	µg/L	100	<100	<100	0	<100	<100	0
C10-C40 (Sum of total)	µg/L	50	<50	<50	0	<50	<100	0
MAH								
1,2,4-trimethylbenzene	µg/L	1	<1	<1	0	<1	<5	0
1,3,5-trimethylbenzene	µg/L	1	<1	<1	0	<1	<5	0
Isopropylbenzene	µg/L	1	<1	<1	0	<1	<5	0
n-butylbenzene	µg/L	1	<1	<1	0	<1	<5	0
n-propylbenzene	µg/L	1	<1	<1	0	<1	<5	0
p-isopropyltoluene	µg/L	1	<1	<1	0	<1	<5	0
sec-butylbenzene	µg/L	1	<1	<1	0	<1	<5	0
Styrene	µg/L	1	<1	<1	0	<1	<5	0
tert-butylbenzene	µg/L	1	<1	<1	0	<1	<5	0
Halogenated Hydrocarbons								
1,2-dibromoethane	µg/L	1	<1	<1	0	<1	<5	0
Bromomethane	µg/L	2	<2	<2	0	<2	<50	0
Dichlorodifluoromethane	µg/L	10	<10	<10	0	<10	<50	0
Iodomethane	µg/L	1	-	-	-	-	<5	-
Trichlorofluoromethane	µg/L	10	<10	<10	0	<10	<50	0
Chlorinated Hydrocarbons								
1,1,1,2-tetrachloroethane	µg/L	1	<1	<1	0	<1	<5	0
1,1,1-trichloroethane	µg/L	1	<1	<1	0	<1	<5	0
1,1,2,2-tetrachloroethane	µg/L	1	<1	<1	0	<1	<5	0
1,1,2-trichloroethane	µg/L	1	<1	<1	0	<1	<5	0
1,1-dichloroethane	µg/L	1	<1	<1	0	<1	<5	0
1,1-dichloroethene	µg/L	1	<1	<1	0	<1	<5	0
1,1-dichloropropene	µg/L	1	<1	<1	0	<1	<5	0
1,2,3-trichloropropane	µg/L	1	<1	<1	0	<1	<5	0
1,2-dibromo-3-chloropropane	µg/L	1	<1	<1	0	<1	<5	0
1,2-dichloroethane	µg/L	1	<1	<1	0	<1	<5	0
1,2-Dichloroethene	µg/L	1	-	-	-	-	-	-
1,2-dichloropropane	µg/L	1	<1	<1	0	<1	<5	0
1,3-dichloropropane	µg/L	1	<1	<1	0	<1	<5	0
2,2-dichloropropane	µg/L	1	<1	<1	0	<1	<5	0
Bromochloromethane	µg/L	1	<1	<1	0	<1	-	-
Bromodichloromethane	µg/L	1	<1	<1	0	<1	<5	0
Bromoform	µg/L	1	<1	<1	0	<1	<5	0
Carbon tetrachloride	µg/L	1	<1	<1	0	<1	<5	0
Chlorodibromomethane	µg/L	1	<1	<1	0	<1	<5	0
Chloroethane	µg/L	10	<10	<10	0	<10	<50	0
Chloroform	µg/L	1	<1	<1	0	<1	<5	0
Chloromethane	µg/L	10	<10	<10	0	<10	<50	0
cis-1,2-dichloroethene	µg/L	1	<1	<1	0	<1	<5	0
cis-1,3-dichloropropene	µg/L	1	<1	<1	0	<1	<5	0
Dibromomethane	µg/L	1	<1	<1	0	<1	<5	0
Dichloromethane	µg/L	2	-	-	-	-	-	-
Hexachlorobutadiene	µg/L	0.5	<0.7	<0.7	0	<0.7	<5	0
Trichloroethene	µg/L	1	<1	<1	0	<1	<5	0
Tetrachloroethene	µg/L	1	<1	<1	0	<1	<5	0
trans-1,2-dichloroethene	µg/L	1	<1	<1	0	<1	<5	0
trans-1,3-dichloropropene	µg/L	1	<1	<1	0	<1	<5	0
Vinyl chloride	µg/L	0.2	<0.3	<0.3	0	<0.3	<50	0
Halogenated Benzenes								
1,2,3-trichlorobenzene	µg/L	1	<1	<1	0	<1	<5	0
1,2,4-trichlorobenzene	µg/L	1	<1	<1	0	<1	<5	0
1,2-dichlorobenzene	µg/L	1	<1	<1	0	<1	<5	0
1,3-dichlorobenzene	µg/L	1	<1	<1	0	<1	<5	0
1,4-dichlorobenzene	µg/L	0.1	<0.3	<0.3	0	<0.3	<5	0
2-chlorotoluene	µg/L	1	<1	<1	0	<1	<5	0
4-chlorotoluene	µg/L	1	<1	<1	0	<1	<5	0
Bromobenzene	µg/L	1	<1	<1	0	<1	<5	0
Chlorobenzene	µg/L	1	<1	<1	0	<1	<5	0
Hexachlorobenzene	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Trichlorobenzene (total)	mg/L	0.001	-	-	-	-	-	-
VOCs								
1,3-Dichloropropene	µg/L	2	-	-	-	-	-	-
cis-1,4-Dichloro-2-butene	µg/L	1	-	-	-	-	<5	-
trans-1,4-Dichloro-2-butene	µg/L	1	-	-	-	-	<5	-
Pentachloroethane	µg/L	1	-	-	-	-	<5	-
Trihalomethanes	mg/L	0.001	-	-	-	-	-	-
PAH								
Benzo(b+j+k)fluoranthene	mg/L	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
2-methylnaphthalene	µg/L	0.1	-	-	-	-	-	-
3-methylcholanthrene	µg/L	0.1	-	-	-	-	-	-
7,12-dimethylbenz(a)anthracene	µg/L	0.1	-	-	-	-	-	-
Acenaphthene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Acenaphthylene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Anthracene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0

		Lab Report Number	328537	328537		328537	ES2324492	
		Field ID	SMW_ENV039	QC01		SMW_ENV039	QC02	
		Date	19 Jul 2023	19 Jul 2023		19 Jul 2023	19 Jul 2023	
		Matrix Type	Water	Water	RPD	Water	Water	RPD
	Unit	EQL						
Benz(a)anthracene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Coronene	µg/L	0.1	-	-	-	-	-	-
Benzo(a) pyrene	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.5	0
Benzo(b+j)fluoranthene	mg/L	0.0001	-	-	-	-	<0.0010	-
Benzo(e)pyrene	µg/L	0.1	-	-	-	-	-	-
Benzo(g,h,i)perylene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Benzo(k)fluoranthene	µg/L	0.1	-	-	-	-	<1.0	-
Chrysene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Dibenz(a,h)anthracene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Fluoranthene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Fluorene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Phenanthrene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Perylene	µg/L	0.1	-	-	-	-	-	-
Pyrene	µg/L	0.1	<0.1	<0.1	0	<0.1	<1.0	0
Benzo(a)pyrene TEQ	mg/L	0.0005	<0.0005	<0.0005	0	<0.0005	-	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	0.00005	-	-	-	-	<0.0005	-
PAHs (Sum of total)	µg/L	0.05	-	-	-	-	<0.5	-
PAHs (Sum of positives)	mg/L	0.0001	<0.0001	<0.0001	0	<0.0001	-	-
TPH								
C6-C9	µg/L	10	<10	<10	0	<10	<20	0
C10-C14	µg/L	50	<50	<50	0	<50	<50	0
C15-C28	µg/L	100	<100	<100	0	<100	<100	0
C29-C36	µg/L	50	<100	<100	0	<100	<50	0
C10-C36 (Sum of total)	µg/L	50	<50	<50	0	<50	<50	0
Phenols								
2,4,5-Trichlorophenol	µg/L	1	-	-	-	-	<1.0	-
2,4,6-Trichlorophenol	µg/L	1	-	-	-	-	<1.0	-
2,4-Dichlorophenol	µg/L	1	-	-	-	-	<1.0	-
2,4-Dimethylphenol	µg/L	1	-	-	-	-	<1.0	-
2,6-Dichlorophenol	µg/L	1	-	-	-	-	<1.0	-
2-Chlorophenol	µg/L	1	-	-	-	-	<1.0	-
2-Methylphenol	µg/L	1	-	-	-	-	<1.0	-
3&4-Methylphenol (m&p-cresol)	µg/L	2	-	-	-	-	<2.0	-
2-Nitrophenol	µg/L	1	-	-	-	-	<1.0	-
4-chloro-3-methylphenol	µg/L	1	-	-	-	-	<1.0	-
Pentachlorophenol	µg/L	2	-	-	-	-	<2.0	-
Phenolics Total	µg/L	50	<50	<50	0	<50	-	-
Phenol	µg/L	1	-	-	-	-	<1.0	-
PCBs								
Arochlor 1016	µg/L	2	<2	<2	0	<2	-	-
Arochlor 1221	µg/L	2	<2	<2	0	<2	-	-
Arochlor 1232	µg/L	2	<2	<2	0	<2	-	-
Arochlor 1242	µg/L	2	<2	<2	0	<2	-	-
Arochlor 1248	µg/L	2	<2	<2	0	<2	-	-
Arochlor 1254	µg/L	2	<2	<2	0	<2	-	-
Arochlor 1260	µg/L	2	<2	<2	0	<2	-	-
PCBs (Sum of total)	µg/L	1	-	-	-	-	-	-
Organochlorine Pesticides								
4,4-DDE	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
a-BHC	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Aldrin + Dieldrin	µg/L	0.5	-	-	-	-	<0.5	-
Aldrin	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
b-BHC	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Chlordane	µg/L	0.5	-	-	-	-	<0.5	-
Chlordane (cis)	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Chlordane (trans)	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
d-BHC	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
DDD	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
DDT	µg/L	0.2	<0.2	<0.2	0	<0.2	<2.0	0
DDT+DDE+DDD	µg/L	0.5	-	-	-	-	<0.5	-
Dieldrin	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Endosulfan I	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Endosulfan II	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Endosulfan sulphate	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Endrin	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Endrin aldehyde	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Endrin ketone	µg/L	0.5	-	-	-	-	<0.5	-
g-BHC (Lindane)	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Heptachlor	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Heptachlor epoxide	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Methoxychlor	µg/L	0.2	<0.2	<0.2	0	<0.2	<2.0	0
Organophosphorous Pesticides								
Azinophos methyl	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Bromophos-ethyl	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Carbophenothion	µg/L	0.5	-	-	-	-	<0.5	-
Chlorfenvinphos	µg/L	0.5	-	-	-	-	<0.5	-
Chlorpyrifos	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Chlorpyrifos-methyl	mg/L	0.0002	<0.0002	<0.0002	0	<0.0002	<0.0005	0

		Lab Report Number	328537	328537		328537	ES2324492	
		Field ID	SMW_ENV039	QC01		SMW_ENV039	QC02	
		Date	19 Jul 2023	19 Jul 2023		19 Jul 2023	19 Jul 2023	
		Matrix Type	Water	Water	RPD	Water	Water	RPD
	Unit	EQL						
Coumaphos	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Demeton-S-methyl	µg/L	0.5	-	-	-	-	<0.5	-
Diazinon	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Dichlorvos	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Dimethoate	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Disulfoton	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Ethion	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Fenitrothion	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Fenamiphos	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Fenthion	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Malathion	µg/L	0.2	<0.2	<0.2	0	<0.2	<0.5	0
Methidathion	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Mevinphos (Phosdrin)	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Methyl parathion	µg/L	0.2	<0.2	<0.2	0	<0.2	<2.0	0
Monocrotophos	µg/L	2	-	-	-	-	<2.0	-
Parathion	µg/L	0.2	<0.2	<0.2	0	<0.2	<2.0	0
Phorate	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Prothiofos	µg/L	0.5	-	-	-	-	<0.5	-
Ronnel	µg/L	0.2	<0.2	<0.2	0	<0.2	-	-
Pesticides								
Pirimphos-ethyl	µg/L	0.5	-	-	-	-	<0.5	-
Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	-	-	-	-	<0.02	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
Sum of PFHxS and PFOS	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0
Perfluoroalkyl Carboxylic Acid								
Perfluorobutanoic acid (PFBA)	µg/L	0.1	-	-	-	-	<0.1	-
Perfluoropentanoic acid (PFPeA)	µg/L	0.02	-	-	-	-	<0.02	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	-	-	-	-	<0.02	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	-	-	-	-	<0.02	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<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	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.02	<0.02	0	<0.02	<0.05	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	-	-	-	-	<0.05	-
PFAS Totals								
Sum of PFAS (WA DER List)	µg/L	0.01	-	-	-	-	<0.01	-
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	<0.01	<0.01	0	<0.01	-	-
Sum of PFAS	µg/L	0.01	<0.01	<0.01	0	<0.01	-	-
Other								
Phosalone	mg/L	0.0002	<0.0002	<0.0002	0	<0.0002	-	-
Solvents								
Methyl Ethyl Ketone	µg/L	10	-	-	-	-	<50	-
2-hexanone (MBK)	µg/L	10	-	-	-	-	<50	-
4-Methyl-2-pentanone	µg/L	10	-	-	-	-	<50	-
Acetone	mg/L	0.01	-	-	-	-	-	-
Carbon disulfide	µg/L	1	-	-	-	-	<5	-
Cyclohexane	mg/L	0.001	<0.001	<0.001	0	<0.001	-	-
Vinyl acetate	µg/L	10	-	-	-	-	<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**

		328886	328886		328886	ES2325025	
		SMW_BH004_S	QC03		SMW_BH004_S	QC04	
		25 Jul 2023	25 Jul 2023		25 Jul 2023	25 Jul 2023	
		Water	Water	RPD	Water	Water	RPD
	Unit						
NA							
Total Trimethylbenzenes	µg/L	-	-	-	-	<1	-
1,2,3-trimethylbenzene	µg/L	-	-	-	-	<1	-
Physico-Chemical & Major Ions							
pH (Lab)	-	6.0	6.5	8	6.0	6.37	6
Electrical Conductivity (Lab)	µS/cm	-	-	-	-	438	-
TDS	mg/L	260	250	4	260	280	7
Chloride	mg/L	44	46	4	44	45	2
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	-	-	-	-	42	-
Sulphate	mg/L	48	48	0	48	-	-
Alkalinity (Hydroxide) as CaCO3	mg/L	<5	<5	0	<5	<1	0
Carbonate as CaCO3	mg/L	<5	<5	0	<5	<1	0
Bicarbonate as CaCO3	mg/L	61	62	2	61	60	2
Alkalinity (total) as CaCO3	mg/L	61	62	2	61	60	2
Calcium (filtered)	mg/L	6.4	6.6	3	6.4	8	22
Magnesium (filtered)	mg/L	7.3	7.3	0	7.3	9	21
Sodium (filtered)	mg/L	62	61	2	62	74	18
Potassium (filtered)	mg/L	3	3	0	3	3	0
Anions Total	meq/L	-	-	-	-	4.03	-
Cations Total	meq/L	-	-	-	-	4.44	-
Ionic Balance	%	3.0	2.0	40	3.0	4.80	46
Inorganics							
Electrical Conductivity (Non Compensated)	µS/cm	440	440	0	440	-	-
Hardness (filtered)	mgCaCO3/L	46	47	2	46	-	-
Nutrients							
Ammonia as N	mg/L	-	-	-	-	0.01	-
Ammonia as N (filtered)	mg/L	<0.005	<0.005	0	<0.005	-	-
Kjeldahl Nitrogen Total	mg/L	0.9	0.6	40	0.9	0.7	25
Organic Nitrogen as N	mg/L	0.9	0.6	40	0.9	-	-
Nitrogen (Total Oxidised)	mg/L	8.2	8.1	1	8.2	-	-
Nitrate (as N)	mg/L	-	-	-	-	8.71	-
Nitrate (as N) (filtered)	mg/L	8.0	7.9	1	8.0	-	-
Nitrite (as N)	mg/L	-	-	-	-	0.16	-
Nitrite (as N) (filtered)	mg/L	0.18	0.17	6	0.18	-	-
Nitrite + Nitrate as N	mg/L	-	-	-	-	8.87	-
Nitrogen (Total)	mg/L	9.2	8.7	6	9.2	9.6	4
Total Phosphorus as P (Organic Phosphate as P)	mg/L	-	-	-	-	0.06	-
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	-	-	-	-	<0.01	-
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.01	0.01	0	0.01	-	-
Metals							
Aluminium (filtered)	mg/L	-	-	-	-	<0.005	-
Arsenic (filtered)	µg/L	<1	<1	0	<1	<0.2	0
Beryllium (filtered)	mg/L	<0.0005	<0.0005	0	<0.0005	-	-
Boron (filtered)	mg/L	0.06	0.06	0	0.06	-	-
Cadmium (filtered)	µg/L	<0.1	<0.1	0	<0.1	<0.05	0
Chromium (hexavalent)	mg/L	-	-	-	-	<0.01	-
Chromium (hexavalent) (filtered)	mg/L	<0.005	<0.005	0	<0.005	-	-
Chromium (Trivalent)	mg/L	-	-	-	-	<0.01	-
Chromium (III+VI)	µg/L	-	-	-	-	<1	-
Chromium (III+VI) (filtered)	µg/L	<1	<1	0	<1	<0.2	0
Cobalt (filtered)	mg/L	0.008	0.008	0	0.008	0.0076	5
Copper (filtered)	µg/L	10	12	18	10	7.0	35
Iron (filtered)	mg/L	-	-	-	-	<0.002	-
Lead (filtered)	µg/L	<1	<1	0	<1	<0.1	0
Manganese (filtered)	mg/L	0.07	0.074	6	0.07	0.0716	2
Mercury (filtered)	µg/L	<0.05	<0.05	0	<0.05	<0.005	0
Nickel (filtered)	µg/L	4	4	0	4	3.6	11
Phosphorus	mg/L	<0.05	<0.05	0	<0.05	-	-
Selenium (filtered)	mg/L	0.005	0.005	0	0.005	-	-
Zinc (filtered)	µg/L	29	32	10	29	28	4
BTEX							
Benzene	µg/L	<1	<1	0	<1	<1	0
Toluene	µg/L	<1	<1	0	<1	<1	0
Ethylbenzene	µg/L	<1	<1	0	<1	<1	0
Xylene (m & p)	µg/L	<2	<2	0	<2	<1	0
Xylene (o)	µg/L	<1	<1	0	<1	<1	0
Xylene Total	µg/L	-	-	-	-	<1	-
Naphthalene	µg/L	<0.2	<0.2	0	<0.2	<0.1	0
Naphthalene (BTEX)	µg/L	<1	<1	0	<1	<5	0
Total BTEX	µg/L	-	-	-	-	<1	-
TRH							
C6-C10	µg/L	<10	<10	0	<10	<20	0
C6-C10 (F1 minus BTEX)	µg/L	<10	<10	0	<10	<20	0
C10-C16	µg/L	<50	<50	0	<50	<100	0

		328886	328886		328886	ES2325025	
		SMW_BH004_S	QC03		SMW_BH004_S	QC04	
		25 Jul 2023	25 Jul 2023		25 Jul 2023	25 Jul 2023	
		Water	Water	RPD	Water	Water	RPD
	Unit						
C10-C16 (F2 minus Naphthalene)	µg/L	<50	<50	0	<50	<100	0
C16-C34	µg/L	<100	<100	0	<100	<100	0
C34-C40	µg/L	<100	<100	0	<100	<100	0
C10-C40 (Sum of total)	µg/L	<50	<50	0	<50	<100	0
MAH							
1,2,4-trimethylbenzene	µg/L	<1	<1	0	<1	<1	0
1,3,5-trimethylbenzene	µg/L	<1	<1	0	<1	<1	0
Isopropylbenzene	µg/L	<1	<1	0	<1	<1	0
n-butylbenzene	µg/L	<1	<1	0	<1	<1	0
n-propylbenzene	µg/L	<1	<1	0	<1	<1	0
p-isopropyltoluene	µg/L	<1	<1	0	<1	<1	0
sec-butylbenzene	µg/L	<1	<1	0	<1	<1	0
Styrene	µg/L	<1	<1	0	<1	<1	0
tert-butylbenzene	µg/L	<1	<1	0	<1	<1	0
Halogenated Hydrocarbons							
1,2-dibromoethane	µg/L	<1	<1	0	<1	<1	0
Bromomethane	µg/L	<2	<2	0	<2	<10	0
Dichlorodifluoromethane	µg/L	<10	<10	0	<10	<10	0
Iodomethane	µg/L	-	-	-	-	<1	-
Trichlorofluoromethane	µg/L	<10	<10	0	<10	<10	0
Chlorinated Hydrocarbons							
1,1,1,2-tetrachloroethane	µg/L	<1	<1	0	<1	<1	0
1,1,1-trichloroethane	µg/L	<1	<1	0	<1	<1	0
1,1,2,2-tetrachloroethane	µg/L	<1	<1	0	<1	<1	0
1,1,2-trichloroethane	µg/L	<1	<1	0	<1	<1	0
1,1-dichloroethane	µg/L	<1	<1	0	<1	<1	0
1,1-dichloroethene	µg/L	<1	<1	0	<1	<1	0
1,1-dichloropropene	µg/L	<1	<1	0	<1	<1	0
1,2,3-trichloropropane	µg/L	<1	<1	0	<1	<1	0
1,2-dibromo-3-chloropropane	µg/L	<1	<1	0	<1	<1	0
1,2-dichloroethane	µg/L	<1	<1	0	<1	<1	0
1,2-Dichloroethene	µg/L	-	-	-	-	<1	-
1,2-dichloropropane	µg/L	<1	<1	0	<1	<1	0
1,3-dichloropropane	µg/L	<1	<1	0	<1	<1	0
2,2-dichloropropane	µg/L	<1	<1	0	<1	<1	0
Bromochloromethane	µg/L	<1	<1	0	<1	<1	0
Bromodichloromethane	µg/L	<1	<1	0	<1	<1	0
Bromoform	µg/L	<1	<1	0	<1	<1	0
Carbon tetrachloride	µg/L	<1	<1	0	<1	<1	0
Chlorodibromomethane	µg/L	<1	<1	0	<1	<1	0
Chloroethane	µg/L	<10	<10	0	<10	<10	0
Chloroform	µg/L	<1	<1	0	<1	<1	0
Chloromethane	µg/L	<10	<10	0	<10	<10	0
cis-1,2-dichloroethene	µg/L	<1	<1	0	<1	<1	0
cis-1,3-dichloropropene	µg/L	<1	<1	0	<1	<2	0
Dibromomethane	µg/L	<1	<1	0	<1	<1	0
Dichloromethane	µg/L	-	-	-	-	<2	-
Hexachlorobutadiene	µg/L	<0.7	<0.7	0	<0.7	<0.5	0
Trichloroethene	µg/L	<1	<1	0	<1	<1	0
Tetrachloroethene	µg/L	3	3	0	3	2	40
trans-1,2-dichloroethene	µg/L	<1	<1	0	<1	<1	0
trans-1,3-dichloropropene	µg/L	<1	<1	0	<1	<2	0
Vinyl chloride	µg/L	<0.3	<0.3	0	<0.3	<0.2	0
Halogenated Benzenes							
1,2,3-trichlorobenzene	µg/L	<1	<1	0	<1	<1	0
1,2,4-trichlorobenzene	µg/L	<1	<1	0	<1	<1	0
1,2-dichlorobenzene	µg/L	<1	<1	0	<1	<1	0
1,3-dichlorobenzene	µg/L	<1	<1	0	<1	<1	0
1,4-dichlorobenzene	µg/L	<0.3	<0.3	0	<0.3	<0.1	0
2-chlorotoluene	µg/L	<1	<1	0	<1	<1	0
4-chlorotoluene	µg/L	<1	<1	0	<1	<1	0
Bromobenzene	µg/L	<1	<1	0	<1	<1	0
Chlorobenzene	µg/L	<1	<1	0	<1	<1	0
Hexachlorobenzene	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Trichlorobenzene (total)	mg/L	-	-	-	-	<0.001	-
VOCs							
1,3-Dichloropropene	µg/L	-	-	-	-	<2	-
cis-1,4-Dichloro-2-butene	µg/L	-	-	-	-	<1	-
trans-1,4-Dichloro-2-butene	µg/L	-	-	-	-	<1	-
Pentachloroethane	µg/L	-	-	-	-	<1	-
Trihalomethanes	mg/L	-	-	-	-	<0.001	-
PAH							
Benzo(b+j+k)fluoranthene	mg/L	<0.0002	<0.0002	0	<0.0002	-	-
2-methylnaphthalene	µg/L	-	-	-	-	<0.1	-
3-methylcholanthrene	µg/L	-	-	-	-	<0.1	-
7,12-dimethylbenz(a)anthracene	µg/L	-	-	-	-	<0.1	-
Acenaphthene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Acenaphthylene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Anthracene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0

		328886	328886		328886	ES2325025	
		SMW_BH004_S	QC03		SMW_BH004_S	QC04	
		25 Jul 2023	25 Jul 2023		25 Jul 2023	25 Jul 2023	
		Water	Water	RPD	Water	Water	RPD
	Unit						
Benz(a)anthracene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Coronene	µg/L	-	-	-	-	<0.1	-
Benzo(a) pyrene	µg/L	<0.1	<0.1	0	<0.1	<0.05	0
Benzo(b+j)fluoranthene	mg/L	-	-	-	-	<0.0001	-
Benzo(e)pyrene	µg/L	-	-	-	-	<0.1	-
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Benzo(k)fluoranthene	µg/L	-	-	-	-	<0.1	-
Chrysene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Dibenz(a,h)anthracene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Fluoranthene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Fluorene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Phenanthrene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Perylene	µg/L	-	-	-	-	<0.1	-
Pyrene	µg/L	<0.1	<0.1	0	<0.1	<0.1	0
Benzo(a)pyrene TEQ	mg/L	<0.0005	<0.0005	0	<0.0005	-	-
Benzo(a)pyrene TEQ calc (Zero)	mg/L	-	-	-	-	<0.00005	-
PAHs (Sum of total)	µg/L	-	-	-	-	<0.05	-
PAHs (Sum of positives)	mg/L	<0.0001	<0.0001	0	<0.0001	-	-
TPH							
C6-C9	µg/L	<10	<10	0	<10	<20	0
C10-C14	µg/L	<50	<50	0	<50	<50	0
C15-C28	µg/L	<100	<100	0	<100	<100	0
C29-C36	µg/L	<100	<100	0	<100	<50	0
C10-C36 (Sum of total)	µg/L	<50	<50	0	<50	<50	0
Phenols							
2,4,5-Trichlorophenol	µg/L	-	-	-	-	-	-
2,4,6-Trichlorophenol	µg/L	-	-	-	-	-	-
2,4-Dichlorophenol	µg/L	-	-	-	-	-	-
2,4-Dimethylphenol	µg/L	-	-	-	-	-	-
2,6-Dichlorophenol	µg/L	-	-	-	-	-	-
2-Chlorophenol	µg/L	-	-	-	-	-	-
2-Methylphenol	µg/L	-	-	-	-	-	-
3&4-Methylphenol (m&p-cresol)	µg/L	-	-	-	-	-	-
2-Nitrophenol	µg/L	-	-	-	-	-	-
4-chloro-3-methylphenol	µg/L	-	-	-	-	-	-
Pentachlorophenol	µg/L	-	-	-	-	-	-
Phenolics Total	µg/L	<50	<50	0	<50	<50	0
Phenol	µg/L	-	-	-	-	-	-
PCBs							
Arochlor 1016	µg/L	<2	<2	0	<2	-	-
Arochlor 1221	µg/L	<2	<2	0	<2	-	-
Arochlor 1232	µg/L	<2	<2	0	<2	-	-
Arochlor 1242	µg/L	<2	<2	0	<2	-	-
Arochlor 1248	µg/L	<2	<2	0	<2	-	-
Arochlor 1254	µg/L	<2	<2	0	<2	-	-
Arochlor 1260	µg/L	<2	<2	0	<2	-	-
PCBs (Sum of total)	µg/L	-	-	-	-	<1	-
Organochlorine Pesticides							
4,4-DDE	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
a-BHC	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Aldrin + Dieldrin	µg/L	-	-	-	-	<0.5	-
Aldrin	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
b-BHC	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Chlordane	µg/L	-	-	-	-	<0.5	-
Chlordane (cis)	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Chlordane (trans)	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
d-BHC	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
DDD	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
DDT	µg/L	<0.2	<0.2	0	<0.2	<2.0	0
DDT+DDE+DDD	µg/L	-	-	-	-	<0.5	-
Dieldrin	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Endosulfan I	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Endosulfan II	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Endosulfan sulphate	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Endrin	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Endrin aldehyde	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Endrin ketone	µg/L	-	-	-	-	<0.5	-
g-BHC (Lindane)	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Heptachlor	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Heptachlor epoxide	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Methoxychlor	µg/L	<0.2	<0.2	0	<0.2	<2.0	0
Organophosphorous Pesticides							
Azinophos methyl	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Bromophos-ethyl	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Carbophenothion	µg/L	-	-	-	-	<0.5	-
Chlorfenvinphos	µg/L	-	-	-	-	<0.5	-
Chlorpyrifos	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Chlorpyrifos-methyl	mg/L	<0.0002	<0.0002	0	<0.0002	<0.0005	0

		328886	328886		328886	ES2325025	
		SMW_BH004_S	QC03		SMW_BH004_S	QC04	
		25 Jul 2023	25 Jul 2023		25 Jul 2023	25 Jul 2023	
		Water	Water	RPD	Water	Water	RPD
	Unit						
Coumaphos	µg/L	<0.2	<0.2	0	<0.2	-	-
Demeton-S-methyl	µg/L	-	-	-	-	<0.5	-
Diazinon	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Dichlorvos	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Dimethoate	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Disulfoton	µg/L	<0.2	<0.2	0	<0.2	-	-
Ethion	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Fenitrothion	µg/L	<0.2	<0.2	0	<0.2	-	-
Fenamiphos	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Fenthion	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Malathion	µg/L	<0.2	<0.2	0	<0.2	<0.5	0
Methidathion	µg/L	<0.2	<0.2	0	<0.2	-	-
Mevinphos (Phosdrin)	µg/L	<0.2	<0.2	0	<0.2	-	-
Methyl parathion	µg/L	<0.2	<0.2	0	<0.2	<2.0	0
Monocrotophos	µg/L	-	-	-	-	<2.0	-
Parathion	µg/L	<0.2	<0.2	0	<0.2	<2.0	0
Phorate	µg/L	<0.2	<0.2	0	<0.2	-	-
Prothiofos	µg/L	-	-	-	-	<0.5	-
Ronnel	µg/L	<0.2	<0.2	0	<0.2	-	-
Pesticides							
Pirimphos-ethyl	µg/L	-	-	-	-	<0.5	-
Perfluoroalkyl Sulfonic Acids							
Perfluorobutane sulfonic acid (PFBS)	µg/L	-	-	-	-	<0.02	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.02	0.02	0	0.02	0.02	0
Sum of PFHxS and PFOS	µg/L	0.02	0.02	0	0.02	0.02	0
Perfluoroalkyl Carboxylic Acid							
Perfluorobutanoic acid (PFBA)	µg/L	-	-	-	-	<0.1	-
Perfluoropentanoic acid (PFPeA)	µg/L	-	-	-	-	<0.02	-
Perfluorohexanoic acid (PFHxA)	µg/L	-	-	-	-	0.03	-
Perfluoroheptanoic acid (PFHpA)	µg/L	-	-	-	-	<0.02	-
Perfluorooctanoic acid (PFOA)	µg/L	0.04	0.04	0	0.04	0.03	29
Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	-	-	-	-	<0.05	-
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/L	<0.01	<0.01	0	<0.01	<0.05	0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	<0.02	<0.02	0	<0.02	<0.05	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	-	-	-	-	<0.05	-
PFAS Totals							
Sum of PFAS (WA DER List)	µg/L	-	-	-	-	0.08	-
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.06	0.06	0	0.06	-	-
Sum of PFAS	µg/L	0.06	0.06	0	0.06	-	-
Other							
Phosalone	mg/L	<0.0002	<0.0002	0	<0.0002	-	-
Solvents							
Methyl Ethyl Ketone	µg/L	-	-	-	-	<10	-
2-hexanone (MBK)	µg/L	-	-	-	-	<10	-
4-Methyl-2-pentanone	µg/L	-	-	-	-	<10	-
Acetone	mg/L	-	-	-	-	<0.01	-
Carbon disulfide	µg/L	-	-	-	-	<1	-
Cyclohexane	mg/L	<0.001	<0.001	0	<0.001	-	-
Vinyl acetate	µg/L	-	-	-	-	<10	-

***RPDs have only been considered where a concentration is**
****Elevated RPDs are highlighted as per QAQC Profile settin**
*****Interlab Duplicates are matched on a per compound bas**

					Physico-Chemical & Major Ions														
					Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Sulphate	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)
					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
EQL					0.1	0.01	0.01	1	0.1	5	1	1	1	1	1	1	1	0.5	0.5
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries							7-8.5												
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	153	7.60	7.18	4,720	5.2	3,310	1,080	735	-	<1	<1	73	73	224	56
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	236	5.18	5.99	20,300	4.9	12,700	6,990	1,170	-	<1	<1	26	26	81	476
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	222	5.87	6.50	6,340	4.8	3,780	1,540	718	-	<1	<1	73	73	41	86
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	186	5.85	6.58	6,260	5.5	3,760	1,550	708	-	<1	<1	83	83	44	90
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	258	-	5.7	-	8.9	3,900	1,600	-	830	<5	<5	78	78	34	75
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	112	6.08	6.50	11,000	3.6	6,610	3,750	546	-	<1	<1	157	157	72	183
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	14.5	6.62	6.43	6,250	6.0	3,960	1,660	521	-	<1	<1	145	145	36	78
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	1.5	6.20	6.60	10,200	2.7	6,450	2,920	492	-	<1	<1	191	191	108	162
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	31.8	7.37	8.03	3,240	4.2	1,830	790	77	-	<1	<1	480	480	26	27
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	30.1	6.32	6.92	9,410	3.6	5,340	2,640	489	-	<1	<1	194	194	34	112
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	35.0	6.66	7.26	8,190	6.8	5,300	2,370	262	-	<1	<1	602	602	232	190
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-40.6	6.71	7.30	1,250	3.5	691	149	9	-	<1	<1	464	464	96	37
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	280	6.20	7.26	28,100	4.3	18,800	9,560	1,880	-	<1	<1	391	391	343	790
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	53.8	5.74	6.40	24,000	4.0	16,000	7,810	1,040	-	<1	<1	69	69	193	682
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	64.2	6.85	6.74	3,050	1.9	1,780	666	144	-	<1	<1	430	430	94	80
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	64.6	6.12	6.66	9,530	2.8	5,440	3,170	427	-	<1	<1	106	106	33	155
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	58.0	7.95	7.46	2,550	3.6	1,600	257	156	-	<1	<1	869	869	200	69

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

										Inorganics								Nutrients
					Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Electrical Conductivity (Non Compensated)	Hardness (filtered)	Ammonia as N	Ammonia as N (filtered)	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N)	Nitrite (as N) (filtered)
					mg/L	mg/L	meq/L	meq/L	%	mg/L	µS/cm	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL					0.5	0.5	0.01	0.01	0.01	1	1	3	0.005	0.005	0.1	0.005	0.005	0.005	0.005
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													0.91	0.91					
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																2.4	2.4		
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	776	28	47.2	50.2	3.11	790	-	-	0.06	-	1.5	1.60	-	0.39	-
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	3,490	6	222	195	6.44	2,160	-	-	0.08	-	0.2	<0.01	-	<0.01	-
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	1,110	2	59.8	57.4	2.04	456	-	-	0.02	-	0.1	0.07	-	<0.01	-
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	1,200	2	60.1	61.8	1.42	480	-	-	<0.01	-	<0.1	0.08	-	<0.01	-
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	940	2	-	-	-14	-	6,200	390	-	0.18	-	-	0.03	-	<0.005
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	1,970	4	120	104	7.05	933	-	-	0.06	-	<0.1	0.01	-	<0.01	-
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	1,120	29	60.6	57.7	2.45	411	-	-	1.29	-	2.4	<0.01	-	0.14	-
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	1,660	58	96.4	92.4	2.13	937	-	-	4.19	-	6.1	<0.01	-	<0.01	-
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	603	15	33.5	30.1	5.26	176	-	-	0.10	-	1.8	0.02	-	0.01	-
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	1,680	5	88.5	84.1	2.55	546	-	-	<0.01	-	0.3	<0.01	-	<0.01	-
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	1,320	38	84.3	85.6	0.74	1,360	-	-	2.66	-	2.6	<0.01	-	<0.01	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	117	16	13.7	13.3	1.21	392	-	-	6.26	-	7.5	0.02	-	<0.01	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	5,140	22	317	306	1.66	4,110	-	-	0.70	-	0.7	<0.01	-	<0.01	-
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	4,020	12	243	241	0.50	3,290	-	-	0.26	-	1.4	<0.01	-	0.05	-
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	381	16	30.4	28.2	3.62	564	-	-	9.53	-	13.0	<0.01	-	<0.01	-
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	1,700	6	100	88.5	6.31	721	-	-	0.08	-	0.4	<0.01	-	0.01	-
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	284	16	27.9	28.4	1.00	784	-	-	12.3	-	16.1	0.01	-	<0.01	-

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

										Metals								
					Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)
					mg/L	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
EQL					0.01	0.1	0.01	0.005	0.005	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												5.5	0.0044	0.027	0.027		1.3		4.4
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries						0.3		0.005	0.005										
NEPM 2013 Table 1C GILs, Marine Waters												0.7	0.0044	0.027	0.027		1.3		4.4
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	1.99	3.5	0.14	<0.01	-	<0.01	2	<0.1	<0.01	-	<0.01	1	8	<0.05	<1
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<0.01	0.2	0.02	<0.01	-	0.77	2	<0.1	<0.01	-	<0.01	<1	<1	1.26	<1
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	0.07	0.2	0.03	<0.01	-	0.04	<1	<0.1	<0.01	-	<0.01	<1	4	1.35	<1
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	0.08	<0.1	0.03	<0.01	-	0.04	<1	<0.1	<0.01	-	<0.01	<1	<1	1.44	<1
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	-	0.1	-	-	<0.005	0.04	<1	0.1	<0.005	<0.005	-	<1	2	1.3	<1
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	0.01	<0.1	<0.01	<0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	1	1.27	<1
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	0.10	2.5	<0.05[#1]	<0.01	-	0.04	8	<0.1	<0.01	-	<0.01	<1	<1	37.3	<1
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<0.01	6.1	0.10	<0.01	-	<0.01	13	<0.1	<0.01	-	<0.01	<1	<1	82.2	<1
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	0.03	1.8	0.09	<0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	0.12	<1
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<0.01	0.3	0.02	<0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	10.2	<1
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	<0.01	2.6	0.06	0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	1.18	<1
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	0.02	7.5	0.66	<0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	15.0	<1
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<0.01	0.7	0.01	<0.01	-	<0.01	3	<0.1	<0.01	-	<0.01	<1	394	8.62	<1
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	0.01	1.4	0.02	<0.01	-	<0.01	6	<0.1	<0.01	-	<0.01	<1	9	83.9	<1
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<0.01	13.0	0.07	<0.01	-	<0.01	2	<0.1	<0.01	-	<0.01	<1	<1	47.8	<1
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	0.01	0.4	0.04	<0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	<1	12.9	<1
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	0.01	16.1	<0.10[#1]	<0.01	-	<0.01	4	<0.1	<0.01	-	<0.01	<1	<1	2.76	<1

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

											BTEX								
					Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10
					mg/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
EQL					0.001	0.05	1	0.05	1	1	1	1	2	1	2	0.1	1	1	10
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)						0.4	70		8	700	180	80				70	70		
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries								0.03											
NEPM 2013 Table 1C GILs, Marine Waters						0.1	7		15	500						50	50		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	0.115	<0.1	2	-	29	6	6	<2	3	5	8	<1.0	<5	20	150
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	0.478	<0.1	30	-	57	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	0.977	<0.1	12	-	30	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	1.06	<0.1	13	-	30	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	1.2	<0.05	13	<0.05	35	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	0.129	<0.1	8	-	10	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	0.100	<0.1	6	-	14	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	0.316	<0.1	2	-	7	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	0.423	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	0.735	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	0.641	<0.1	8	-	15	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	0.588	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	1.11	<0.1	4	-	5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	0.230	<0.1	6	-	19	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	0.351	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	0.105	<0.1	7	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	0.244	<0.1	<1	-	<5	2	<2	<2	<2	<2	<2	<1.0	<5	2	680

Comments

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Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					TRH						MAH								
					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
					µg/L	µg/L	µg/L	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	50	50	100	100	50	1	1	1	1	1	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)													30						
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	130	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	-	-	-	-	-	-	-	-	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<20	120	120	1,130	<100	1,250	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	680	<100	<100	200	<100	200	<5	<5	<5	<5	<5	<5	<5	<5	<5

Comments

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Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - 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	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
EQL					1	10	10	5	10	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
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters													1,900						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5

Comments

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Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Chlorinated Hydrocarbons														
					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
EQL					1	1	1	1	1	1	1	1	10	1	10	1	1	1	1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					900	1,100					240			770					
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

											Halogenated Benzenes								
					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
					µg/L	µg/L	µg/L	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	1	1	1	1	1	1	1	1	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)					330	70			100		80							55	0.1
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters											20								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	17	44	<5	<5	<5	911	<0.5

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					VOCs			PAH										
					cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene	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
					µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					5	5	5	0.0002	0.1	0.1	0.1	0.1	0.1	0.001	0.1	1	0.1	0.1	0.1
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)							80				0.4		0.2						1.4
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	-	-	-	<0.0002	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-	-	-	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

													TPH					
					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)	Arochlor 1016	Arochlor 1221
					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					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)							2												
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	150	<50	<100	<50	<50	-	-
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	<2	<2
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	1,380	<50	1,380	-	-
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	700	<50	260	<50	260	-	-

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - 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)	Chlordane (trans)	d-BHC
					µg/L	µg/L	µg/L	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	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<2	<2	<2	<2	<2	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - 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
					µg/L	µg/L	µg/L	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
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)												0.008							
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters												0.004							
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**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
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**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
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**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
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**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
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**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
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**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
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**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
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**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
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**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
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**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
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**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
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**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
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**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
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**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
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**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
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**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
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**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

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Organophosphorous Pesticides														
					Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos	Fenthion
					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					0.2	0.5	0.5	0.2	0.0002	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								0.009											
PFAS NEMP 2020 Interim Marine 99%																			
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters								0.009											
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<0.2	-	-	<0.2	<0.0002	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5

Comments

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Environmental Standards

ANZG, July 2023, ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Interim Marine 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

													Pesticides		Perfluoroalkyl Sulfonic Acids			
					Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Mirex	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS
					µg/L	µg/L	µg/L	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	2	0.2	0.2	0.5	0.2	0.2	0.5	0.02	0.01	0.01	0.01
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
PFAS NEMP 2020 Interim Marine 99%																		0.00023	
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	0.06	<0.05[#1]	<0.05[#1]	<0.05[#1]
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	0.03	<0.01	0.03
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	0.02	0.03	<0.01	0.03
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-	-	0.03	<0.01	0.03
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	0.16	0.23	<0.01	0.23
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	0.08	<0.01	<0.01	<0.01
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals			Other		
					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	Phosalone	Methyl Ethyl Ketone	2-hexanone (MBK)
					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
EQL					0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05	0.01	0.01	0.01	0.0002	50	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)																			
PFAS NEMP 2020 Interim Marine 99%									19										
ANZECC 2000 SE Aust Triggers - Estuaries																			
NEPM 2013 Table 1C GILs, Marine Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<0.2[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05	<0.05	<0.05	<0.05	0.06	-	-	-	2,460	<50
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<0.1	<0.02	0.03	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.06	-	-	-	<50	<50
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<0.1	<0.02	0.03	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.08	-	-	-	<50	<50
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	-	-	-	-	<0.01	-	<0.01	<0.02	-	-	<0.01	0.03	<0.0002	-	-
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<0.1	<0.02	0.11	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.50	-	-	-	<50	<50
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	-	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	0.08	-	-	-	-	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<0.2[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05	<0.05	<0.05	<0.05	<0.05[#1]	-	-	-	<50	<50
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<0.2[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05[#1]	<0.05	<0.05	<0.05	<0.05	<0.05[#1]	-	-	-	<50	<50

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Solvents			
					4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
					µg/L	µg/L	mg/L	µg/L
EQL					50	5	0.001	50
ANZG Marine Water Toxicant DGVs LOSP 95% (July 2023)								
PFAS NEMP 2020 Interim Marine 99%								
ANZECC 2000 SE Aust Triggers - Estuaries								
NEPM 2013 Table 1C GILs, Marine Waters								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species								
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**				
ES2334366001	**CZ1_BH13**		**06 Oct 2023**	**Water**	<50	<5	-	<50
ES2334751002	**CZ4C_MW02**		**09 Oct 2023**	**Water**	<50	<5	-	<50
ES2334751001	**CZ4C_MW03**		**09 Oct 2023**	**Water**	<50	<5	-	<50
ES2334751007	**QC01**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	<50	<5	-	<50
335085-1	**QC02**	**CZ4C_MW03**	**09 Oct 2023**	**Water**	-	-	<0.001	-
ES2334751005	**CZ5_MW09**		**09 Oct 2023**	**Water**	<50	<5	-	<50
ES2334366004	**CZ5_MW16**		**06 Oct 2023**	**Water**	<50	<5	-	<50
ES2335012004	**GALC-MW12**		**10 Oct 2023**	**Water**	<50	<5	-	<50
ES2335012003	**GALC-MW16-b**		**10 Oct 2023**	**Water**	<50	<5	-	<50
ES2335012002	**GALC-MW18**		**10 Oct 2023**	**Water**	<50	<5	-	<50
ES2335415009	**SMW_BH057_W**		**13 Oct 2023**	**Water**	-	-	-	-
ES2335415006	**SMW_ENV009**		**13 Oct 2023**	**Water**	-	-	-	-
ES2334751003	**SMW_ENV039**		**09 Oct 2023**	**Water**	<50	<5	-	<50
ES2335012001	**SMW_ENV042_w**		**10 Oct 2023**	**Water**	<50	<5	-	<50
ES2334366002	**SMW_ENV227_w**		**06 Oct 2023**	**Water**	<50	<5	-	<50
ES2334751004	**SMW_WTP_BH13**		**09 Oct 2023**	**Water**	<50	<5	-	<50
ES2334366003	**SMW_WTP_BH25_s**		**06 Oct 2023**	**Water**	<50	<5	-	<50

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 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Estuaries
2013, NEPM 2013 Table 1C GILs, Marine Waters

					Physico-Chemical & Major Ions														
					Redox Potential (Lab)	pH Redox	pH (Lab)	Electrical Conductivity (Lab)	Dissolved Oxygen	TDS	Chloride	Sulfate as SO4 - Turbidimetric (filtered)	Sulphate	Alkalinity (Hydroxide) as CaCO3	Carbonate as CaCO3	Bicarbonate as CaCO3	Alkalinity (total) as CaCO3	Calcium (filtered)	Magnesium (filtered)
					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
EQL					0.1	0.01	0.01	1	0.1	5	1	1	1	1	1	1	1	0.5	0.5
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																			
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River							6.5-8												
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	139	6.88	6.98	584	9.5	456	72	86	-	<1	<1	95	95	3	5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	162	6.04	6.52	673	8.1	385	190	29	-	<1	<1	48	48	7	7
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	128	6.38	6.55	462	5.4	318	48	51	-	<1	<1	65	65	8	10
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	146	6.44	6.75	460	6.1	292	48	50	-	<1	<1	65	65	8	10
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	278	-	6.4	-	8.7	300	50	-	55	<5	<5	66	66	6.6	9.3
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	19.5	9.12	9.00	1,270	6.7	809	166	6	-	<1	60	395	454	10	12
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	66.7	7.63	6.87	102	8.0	64	16	5	-	<1	<1	19	19	4	1
Statistics																			
Number of Results					**25**	**23**	**25**	**23**	**25**	**25**	**25**	**23**	**2**	**25**	**25**	**25**	**25**	**25**	**25**
Number of Detects					**25**	**23**	**25**	**23**	**25**	**25**	**25**	**23**	**2**	**0**	**1**	**25**	**25**	**25**	**25**
Minimum Concentration					**-40.6**	**5.18**	**5.7**	**102**	**1.9**	**64**	**16**	**5**	**55**	**<1**	**<1**	**19**	**19**	**3**	**1**
Minimum Detect					**-40.6**	**5.18**	**5.7**	**102**	**1.9**	**64**	**16**	**5**	**55**	**ND**	**60**	**19**	**19**	**3**	**1**
Maximum Concentration					**280**	**9.12**	**9**	**28,100**	**9.5**	**18,800**	**9,560**	**1,880**	**830**	**<5**	**60**	**869**	**869**	**343**	**790**
Maximum Detect					**280**	**9.12**	**9**	**28,100**	**9.5**	**18,800**	**9,560**	**1,880**	**830**	**ND**	**60**	**869**	**869**	**343**	**790**
Average Concentration *					**115**	**6.6**	**6.9**	**6,897**	**5.4**	**4,172**	**1,967**	**422**	**442**	**0.66**	**3**	**213**	**215**	**78**	**137**
Median Concentration *					**112**	**6.38**	**6.74**	**4,720**	**5.2**	**3,310**	**1,080**	**262**	**442.5**	**0.5**	**0.5**	**106**	**106**	**36**	**75**
Standard Deviation *					**92**	**0.86**	**0.66**	**7,766**	**2.1**	**4,952**	**2,600**	**468**	**548**	**0.55**	**12**	**217**	**219**	**91**	**207**
95% UCL (Student's-t) *					**146.4**	**6.924**	**7.084**	**9,678**	**6.161**	**5,866**	**2,857**	**590**	**2,889**	**0.849**	**7.105**	**286.8**	**290**	**109**	**207.6**
% of Detects					**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**0**	**4**	**100**	**100**	**100**	**100**
% of Non-Detects					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**100**	**96**	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

									Inorganics		Nutrients							
					Sodium (filtered)	Potassium (filtered)	Anions Total	Cations Total	Ionic Balance	Hardness as CaCO3 (filtered)	Electrical Conductivity (Non Compensated)	Hardness (filtered)	Ammonia as N	Ammonia as N (filtered)	Kjeldahl Nitrogen Total	Nitrate (as N)	Nitrate (as N) (filtered)	Nitrite (as N)	Nitrite (as N) (filtered)
					mg/L	mg/L	meq/L	meq/L	%	mg/L	µS/cm	mgCaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EQL					0.5	0.5	0.01	0.01	0.01	1	1	3	0.005	0.005	0.1	0.005	0.005	0.005	0.005
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)													0.9	0.9					
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																2.4	2.4		
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	113	1	5.72	5.50	1.94	28	-	-	<0.01	-	1.2	5.43	-	<0.01	-
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	121	2	6.92	6.24	5.19	46	-	-	0.05	-	0.2	<0.01	-	<0.01	-
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	69	3	4.24	4.30	0.71	61	-	-	0.02	-	0.7	7.40	-	0.15	-
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	70	3	4.16	4.34	2.12	61	-	-	0.04	-	0.8	6.44	-	0.14	-
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	63	3	-	-	1.0	-	470	55	-	0.050	-	-	10	-	0.18
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	264	19	13.9	13.4	1.55	74	-	-	0.05	-	0.8	0.02	-	<0.01	-
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	13	<1	0.94	0.85	-	14	-	-	<0.01	-	0.5	0.13	-	<0.01	-
Statistics																			
Number of Results					**25**	**25**	**23**	**23**	**24**	**23**	**2**	**2**	**23**	**2**	**23**	**23**	**2**	**23**	**2**
Number of Detects					**25**	**24**	**23**	**23**	**24**	**23**	**2**	**2**	**18**	**2**	**21**	**13**	**2**	**7**	**1**
Minimum Concentration					**13**	**1**	**0.94**	**0.85**	**-14**	**14**	**470**	**55**	**<0.01**	**0.05**	**0.1**	**0.01**	**0.03**	**0.01**	**<0.005**
Minimum Detect					**13**	**1**	**0.94**	**0.85**	**-14**	**14**	**470**	**55**	**0.02**	**0.05**	**0.1**	**0.01**	**0.03**	**0.01**	**0.18**
Maximum Concentration					**5,140**	**58**	**317**	**306**	**7.05**	**4,110**	**6,200**	**390**	**12.3**	**0.18**	**16.1**	**7.4**	**10**	**0.39**	**0.18**
Maximum Detect					**5,140**	**58**	**317**	**306**	**7.05**	**4,110**	**6,200**	**390**	**12.3**	**0.18**	**16.1**	**7.4**	**10**	**0.39**	**0.18**
Average Concentration *					**1,133**	**13**	**72**	**68**	**2**	**805**	**3,335**	**222**	**1.6**	**0.12**	**2.5**	**0.93**	**5**	**0.042**	**0.091**
Median Concentration *					**776**	**6**	**47.2**	**50.2**	**2.08**	**480**	**3,335**	**222.5**	**0.06**	**0.115**	**0.8**	**0.01**	**5.015**	**0.005**	**0.09125**
Standard Deviation *					**1,337**	**14**	**84**	**80**	**3.9**	**1,051**	**4,052**	**237**	**3.3**	**0.092**	**4.2**	**2.2**	**7**	**0.089**	**0.13**
95% UCL (Student's-t) *					**1,590**	**17.48**	**101.8**	**96.7**	**3.403**	**1,181**	**21,424**	**1,280**	**2.84**	**0.525**	**4.065**	**1.722**	**36.49**	**0.0742**	**0.652**
% of Detects					**100**	**96**	**100**	**100**	**100**	**100**	**100**	**100**	**78**	**100**	**91**	**57**	**100**	**30**	**50**
% of Non-Detects					**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**9**	**43**	**0**	**70**	**50**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

														Metals				
					Nitrite + Nitrate as N	Nitrogen (Total)	Total Phosphorus as P (Organic Phosphate as P)	Reactive Phosphorus as P (Orthophosphate as P)	Reactive Phosphorus as P (Orthophosphate as P) (filtered)	Aluminium (filtered)	Arsenic (filtered)	Cadmium (filtered)	Chromium (hexavalent) (filtered)	Chromium (Trivalent)	Chromium (Trivalent) (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Iron (filtered)	Lead (filtered)
					mg/L	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
EQL					0.01	0.1	0.01	0.005	0.005	0.01	1	0.1	0.005	0.005	0.005	1	1	0.01	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)										0.055		0.2	0.001				1.4		3.4
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River						0.5		0.02	0.02										
NEPM 2013 Table 1C GILs, Fresh Waters										*0.055 | 0.055*		*0.2*	*0.001*				*1.4*		*3.4*
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	5.43	6.6	0.30	<0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*8*	<0.05	<1
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<0.01	0.2	0.02	<0.01	-	*0.07*	<1	<0.1	<0.01	-	<0.01	<1	<1	0.12	<1
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	7.55	8.2	0.10	0.01	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*49*	<0.05	<1
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	6.58	7.4	0.08	0.02	-	<0.01	<1	<0.1	<0.01	-	<0.01	<1	*42*	<0.05	<1
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	-	10	-	-	0.02	<0.01	<1	<0.1	<0.005	<0.005	-	<1	*41*	<0.01	<1
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	0.02	0.8	0.14	0.07	-	*0.36*	2	<0.1	<0.01	-	<0.01	3	*33*	0.14	2
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	0.13	0.6	0.07	<0.01	-	0.03	<1	<0.1	<0.01	-	<0.01	2	*10*	<0.05	<1
Statistics																			
Number of Results					**23**	**25**	**23**	**23**	**2**	**25**	**25**	**25**	**25**	**2**	**23**	**25**	**25**	**25**	**25**
Number of Detects					**16**	**23**	**20**	**4**	**1**	**8**	**10**	**2**	**0**	**0**	**0**	**3**	**13**	**19**	**1**
Minimum Concentration					**0.01**	**0.1**	**0.01**	**0.01**	**<0.005**	**<0.01**	**<1**	**0.1**	**<0.005**	**<0.005**	**<0.01**	**1**	**1**	**<0.01**	**<1**
Minimum Detect					**0.01**	**0.1**	**0.01**	**0.01**	**0.02**	**0.03**	**2**	**0.1**	**ND**	**ND**	**ND**	**1**	**1**	**0.12**	**2**
Maximum Concentration					**7.55**	**16.1**	**0.66**	**0.07**	**0.02**	**0.77**	**13**	**0.2**	**<0.01**	**<0.005**	**<0.01**	**3**	**394**	**83.9**	**2**
Maximum Detect					**7.55**	**16.1**	**0.66**	**0.07**	**0.02**	**0.77**	**13**	**0.2**	**ND**	**ND**	**ND**	**3**	**394**	**83.9**	**2**
Average Concentration *					**0.96**	**3.6**	**0.1**	**0.0089**	**0.011**	**0.059**	**2.1**	**0.058**	**0.0048**	**0.0025**	**0.005**	**0.68**	**26**	**12**	**0.56**
Median Concentration *					**0.02**	**1.4**	**0.06**	**0.005**	**0.01125**	**0.005**	**0.5**	**0.05**	**0.005**	**0.0025**	**0.005**	**0.5**	**1**	**1.27**	**0.5**
Standard Deviation *					**2.3**	**4.5**	**0.15**	**0.014**	**0.012**	**0.16**	**3**	**0.031**	**0.00069**	**0**	**0**	**0.58**	**78**	**24**	**0.3**
95% UCL (Student's-t) *					**1.771**	**5.166**	**0.157**	**0.0138**	**0.0665**	**0.115**	**3.076**	**0.0687**	**0.00504**	**0.0025**	**0.005**	**0.877**	**52.52**	**20.7**	**0.663**
% of Detects					**70**	**92**	**87**	**17**	**50**	**32**	**40**	**8**	**0**	**0**	**0**	**12**	**52**	**76**	**4**
% of Non-Detects					**30**	**8**	**13**	**83**	**50**	**68**	**60**	**92**	**100**	**100**	**100**	**88**	**48**	**24**	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

											BTEX						
					Manganese (filtered)	Mercury (filtered)	Nickel (filtered)	Phosphorus	Zinc (filtered)	Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Naphthalene	Naphthalene (BTEX)	Total BTEX	C6-C10
					mg/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
EQL					0.001	0.05	1	0.05	1	1	1	1	2	1	2	0.1	1	1	10
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					1.9	0.6	11		8	950	180	80		350		16	16		
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River								0.05											
NEPM 2013 Table 1C GILs, Fresh Waters					*1.9*	*0.06*	*11*		*8*	*950*				*350*	*550*	*16*	*16*		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<0.001	<0.1	<1	-	<5	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	0.070	<0.1	2	-	*25*	<1	<2	<2	<2	<2	<2	2.0	<5	<1	<20
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	0.075	<0.1	4	-	*27*	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	0.076	<0.1	4	-	*25*	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	0.08	<0.05	4	<0.05	*30*	<1	<1	<1	<2	<1	-	<0.1	<1	-	<10
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	0.008	<0.1	4	-	*14*	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	0.003	<0.1	<1	-	*27*	<1	<2	<2	<2	<2	<2	<1.0	<5	<1	<20
Statistics																			
Number of Results					**25**	**25**	**25**	**2**	**25**	**25**	**25**	**25**	**25**	**25**	**23**	**25**	**25**	**23**	**25**
Number of Detects					**24**	**0**	**18**	**0**	**18**	**2**	**1**	**0**	**1**	**1**	**1**	**1**	**0**	**2**	**2**
Minimum Concentration					**<0.001**	**<0.05**	**<1**	**<0.05**	**5**	**<1**	**<1**	**<1**	**<2**	**<1**	**<2**	**<0.1**	**<1**	**<1**	**<10**
Minimum Detect					**0.003**	**ND**	**2**	**ND**	**5**	**2**	**6**	**ND**	**3**	**5**	**8**	**2**	**ND**	**2**	**150**
Maximum Concentration					**1.2**	**<0.1**	**30**	**<0.05**	**57**	**6**	**6**	**<2**	**3**	**5**	**8**	**2**	**<5**	**20**	**680**
Maximum Detect					**1.2**	**ND**	**30**	**ND**	**57**	**6**	**6**	**ND**	**3**	**5**	**8**	**2**	**ND**	**20**	**680**
Average Concentration *					**0.38**	**0.048**	**5.4**	**0.025**	**17**	**0.78**	**1.2**	**0.96**	**1.1**	**1.1**	**1.3**	**0.52**	**2.3**	**1.4**	**42**
Median Concentration *					**0.244**	**0.05**	**4**	**0.025**	**14**	**0.5**	**1**	**1**	**1**	**1**	**1**	**0.5**	**2.5**	**0.5**	**10**
Standard Deviation *					**0.38**	**0.0069**	**6.5**	**0**	**14**	**1.1**	**1**	**0.14**	**0.4**	**0.82**	**1.5**	**0.33**	**0.55**	**4.1**	**136**
95% UCL (Student's-t) *					**0.512**	**0.0504**	**7.594**	**0.025**	**21.9**	**1.166**	**1.508**	**1.007**	**1.217**	**1.401**	**1.827**	**0.637**	**2.529**	**2.868**	**88.49**
% of Detects					**96**	**0**	**72**	**0**	**72**	**8**	**4**	**0**	**4**	**4**	**4**	**4**	**0**	**9**	**8**
% of Non-Detects					**4**	**100**	**28**	**100**	**28**	**92**	**96**	**100**	**96**	**96**	**96**	**96**	**100**	**91**	**92**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					TRH						MAH								
					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
					µg/L	µg/L	µg/L	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	50	50	100	100	50	1	1	1	1	1	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)													30						
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<10	<50	<50	<100	<100	<50	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<20	<100	<100	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
Statistics																			
Number of Results					**25**	**25**	**25**	**25**	**25**	**25**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Number of Detects					**2**	**1**	**1**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration					**<10**	**<50**	**<50**	**<100**	**<100**	**<50**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**
Minimum Detect					**130**	**120**	**120**	**200**	**ND**	**200**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration					**680**	**120**	**120**	**1,130**	**<100**	**1,250**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**	**<5**
Maximum Detect					**680**	**120**	**120**	**1,130**	**ND**	**1,250**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *					**41**	**51**	**51**	**99**	**50**	**102**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**
Median Concentration *					**10**	**50**	**50**	**50**	**50**	**50**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**
Standard Deviation *					**135**	**16**	**16**	**217**	**0**	**241**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**
95% UCL (Student's-t) *					**87.48**	**56.27**	**56.27**	**173.4**	**50**	**184.5**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**
% of Detects					**8**	**4**	**4**	**8**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
% of Non-Detects					**92**	**96**	**96**	**92**	**100**	**92**	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh 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	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
EQL					1	10	10	5	10	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
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters													*6,500*						
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<1	<10	<10	-	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<5	<50	<50	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Statistics																			
Number of Results					**23**	**23**	**23**	**21**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Number of Detects					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration					**<1**	**<10**	**<10**	**<5**	**<10**	**<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**
Maximum Concentration					**<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**
Average Concentration *					**2.3**	**23**	**23**	**2.5**	**23**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**	**2.3**
Median Concentration *					**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 *					**0.58**	**5.8**	**5.8**	**0**	**5.8**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**	**0.58**
95% UCL (Student's-t) *					**2.532**	**25.32**	**25.32**	**2.5**	**25.32**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**	**2.532**
% 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**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					Chlorinated Hydrocarbons														
					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
EQL					1	1	1	1	1	1	1	1	10	1	10	1	1	1	1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					900	1,100					240			770					
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<5	<5	<5	-	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
Statistics																			
Number of Results					**23**	**23**	**23**	**2**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**
Number of Detects					**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**	**<10**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**
Minimum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration					**<5**	**<5**	**<5**	**<1**	**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<50**	**<5**	**<5**	**<5**	**<5**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *					**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**	**2.3**
Median Concentration *					**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**	**2.5**
Standard Deviation *					**0.58**	**0.58**	**0.58**	**0**	**0.58**	**0.58**	**0.58**	**0.58**	**5.8**	**0.58**	**5.8**	**0.58**	**0.58**	**0.58**	**0.58**
95% UCL (Student's-t) *					**2.532**	**2.532**	**2.532**	**0.5**	**2.532**	**2.532**	**2.532**	**2.532**	**25.32**	**2.532**	**25.32**	**2.532**	**2.532**	**2.532**	**2.532**
% 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**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

										Halogenated Benzenes						
					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
					µg/L	µg/L	µg/L	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	1	1	1	1	1	1	1	1	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					330	70			100	10	170	160	260	60				55	0.1
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters										*3*	*85*	*160*	*260*	*60*					
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<1	3	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.2
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<0.5
Statistics																			
Number of Results					**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**23**	**25**
Number of Detects					**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**
Minimum Concentration					**<1**	**<1**	**<1**	**<1**	**<10**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<1**	**<0.2**
Minimum Detect					**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**17**	**44**	**ND**	**ND**	**ND**	**911**	**ND**
Maximum Concentration					**<5**	**<5**	**<5**	**<5**	**<50**	**<5**	**<5**	**<5**	**17**	**44**	**<5**	**<5**	**<5**	**911**	**<0.5**
Maximum Detect					**ND**	**3**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**17**	**44**	**ND**	**ND**	**ND**	**911**	**ND**
Average Concentration *					**2.3**	**2.4**	**2.3**	**2.3**	**23**	**2.3**	**2.3**	**2.3**	**3**	**4.1**	**2.3**	**2.3**	**2.3**	**42**	**0.24**
Median Concentration *					**2.5**	**2.5**	**2.5**	**2.5**	**25**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**2.5**	**0.25**
Standard Deviation *					**0.58**	**0.43**	**0.58**	**0.58**	**5.8**	**0.58**	**0.58**	**0.58**	**3.1**	**8.7**	**0.58**	**0.58**	**0.58**	**189**	**0.042**
95% UCL (Student's-t) *					**2.532**	**2.59**	**2.532**	**2.532**	**25.32**	**2.532**	**2.532**	**2.532**	**4.072**	**7.249**	**2.532**	**2.532**	**2.532**	**109.7**	**0.252**
% of Detects					**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**4**	**0**	**0**	**0**	**4**	**0**
% of Non-Detects					**100**	**96**	**100**	**100**	**100**	**100**	**100**	**100**	**96**	**96**	**100**	**100**	**100**	**96**	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					VOCs			PAH										
					cis-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	Pentachloroethane	Benzo(b+j+k)fluoranthene	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
					µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL					5	5	5	0.0002	0.1	0.1	0.1	0.1	0.1	0.001	0.1	1	0.1	0.1	0.1
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							80				0.4		0.2						1.4
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**														
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	-	-	-	<0.0002	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	<0.1
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<5	<5	<5	-	<1.0	<1.0	<1.0	<1.0	<0.5	<0.0010	<1.0	<1.0	<1.0	<1.0	<1.0
Statistics																			
Number of Results					**21**	**21**	**21**	**2**	**25**	**25**	**25**	**25**	**25**	**23**	**25**	**23**	**25**	**25**	**25**
Number of Detects					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration					**<5**	**<5**	**<5**	**<0.0002**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.1**	**<0.001**	**<0.1**	**<1**	**<0.1**	**<0.1**	**<0.1**
Minimum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration					**<5**	**<5**	**<5**	**<0.0002**	**<1**	**<1**	**<1**	**<1**	**<0.5**	**<0.001**	**<1**	**<1**	**<1**	**<1**	**<1**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *					**2.5**	**2.5**	**2.5**	**0.0001**	**0.46**	**0.46**	**0.46**	**0.46**	**0.23**	**0.0005**	**0.46**	**0.5**	**0.46**	**0.46**	**0.46**
Median Concentration *					**2.5**	**2.5**	**2.5**	**0.0001**	**0.5**	**0.5**	**0.5**	**0.5**	**0.25**	**0.0005**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
Standard Deviation *					**0**	**0**	**0**	**0**	**0.12**	**0.12**	**0.12**	**0.12**	**0.055**	**0**	**0.12**	**0**	**0.12**	**0.12**	**0.12**
95% UCL (Student's-t) *					**2.5**	**2.5**	**2.5**	**0.0001**	**0.507**	**0.507**	**0.507**	**0.507**	**0.253**	**0.0005**	**0.507**	**0.5**	**0.507**	**0.507**	**0.507**
% 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**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

												TPH					
					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)	Arochlor 1016	Arochlor 1221
					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					0.1	0.1	0.1	0.1	0.0005	0.0005	0.5	0.0001	10	50	100	50	50	2	2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)							2												
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	2.0	-	<20	<50	<100	<50	<50	-	-
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<0.1	<0.1	<0.1	<0.1	<0.0005	-	-	<0.0001	<10	<50	<100	<100	<50	<2	<2
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<1.0	<1.0	<1.0	<1.0	-	<0.0005	<0.5	-	<20	<50	<100	<50	<50	-	-
Statistics																			
Number of Results					**25**	**25**	**25**	**25**	**2**	**23**	**23**	**2**	**25**	**25**	**25**	**25**	**25**	**2**	**2**
Number of Detects					**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**2**	**0**	**2**	**0**	**0**
Minimum Concentration					**<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**	**2**	**ND**	**150**	**ND**	**260**	**ND**	**260**	**ND**	**ND**
Maximum Concentration					**<1**	**<1**	**<1**	**<1**	**<0.0005**	**<0.0005**	**2**	**<0.0001**	**700**	**<50**	**1,380**	**<100**	**1,380**	**<2**	**<2**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**2**	**ND**	**700**	**ND**	**1,380**	**ND**	**1,380**	**ND**	**ND**
Average Concentration *					**0.46**	**0.46**	**0.46**	**0.46**	**0.00025**	**0.00025**	**0.33**	**0.00005**	**43**	**25**	**112**	**27**	**89**	**1**	**1**
Median Concentration *					**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 *					**0.12**	**0.12**	**0.12**	**0.12**	**0**	**0**	**0.36**	**0**	**140**	**0**	**268**	**6.9**	**273**	**0**	**0**
95% UCL (Student's-t) *					**0.507**	**0.507**	**0.507**	**0.507**	**0.00025**	**0.00025**	**0.457**	**0.00005**	**90.63**	**25**	**203.2**	**29.37**	**182.1**	**1**	**1**
% of Detects					**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**8**	**0**	**8**	**0**	**8**	**0**	**0**
% of Non-Detects					**100**	**100**	**100**	**100**	**100**	**100**	**96**	**100**	**92**	**100**	**92**	**100**	**92**	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh 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)	Chlordane (trans)	d-BHC
					µg/L	µg/L	µg/L	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	0.2	0.2
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)						0.6		0.03								0.08			
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters						*0.3*		*0.01*								*0.03*			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<2	<2	<2	<2	<2	-	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	-	-	-	-	-	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Statistics																			
Number of Results					**2**	**2**	**2**	**2**	**2**	**23**	**25**	**25**	**23**	**25**	**25**	**23**	**25**	**25**	**25**
Number of Detects					**0**	**0**	**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**	**<0.2**	**<0.2**
Minimum Detect					**ND**	**ND**	**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**	**<0.5**	**<0.5**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *					**1**	**1**	**1**	**1**	**1**	**0.5**	**0.24**	**0.24**	**0.25**	**0.24**	**0.24**	**0.25**	**0.24**	**0.24**	**0.24**
Median Concentration *					**1**	**1**	**1**	**1**	**1**	**0.5**	**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**	**0.042**	**0.042**	**0**	**0.042**	**0.042**	**0**	**0.042**	**0.042**	**0.042**
95% UCL (Student's-t) *					**1**	**1**	**1**	**1**	**1**	**0.5**	**0.252**	**0.252**	**0.25**	**0.252**	**0.252**	**0.25**	**0.252**	**0.252**	**0.252**
% 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**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh 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
					µg/L	µg/L	µg/L	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
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)						0.01						0.02			0.2	0.09			0.02
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters						*0.006*						*0.01*			*0.2*	*0.01*			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**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
ES2335415002	**PM_MW015**		**12 Oct 2023**	**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
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**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
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**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
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**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
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**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
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**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
Statistics																			
Number of Results					**25**	**25**	**23**	**25**	**25**	**25**	**25**	**25**	**25**	**23**	**25**	**25**	**25**	**25**	**25**
Number of Detects					**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**
Minimum Detect					**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**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *					**0.24**	**0.93**	**0.25**	**0.24**	**0.24**	**0.24**	**0.24**	**0.24**	**0.24**	**0.25**	**0.24**	**0.24**	**0.24**	**0.93**	**0.24**
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**
Standard Deviation *					**0.042**	**0.25**	**0**	**0.042**	**0.042**	**0.042**	**0.042**	**0.042**	**0.042**	**0**	**0.042**	**0.042**	**0.042**	**0.25**	**0.042**
95% UCL (Student's-t) *					**0.252**	**1.013**	**0.25**	**0.252**	**0.252**	**0.252**	**0.252**	**0.252**	**0.252**	**0.25**	**0.252**	**0.252**	**0.252**	**1.013**	**0.252**
% 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**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					Organophosphorous Pesticides														
					Bromophos-ethyl	Carbophenothion	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	Demeton-S-methyl	Diazinon	Dichlorvos	Dimethoate	Disulfoton	Ethion	Fenitrothion	Fenamiphos	Fenthion
					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					0.2	0.5	0.5	0.2	0.0002	0.2	0.5	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				0.01		0.15			0.2		
PFAS NEMP 2020 Freshwater 99%																			
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters								*0.01*				*0.01*		*0.15*			*0.2*		
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<0.2	-	-	<0.2	<0.0002	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<0.5	<0.5	<0.5	<0.5	<0.0005	-	<0.5	<0.5	<0.5	<0.5	-	<0.5	-	<0.5	<0.5
Statistics																			
Number of Results					**25**	**23**	**23**	**25**	**25**	**2**	**23**	**25**	**25**	**25**	**2**	**25**	**2**	**25**	**25**
Number of Detects					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Minimum Concentration					**<0.2**	**<0.5**	**<0.5**	**<0.2**	**<0.0002**	**<0.2**	**<0.5**	**<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**	**ND**	**ND**	**ND**	**ND**	**ND**
Maximum Concentration					**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.0005**	**<0.2**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.2**	**<0.5**	**<0.2**	**<0.5**	**<0.5**
Maximum Detect					**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Average Concentration *					**0.24**	**0.25**	**0.25**	**0.24**	**0.00024**	**0.1**	**0.25**	**0.24**	**0.24**	**0.24**	**0.1**	**0.24**	**0.1**	**0.24**	**0.24**
Median Concentration *					**0.25**	**0.25**	**0.25**	**0.25**	**0.00025**	**0.1**	**0.25**	**0.25**	**0.25**	**0.25**	**0.1**	**0.25**	**0.1**	**0.25**	**0.25**
Standard Deviation *					**0.042**	**0**	**0**	**0.042**	**0.000042**	**0**	**0**	**0.042**	**0.042**	**0.042**	**0**	**0.042**	**0**	**0.042**	**0.042**
95% UCL (Student's-t) *					**0.252**	**0.25**	**0.25**	**0.252**	**0.00025221**	**0.1**	**0.25**	**0.252**	**0.252**	**0.252**	**0.1**	**0.252**	**0.1**	**0.252**	**0.252**
% 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**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

													Pesticides		Perfluoroalkyl Sulfonic Acids			
					Malathion	Methidathion	Mevinphos (Phosdrin)	Methyl parathion	Monocrotophos	Parathion	Phorate	Prothiofos	Ronnel	Mirex	Pirimphos-ethyl	Perfluorobutane sulfonic acid (PFBS)	Perfluorohexane sulfonic acid (PFHxS)	Perfluorooctanesulfonic acid (PFOS)	Sum of PFHxS and PFOS
					µg/L	µg/L	µg/L	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	2	0.2	0.2	0.5	0.2	0.2	0.5	0.02	0.01	0.01	0.01
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)					0.05					0.004									
PFAS NEMP 2020 Freshwater 99%																		0.00023	
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters					*0.05*					*0.004*									
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	0.06	0.11	0.08	0.19
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	0.02	0.02
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	0.02	0.02
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<0.2	<0.2	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	-	-	<0.01	0.01	0.01
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<0.5	-	-	<2.0	<2.0	<2.0	-	<0.5	-	-	<0.5	<0.02	<0.01	<0.01	<0.01

Statistics

Number of Results	**25**	**2**	**2**	**25**	**23**	**25**	**2**	**23**	**2**	**2**	**23**	**23**	**25**	**25**	**25**
Number of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**6**	**5**	**9**
Minimum Concentration	**<0.2**	**<0.2**	**<0.2**	**<0.2**	**<2**	**<0.2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.5**	**0.02**	**<0.01**	**0.01**	**0.01**
Minimum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.02**	**0.02**	**0.01**	**0.01**
Maximum Concentration	**<0.5**	**<0.2**	**<0.2**	**<2**	**<2**	**<2**	**<0.2**	**<0.5**	**<0.2**	**<0.2**	**<0.5**	**0.16**	**0.23**	**0.08**	**0.23**
Maximum Detect	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.16**	**0.23**	**0.08**	**0.23**
Average Concentration *	**0.24**	**0.1**	**0.1**	**0.93**	**1**	**0.93**	**0.1**	**0.25**	**0.1**	**0.1**	**0.25**	**0.026**	**0.024**	**0.012**	**0.03**
Median Concentration *	**0.25**	**0.1**	**0.1**	**1**	**1**	**1**	**0.1**	**0.25**	**0.1**	**0.1**	**0.25**	**0.01**	**0.005**	**0.005**	**0.005**
Standard Deviation *	**0.042**	**0**	**0**	**0.25**	**0**	**0.25**	**0**	**0**	**0**	**0**	**0**	**0.035**	**0.048**	**0.016**	**0.056**
95% UCL (Student's-t) *	**0.252**	**0.1**	**0.1**	**1.013**	**1**	**1.013**	**0.1**	**0.25**	**0.1**	**0.1**	**0.25**	**0.0383**	**0.0407**	**0.0179**	**0.0487**
% of Detects	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**24**	**20**	**36**
% of Non-Detects	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**78**	**76**	**80**	**64**

* 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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					Perfluoroalkyl Carboxylic Acid					Fluorotelomer Sulfonic Acids				PFAS Totals			Other		
					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	Phosalone	Methyl Ethyl Ketone	2-hexanone (MBK)
					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
EQL					0.1	0.02	0.02	0.02	0.01	0.05	0.01	0.02	0.05	0.01	0.01	0.01	0.0002	50	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)																			
PFAS NEMP 2020 Freshwater 99%									19										
ANZECC 2000 SE Aust Triggers - Lowland River																			
NEPM 2013 Table 1C GILs, Fresh Waters																			
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species																			
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**															
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<0.1	0.10	0.10	0.04	0.06	<0.05	<0.05	<0.05	<0.05	0.55	-	-	-	<50	<50
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<0.1	<0.02	0.02	<0.02	0.02	<0.05	<0.05	<0.05	<0.05	0.06	-	-	-	<50	<50
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<0.1	<0.02	0.02	<0.02	0.02	<0.05	<0.05	<0.05	<0.05	0.06	-	-	-	<50	<50
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	-	-	-	-	0.03	-	<0.01	<0.02	-	-	0.04	0.04	<0.0002	-	-
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<0.1	<0.02	<0.02	<0.02	<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	-	-	-	<50	<50
Statistics																			
Number of Results					**23**	**23**	**23**	**23**	**25**	**23**	**25**	**25**	**23**	**23**	**2**	**2**	**2**	**21**	**21**
Number of Detects					**0**	**1**	**6**	**1**	**5**	**0**	**0**	**0**	**0**	**9**	**1**	**2**	**0**	**1**	**0**
Minimum Concentration					**<0.1**	**<0.02**	**0.02**	**<0.02**	**0.01**	**<0.05**	**<0.01**	**<0.02**	**<0.05**	**<0.01**	**<0.01**	**0.03**	**<0.0002**	**<50**	**<50**
Minimum Detect					**ND**	**0.1**	**0.02**	**0.04**	**0.01**	**ND**	**ND**	**ND**	**ND**	**0.05**	**0.04**	**0.03**	**ND**	**2,460**	**ND**
Maximum Concentration					**<0.2**	**0.1**	**0.11**	**<0.05**	**0.06**	**<0.05**	**<0.05**	**<0.05**	**<0.05**	**0.55**	**0.04**	**0.04**	**<0.0002**	**2,460**	**<50**
Maximum Detect					**ND**	**0.1**	**0.11**	**0.04**	**0.06**	**ND**	**ND**	**ND**	**ND**	**0.55**	**0.04**	**0.04**	**ND**	**2,460**	**ND**
Average Concentration *					**0.057**	**0.016**	**0.023**	**0.013**	**0.012**	**0.025**	**0.023**	**0.024**	**0.025**	**0.07**	**0.022**	**0.035**	**0.0001**	**141**	**25**
Median Concentration *					**0.05**	**0.01**	**0.01**	**0.01**	**0.005**	**0.025**	**0.025**	**0.025**	**0.025**	**0.005**	**0.0225**	**0.035**	**0.0001**	**25**	**25**
Standard Deviation *					**0.017**	**0.019**	**0.027**	**0.0078**	**0.013**	**0**	**0.0055**	**0.0042**	**0**	**0.15**	**0.025**	**0.0071**	**0**	**531**	**0**
95% UCL (Student's-t) *					**0.0627**	**0.0227**	**0.0325**	**0.016**	**0.0165**	**0.025**	**0.0253**	**0.0252**	**0.025**	**0.122**	**0.133**	**0.0666**	**0.0001**	**340.9**	**25**
% of Detects					**0**	**4**	**26**	**4**	**20**	**0**	**0**	**0**	**0**	**39**	**50**	**100**	**0**	**5**	**0**
% of Non-Detects					**100**	**96**	**74**	**96**	**80**	**100**	**100**	**100**	**100**	**61**	**50**	**0**	**100**	**95**	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

					Solvents			
					4-Methyl-2-pentanone	Carbon disulfide	Cyclohexane	Vinyl acetate
					µg/L	µg/L	mg/L	µg/L
EQL					50	5	0.001	50
ANZG Freshwater Toxicant DGVs LOSP 95% (July 2023)								
PFAS NEMP 2020 Freshwater 99%								
ANZECC 2000 SE Aust Triggers - Lowland River								
NEPM 2013 Table 1C GILs, Fresh Waters								
NIWA (2013) Updating nitrate toxicity effects on freshwater aquatic species								
Sample Code	**Field ID**	**Parent Sample**	**Date**	**Matrix Type**				
ES2335415001	**PM_MW014**		**12 Oct 2023**	**Water**	<50	<5	-	<50
ES2335415002	**PM_MW015**		**12 Oct 2023**	**Water**	<50	<5	-	<50
ES2335083001	**SMW_BH004_s**		**11 Oct 2023**	**Water**	<50	<5	-	<50
ES2335083007	**QC03**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	<50	<5	-	<50
335297-1	**QC04**	**SMW_BH004_s**	**11 Oct 2023**	**Water**	-	-	<0.001	-
ES2335083002	**SMW_WTP_BH02**		**11 Oct 2023**	**Water**	<50	<5	-	<50
ES2335083003	**SMW_WTP_BH03A**		**11 Oct 2023**	**Water**	<50	<5	-	<50

Statistics

Number of Results	**21**	**21**	**2**	**21**
Number of Detects	**0**	**0**	**0**	**0**
Minimum Concentration	**<50**	**<5**	**<0.001**	**<50**
Minimum Detect	**ND**	**ND**	**ND**	**ND**
Maximum Concentration	**<50**	**<5**	**<0.001**	**<50**
Maximum Detect	**ND**	**ND**	**ND**	**ND**
Average Concentration *	**25**	**2.5**	**0.0005**	**25**
Median Concentration *	**25**	**2.5**	**0.0005**	**25**
Standard Deviation *	**0**	**0**	**0**	**0**
95% UCL (Student's-t) *	**25**	**2.5**	**0.0005**	**25**
% of Detects	**0**	**0**	**0**	**0**
% of Non-Detects	**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 Freshwater Toxicant DGVs LOSP 95% (July 2023)
HEPA, January 2020, PFAS NEMP 2020 Freshwater 99%
DoE, 2000, ANZECC 2000 SE Aust Triggers - Lowland River
2013, NEPM 2013 Table 1C GILs, Fresh Waters

T7: QA/QC - Rinsates and Trip Blanks (October 2023)

				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)
				µg/L	µg/L	µg/L	µg/L	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
Lab Report Number	**Field ID**	**Date**	**Matrix Type**																
ES2334366	**Rinsate 01**	**06 Oct 2023**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5
ES2334751	**Rinsate 02**	**09 Oct 2023**	**Water**	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	-
ES2335012	**Rinsate 03**	**10 Oct 2023**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5
ES2335083	**Rinsate 04**	**11 Oct 2023**	**Water**	-	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5
ES2335415	**RS05**	**12 Oct 2023**	**Water**	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	-
ES2335415	**RS06**	**13 Oct 2023**	**Water**	<1	-	<0.1	-	<1	-	<1	-	<1	-	<0.1	-	<1	-	<5	-
ES2334366	**Trip Blank**	**03 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2334751	**TB**	**03 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2335012	**TB03**	**03 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2335083	**TB04**	**03 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ES2335415	**TB05**	**03 Oct 2023**	**Water**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

				BTEX								TRH							
				Benzene	Toluene	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
				µg/L	µg/L	µg/L	µg/L	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	2	2	2	2	5	1	20	20	100	100	100	100	100	20
Lab Report Number	**Field ID**	**Date**	**Matrix Type**																
ES2334366	**Rinsate 01**	**06 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20
ES2334751	**Rinsate 02**	**09 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20
ES2335012	**Rinsate 03**	**10 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20
ES2335083	**Rinsate 04**	**11 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20
ES2335415	**RS05**	**12 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20
ES2335415	**RS06**	**13 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	<100	<100	<100	<100	<100	<20
ES2334366	**Trip Blank**	**03 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20
ES2334751	**TB**	**03 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20
ES2335012	**TB03**	**03 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20
ES2335083	**TB04**	**03 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20
ES2335415	**TB05**	**03 Oct 2023**	**Water**	<1	<2	<2	<2	<2	<2	<5	<1	<20	<20	-	-	-	-	-	<20

				TPH			
				C10-C14	C15-C28	C29-C36	C10-C36 (Sum of total)
				µg/L	µg/L	µg/L	µg/L
EQL				50	100	50	50
Lab Report Number	**Field ID**	**Date**	**Matrix Type**				
ES2334366	**Rinsate 01**	**06 Oct 2023**	**Water**	<50	<100	<50	<50
ES2334751	**Rinsate 02**	**09 Oct 2023**	**Water**	<50	<100	<50	<50
ES2335012	**Rinsate 03**	**10 Oct 2023**	**Water**	<50	<100	<50	<50
ES2335083	**Rinsate 04**	**11 Oct 2023**	**Water**	<50	<100	<50	<50
ES2335415	**RS05**	**12 Oct 2023**	**Water**	<50	<100	<50	<50
ES2335415	**RS06**	**13 Oct 2023**	**Water**	<50	<100	<50	<50
ES2334366	**Trip Blank**	**03 Oct 2023**	**Water**	-	-	-	-
ES2334751	**TB**	**03 Oct 2023**	**Water**	-	-	-	-
ES2335012	**TB03**	**03 Oct 2023**	**Water**	-	-	-	-
ES2335083	**TB04**	**03 Oct 2023**	**Water**	-	-	-	-
ES2335415	**TB05**	**03 Oct 2023**	**Water**	-	-	-	-

Table T8: QA/QC - Water RPDs (October 2023)

		Lab Report Number	ES2334751	ES2334751		ES2334751	335085		ES2335083	ES2335083		ES2335083	335297	
		Field ID	CZ4C_MW03	QC01		CZ4C_MW03	QC02		SMW_BH004_s	QC03		SMW_BH004_s	QC04	
		Date	09 Oct 2023	09 Oct 2023		09 Oct 2023	09 Oct 2023		11 Oct 2023	11 Oct 2023		11 Oct 2023	11 Oct 2023	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL												
Physico-Chemical & Major Ions														
Redox Potential (Lab)	mV	0.1	222	186	18	222	258	15	128	146	13	128	278	>25 RPD
pH Redox	-	0.01	5.87	5.85	0	5.87	-	-	6.38	6.44	1	6.38	-	-
pH (Lab)	-	0.01	6.50	6.58	1	6.50	5.7	13	6.55	6.75	3	6.55	6.4	2
Electrical Conductivity (Lab)	µS/cm	1	6,340	6,260	1	6,340	-	-	462	460	0	462	-	-
Dissolved Oxygen	mg/L	0.1	4.8	5.5	14	4.8	8.9	>25	5.4	6.1	12	5.4	8.7	47
TDS	mg/L	5	3,780	3,760	1	3,780	3,900	3	318	292	9	318	300	6
Chloride	mg/L	1	1,540	1,550	1	1,540	1,600	4	48	48	0	48	50	4
Sulfate as SO4 - Turbidimetric (filtered)	mg/L	1	718	708	1	718	-	-	51	50	2	51	-	-
Sulphate	mg/L	1	-	-	-	-	830	-	-	-	-	-	55	-
Alkalinity (Hydroxide) as CaCO3	mg/L	1	<1	<1	0	<1	-	0	<1	<1	0	<1	-	0
Carbonate as CaCO3	mg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Bicarbonate as CaCO3	mg/L	1	73	83	13	73	78	7	65	65	0	65	66	2
Alkalinity (total) as CaCO3	mg/L	1	73	83	13	73	78	7	65	65	0	65	66	2
Calcium (filtered)	mg/L	0.5	41	44	7	41	34	19	8	8	0	8	6.6	19
Magnesium (filtered)	mg/L	0.5	86	90	5	86	75	14	10	10	0	10	9.3	7
Sodium (filtered)	mg/L	0.5	1,110	1,200	8	1,110	940	17	69	70	1	69	63	9
Potassium (filtered)	mg/L	0.5	2	2	0	2	2	0	3	3	0	3	3	0
Anions Total	meq/L	0.01	59.8	60.1	1	59.8	-	-	4.24	4.16	2	4.24	-	-
Cations Total	meq/L	0.01	57.4	61.8	7	57.4	-	-	4.30	4.34	1	4.30	-	-
Ionic Balance	%	0.01	2.04	1.42	36	2.04	-14	>25	0.71	2.12	>25	0.71	1.0	34
Hardness as CaCO3 (filtered)	mg/L	1	456	480	5	456	-	-	61	61	0	61	-	-
Inorganics														
Electrical Conductivity (Non Compensated)	µS/cm	1	-	-	-	-	6,200	-	-	-	-	-	470	-
Hardness (filtered)	mgCaCO3/L	3	-	-	-	-	390	-	-	-	-	-	55	-
Nutrients														
Ammonia as N	mg/L	0.005	0.02	<0.01	>25	0.02	-	-	0.02	0.04	>25	0.02	-	-
Ammonia as N (filtered)	mg/L	0.005	-	-	-	-	0.18	-	-	-	-	-	0.050	-
Kjeldahl Nitrogen Total	mg/L	0.1	0.1	<0.1	0	0.1	-	-	0.7	0.8	13	0.7	-	-
Nitrate (as N)	mg/L	0.005	0.07	0.08	13	0.07	-	-	7.40	6.44	14	7.40	-	-
Nitrate (as N) (filtered)	mg/L	0.005	-	-	-	-	0.03	-	-	-	-	-	10	-
Nitrite (as N)	mg/L	0.005	<0.01	<0.01	0	<0.01	-	-	0.15	0.14	7	0.15	-	-
Nitrite (as N) (filtered)	mg/L	0.005	-	-	-	-	<0.005	-	-	-	-	-	0.18	-
Nitrite + Nitrate as N	mg/L	0.01	0.07	0.08	13	0.07	-	-	7.55	6.58	14	7.55	-	-
Nitrogen (Total)	mg/L	0.1	0.2	<0.1	>25	0.2	0.1	>25	8.2	7.4	10	8.2	10	20
Total Phosphorus as P (Organic Phosphate as P)	mg/L	0.01	0.03	0.03	0	0.03	-	-	0.10	0.08	22	0.10	-	-
Reactive Phosphorus as P (Orthophosphate as P)	mg/L	0.005	<0.01	<0.01	0	<0.01	-	-	0.01	0.02	67	0.01	-	-
Reactive Phosphorus as P (Orthophosphate as P) (filtered)	mg/L	0.005	-	-	-	-	<0.005	-	-	-	-	-	0.02	-
Metals														
Aluminium (filtered)	mg/L	0.01	0.04	0.04	0	0.04	0.04	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
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
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
Chromium (Trivalent)	mg/L	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	-	-
Chromium (III+VI) (filtered)	µg/L	1	-	<1	0	-	-	0	-	-	0	-	-	0
Copper (filtered)	µg/L	1	4	<1	>25	4	2	>25	49	42	15	49	41	18
Iron (filtered)	mg/L	0.01	1.35	1.44	6	1.35	1.3	4	<0.05	<0.05	0	<0.05	<0.05	0
Lead (filtered)	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Manganese (filtered)	mg/L	0.001	0.977	1.06	8	0.977	1.2	20	0.075	0.076	1	0.075	0.08	6
Mercury (filtered)	µg/L	0.05	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
Nickel (filtered)	µg/L	1	12	13	8	12	13	8	4	4	0	4	4	0
Phosphorus	mg/L	0.05	-	-	-	-	<0.05	-	-	-	-	-	<0.05	-
Zinc (filtered)	µg/L	1	30	30	0	30	35	15	27	25	8	27	30	11
BTEX														
Benzene	µg/L	1	<1	<1	0	<1	<1	0	<1	<1	0	<1	<1	0
Toluene	µg/L	1	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Ethylbenzene	µg/L	1	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (m & p)	µg/L	2	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene (o)	µg/L	1	<2	<2	0	<2	<2	0	<2	<2	0	<2	<2	0
Xylene Total	µg/L	2	<3	<2	0	<2	-	-	<3	<3	0	<3	-	-
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
Naphthalene (BTEX)	µg/L	1	-	-	-	-	-	0	-	-	0	-	-	0
Total BTEX	µg/L	1	<3	<3	0	<3	-	-	<3	<3	0	<3	-	-
TRH														
C6-C10	µg/L	10	<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
C10-C16	µg/L	50	<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
C16-C34	µg/L	100	<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
C10-C40 (Sum of total)	µg/L	50	<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
1,3,5-trimethylbenzene	µg/L	1	<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
n-butylbenzene	µg/L	1	<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
p-isopropyltoluene	µg/L	1	<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
Styrene	µg/L	1	<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
Halogenated Hydrocarbons														
1,2-dibromoethane	µg/L	1	<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
Dichlorodifluoromethane	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Iodomethane	µg/L	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
Chlorinated Hydrocarbons														
1,1,1,2-tetrachloroethane	µg/L	1	<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
1,1,2,2-tetrachloroethane	µg/L	1	<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
1,1-dichloroethane	µg/L	1	<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
1,1-dichloropropene	µg/L	1	<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
1,2-dibromo-3-chloropropane	µg/L	1	<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
1,2-dichloropropane	µg/L	1	<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
2,2-dichloropropane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Bromochloromethane	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Bromodichloromethane	µg/L	1	<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
Carbon tetrachloride	µg/L	1	<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
Chloroethane	µg/L	10	<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
Chloromethane	µg/L	10	<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
cis-1,3-dichloropropene	µg/L	1	<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
Hexachlorobutadiene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
Trichloroethene	µg/L	1	<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	3	0
trans-1,2-dichloroethene	µg/L	1	<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
Vinyl chloride	µg/L	10	<50	<50	0	<50	<10	0	<50	<50	0	<50	<10	0
Halogenated Benzenes														
1,2,3-trichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2,4-trichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,2-dichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,3-dichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
1,4-dichlorobenzene	µg/L	1	<5	<5	0	<5	<1	0	<5	<5	0	<5	<1	0
2-chlorotoluene	µg/L	1	<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
Bromobenzene	µg/L	1	<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
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
VOCs														
cis-1,4-Dichloro-2-butene	µg/L	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	-	-
Pentachloroethane	µg/L	5	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-

Table T8: QA/QC - Water RPDs (October 2023)

		Lab Report Number	ES2334751	ES2334751		ES2334751	335085		ES2335083	ES2335083		ES2335083	335297	
		Field ID	CZ4C_MW03	QC01		CZ4C_MW03	QC02		SMW_BH004_s	QC03		SMW_BH004_s	QC04	
		Date	09 Oct 2023	09 Oct 2023		09 Oct 2023	09 Oct 2023		11 Oct 2023	11 Oct 2023		11 Oct 2023	11 Oct 2023	
		Matrix Type	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD	Water	Water	RPD
	Unit	EQL												
PAH														
Benzo(b+j+k)fluoranthene	mg/L	0.0002	-	-	-	-	<0.0002	-	-	-	-	-	<0.0002	-
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
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
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
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
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
Benzo(b+j+k)fluoranthene	mg/L	0.001	<0.0010	<0.0010	0	<0.0010	-	-	<0.0010	<0.0010	0	<0.0010	-	-
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
Benzo(k)fluoranthene	µg/L	1	<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
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
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
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
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
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
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
Benzo(a)pyrene TEQ	mg/L	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	-	-
PAHs (Sum of total)	µg/L	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	-
TPH														
C6-C9	µg/L	10	<20	<20	0	<20	<10	0	<20	<20	0	<20	<10	0
C10-C14	µg/L	50	<50	<50	0	<50	<100	0	<50	<50	0	<50	<100	0
C15-C28	µg/L	100	<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
C10-C36 (Sum of total)	µg/L	50	<50	<50	0	<50	<50	0	<50	<50	0	<50	<50	0
PCBs														
Arochlor 1016	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1221	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1232	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1242	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1248	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1254	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
Arochlor 1260	µg/L	2	-	-	-	-	<2	-	-	-	-	-	<2	-
PCBs (Sum of total)	µg/L	1	<1	<1	0	<1	-	-	<1	<1	0	<1	-	-
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
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
Aldrin + Dieldrin	µg/L	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
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
Chlordane	µg/L	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
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
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
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
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
DDT+DDE+DDD	µg/L	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
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
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
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
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
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
Endrin ketone	µg/L	0.5	<0.5	<0.5	0	<0.5	-	-	<0.5	<0.5	0	<0.5	-	-
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
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
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
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
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
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
Carbophenothion	µg/L	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	-	-
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
Chlorpyrifos-methyl	mg/L	0.0002	<0.0005	<0.0005	0	<0.0005	<0.0002	0	<0.0005	<0.0005	0	<0.0005	<0.0002	0
Coumaphos	µg/L	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	-	-
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
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
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
Disulfoton	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
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
Fenitrothion	µg/L	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
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
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
Methidathion	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Mevinphos (Phosdrin)	µg/L	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
Monocrotophos	µg/L	2	<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
Phorate	µg/L	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	-	-
Ronnel	µg/L	0.2	-	-	-	-	<0.2	-	-	-	-	-	<0.2	-
Pesticides														
Mirex	µg/L	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	-	-
Perfluoroalkyl Sulfonic Acids														
Perfluorobutane sulfonic acid (PFBS)	µg/L	0.02	<0.02	0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorohexane sulfonic acid (PFHxS)	µg/L	0.01	0.03	0.03	0	0.03	0.03	0	<0.01	<0.01	0	<0.01	<0.01	0
Perfluorooctanesulfonic acid (PFOS)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.02	0.02	0	0.02	0.01	67
Sum of PFHxS and PFOS	µg/L	0.01	0.03	0.03	0	0.03	0.03	0	0.02	0.02	0	0.02	0.01	67
Perfluoroalkyl Carboxylic Acid														
Perfluorobutanoic acid (PFBA)	µg/L	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	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorohexanoic acid (PFHxA)	µg/L	0.02	0.03	0.03	0	0.03	-	-	0.02	0.02	0	0.02	-	-
Perfluoroheptanoic acid (PFHpA)	µg/L	0.02	<0.02	<0.02	0	<0.02	-	-	<0.02	<0.02	0	<0.02	-	-
Perfluorooctanoic acid (PFOA)	µg/L	0.01	<0.01	<0.01	0	<0.01	<0.01	0	0.02	0.02	0	0.02	0.03	40
Fluorotelomer Sulfonic Acids														
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
6:2 Fluorotelomer 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
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/L	0.02	<0.05	<0.05	0	<0.05	<0.02	0	<0.05	<0.05	0	<0.05	<0.02	0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/L	0.05	<0.05	<0.05	0	<0.05	-	-	<0.05	<0.05	0	<0.05	-	-
PFAS Totals														
Sum of PFAS (WA DER List)	µg/L	0.01	0.06	0.08	29	0.06	-	-	0.06	0.06	0	0.06	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	µg/L	0.01	-	-	-	-	<0.01	-	-	-	-	-	0.04	-
Sum of PFAS	µg/L	0.01	-	-	-	-	0.03	-	-	-	-	-	0.04	-
Other														
Phosalone	mg/L	0.0002	-	-	-	-	<0.0002	-	-	-	-	-	<0.0002	-
Solvents														
Methyl Ethyl Ketone	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-
2-hexanone (MBK)	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-
4-Methyl-2-pentanone	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-
Carbon disulfide	µg/L	5	<5	<5	0	<5	-	-	<5	<5	0	<5	-	-
Cyclohexane	mg/L	0.001	-	-	-	-	<0.001	-	-	-	-	-	<0.001	-
Vinyl acetate	µg/L	50	<50	<50	0	<50	-	-	<50	<50	0	<50	-	-

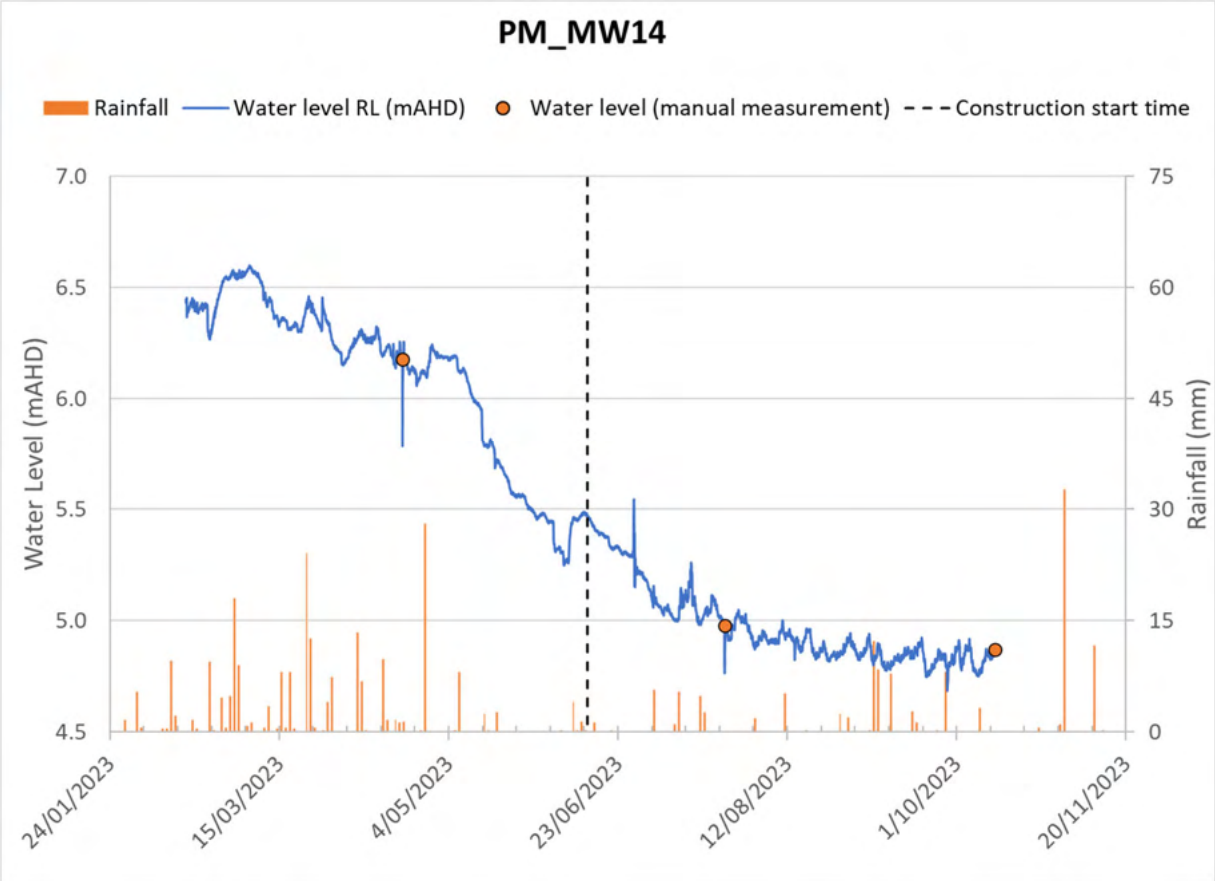
***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 50 (1 - 10 x EQL); 50 (10 - 30 x EQL); 50 (> 30 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

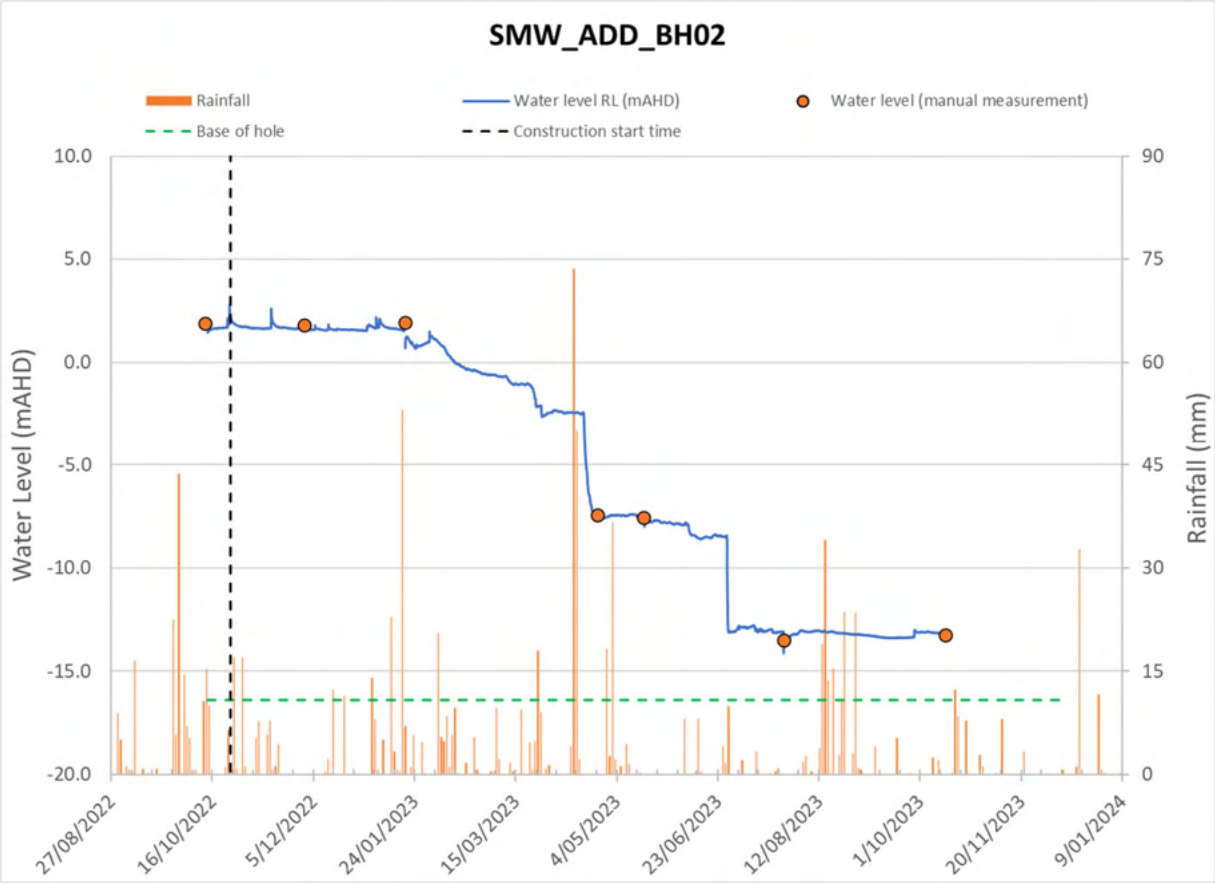
Table T9. RPD summary table (November 2023)

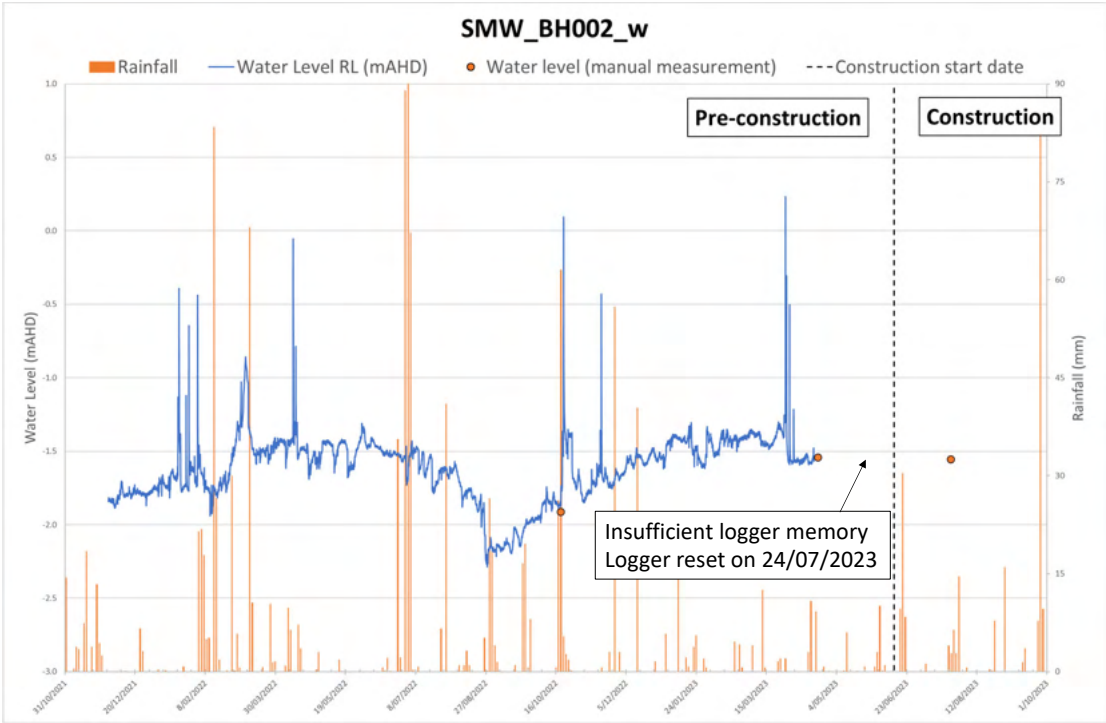
				Metals							
				Arsenic (filtered)	Cadmium (filtered)	Chromium (III+VI) (filtered)	Copper (filtered)	Lead (filtered)	Mercury (filtered)	Nickel (filtered)	Zinc (filtered)
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL				1	0.1	1	1	1	0.1	1	5
Lab Report Number	**Field ID**	**Date**	**Matrix Type**								
ES2340447	**SMW-BH057-S**	**21 Nov 2023**	**Water**	<1	<0.1	<1	4	<1	<0.1	<1	<5
ES2340447	**QC01**	**21 Nov 2023**	**Water**	<1	<0.1	<1	4	<1	<0.1	<1	<5
RPD				0	0	0	0	0	0	0	0

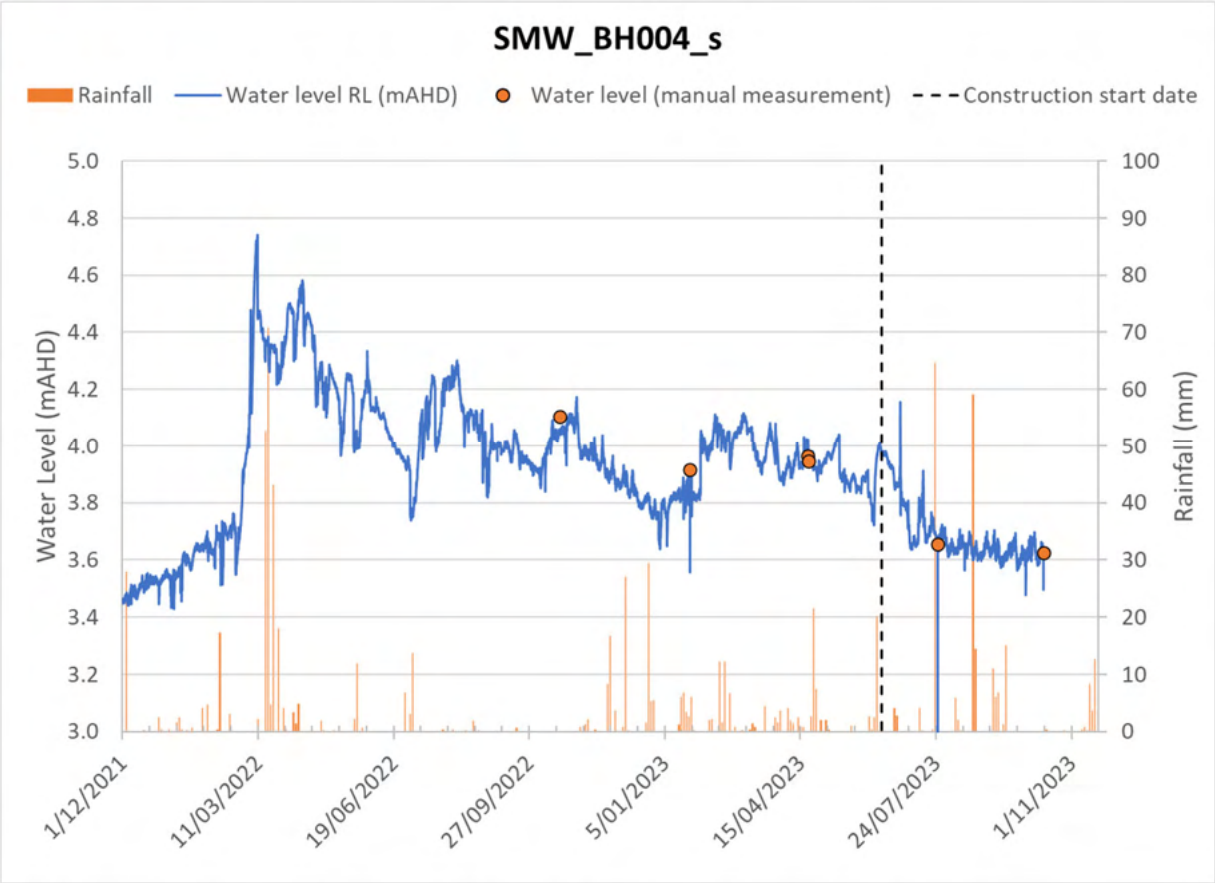
***RPDs have only been considered where a concentration is greater than 1 times the EQL.**
****Elevated RPDs are highlighted as per QAQC Profile settings (Acceptable RPDs for each EQL multiplier range are: 50 (1 - 10 x EQL); 50 (10 - 30 x EQL); 50 (> 30 x EQL))**
*****Interlab Duplicates are matched on a per compound basis as methods vary between laboratories. Any methods in the row header relate to those used in the primary laboratory**

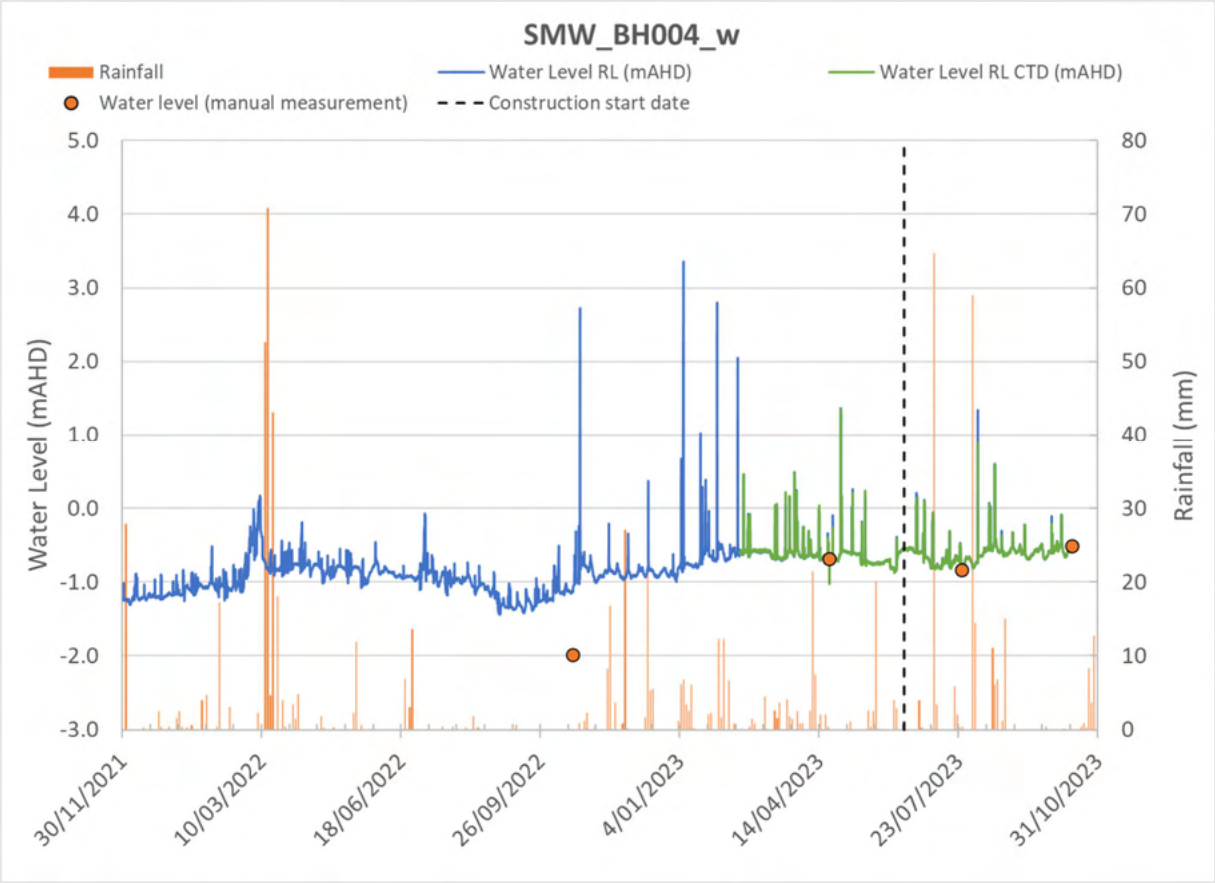
APPENDIX C – HYDROGRAPHS

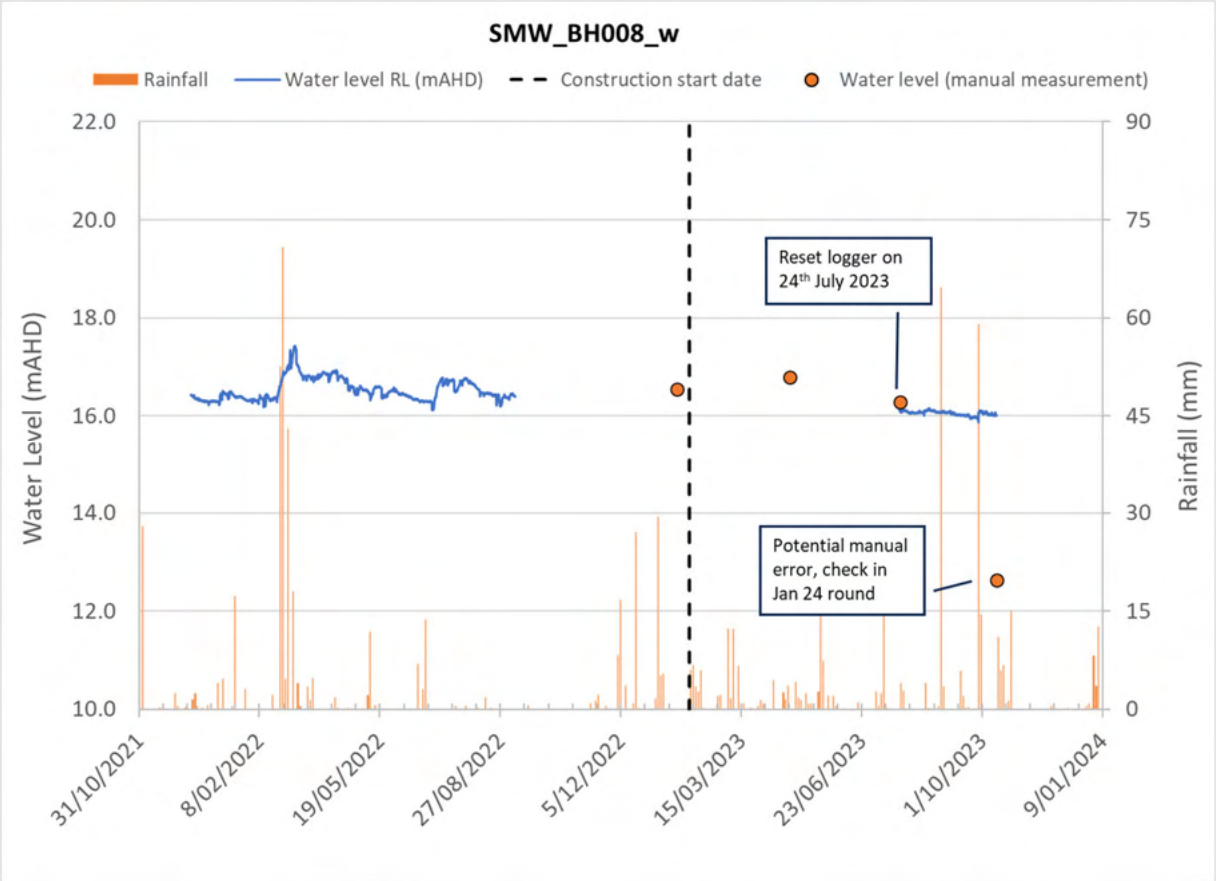

PM_MW14
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start time
Water Level (mAHD)
Rainfall (mm)
7.0
6.5
6.0
5.5
5.0
4.5
75
60
45
30
15
0
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023

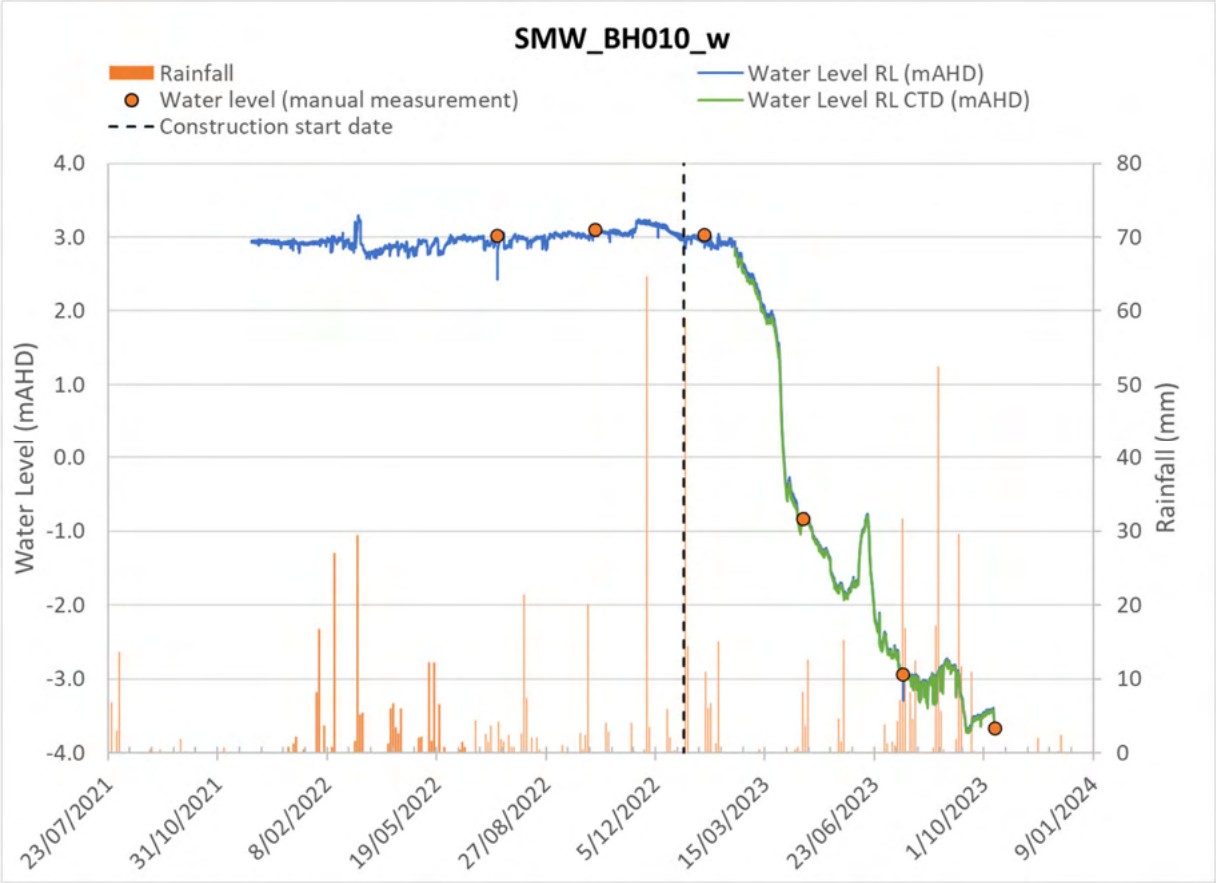

SMW_ADD_BH02
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Base of hole
Construction start time
Water Level (mAHD)
Rainfall (mm)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
90
75
60
45
30
15
0
27/08/2022
16/10/2022
5/12/2022
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023
9/01/2024

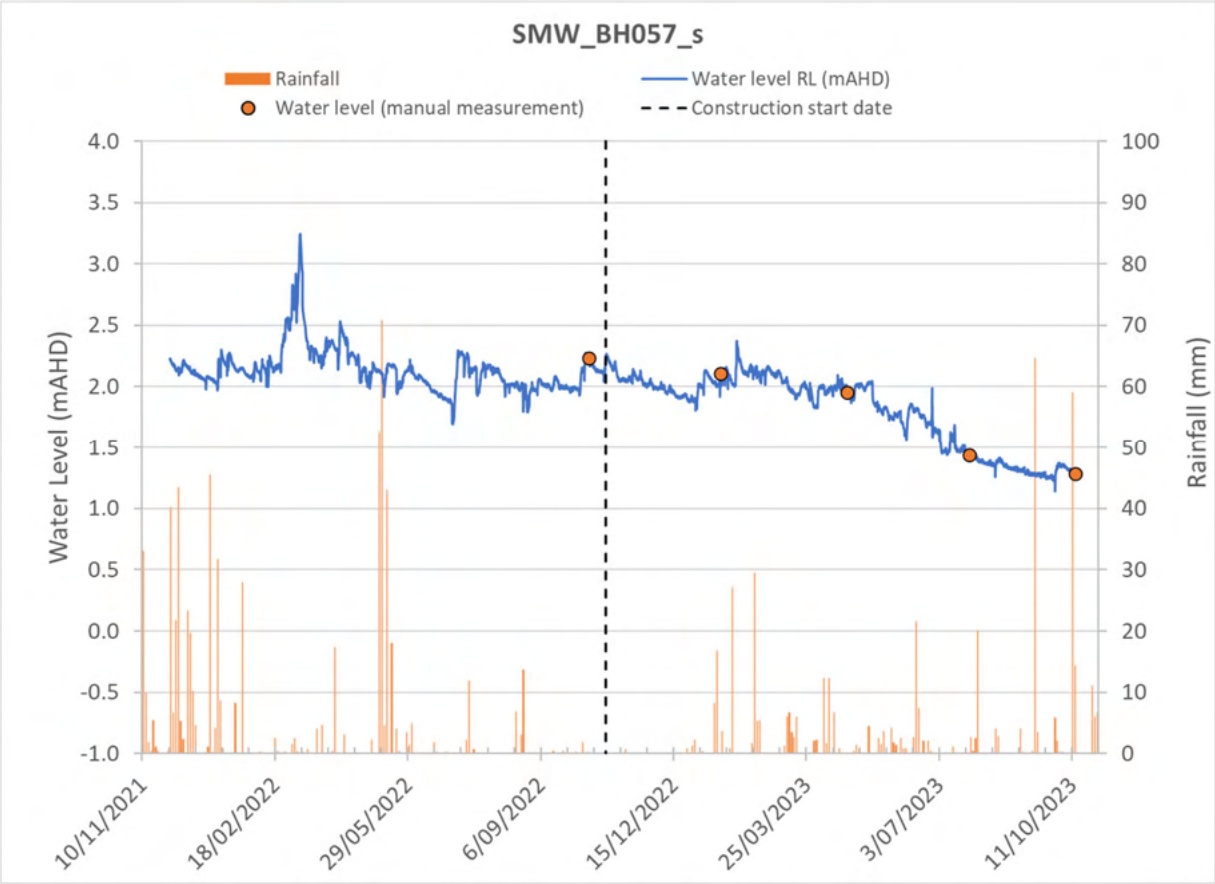

SMW_BH002_w
Rainfall
Water Level RL (mAHD)
Water level (manual measurement)
Construction start date
Pre-construction
Construction
Water Level (mAHD)
Rainfall (mm)
Insufficient logger memory
Logger reset on 24/07/2023

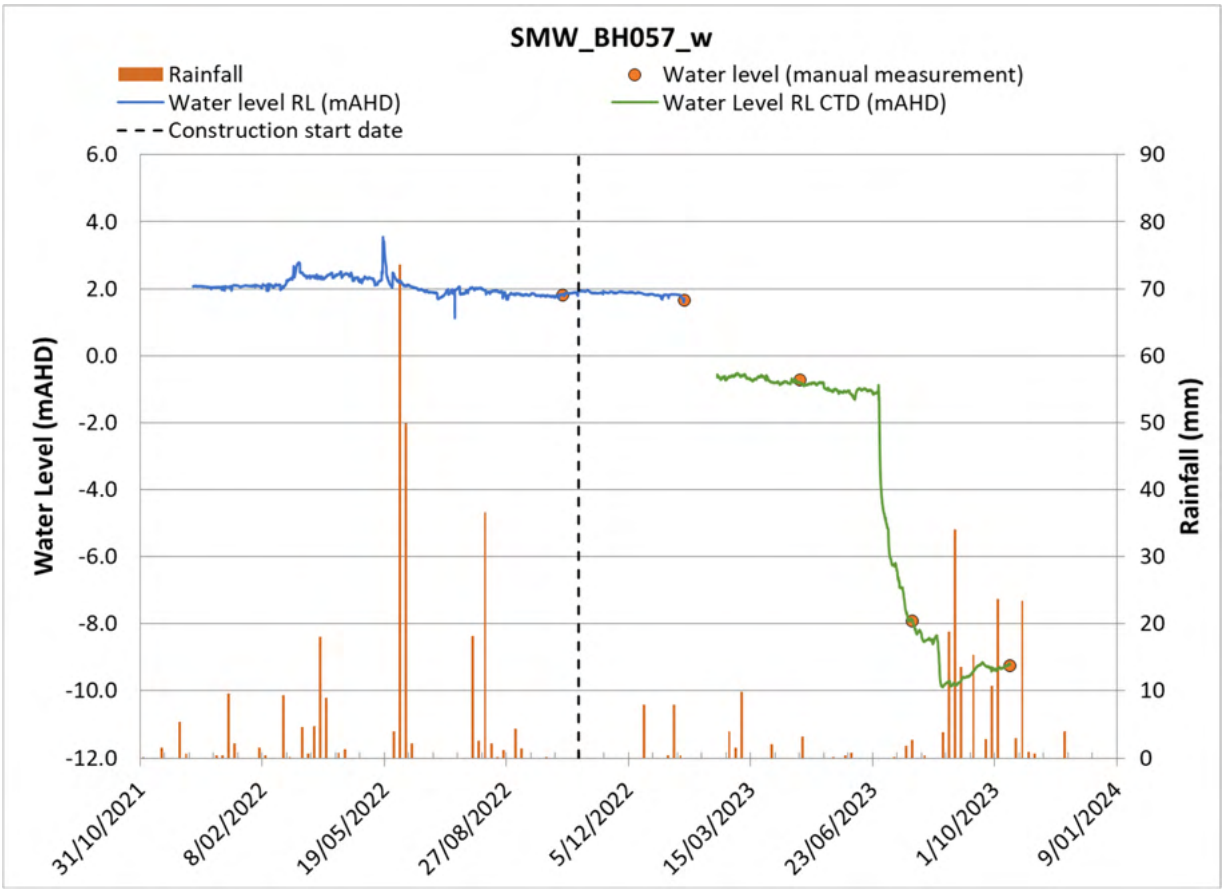

SMW_BH004_s
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Water Level (mAHD)
Rainfall (mm)
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
100
90
80
70
60
50
40
30
20
10
0
1/12/2021
11/03/2022
19/06/2022
27/09/2022
5/01/2023
15/04/2023
24/07/2023
1/11/2023

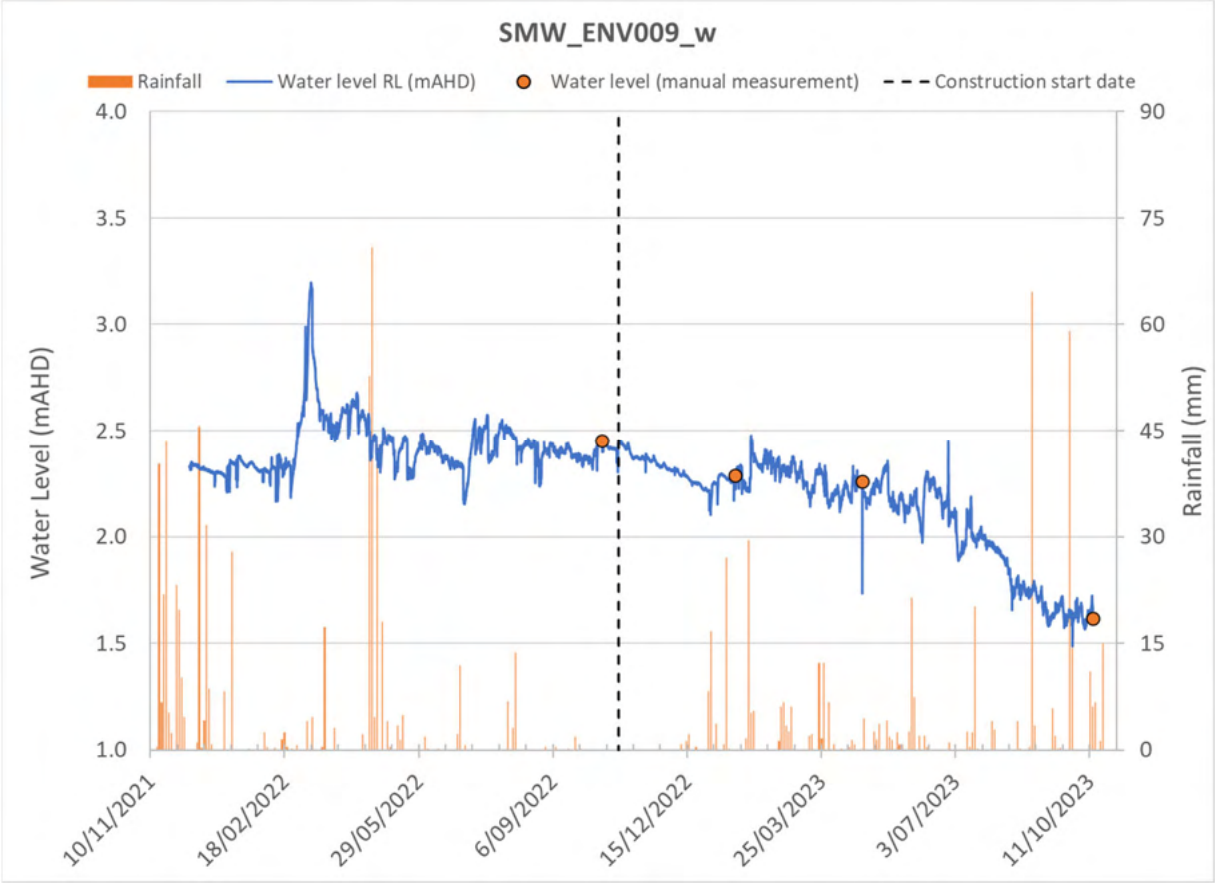

SMW_BH004_w
Rainfall
Water Level RL (mAHD)
Water Level RL CTD (mAHD)
Water level (manual measurement)
Construction start date
Water Level (mAHD)
Rainfall (mm)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
80
70
60
50
40
30
20
10
0
30/11/2021
10/03/2022
18/06/2022
26/09/2022
4/01/2023
14/04/2023
23/07/2023
31/10/2023

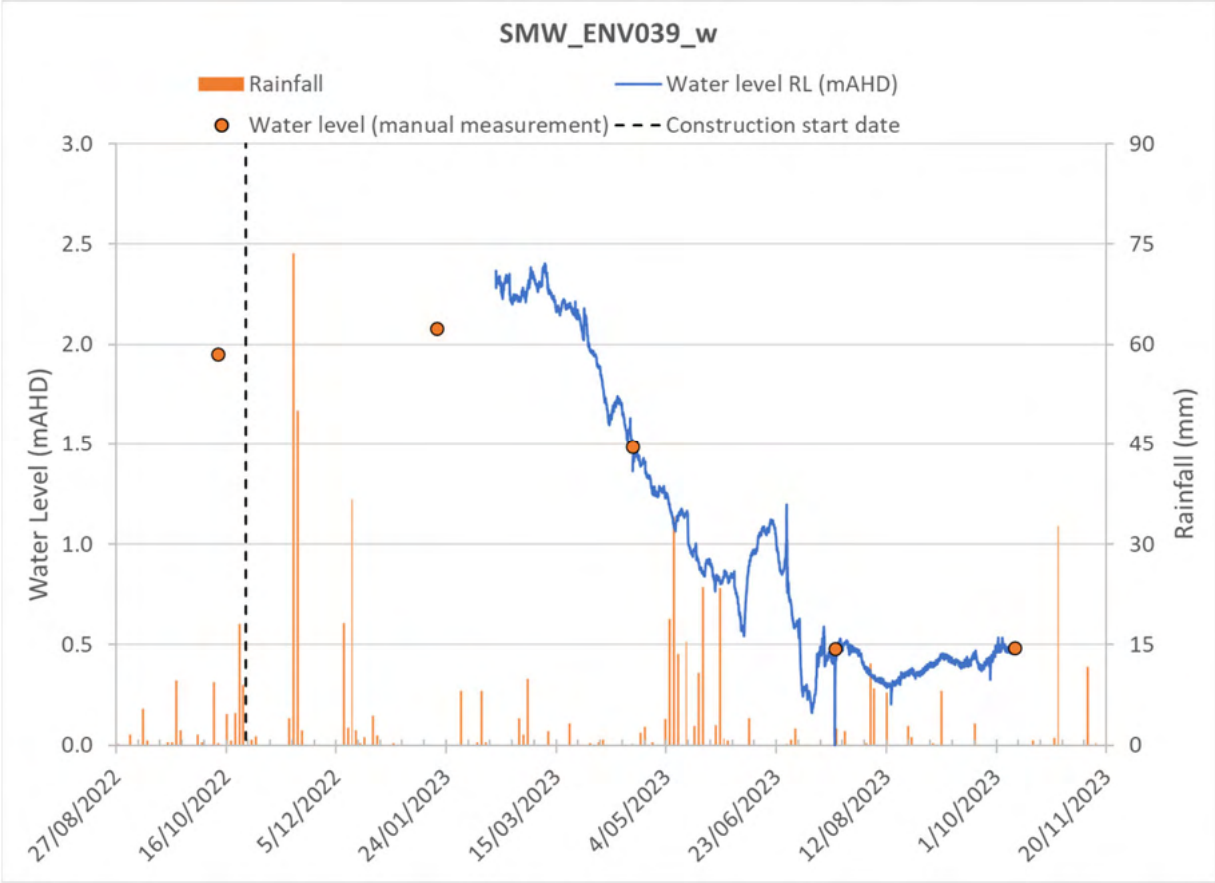

SMW_BH008_w
Rainfall
Water level RL (mAHD)
Construction start date
Water level (manual measurement)
Water Level (mAHD)
Rainfall (mm)
22.0
20.0
18.0
16.0
14.0
12.0
10.0
90
75
60
45
30
15
0
Reset logger on 24th July 2023
Potential manual error, check in Jan 24 round
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024

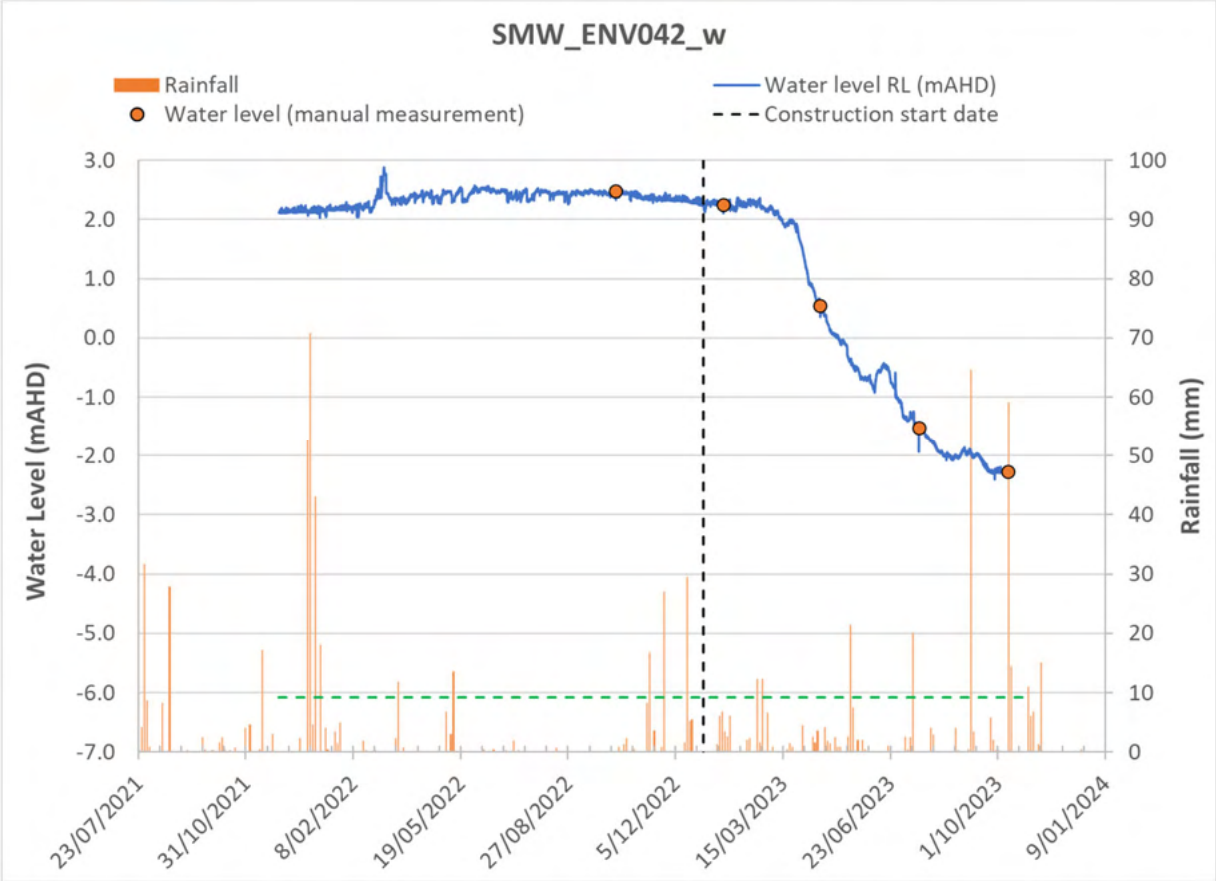

SMW_BH010_w
Rainfall
Water level (manual measurement)
Construction start date
Water Level RL (mAHD)
Water Level RL CTD (mAHD)
Water Level (mAHD)
Rainfall (mm)
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
80
70
60
50
40
30
20
10
0
23/07/2021
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024

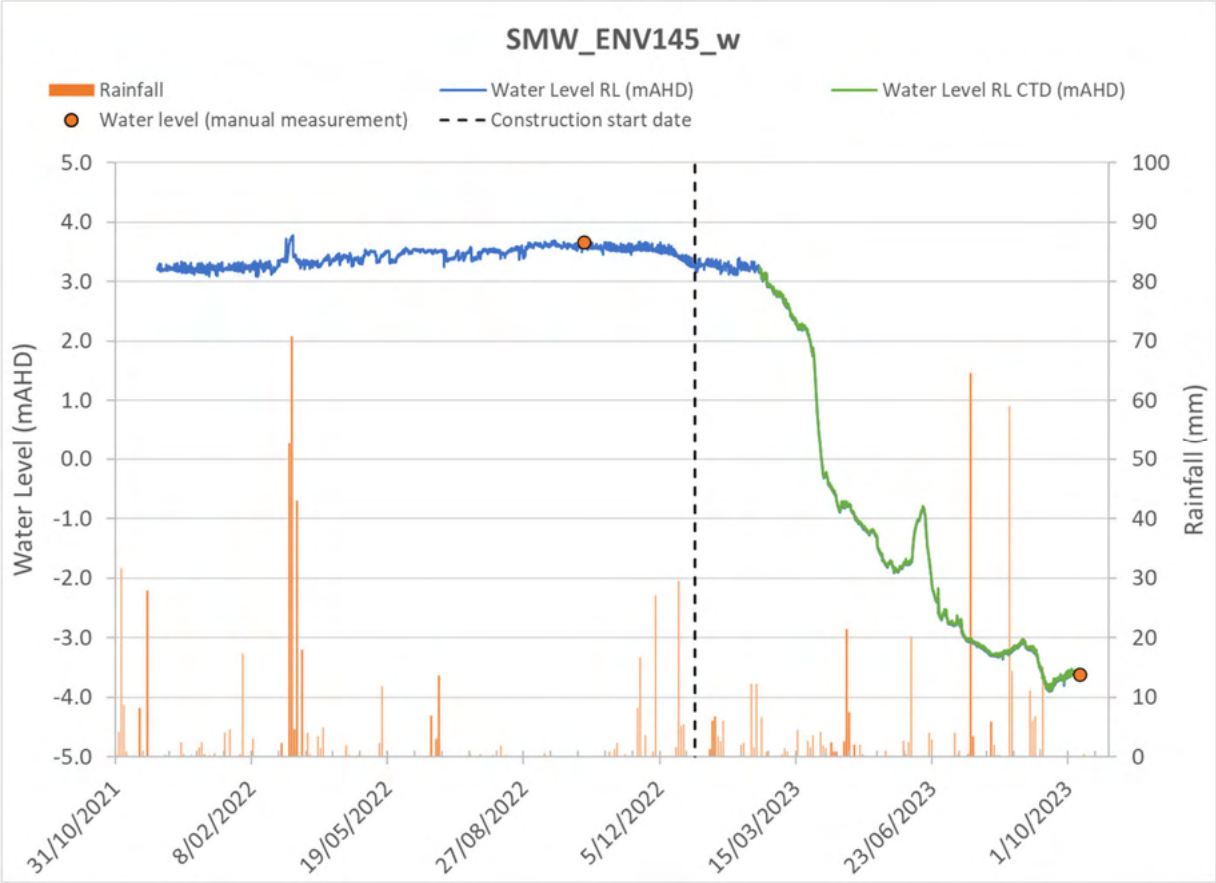

SMW_BH057_s
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Water Level (mAHD)
Rainfall (mm)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
100
90
80
70
60
50
40
30
20
10
0
10/11/2021
18/02/2022
29/05/2022
6/09/2022
15/12/2022
25/03/2023
3/07/2023
11/10/2023

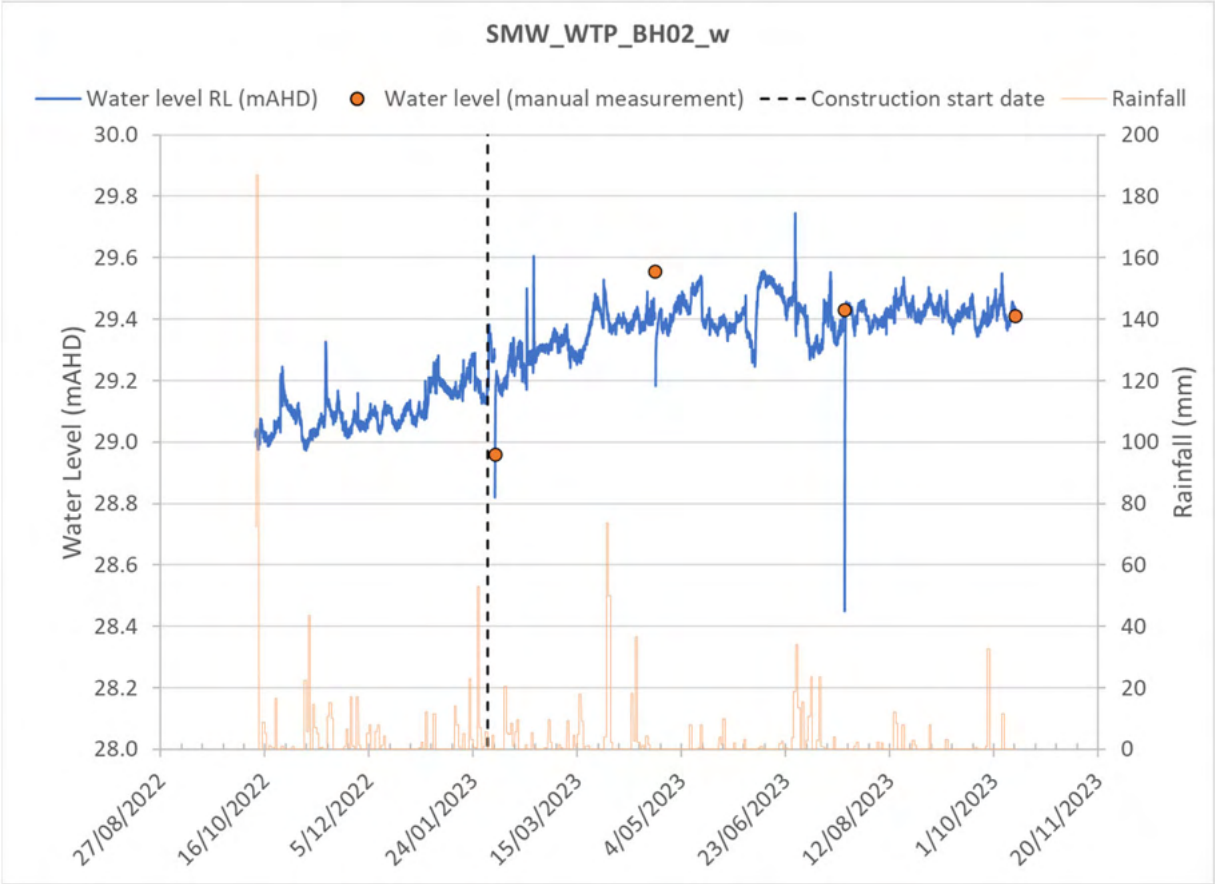

SMW_BH057_w
Rainfall
Water level (manual measurement)
Water level RL (mAHD)
Water Level RL CTD (mAHD)
Construction start date
Water Level (mAHD)
Rainfall (mm)
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
90
80
70
60
50
40
30
20
10
0
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024

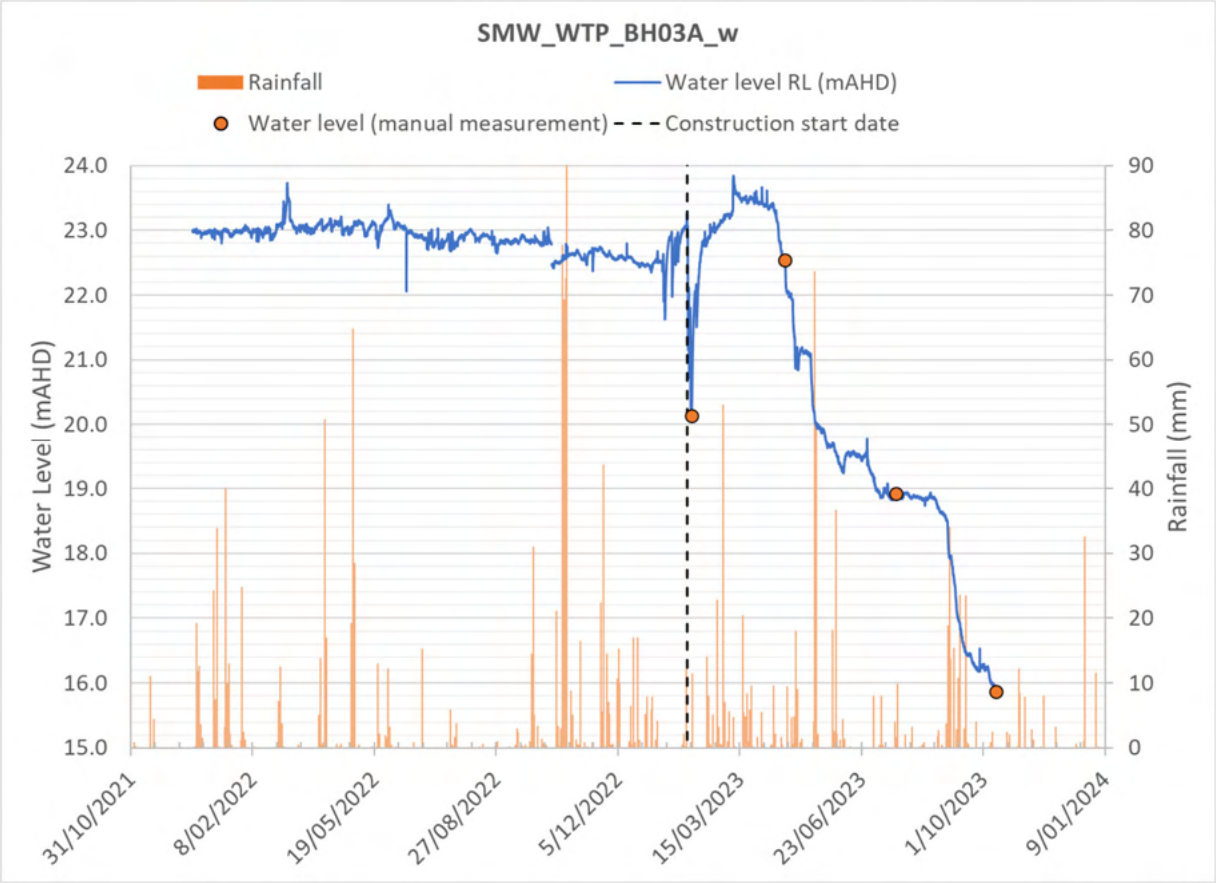

SMW_ENV009_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Water Level (mAHD)
Rainfall (mm)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
90
75
60
45
30
15
0
10/11/2021
18/02/2022
29/05/2022
6/09/2022
15/12/2022
25/03/2023
3/07/2023
11/10/2023

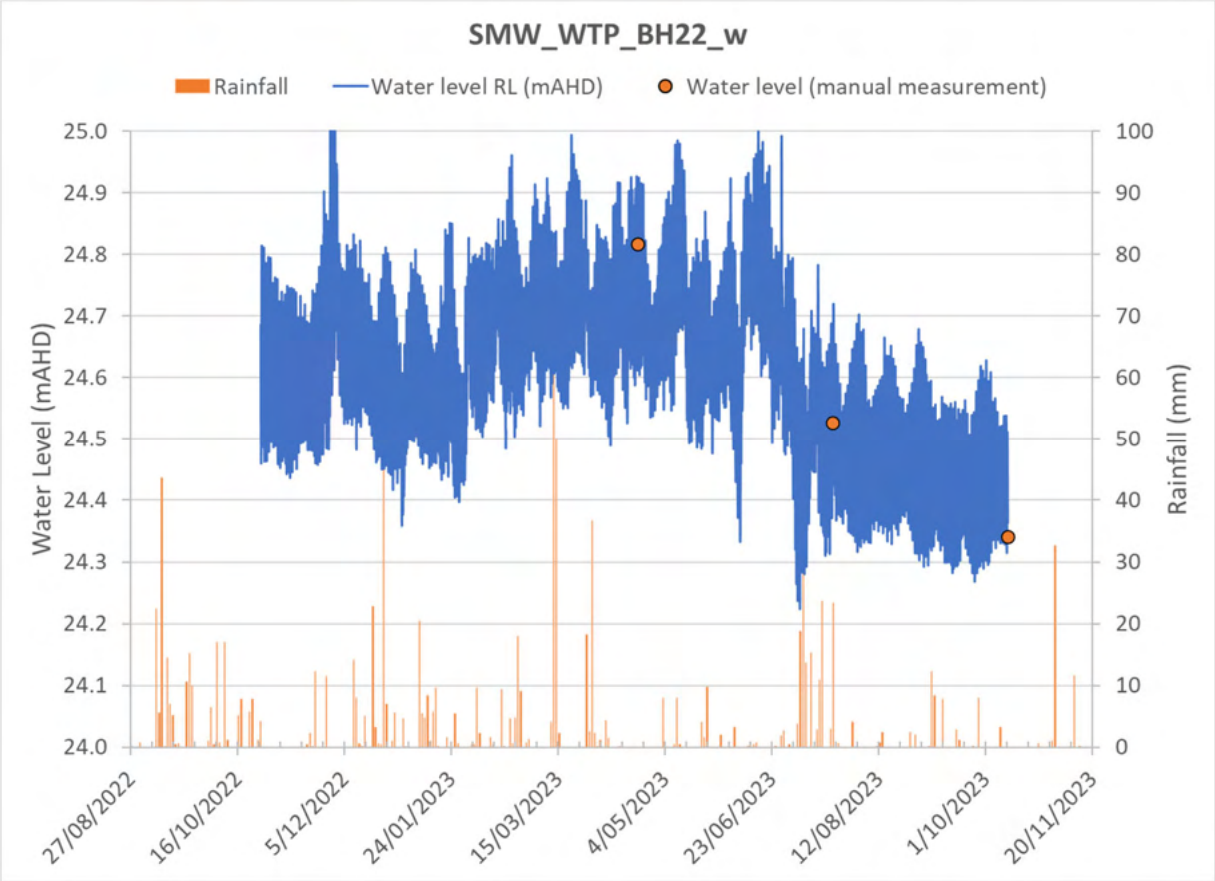

SMW_ENV039_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Water Level (mAHD)
Rainfall (mm)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
90
75
60
45
30
15
0
27/08/2022
16/10/2022
5/12/2022
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023

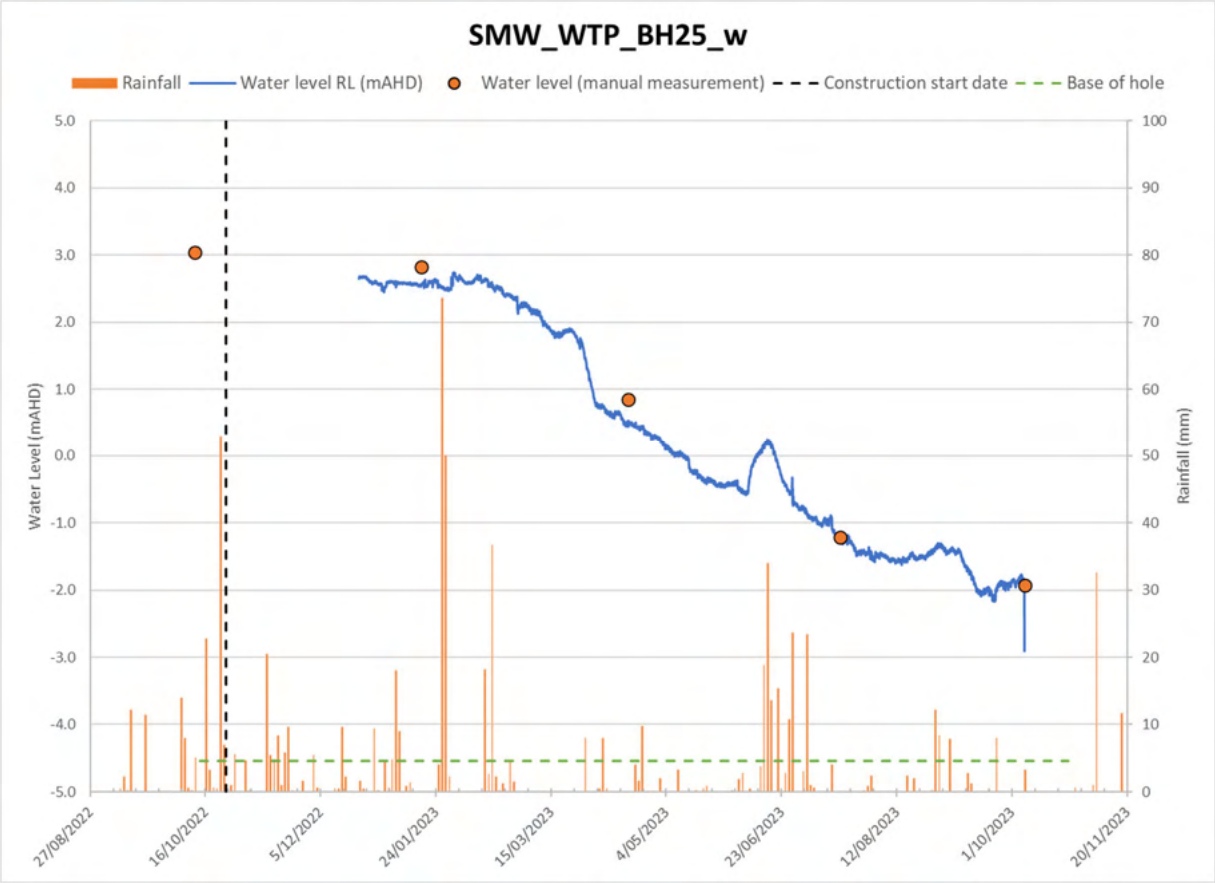

SMW_ENV042_w
Rainfall
Water level (manual measurement)
Water level RL (mAHD)
Construction start date
Water Level (mAHD)
Rainfall (mm)
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
100
90
80
70
60
50
40
30
20
10
0
23/07/2021
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024


SMW_ENV145_w
Rainfall
Water level (manual measurement)
Water Level RL (mAHD)
Construction start date
Water Level RL CTD (mAHD)
Water Level (mAHD)
Rainfall (mm)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
100
90
80
70
60
50
40
30
20
10
0
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023

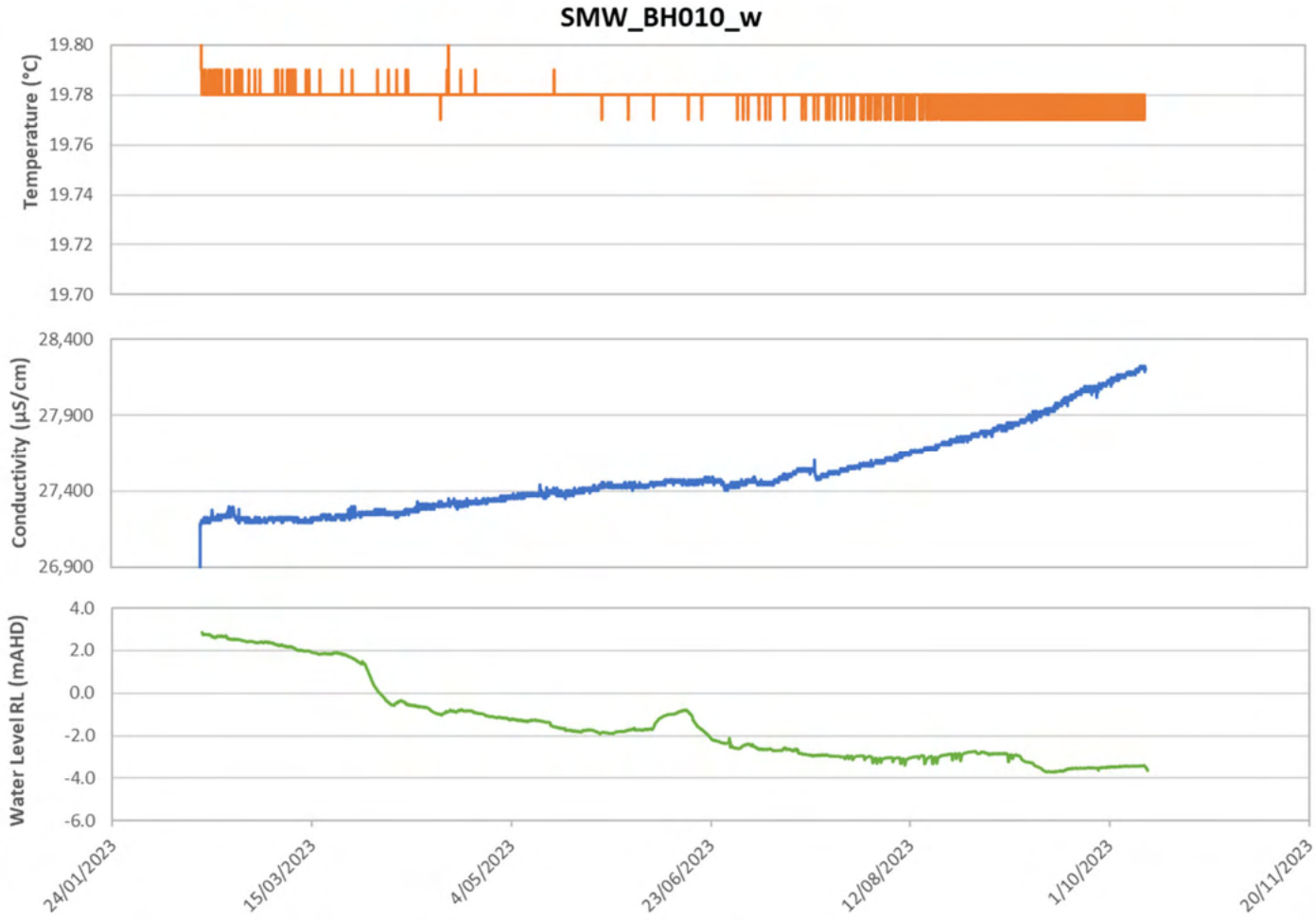

SMW_WTP_BH02_w
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Rainfall
Water Level (mAHD)
Rainfall (mm)
30.0
29.8
29.6
29.4
29.2
29.0
28.8
28.6
28.4
28.2
28.0
200
180
160
140
120
100
80
60
40
20
0
27/08/2022
16/10/2022
5/12/2022
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023


SMW_WTP_BH03A_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Water Level (mAHD)
Rainfall (mm)
24.0
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
15.0
90
80
70
60
50
40
30
20
10
0
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024

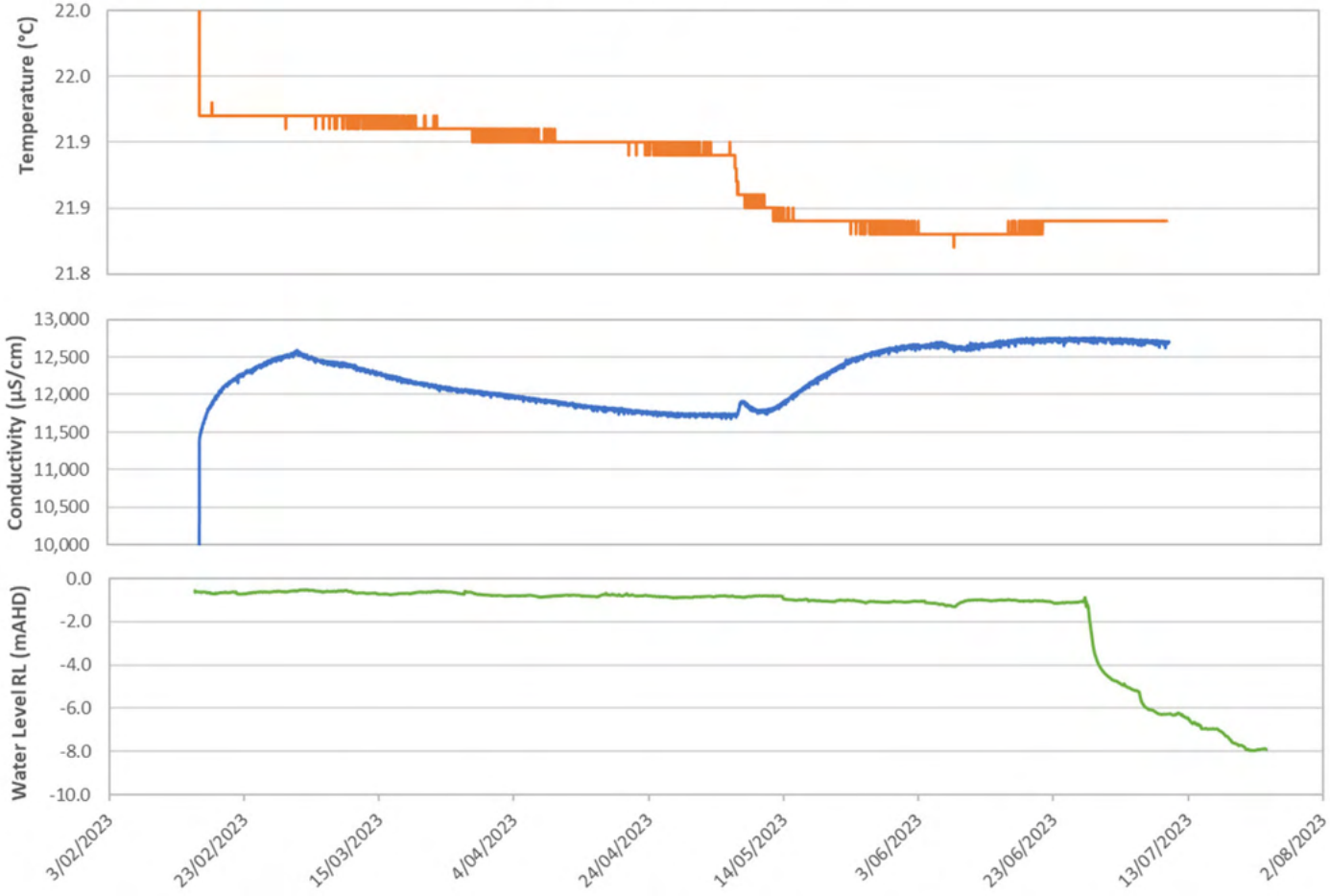

SMW_WTP_BH22_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Water Level (mAHD)
Rainfall (mm)
25.0
24.9
24.8
24.7
24.6
24.5
24.4
24.3
24.2
24.1
24.0
100
90
80
70
60
50
40
30
20
10
0
27/08/2022
16/10/2022
5/12/2022
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023


SMW_WTP_BH25_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Base of hole
Water Level (mAHD)
Rainfall (mm)
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
-2.0
-3.0
-4.0
-5.0
100
90
80
70
60
50
40
30
20
10
0
27/08/2022
16/10/2022
5/12/2022
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023

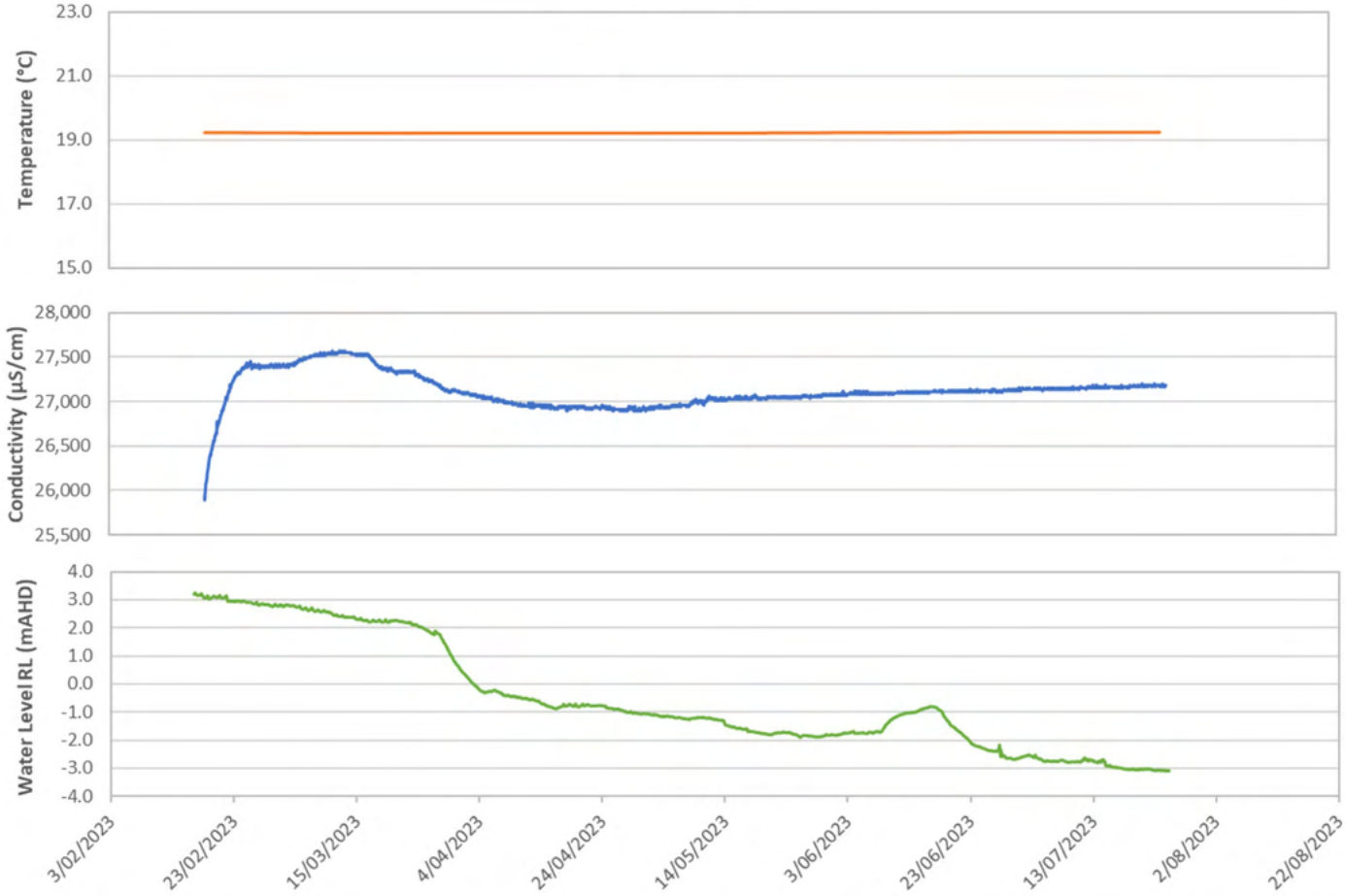
SMW_BH004_w
Temperature (°C)
21.2
21.0
20.8
20.6
20.4
20.2
20.0
Conductivity (µS/cm)
5,500
5,000
4,500
4,000
3,500
3,000
Water Level RL (mAHD)
2.0
1.0
0.0
-1.0
-2.0
3/02/2023
23/02/2023
15/03/2023
4/04/2023
24/04/2023
14/05/2023
3/06/2023
23/06/2023
13/07/2023
2/08/2023
22/08/2023


SMW_BH010_w
Temperature (°C)
19.80
19.78
19.76
19.74
19.72
19.70
Conductivity (µS/cm)
28,400
27,900
27,400
26,900
Water Level RL (mAHD)
4.0
2.0
0.0
-2.0
-4.0
-6.0
24/01/2023
15/03/2023
4/05/2023
23/06/2023
12/08/2023
1/10/2023
20/11/2023

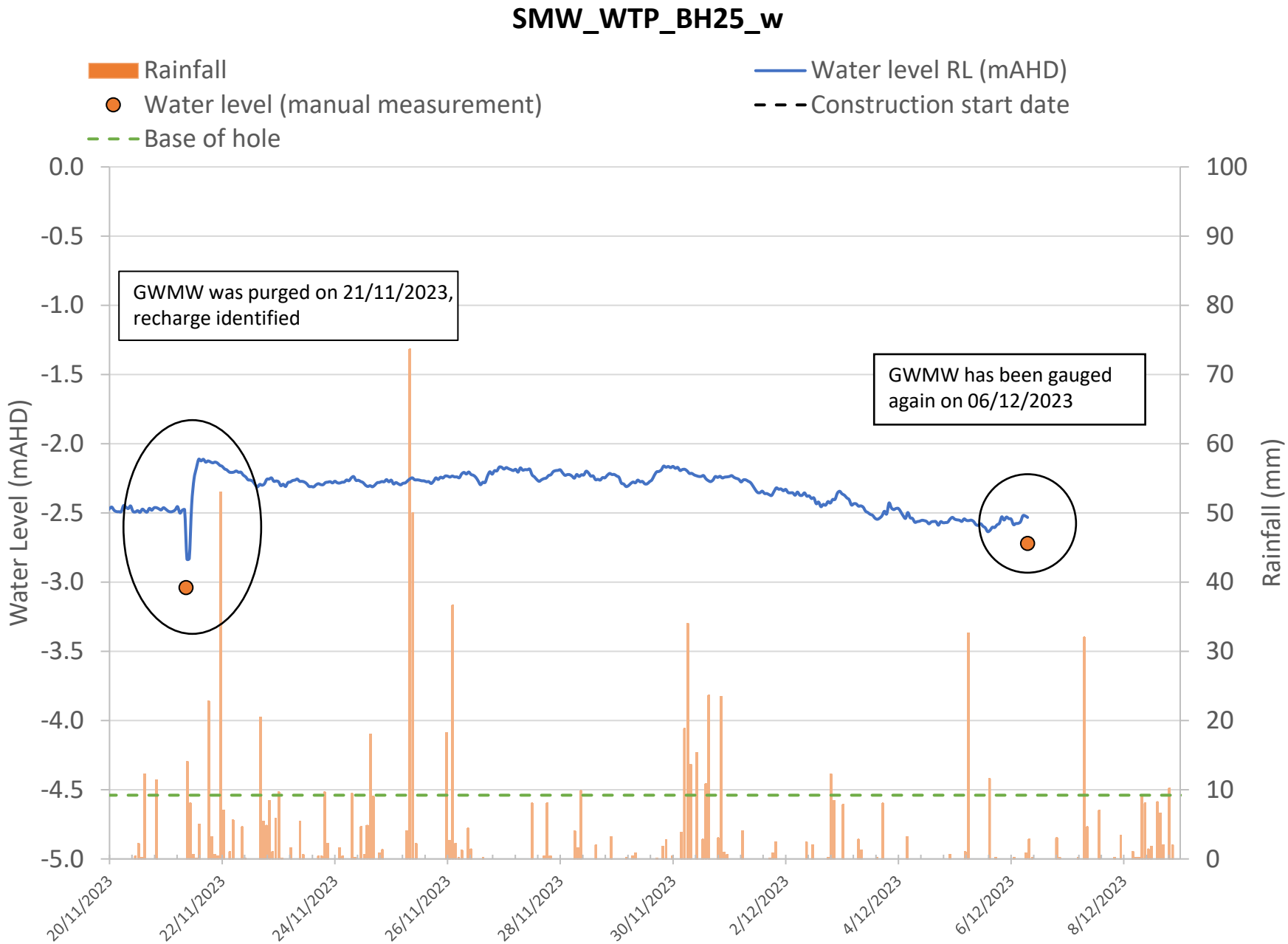
SMW_BH057_w



SMW_ENV145_w

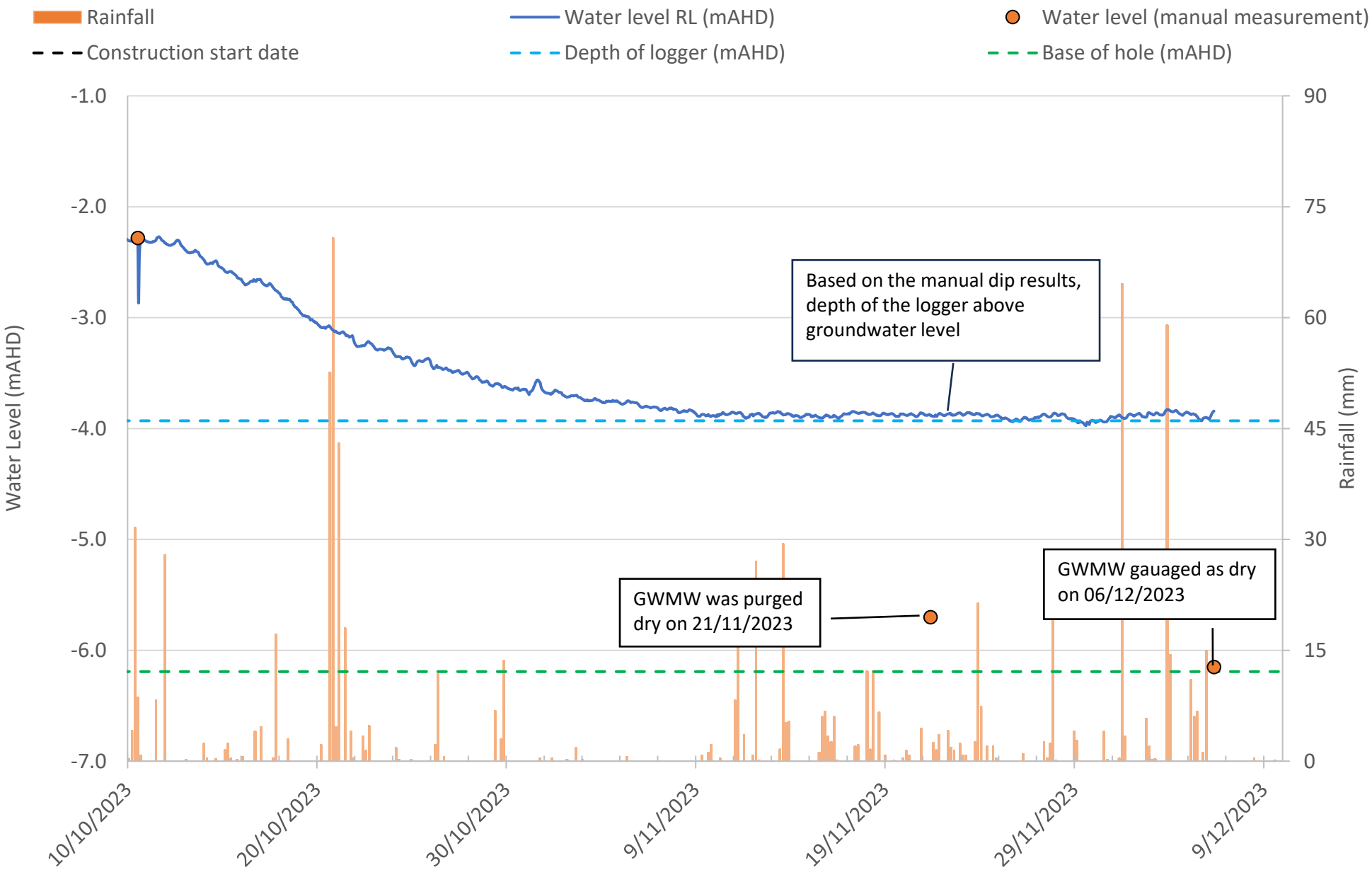


November 2023 Trigger monitoring

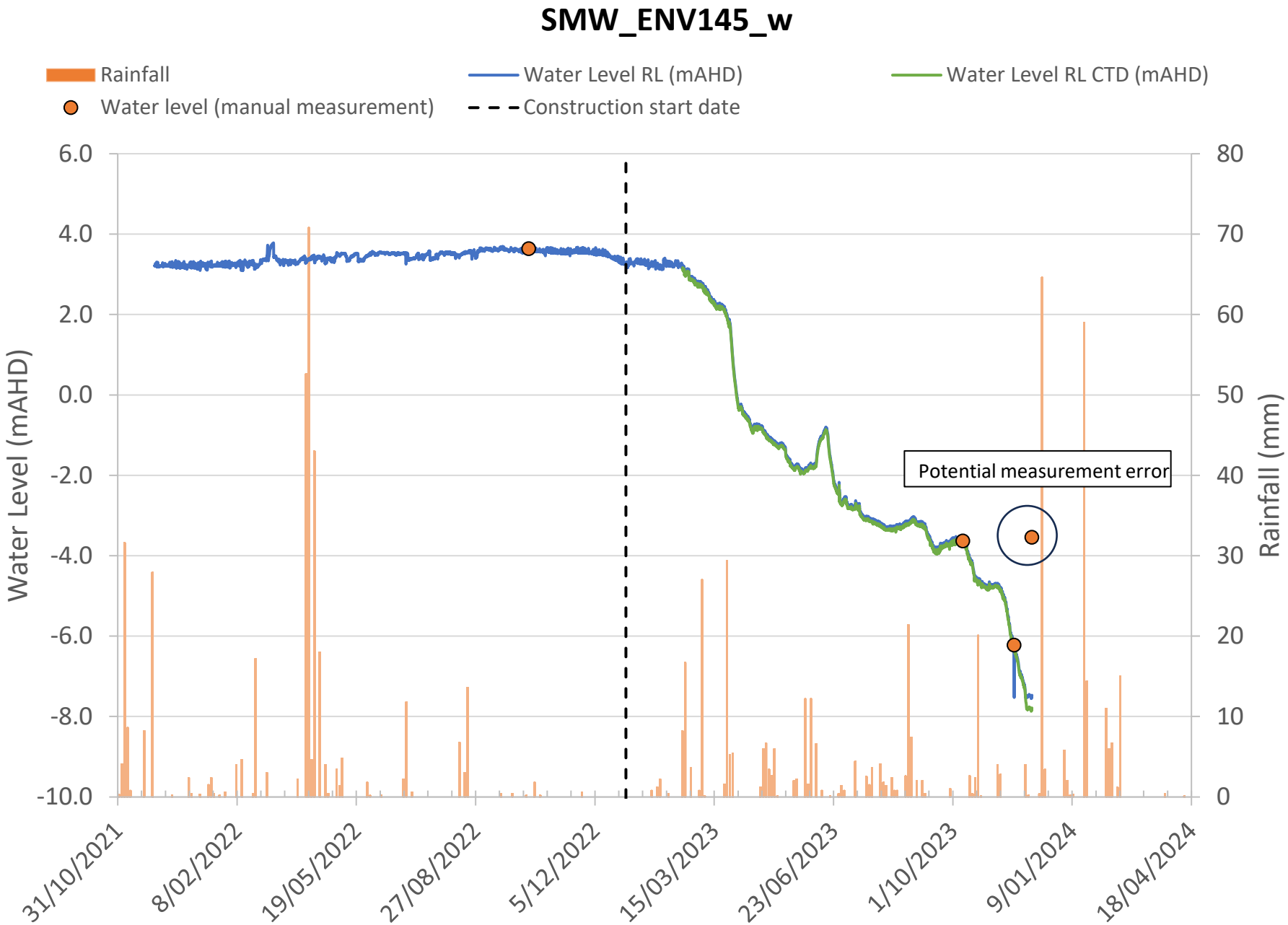


November 2023 Trigger monitoring

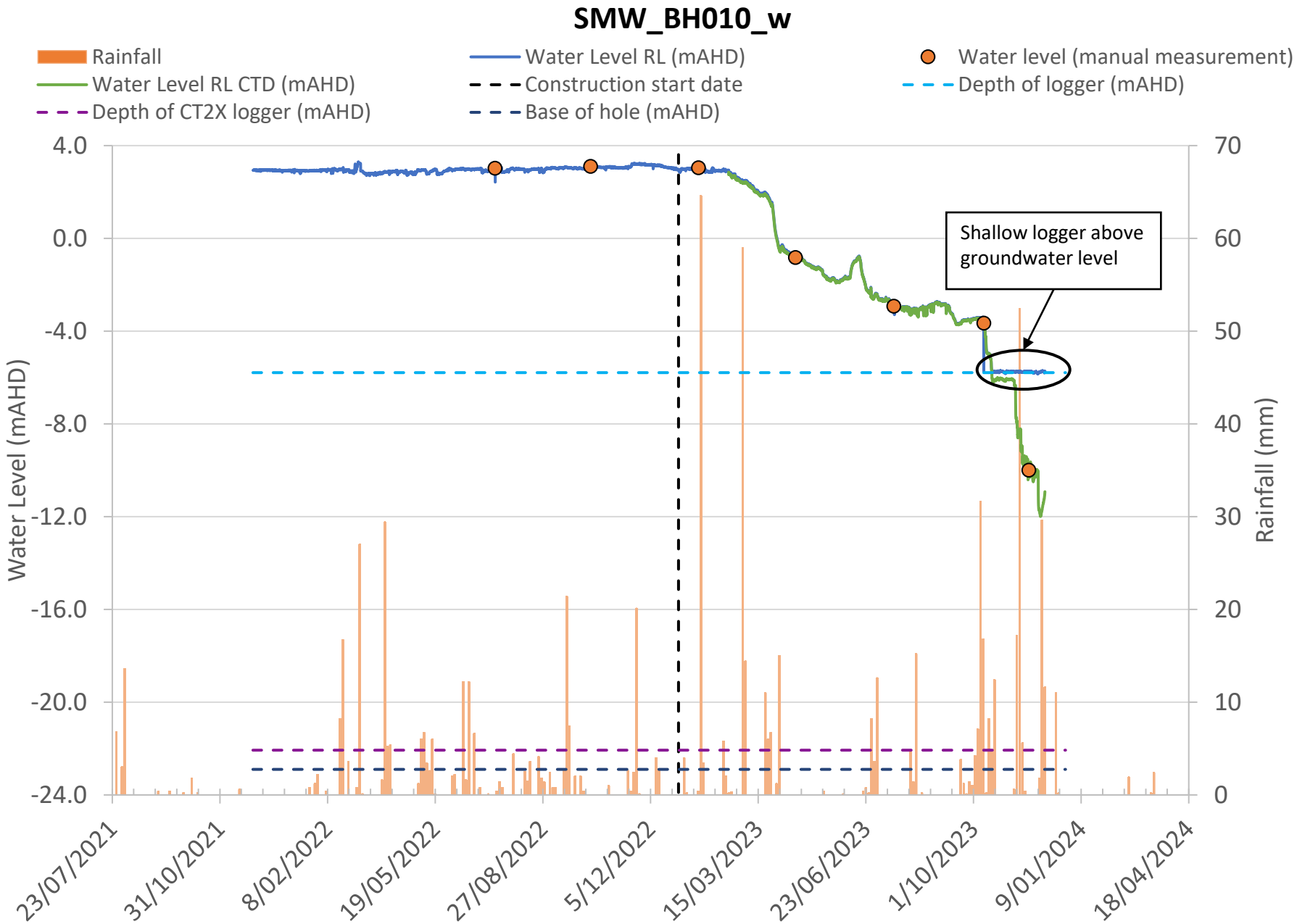
SMW_ENV042_w

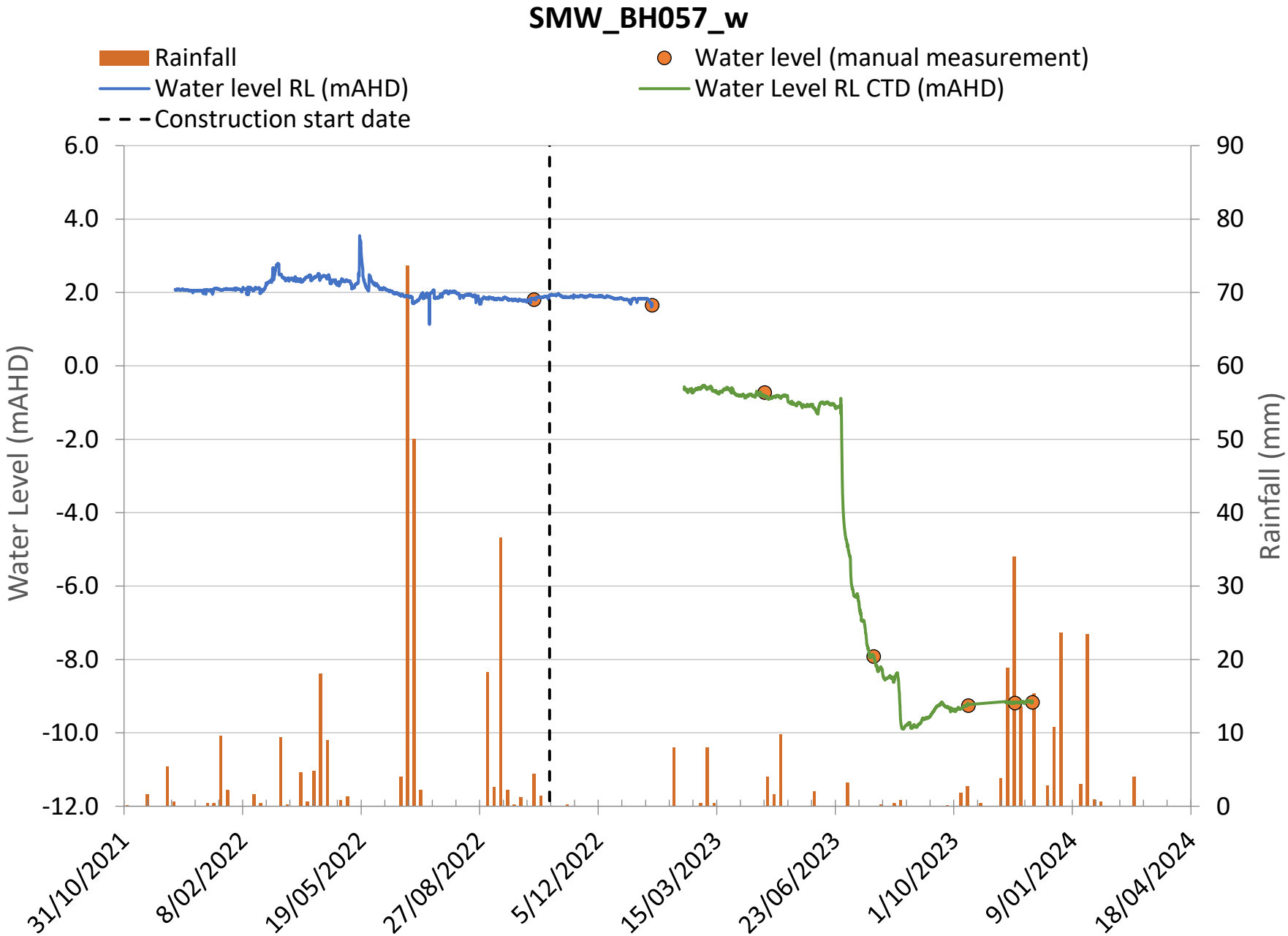


November 2023 Trigger monitoring

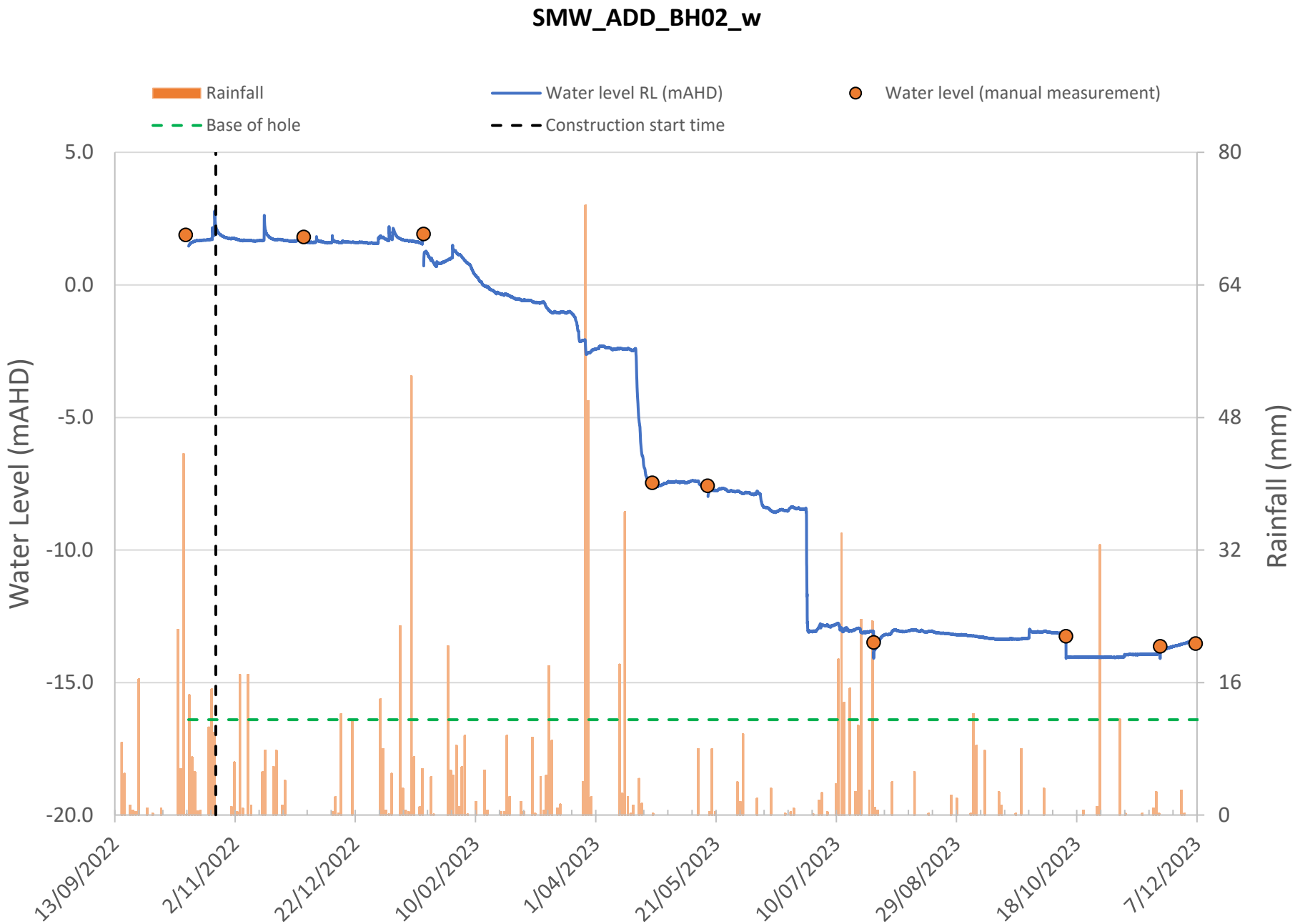


November 2023 Trigger monitoring




SMW_BH057_w
Rainfall
Water level (manual measurement)
Water level RL (mAHD)
Water Level RL CTD (mAHD)
Construction start date
Water Level (mAHD)
Rainfall (mm)
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
90
80
70
60
50
40
30
20
10
0
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024

November 2023 Trigger monitoring



APPENDIX D – FIELD DATA SHEETS

July 2023 monitoring event

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ADD_BH02
Job No:	SC210108.03	**Date:**	25/7/2023 11:57
Recorded By:	Joy X	**Lat / Long:**	-33.82249,151.02178
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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	Bailer
Water Level Depth (WL in m BTOC)	26.94	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	29.96	Well Diameter (mm)	50
Height of Standing Water Column (m)	3.02	Well Annulus (mm)	100
Discharge Water Disposal Method	-	-	-

FIELD PARAMETER MEASUREMENT

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			°C		
25/7	12:48			26.94	6.51	18,877	173.7	1.95	23.3		11.23	12.27	20.7	Slightly turbid	No
Other Observations															

WELL SAMPLING

Sampling Method:	Bailer	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ADD_BH02	-	-	-

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	Troll 100 baro cannot download troll400 levelogger rusty, hydrosleeves half filled.

PHOTOS (IF TAKEN)

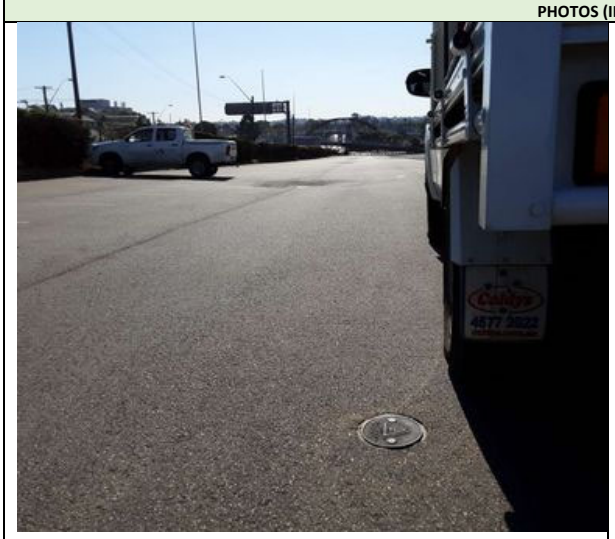


Photo1: Area

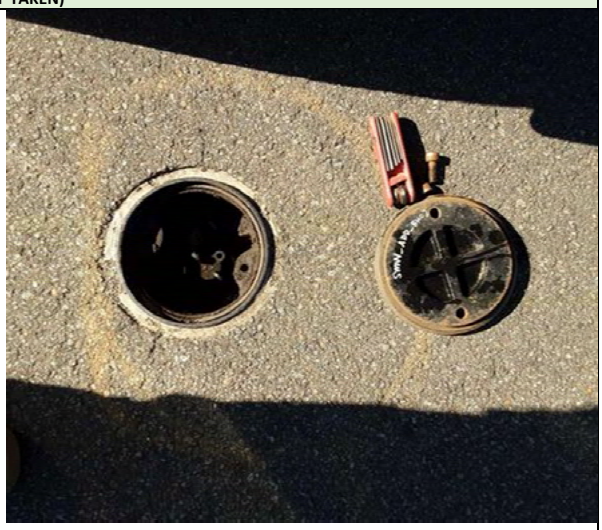


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV010
Job No:	SC210108.03	**Date:**	25/7/2023 10:54
Recorded By:	Joy X	**Lat / Long:**	-33.82004,151.02226
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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	Peristatic
Water Level Depth (WL in m BTOC)	2.482	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	7.01	Well Diameter (mm)	50
Height of Standing Water Column (m)	4.528	Well Annulus (mm)	100
Discharge Water Disposal Method	Drum		

FIELD PARAMETER MEASUREMENT

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			°C		
25/7	11:16	0.3		2.63	6.15	1,496	100.9	0.72	7.8		0.75	0.972	19.6	Cloudy	No
25/7	11:19	0.8	0	2.69	6.1	1,493	-104	0.53	5.9		0.75	0.969	20.4		
25/7	11:22	1	0.1	2.73	6.07	1,491	-107.2	0.64	7.2		0.75	0.969	20.9		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV010	-	-	-

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	Replace ENV009

PHOTOS (IF TAKEN)

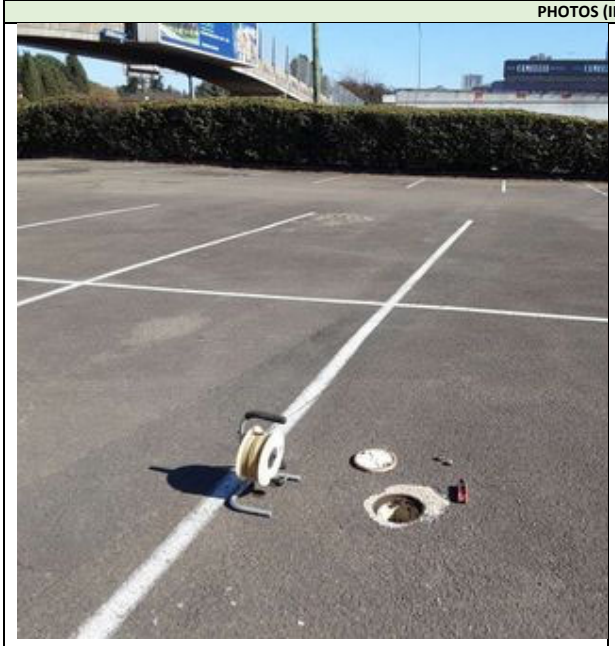


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV009_w
Job No:	SC210108.03	**Date:**	25/7/2023 10:52
Recorded By:	Joy X	**Lat / Long:**	-33.82016,151.02261
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	-	Well stick up (m): (above/below ground level)	
Well Material	-	Screen interval - Top (m BTOC)	
Well Head Condition	-	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	-	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	-	Well Diameter (mm)	50
Height of Standing Water Column (m)	-	Well Annulus (mm)	100
Discharge Water Disposal Method	-		

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment

Cannot open

PHOTOS (IF TAKEN)

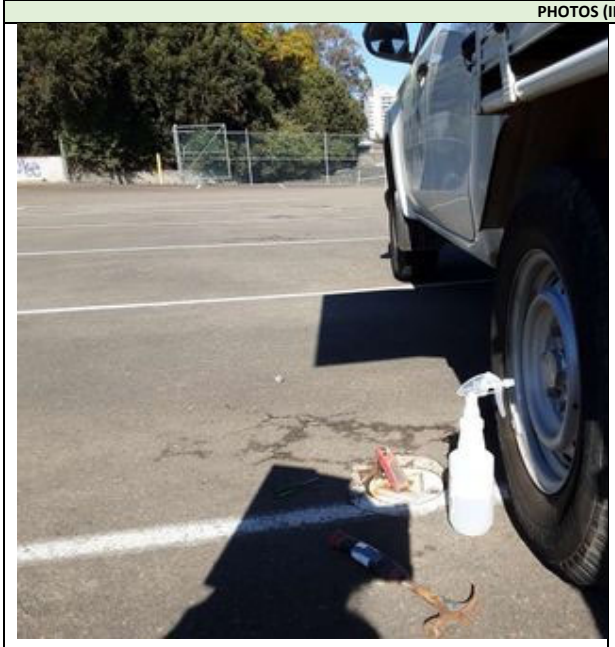


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_w
Job No:	SC210108.03	**Date:**	25/7/2023 10:07
Recorded By:	Joy X	**Lat / Long:**	-33.81981,151.02223
Weather:	Sunny		

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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	11.52	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	27.12	Well Diameter (mm)	50
Height of Standing Water Column (m)	15.6	Well Annulus (mm)	100
Discharge Water Disposal Method	-		

FIELD PARAMETER MEASUREMENT

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			°C		
Other Observations															

WELL SAMPLING

Sampling Method:	-	**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-
Analysis/Bottles	-			
Comment	CT2X logger			

PHOTOS (IF TAKEN)

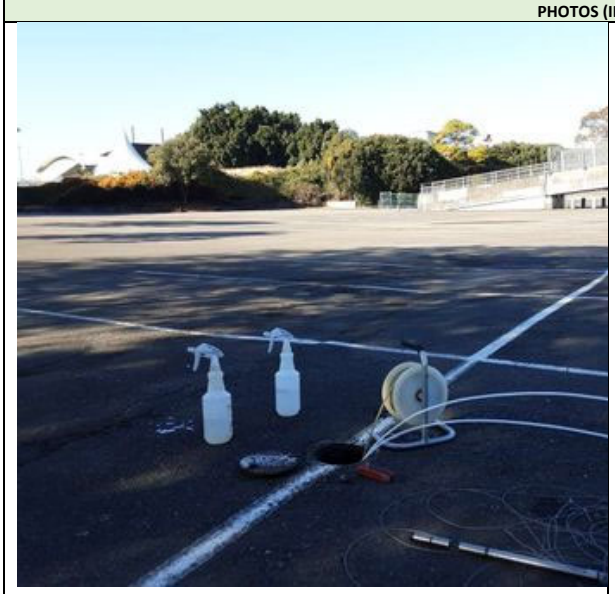


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_s
Job No:	SC210108.03	**Date:**	25/7/2023 09:38
Recorded By:	Joy X	**Lat / Long:**	-33.81976,151.02222
Weather:	Sunny		

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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	Peristatic
Water Level Depth (WL in m BTOC)	2.42	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	4.575	Well Diameter (mm)	50
Height of Standing Water Column (m)	2.155	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
25/7	09:49	0.8		2.42	6.28	980	143.5	0.59	6.2		0.48	0.633	17.5	Brown suspen sion	No
25/7	09:53	1	0.07	5.42	6.24	984	154.6	0.59	6.2		0.49	0.643	17.6		
25/7	09:56	1.3	0.15	2.42	6.22	990	157.8	0.63	6.6		0.49	0.644	17.7		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_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	Solinst logger

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_s
Job No:	SC210108.03	**Date:**	25/07/2023 07:02
Recorded By:	Joy X	**Lat / Long:**	-33.81318,151.00567
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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)	-	Method	Peristatic
Water Level Depth (WL in m BTOC)	5.01	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	11.25	Well Diameter (mm)	50
Height of Standing Water Column (m)	6.24	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
25/7	07:15	0.8		5.01	6.53	213.6	22.4	1.74	17.6		0.1	0.1382	16.4	Slight turbid	No
25/7	07:18	1.2	0.2	5.015	6.49	212	45.6	1.58	16.2		0.1	0.1379	16.8		
25/7	07:21	1.6	0.2	5.015	6.45	213.9	71	1.36	14.1		0.1	0.1394	17.2		
25/7	07:24	2	0.2	5.01	6.38	224	86.3	1.35	14		0.11	0.1468	17.1		
25/7	07:27	2.3	0.15	5.015	6.3	247	88.5	1.05	10.8		247.6	0.161	17		
25/7	07:30	2.5	0.1	5.01	6.21	252.4	86.6	0.85	8.8		0.12	0.1662	17		
25/7	07:33	2.8	0.15	5.01	6.14	322.7	92.4	0.6	6.2		0.15	0.1966	17.2		
25/7	07:36	3	0.07	5.01	6.09	397.5	106.8	0.52	5.4		0.17	0.2356	17.1		
25/7	07:39	3.2	0.1	5.01	6.04	400.4	115.8	0.4	4.2		0.19	0.2594	17.1		
25/7	07:42	3.5	0.15	5.015	6.03	404	118.7	0.44	4.6		0.2	0.2641	17.1		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH004_s	QC03	QC04	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	Solinst logger

PHOTOS (IF TAKEN)

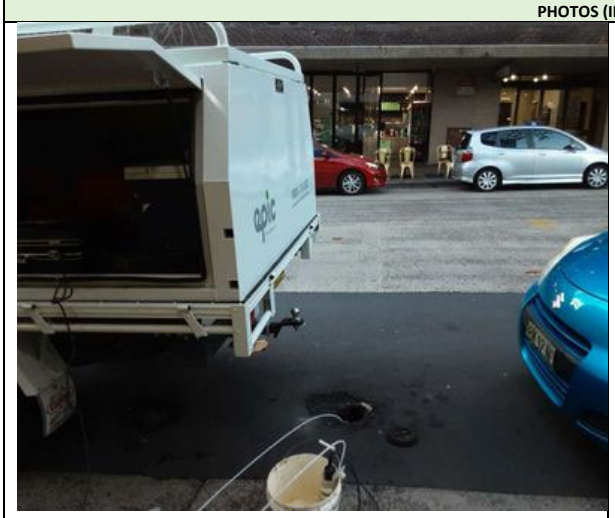


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_w
Job No:	SC210108.03	**Date:**	25/7/2023 06:45
Recorded By:	Joy X	**Lat / Long:**	-33.81311,151.00562
Weather:	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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	9.45	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	23.77	Well Diameter (mm)	50
Height of Standing Water Column (m)	14.32	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:	-	**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-

Analysis/Bottles	-
Comment	Solinst, CT2X loggers

PHOTOS (IF TAKEN)

Photo1: Area

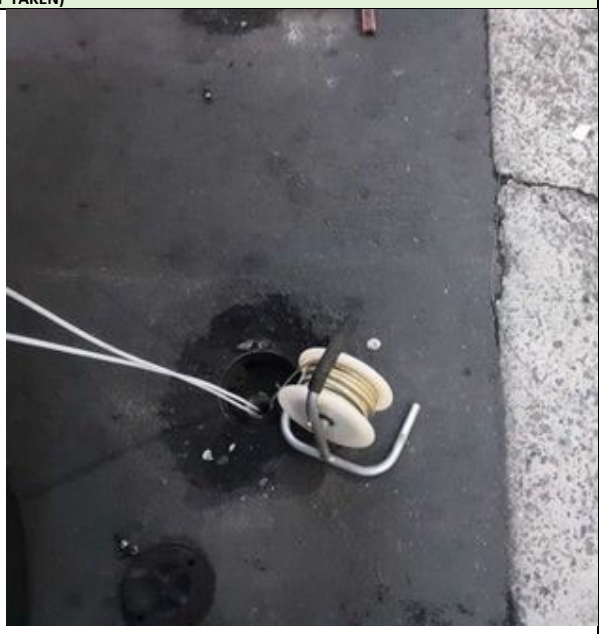


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW47
Job No:	SC210108.03	**Date:**	24/7/2023 15:29
Recorded By:	Joy X	**Lat / Long:**	-33.80859,150.98735
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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	10.31	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-	**Minimum Purge Volume Required**	
Total Depth of Well (TD in m BTOC)	15.67	Well Diameter (mm)	50
Height of Standing Water Column (m)	5.36	Well Annulus (mm)	100
Discharge Water Disposal Method	-	Minimum Purge Volume	56.28

FIELD PARAMETER MEASUREMENT

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			°C		
Other Observations															

WELL SAMPLING

Sampling Method:	-	**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-

Analysis/Bottles	-
Comment	Galc telemetry, with a baro(?, Inside big gatic cover) next to it.

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH008_w
Job No:	SC210108.03	**Date:**	24/7/2023 14:39
Recorded By:	Joy X	**Lat / Long:**	-33.80942,150.99094
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.16
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	5.35	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	17.165	Well Diameter (mm)	50
Height of Standing Water Column (m)	11.815	Well Annulus (mm)	100
Discharge Water Disposal Method	-		

FIELD PARAMETER MEASUREMENT

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			°C		
Other Observations															

WELL SAMPLING

Sampling Method:	-	**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-

Analysis/Bottles	-
Comment	Solinst logger stopped reading, saved data and reset logger

PHOTOS (IF TAKEN)

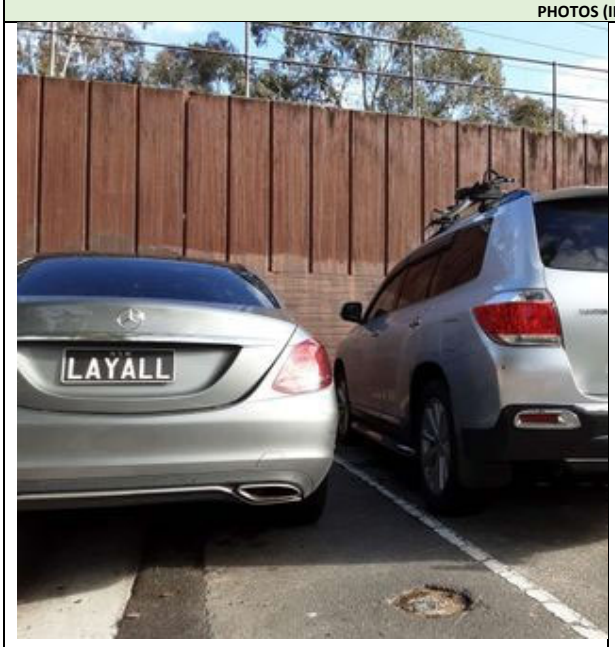


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW015
Job No:	SC210108.03	**Date:**	24/7/2023 12:35
Recorded By:	Joy X	**Lat / Long:**	-33.81378,151.00436
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.04
Well Material	PVC	Screen interval - Top (m BTOC)	-
Well Head Condition	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)	-	Method	Peristatic
Water Level Depth (WL in m BTOC)	5.11	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	9.98	Well Diameter (mm)	50
Height of Standing Water Column (m)	4.87	Well Annulus (mm)	100
Discharge Water Disposal Method	-		

FIELD PARAMETER MEASUREMENT

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			°C		
24/7	12:54	0.8		5.44	5.74	878	-87.4	0.32	3.5		0.43	0.57	19.3	Brown	No
24/7	12:58	1.2	0.13	5.62	5.69	835	-97.5	0.38	4.1		0.42	0.558	19.2		
24/7	13:01	1.5	0.15	5.7	5.66	828	-100.1	0.41	4.4		0.42	0.549	19.2		
24/7	13:04	1.8	0.1	5.79	5.65	820	-101	0.54	5.8		0.41	0.537	19.1		
Other Observations	White powder on interface probe, after dipping														

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-
Analysis/Bottles	-			
Comment	Clearer as purging, rotten egg smell			

PHOTOS (IF TAKEN)

Photo1: Area

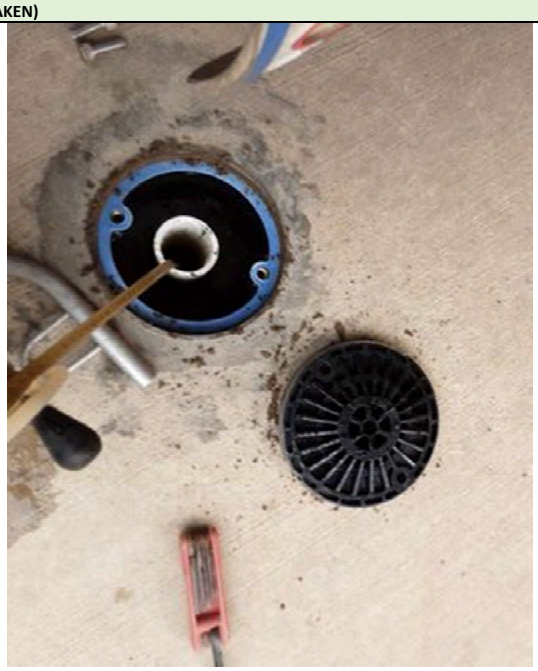


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW79
Job No:	SC210108.03	**Date:**	24/7/2023 12:23
Recorded By:	Joy X	**Lat / Long:**	-33.81394,151.00405
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		**Minimum Purge Volume Required**	
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method		Minimum Purge Volume	0

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Cannot find, outside the compound			

PHOTOS (IF TAKEN)

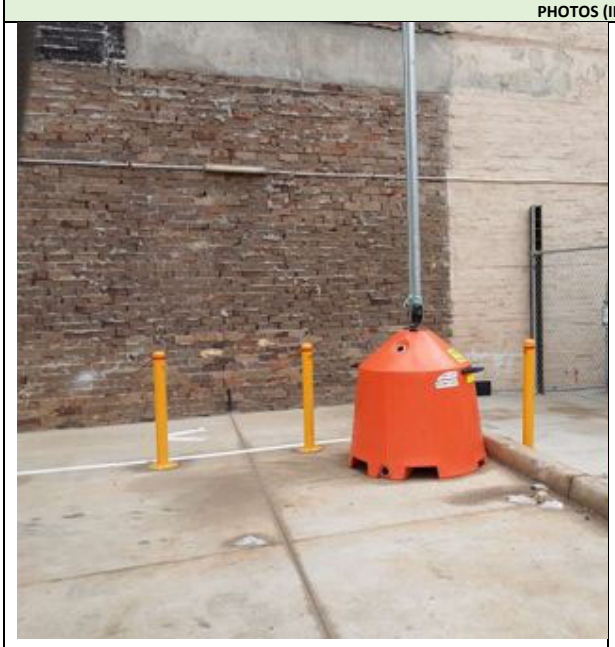


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW31
Job No:	SC210108.03	**Date:**	24/7/2023 12:11
Recorded By:	Joy X	**Lat / Long:**	-33.81423,151.0043
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	3.035	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		**Minimum Purge Volume Required**	
Total Depth of Well (TD in m BTOC)	33	Well Diameter (mm)	50
Height of Standing Water Column (m)	29.965	Well Annulus (mm)	100
Discharge Water Disposal Method		Minimum Purge Volume	314.634

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-

Analysis/Bottles	-
Comment	Galc telemetry, white powder from the interface probe

PHOTOS (IF TAKEN)

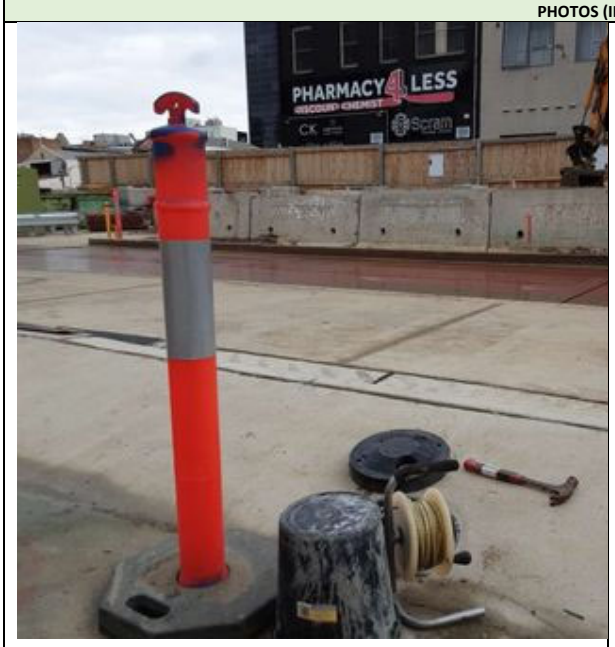


Photo1: Area

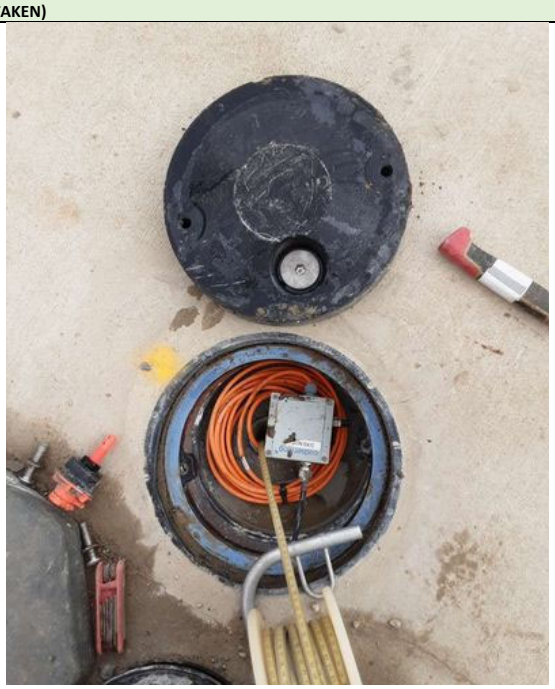


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW021
Job No:	SC210108.03	**Date:**	24/7/2023 11:59
Recorded By:	Joy X	**Lat / Long:**	-33.81404,151.0049
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	1.21	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	6.93	Well Diameter (mm)	50
Height of Standing Water Column (m)	5.72	Well Annulus (mm)	100
Discharge Water Disposal Method	-		

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment

Tubing inside

PHOTOS (IF TAKEN)

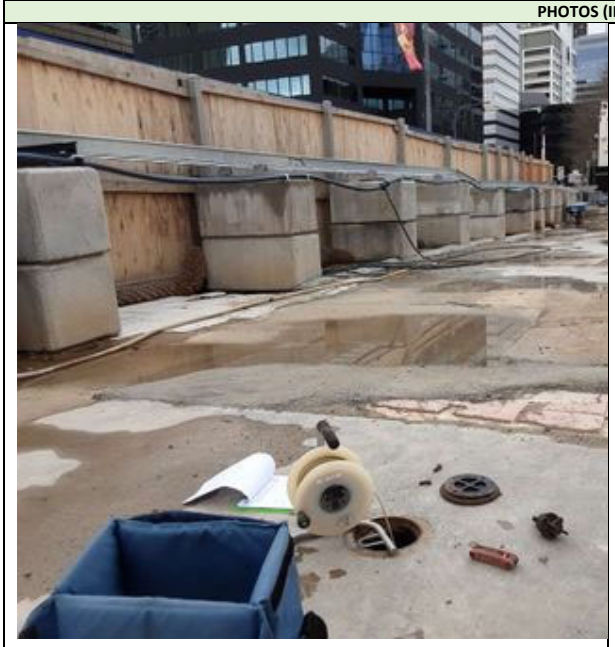


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW057
Job No:	SC210108.03	**Date:**	24/7/2023 11:54
Recorded By:	Joy X	**Lat / Long:**	-33.81409,151.00509
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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	1.06	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	4.9	Well Diameter (mm)	50
Height of Standing Water Column (m)	3.84	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment

Tubing inside

PHOTOS (IF TAKEN)

Photo1: Area

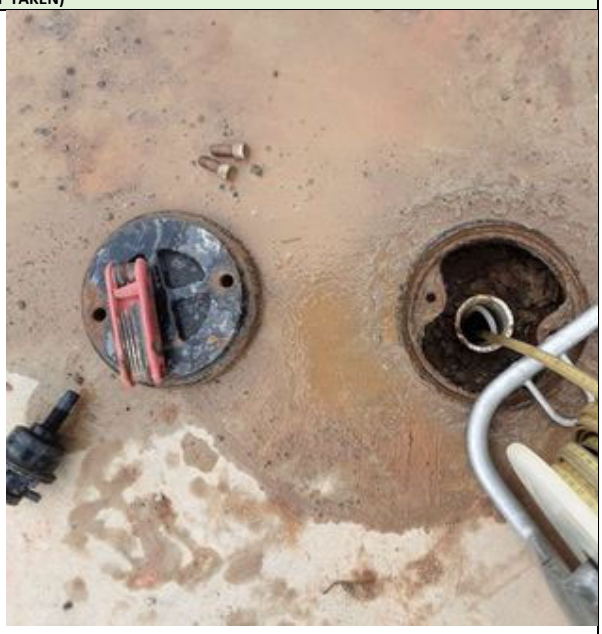


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW014
Job No:	SC210108.03	**Date:**	24/7/2023 10:38
Recorded By:	Joy X	**Lat / Long:**	-33.81515,151.00407
Weather:			

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	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.33	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	5.935	Well Diameter (mm)	50
Height of Standing Water Column (m)	0.605	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
24/7	10:47	0.3		5.4	6.5	894	54	3	32.1		0.43	0.568	18.7	Cloudy white	No
24/7	10:50	0.6	0.15	5.43	6.47	789	66.5	2.8	30.4		0.39	0.508	19.1		
24/7	10:53	1	0.2	5.45	6.43	722	76.8	2.67	29.2		0.35	0.469	19.5		
24/7	10:56	1.5	0.25	5.49	6.43	696	96	2.51	27.3		0.34	0.45	19.7		
24/7	10:59	1.8	0.15		6.41	676	98.3	2.25	24.8		0.33	0.44	20		
24/7	11:02	2	0.1	5.54	6.37	669	104.9	2	22.2		0.33	0.4347	20.3		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_MW014	-	-	-

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	Cannot close gatic and cap, gatic cover sunkened. SCOUT2X Level logger

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: PM_GDP_S
Job No:	SC210108.03	**Date:**	24/7/2023 10:18
Recorded By:	Joy X	**Lat / Long:**	-33.81437,151.0034
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Not accessible inside exclusion zones			

PHOTOS (IF TAKEN)

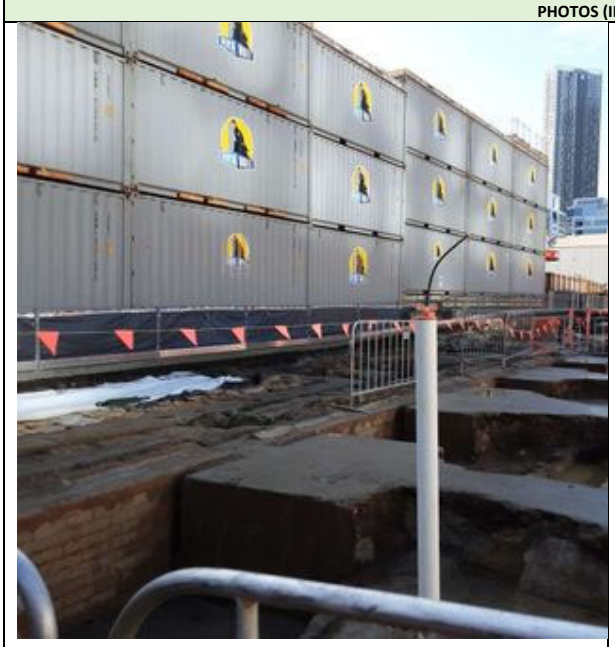


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: PM_GDP_N
Job No:	SC210108.03	**Date:**	24/7/2023 10:13
Recorded By:	Joy X	**Lat / Long:**	-33.81436,151.00339
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.23
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	7	Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
Other Observations															

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	No water,might be grout fillef?			

PHOTOS (IF TAKEN)

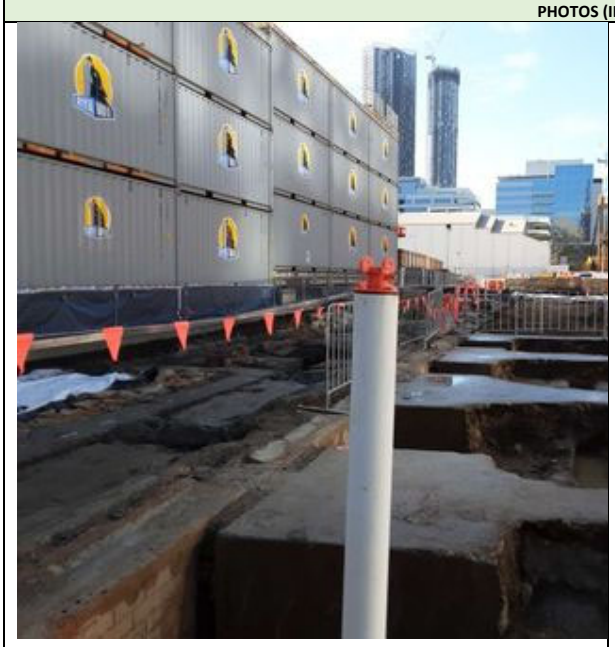


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW32
Job No:	SC210108.03	**Date:**	24/7/2023 10:12
Recorded By:	Joy X	**Lat / Long:**	-33.81433,151.00338
Weather:	Cloudy		

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		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	8.5	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	30.05	Well Diameter (mm)	50
Height of Standing Water Column (m)	21.55	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Galc telemetry,			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW33
Job No:	SC210108.03	**Date:**	24/7/2023 10:00
Recorded By:	Joy X	**Lat / Long:**	-33.81456,151.00327
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	1.14
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	8.96	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	33.32	Well Diameter (mm)	50
Height of Standing Water Column (m)	24.36	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles	
Comment	GALC-MW33 telemetry, rotten egg smell

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH002_w
Job No:	SC210108.03	**Date:**	24/7/2023 09:11
Recorded By:	Joy X	**Lat / Long:**	-33.81504,151.00568
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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	10.445	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	32.1	Well Diameter (mm)	50
Height of Standing Water Column (m)	21.655	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well flooded, water black colour, solinst logger stopped, full memory. Reset logger			

PHOTOS (IF TAKEN)

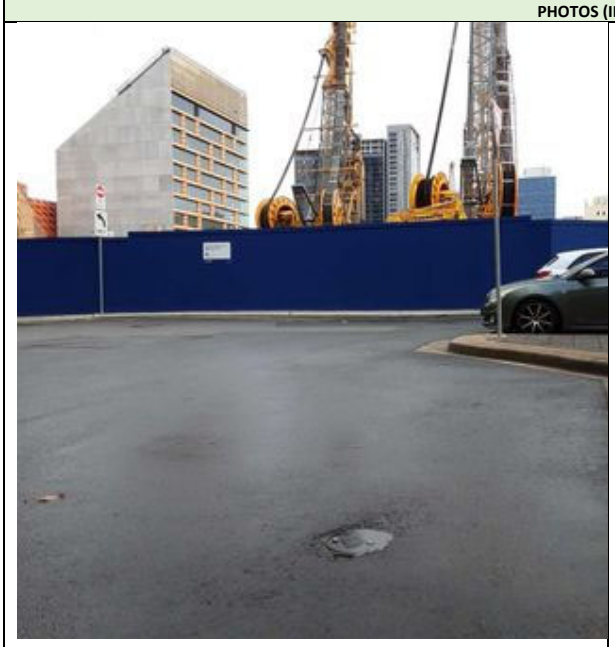


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH22_w
Job No:	SC210108.03	**Date:**	21/7/2023 13:12
Recorded By:	Joy X	**Lat / Long:**	-33.84221,151.0585
Weather:	Partly sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.16
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	1.69	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	24.915	Well Diameter (mm)	50
Height of Standing Water Column (m)	23.225	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment

Troll 100 unable to download

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH23
Job No:	SC210108.03	**Date:**	21/7/2023 12:32
Recorded By:	Joy X	**Lat / Long:**	-33.84362,151.06336
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	6.035	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	29.97	Well Diameter (mm)	50
Height of Standing Water Column (m)	23.935	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
Other Observations															

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	No logger only string. String tangled, so removed			

PHOTOS (IF TAKEN)

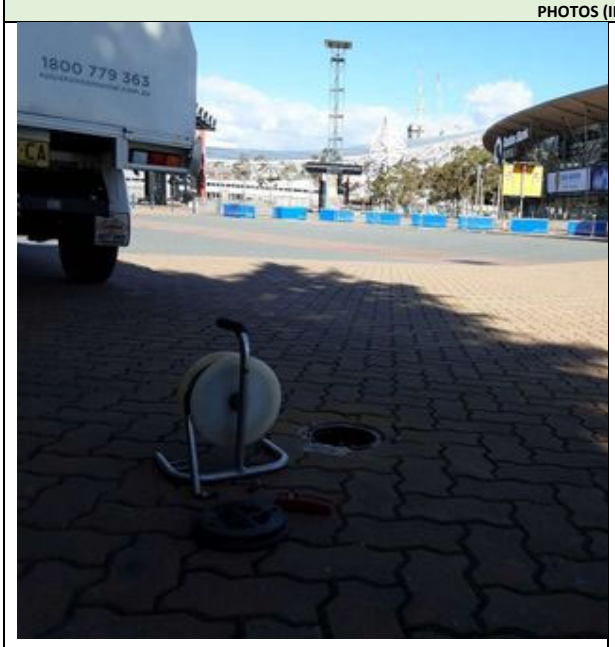


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH03A
Job No:	SC210108.03	**Date:**	21/7/2023 10:18
Recorded By:	Joy X	**Lat / Long:**	-33.80936,150.98976
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Bailer
Water Level Depth (WL in m BTOC)	7.255	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	21.86	Well Diameter (mm)	50
Height of Standing Water Column (m)	14.605	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
21/7	10:45			7.4	6.79	15,228	29.8	1.9	21.5		8.91	9.9	18.9	Black paticle suspension	No
Other Observations															

WELL SAMPLING

Sampling Method:	Bailer	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH03A			
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	Troll 400 level, one bolt missing			

PHOTOS (IF TAKEN)

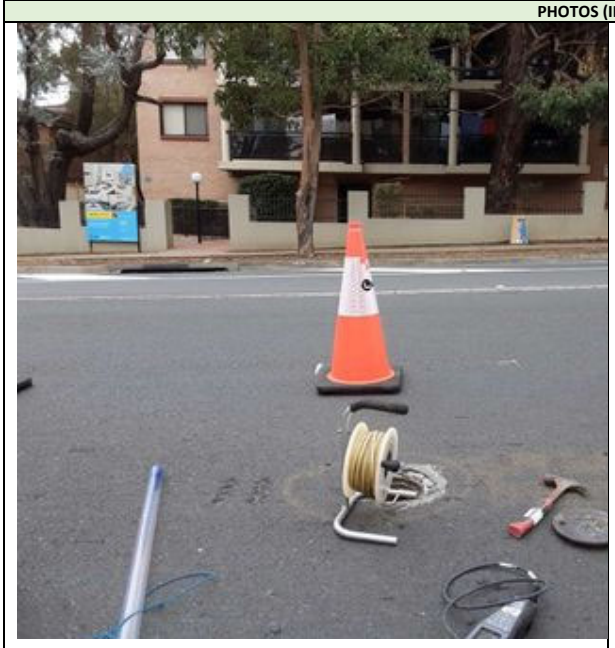


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH02
Job No:	SC210108.03	**Date:**	21/7/2023 09:08
Recorded By:	Joy X	**Lat / Long:**	-33.80846,150.98615
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Bailer
Water Level Depth (WL in m BTOC)	6.23	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	20.71	Well Diameter (mm)	50
Height of Standing Water Column (m)	14.48	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
21/7	09:38			7.56	6.97	13,303	-97.5	2.33	24.1		7.7	8.64	15.3	Grey cloudy	No
Other Observations															

WELL SAMPLING

Sampling Method:	Bailer	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH02			
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	Troll 400 level			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW38
Job No:	SC210108.03	**Date:**	21/7/2023 08:24
Recorded By:	Joy X	**Lat / Long:**	-33.80966,150.98854
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.5
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Fair	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	-
Water Level Depth (WL in m BTOC)	17.17	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	41	Well Diameter (mm)	50
Height of Standing Water Column (m)	23.83	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Telemetry, no loggers found			

PHOTOS (IF TAKEN)

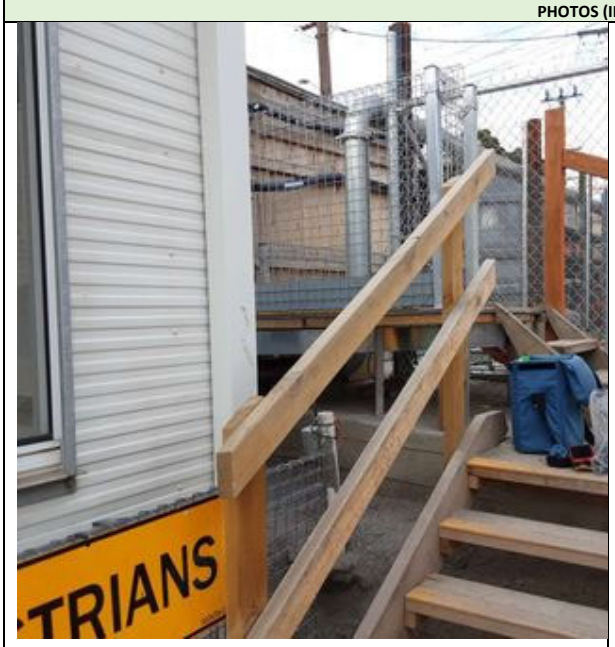


Photo1: Area

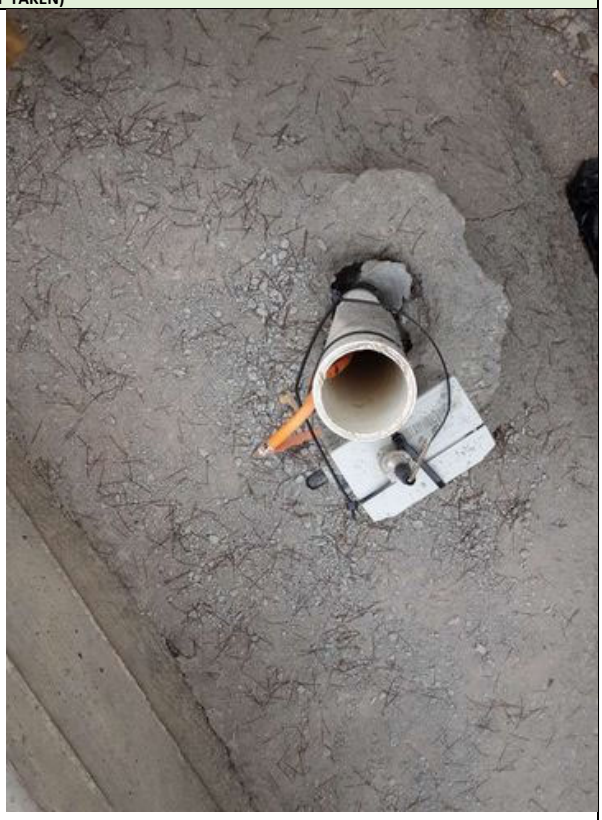


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW39
Job No:	SC210108.03	**Date:**	21/7/2023 08:11
Recorded By:	Joy X	**Lat / Long:**	-33.80925,150.98713
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles	
Comment	Under dirt

PHOTOS (IF TAKEN)

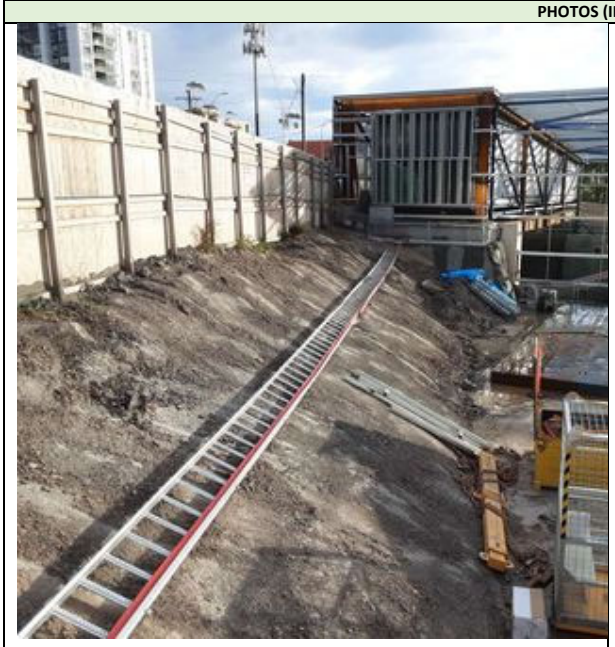


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW12
Job No:	SC210108.03	**Date:**	20/7/2023 14:30
Recorded By:	Joy X	**Lat / Long:**	-33.82995,151.02377
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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.755	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	10.45	Well Diameter (mm)	50
Height of Standing Water Column (m)	7.695	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
20/7	15:26			2.7											
20/7	15:30	0.4	0.1	2.89	5.89	15,235	-8.4	0.92	10.2		8.98	9.99	18.2	Cloudy white brown	No
20/7	15:33	0.8	0.2	5.01	5.87	15,798	4.9	0.6	6.8		9.27	10.27	18.3		
20/7	15:36	1	0.1	5.14	5.87	15,954	11.5	0.52	5.9		9.37	10.37	18.5		
20/7	15:40	1.3	0.1	5.24	5.86	15,987	11.7	0.8	9.1		9.39	10.39	18.4		
20/7	15:43	1.5	0.07	5.29	5.85	15,967	9.8	1.21	13.6		9.38	10.38	18.3		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	GALC-MW12			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	Logger missing, silty btm grey colour

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: GALC-MW18-b
Job No:	SC210108.03	**Date:**	20/7/2023 11:32
Recorded By:	Joy X	**Lat / Long:**	-33.82451,151.02191
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)	-	Method	-
Water Level Depth (WL in m BTOC)	10.953	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)	-		
Total Depth of Well (TD in m BTOC)	22.305	Well Diameter (mm)	50
Height of Standing Water Column (m)	11.352	Well Annulus (mm)	100
Discharge Water Disposal Method	-		

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:	-	**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-

Analysis/Bottles	-
Comment	GALC telemetry, silty btm grey silt

PHOTOS (IF TAKEN)

Photo1: Area

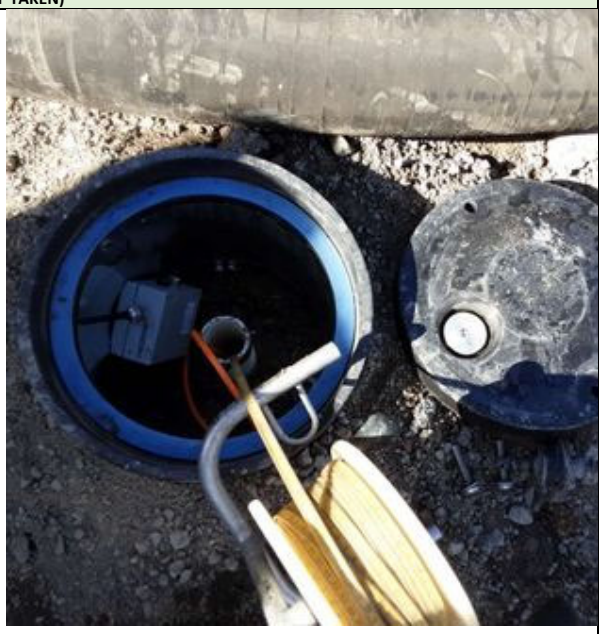


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	Other: GALC-MW16-a
Job No:	SC210108.03	**Date:**	20/7/2023 11:23
Recorded By:	Joy X	**Lat / Long:**	-33.82452,151.02196
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	Good	Screen interval - Bottom (m BTOC)	-

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	-
Water Level Depth (WL in m BTOC)	9.2	Pump Intake Depth (mBTOC)	-
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	1.535	Well Diameter (mm)	50
Height of Standing Water Column (m)	-7.665	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:	-	**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	-	-	-	-

Analysis/Bottles	-
Comment	Silty btm. GALC telemetry

PHOTOS (IF TAKEN)

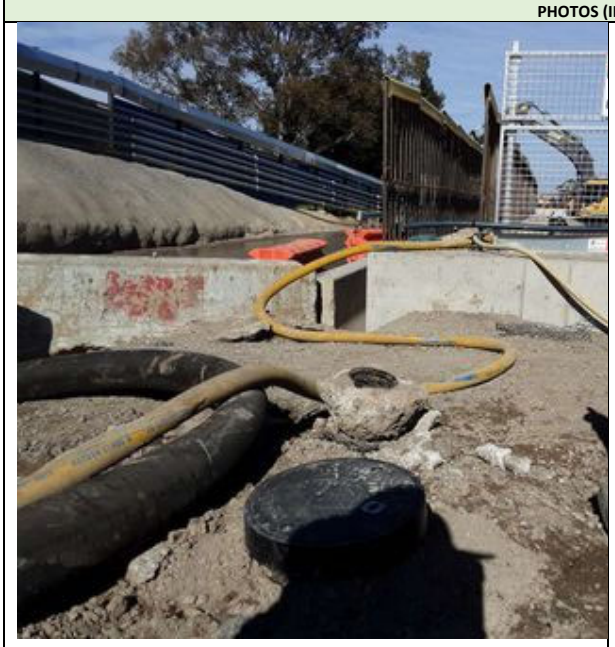


Photo1: Area

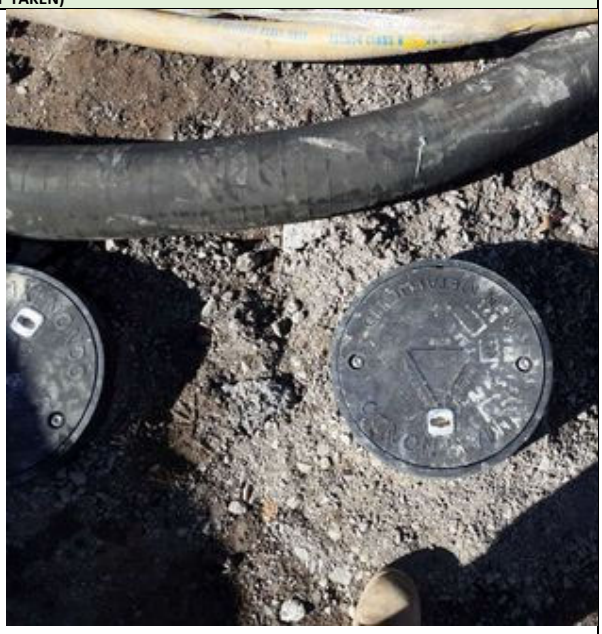


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW17
Job No:	SC210108.03	**Date:**	20/7/2023 10:59
Recorded By:	Joy X	**Lat / Long:**	-33.82413,151.0217
Weather:	Sunny		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	14.645	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	21.68	Well Diameter (mm)	50
Height of Standing Water Column (m)	7.035	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles	
Comment	Site smoking area, GALC Telemetry

PHOTOS (IF TAKEN)

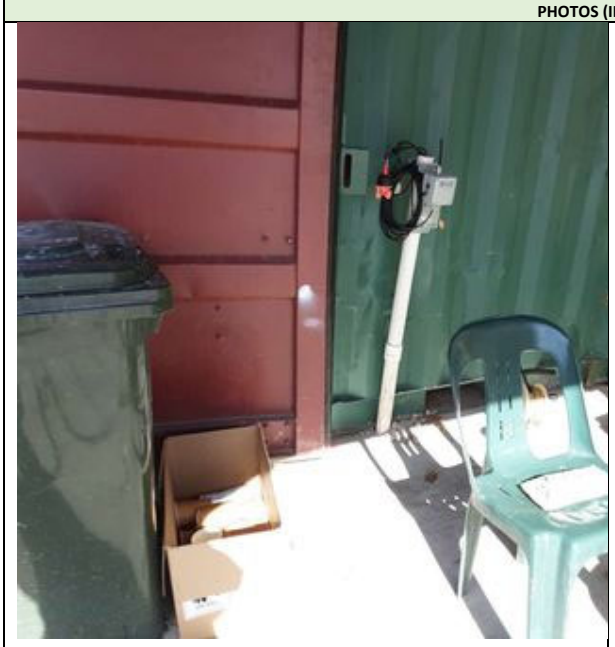


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW18
Job No:	SC210108.03	**Date:**	20/7/2023 10:06
Recorded By:	Joy X	**Lat / Long:**	-33.82568,151.02123
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.38
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
20/7	10:09	0.5			6.33	9,504	-112.7	0.36	3.8		5.36	6.18	17.6	Clear	No
20/7	10:12	1	0.17		6.33	9,441	-133.8	0.23	2.6		5.32	6.13	18.2		
20/7	10:15	1.5	0.25		6.32	9,480	-139.7	0.33	3.6		5.35	6.16	18.2		
20/7	10:20	1.8	0.06		6.3	9,400	-151.8	0.67	6.7		5.3	6.11	18.2		
20/7	10:23	2.4	0.3		6.3	9,515	-150	0.78	8.6		5.38	6.19	18.3		
20/7	10:26	2.8	0.2		6.29	9,505	-154.7	1.02	11.3		5.36	6.17	18.6		
20/7	10:29	3	0.07		6.3	9,471	-153.2	1.07	11.9		5.34	6.15	18.6		
20/7	10:32	3.2	0.1		6.29	9,452	-143.9	1.17	12.9		5.33	6.14	18.7		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Not able to dip due to bent PVC tubing, GALC telemetry			

PHOTOS (IF TAKEN)

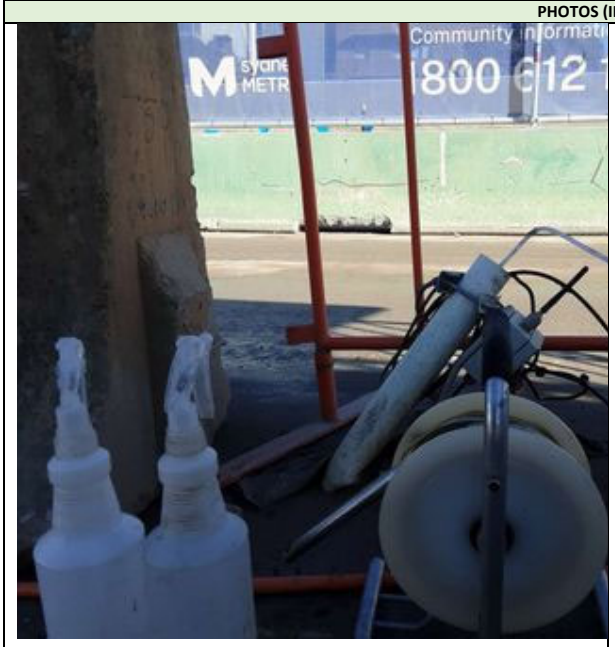


Photo1: Area

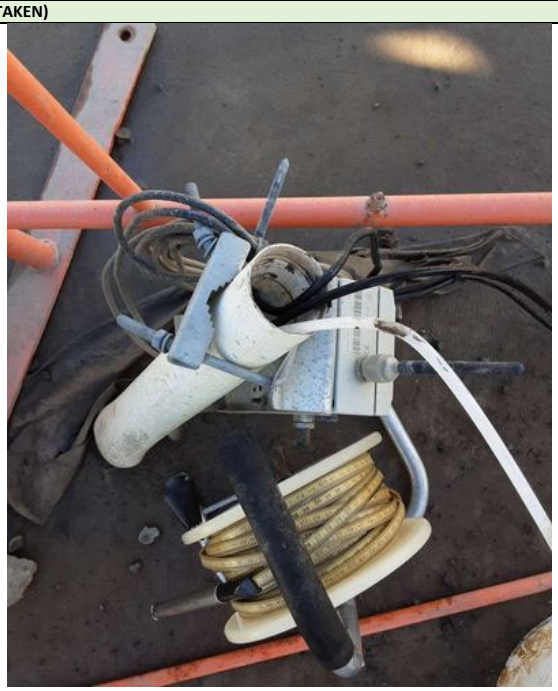


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH13_w
Job No:	SC210108.03	**Date:**	19/7/2023 15:50
Recorded By:	Joy X	**Lat / Long:**	-33.82721,151.02485
Weather:			

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	1.93	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	7.3	Well Diameter (mm)	50
Height of Standing Water Column (m)	5.37	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
19/7	15:56	0.5		2.06	6.13	11,517	-155	0.43	4.5		6.59	7.48	16.7	Slightly brown turbid	No
19/7	16:00	1	0.1	2.16	6.06	11,319	-163.5	0.44	4.7		6.47	7.35	16.8		
19/7	16:04	1.2	0.05	1.22	6.05	11,312	-164.9	0.44	4.6		6.46	7.35	16.6		
19/7	16:07	1.5	0.15	1.3	6.05	11,280	-165.2	0.42	4.5		6.45	7.33	16.6		
Other Observations			Rotten egg smell												

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	GALC telemetry			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV039
Job No:	SC210108.03	**Date:**	19/7/2023 13:54
Recorded By:	Joy X	**Lat / Long:**	-33.8269,151.02166
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.82	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	10.31	Well Diameter (mm)	50
Height of Standing Water Column (m)	4.49	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
19/7	14:05	0.5		5.99	6.27	28,166	138.6	0.53	6.2		17.4	18.32	19.6	Clear	No
19/7	14:09	1	0.17	6.06	6.24	27,906	127.7	0.38	4.7		17.21	18.13	20		
19/7	14:12	1.5	0.25	6.09	6.23	27,925	107.3	0.37	4.4		17.22	18.15	20.2		
19/7	14:17	1.8	0.06	6.14	6.21	28,841	104.6	0.41	5		17.88	18.78	19.7		
19/7	14:20	2	0.1	6.17	6.21	29,283	99.5	0.51	6.3		18.17	19.06	19.7		
Other Observations															

WELL SAMPLING

Sampling Method:		**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV039	QC01	QC01	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	SCOUT2X logger downloaded

PHOTOS (IF TAKEN)

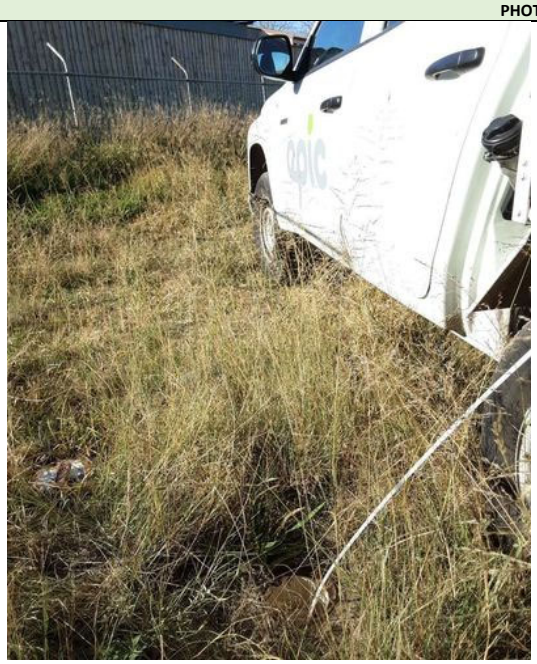


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH010
Job No:	SC210108.03	**Date:**	19/7/2023 11:49
Recorded By:	Joy X	**Lat / Long:**	-33.82977,151.02746
Weather:	S7n		

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	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	7.24	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	27.21	Well Diameter (mm)	50
Height of Standing Water Column (m)	19.97	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles	
Comment	No bolts, gatic cover cannot close. Bad condition. Solinst and CT2X logger data obtained

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV042
Job No:	SC210108.03	**Date:**	19/7/2023 11:17
Recorded By:	Joy X	**Lat / Long:**	-33.82978,151.02748
Weather:	Sunn6		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.74	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	10.295	Well Diameter (mm)	50
Height of Standing Water Column (m)	4.555	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
19/7	11:28	0.5		6.02	5.76	25,546	83.8	0.44	5		15.67	16.64	17.6	Slightly cloudy	No
19/7	11:31	0.8	0.15	6.14	5.75	25,958	86.6	0.51	5.9		15.91	16.87	17.9		
19/7	11:34	1.5	0.23	6.24	5.74	25,974	86.8	0.46	5.4		15.92	16.88	18		
Other Observations			Solinst logger												

WELL SAMPLING

Sampling Method:		**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV042			

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	Solinst logger downloaded

PHOTOS (IF TAKEN)

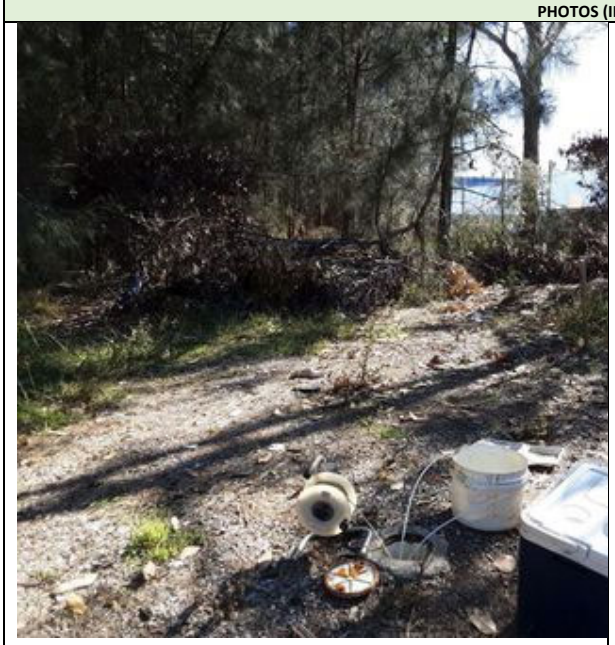


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW03
Job No:	SC210108.03	**Date:**	19/7/2023 10:04
Recorded By:	Joy X	**Lat / Long:**	-33.82832,151.02758
Weather:	Sunny cool		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	1.475	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	4.25	Well Diameter (mm)	50
Height of Standing Water Column (m)	2.775	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
19/7	10:12	0.5		1.62	5.93	9,678	-91.1	0.92	9.6		3.85	4.535	16.7	Pale brown cloudy	No
19/7	10:15	0.8	0.15	1.69	5.92	6,915	-48.3	0.77	8.1		3.81	4.495	17		
19/7	10:18	1	0.1	1.77	5.9	6,894	-19.1	0.61	6.5		3.8	4.48	17		
19/7	10:22	1.2	0.07	1.87	5.87	6,846	28.7	0.78	8.3		3.77	4.447	16.9		
19/7	10:25	1.5	0.15	1.95	5.86	6,778	35.6	0.96	10.2		3.73	4.405	17.1		
19/7	10:28	2	0.17	2.01	5.85	6,786	40.3	1.01	10.7		3.74	4.411	17		
Other Observations			Clearer as purging												

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

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

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW02
Job No:	SC210108.03	**Date:**	19/7/2023 09:17
Recorded By:	Joy X	**Lat / Long:**	-33.82875,151.02664
Weather:			

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	2.22	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	5.95	Well Diameter (mm)	50
Height of Standing Water Column (m)	3.73	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Flooded well			

PHOTOS (IF TAKEN)

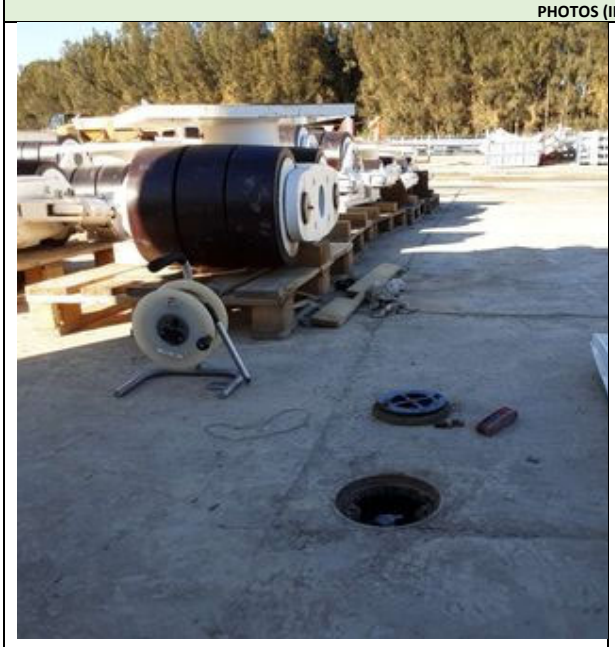


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW01
Job No:	SC210108.03	**Date:**	19/7/2023 08:42
Recorded By:	Joy X	**Lat / Long:**	-33.82832,151.02654
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	1.345	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	5.93	Well Diameter (mm)	50
Height of Standing Water Column (m)	4.585	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
19/7	08:53	0.5		1.55	5.94	15,244	151.8	0.77	8.3		8.92	9.91	15.6	Clear	No
19/7	08:56	1	0.25	1.69	6.02	14,645	149	1.03	11.1		8.52	9.49	16.5		
19/7	08:59	1.2	0.1	1.79	6.05	14,404	134.1	1.8	20.9		8.38	9.34	16.5		
19/7	09:02	1.5	0.15	1.89	6.06	14,107	131.9	2.23	23.1		8.17	9.13	16.6		
19/7	09:05	1.8	0.15	1.99	6.06	13,846	125.1	2.26	24.2		8.03	8.98	16.6		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ4e_MW01			
Analysis/Bottles				
Comment	Mud above cap			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV210_w
Job No:	SC210108.03	**Date:**	18/7/2023 16:40
Recorded By:	Joy X	**Lat / Long:**	-33.83275,151.0265
Weather:	Partly cloudy		

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	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	0.88	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	5.9	Well Diameter (mm)	50
Height of Standing Water Column (m)	5.02	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
18/7	16:47	0.5		1.05	5.8	25,272	181	0.3	3.4		15.48	16.46	19.2	Slightly turbid	No
18/7	16:51	0.8	0.1	1.21	5.75	24,704	183.1	0.88	10.5		15.03	16.01	19.5		
18/7	16:56	1.5	0.12	1.2	5.68	23,811	181.8	0.95	11.3		14.45	15.45	19.4		
18/7	16:59	1.8	0	1.2	5.67	23,551	180.6	1.12	13.3		14.28	15.29	19.3		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV210_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	No gatic cover tubing inside			

PHOTOS (IF TAKEN)

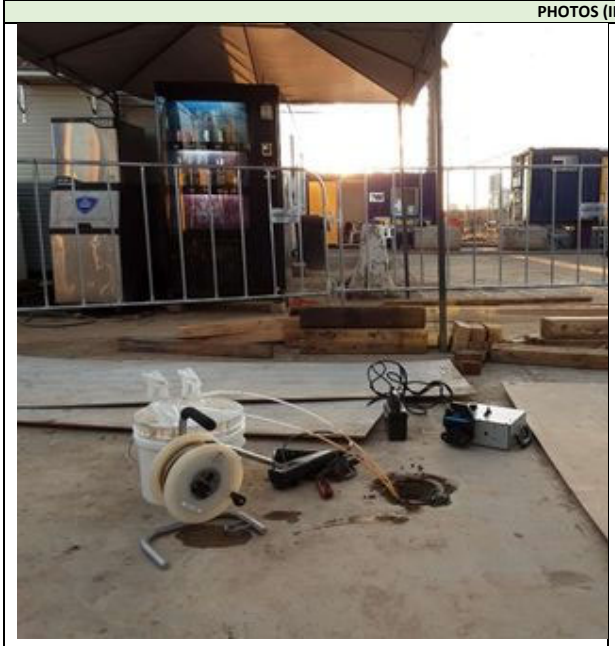


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5_MW16
Job No:	SC210108.03	**Date:**	18/7/2023 14:39
Recorded By:	Joy X	**Lat / Long:**	-33.83007,151.02367
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.07	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	5.9	Well Diameter (mm)	50
Height of Standing Water Column (m)	3.83	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
18/7	14:47	1		3.33	5.87	11,727	104	0.73	8.3		6.71	7.62	19.3	Slightly brownish cloudy	No
18/7	14:50	1.5	0.17	3.46	5.86	11,136	99.1	1.17	13.3		6.33	7.21	19.7		
18/7	14:53	1.8	0.15	3.55	5.87	10,593	98.2	1.98	22.6		5.98	6.84	19.8		
18/7	14:56	2	0.1	3.65	5.9	9,505	100	2.27	25.9		5.69	6.53	19.8		
18/7	14:59	2.3	0.15	3.73	5.94	9,240	101.3	2.39	27		5.32	6.14	19.8		
18/7	15:02	2.5	0.1	3.83	5.99	8,917	103.4	2.78	31.3		4.98	5.77	19.8		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ5_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	

PHOTOS (IF TAKEN)

Photo1: Area

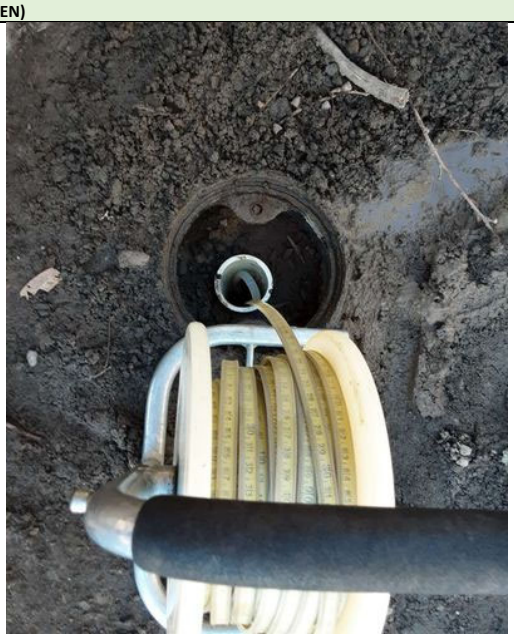


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV234_w
Job No:	SC210108.03	**Date:**	18/7/2023 14:11
Recorded By:	Joy X	**Lat / Long:**	-33.83155,151.02688
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
Other Observations															

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Cannot locate			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ1_BH13
Job No:	SC210108.03	**Date:**	18/7/2023 13:12
Recorded By:	Joy X	**Lat / Long:**	-33.83407,151.02819
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	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.855	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	9.67	Well Diameter (mm)	50
Height of Standing Water Column (m)	6.815	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
18/7	13:18	0.3		3.08	6.33	36,211	181	1.64	20.3		22.96	23.57	19.7	Clear	No
18/7	13:21	0.8	0.25	3.215	6.25	36,366	165	0.82	10.2		23.04	23.64	19.8		
18/7	13:24	1.2	0.13	3.35	6.19	36,442	148.8	0.93	11.8		23.09	23.69	19.9		
18/7	13:28	1.5	0.08	3.44	6.17	39,429	141.6	0.95	11.9		23.08	23.68	19.9		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

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	No gatic. PVC bent. RL reduced around PVC tubing, well stick up not acurate

PHOTOS (IF TAKEN)

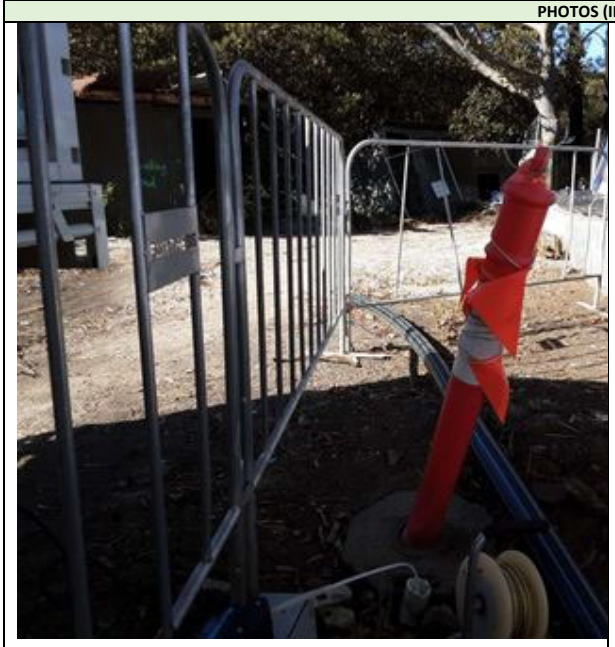


Photo1: Area

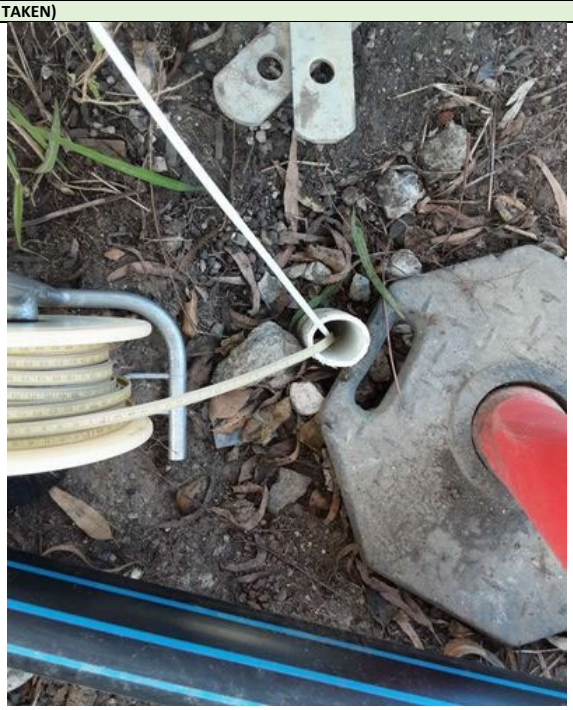


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV226
Job No:	SC210108.03	**Date:**	18/7/2023 12:37
Recorded By:	Joy X	**Lat / Long:**	-33.82806,151.02907
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Cannot open. Could be GALC-MW9			

PHOTOS (IF TAKEN)

Photo1: Area	**Photo 2: Bore condition**

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV264_s
Job No:	SC210108.03	**Date:**	18/7/2023 11:50
Recorded By:	Joy X	**Lat / Long:**	-33.83005,151.02515
Weather:			

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)		Well Diameter (mm)	50
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☐ Yes ☑ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Cannot open			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV264_w
Job No:	SC210108.03	**Date:**	18/7/2023 11:44
Recorded By:	Joy X	**Lat / Long:**	-33.83004,151.02517
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	-
Water Level Depth (WL in m BTOC)	2.095	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	6.1	Well Diameter (mm)	50
Height of Standing Water Column (m)	4.005	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Tubing inside, no bolts			

PHOTOS (IF TAKEN)

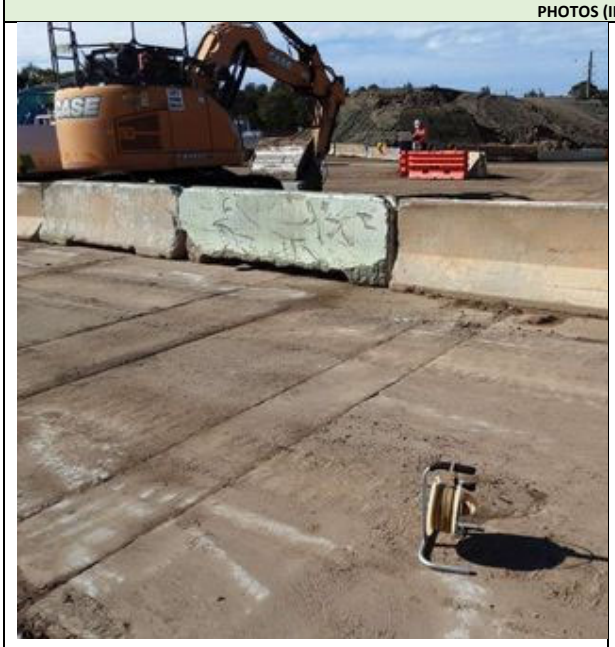


Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV227_w
Job No:	SC210108.03	**Date:**	18/7/2023 10:34
Recorded By:	Joy X	**Lat / Long:**	-33.82979,151.02546
Weather:	Cloudy		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.775	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	3.365	Well Diameter (mm)	50
Height of Standing Water Column (m)	0.59	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT

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			°C		
18/7	10:50	0.5		2.85	6.84	3,240	-55.8	0.66	6.8		1.7	2.104	17.7	Turbid cloudy grey	No
18/7	10:53	0.8	0.15	2.92	6.82	3,195	-69.8	0.26	2.6		1.67	2.071	18		
18/7	10:56	1.5	0.35	2.97	6.82	3,126	-75	0.3	3.1		1.64	2.028	18.2		
18/7	10:59	1.8	0.15	2.99	6.82	3,089	-83.9	0.35	3.9		1.62	2.004	18.2		
18/7	11:03	2	0.05	3.07	6.82	3,078	-91	0.39	4.3		1.62	2.011	18.4		
Other Observations															

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV227_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	ENV234 alternative. Broken bolts removed, no biolts now

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_s
Job No:	SC210108.03	**Date:**	18/7/2023 09:25
Recorded By:	Joy X	**Lat / Long:**	-33.8297,151.02568
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.85	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	5.69	Well Diameter (mm)	50
Height of Standing Water Column (m)	2.84	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT

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			°C		
18/7	09:37	1		2.98	7.13	3,211	-84.8	0.68	7.7		168	2.082	18.5	Slightly grey turbid	
18/7	09:41	1.3	0.08	3	7.12	3,194	-62.4	0.36	3.8		1.68	2.076	18.9		
18/7	09:49	2.5	0.17	3.07	7.12	3,154	-64.7	0.49	5.4		1.65	2.409	19		
18/7	09:56	3	0.08	3.07	7.11	3,136	-84.3	0.77	8.5		1.64	2.038	19.1		
18/7	09:59	3.3	0.1	3.08	7.11	3,134	-92.8	0.81	8.9		1.65	2.044	19.2		
18/7	10:02	3.6	0.15	3.08	7.1	3,146	-97.1	0.86	9.4		1.65	2.045	19.2		
Other Observations			Salinity ppt, tds g/l												

WELL SAMPLING

Sampling Method:	Peristatic	**Sampled ?**	☑ Yes ☐ No
		Gauged	☑ Yes ☐ No

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	Grey silty btm. Bolts missing

PHOTOS (IF TAKEN)

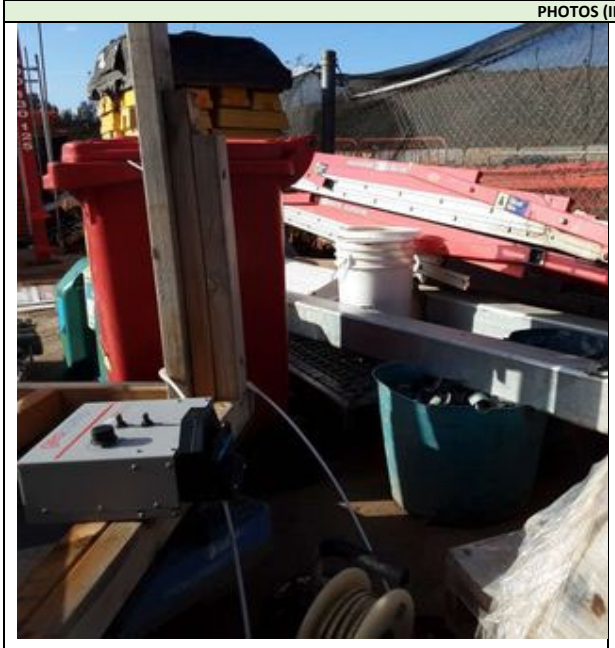


Photo1: Area

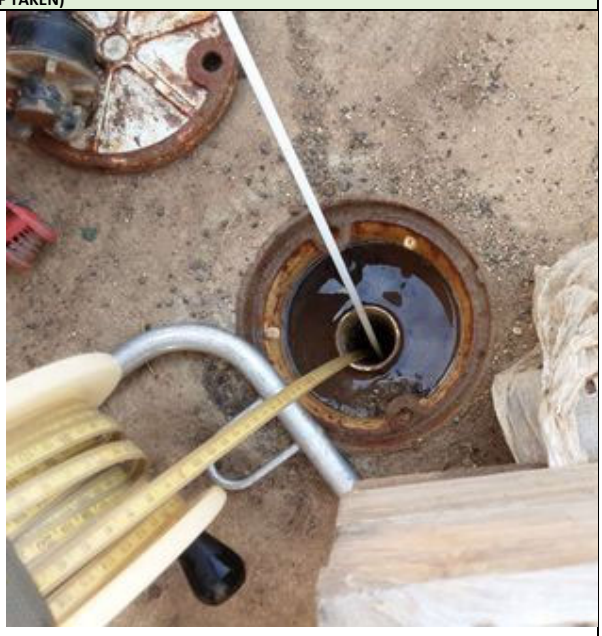


Photo 2: Bore condition

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 4 - July

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25
Job No:	SC210108.03	**Date:**	18/7/2023 09:01
Recorded By:	Joy X	**Lat / Long:**	-33.82967,151.02561
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	-
Water Level Depth (WL in m BTOC)	6.66	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)			
Total Depth of Well (TD in m BTOC)	10.13	Well Diameter (mm)	50
Height of Standing Water Column (m)	3.47	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums-0.12		

FIELD PARAMETER MEASUREMENT

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			°C		

Other Observations	

WELL SAMPLING

Sampling Method:		**Sampled ?**	☐ Yes ☑ No
		Gauged	☑ Yes ☐ No

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well semi flooded, troll 400 logger read			

PHOTOS (IF TAKEN)

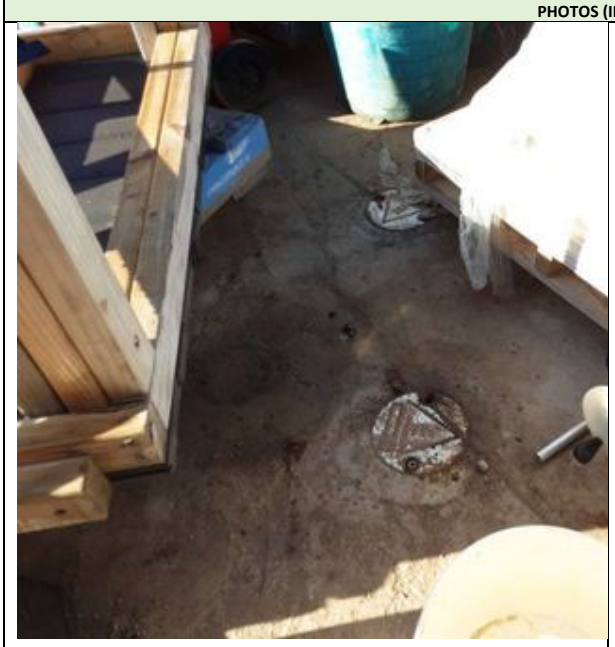


Photo1: Area

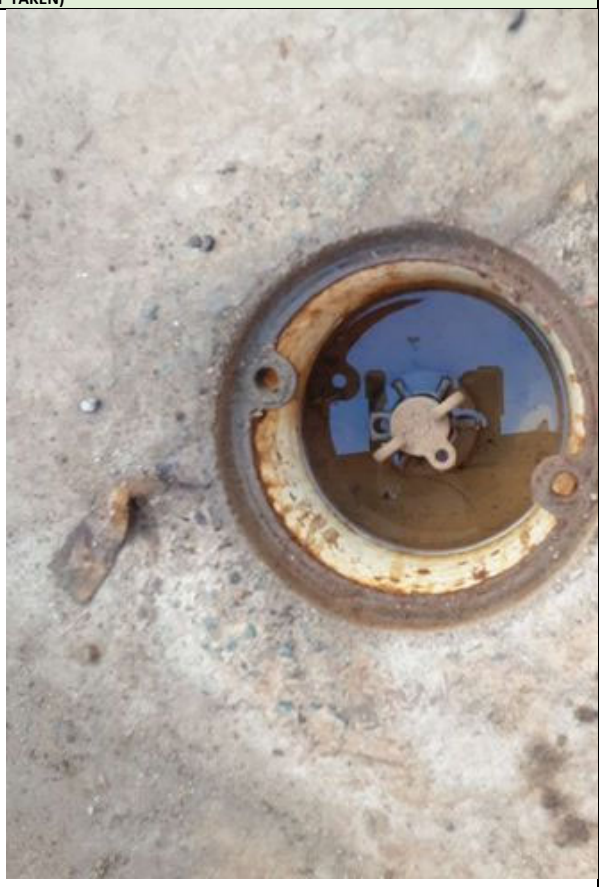


Photo 2: Bore condition

October 2023 monitoring event

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ1_BH13
Job No:	SC210108.03	**Date:**	6/10/2023 08:03
Recorded By:	Joy X	**Lat / Long:**	-33.83414,151.02821
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	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.555	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	9.665		
Height of Standing Water Column (m)	7.11	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
6/10	08:13	0.5		2.82	6.9	5,978	-62.2	3.19	36.6			322	16.3	Brownish	No
6/10	08:17	0.8	0.1	3	7.07	4,699	-60.2	3.4	36			3,039	16.4		
6/10	08:22	1.2	0.08	3.16	7.12	4,563	-54.9	3.6	40.2			2,967	16.5		
6/10	08:26	1.6	0.1	3.3	7.11	4,574	-53.9	3.55	35.6			2,974	16.6		
Other Observations	No well cap. No gatic cover. Slightly turbid, tds in mg/l														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

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	

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW01
Job No:	SC210108.03	**Date:**	9/10/2023 11:03
Recorded By:	Joy X	**Lat / Long:**	-33.82817,151.02398
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well covered by concrete			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW02
Job No:	SC210108.03	**Date:**	9/10/2023 10:14
Recorded By:	Joy X	**Lat / Long:**	-33.82871,151.02664
Weather:			

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.058	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	5.95		
Height of Standing Water Column (m)	3.892	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
9/10	10:23	0.3		2.195	5.37	22,172	-45.9	0.44	4.9			14,415	17.5	Clear	No
9/10	10:30	1.2	0.13	2.535	5.01	21,614	-81.9	1.28	14.7			14,020	17.6		
9/10	10:30	1.5		2.725	4.98	20,935	-81.2	2.2	24.9			13,602	17.6		
9/10	10:36	1.8	0.06	2.8	4.97	20,668	-86.2	2.45	27.7			13,420	17.6		
Other Observations			Semi flooded												

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

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	

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ4e_MW03
Job No:	SC210108.03	**Date:**	9/10/2023 08:15
Recorded By:	Joy X	**Lat / Long:**	-33.82819,151.02764
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	1.02	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	4.355		
Height of Standing Water Column (m)	3.335	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
9/10	08:22	0.3		1.185	5.59	6,306	-1.5	0.74	8			4,102	17.3	Clear	No
9/10	08:25	0.8	0.25	1.35	5.54	6,284	22.4	1.19	12.9			4,080	17.6		
9/10	08:28	1.3	0	1.55	5.54	6,261	39.3	2.35	25.4			4,070	18		
9/10	08:33	1.8	0.13	1.59	5.54	6,269	47.5	2.78	30			4,072	17.9		
9/10	08:36	2.2	0	1.635	5.53	6,228	52.2	2.93	31.7			4,047	18		
9/10	08:39	2	-0.1	1.73	5.53	5,950	62.7	3.19	34.5			3,977	18.2		
9/10	08:43	2.5	0.17	1.815	5.54	5,900	72.8	3.35	36.2			3,866	18.2		
9/10	08:46	3.5	0.5	1.915	5.54	5,671	91.5	3.75	40.7			3,667	18.2		
9/10	08:49	3.8	0	1.95	5.54	5,419	-11.3	3.57	38.6			3,537	18.2		
9/10	08:52	4	0.1	2.05	5.54	5,497	-5.8	3.45	37.1			3,572	18.2		
9/10	08:55	4.3	0	1.09	5.54	5,436	-1.1	3.75	40.8			3,531	18.3		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ4e_MW03	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)

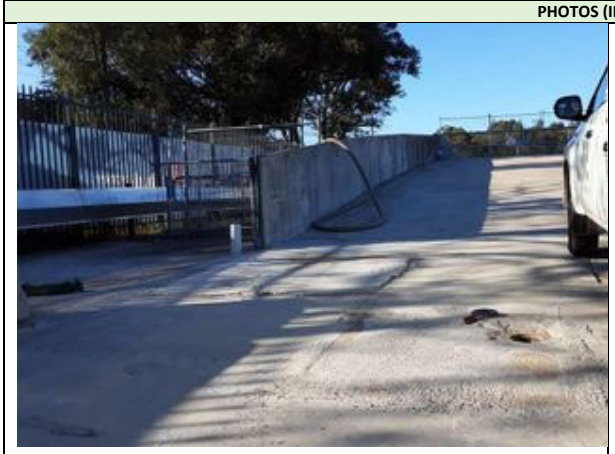


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5_MW09
Job No:	SC210108.03	**Date:**	9/10/2023 16:37
Recorded By:	Joy X	**Lat / Long:**	-33.83182,151.02254
Weather:			

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.6
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	1	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	4.95		
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
9/10	17:16	0.5		1.08	5.71	10,770	-10.4	0.46	5			7,002	19.3	Slightly turbid	No
9/10	17:20	1	0	1.275	5.72	10,742	-9.5	1.06	12.1			6,979	19.3		
9/10	17:23	1.8	0.4	1.3	5.74	10,723	-7.6	2.12	23.9			6,970	19.5		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ5_MW09			

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)

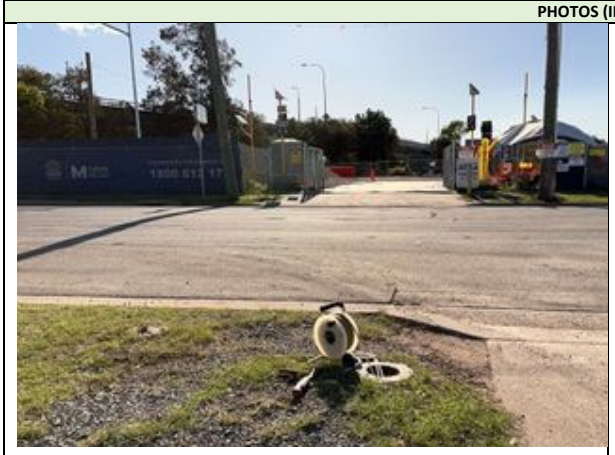


Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	CZ5_MW16
Job No:	SC210108.03	**Date:**	6/10/2023 12:29
Recorded By:	Joy X	**Lat / Long:**	-33.82969,151.02369
Weather:	Cloudy		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Other
Water Level Depth (WL in m BTOC)	1.08	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	5.9		
Height of Standing Water Column (m)	4.82	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
6/10	12:35	0.3		1.98	5.63	10,365	32.8	0.6	6.4			6,743	17.6	Clear	No
6/10	12:39	0.8	0.17	2.17	5.64	10,399	22.2	0.49	5.4			6,761	17.6	Clear	No
6/10	12:43	1.1	0.08	2.48	6.01	9,970	5.8	1.3	14.3			6,447	17.6		
6/10	12:48	1.5	0.08	2.57	6.01	7,189	21.4	1.92	21			6,736	17.7		
6/10	12:55	2.5	0.17	2.67	6.01	7,018	21.7	3.24	34.9			4,949	17.6		
6/10	13:02	3.5	0	2.77	6.08	6,828	22	4.14	44.4			4,357	17.6		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Other

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	CZ5_MW16			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

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW12
Job No:	SC210108.03	**Date:**	6/10/2023 16:26
Recorded By:	Joy X	**Lat / Long:**	-33.82986,151.02377
Weather:	Raining		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	2.56	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	10.4		
Height of Standing Water Column (m)	7.84	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
10/10	15:12	0.8		2.795	6.02	15,373	-169.8	0.49	5.2			10,057	17.3	Turbid brown	No
10/10	15:16	1.2	0.1	2.945	6.14	10,660	-137.5	1.19	13.1			7,570	17.4		
10/10	15:19	1.6	0.2	3.04	6.17	10,522	-138.5	1.89	20.6			6,881	17.5		
10/10	15:22	2.1	0.25	3.14	6.18	10,221	-138.4	2.73	29.8			6,657	17.6		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	GALC-MW12			

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 btm dark grey

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW16_s
Job No:	SC210108.03	**Date:**	10/10/2023 11:05
Recorded By:	Joy X	**Lat / Long:**	-33.82454,151.02184
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	11.22		
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Dry well, sampled MW16-b instead			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW16_w
Job No:	SC210108.03	**Date:**	10/10/2023 11:17
Recorded By:	Joy X	**Lat / Long:**	-33.82452,151.02194
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		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Bailer
Water Level Depth (WL in m BTOC)	11.385	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	19.575		
Height of Standing Water Column (m)	8.19	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
10/10	12:03	3		11.48	7.37	3,170	-247.1	1.23	13.9			2,061	20.7	Turbidgrey	Sulphric
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	Other			

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	Rotten egg smell

PHOTOS (IF TAKEN)

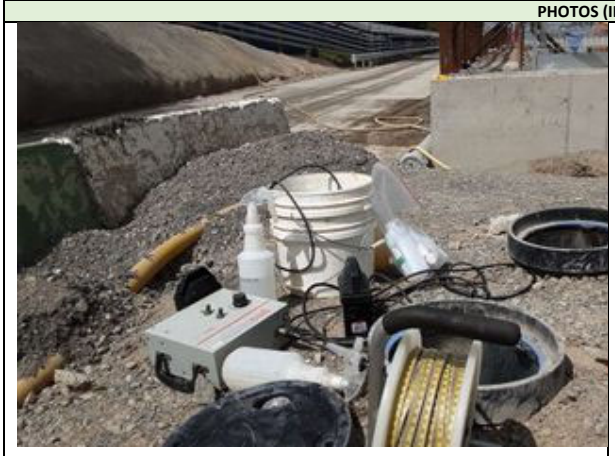


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW17
Job No:	SC210108.03	**Date:**	10/10/2023 09:43
Recorded By:	Joy X	**Lat / Long:**	-33.82415,151.02165
Weather:	Cloudy		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	14.94	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	21.7		
Height of Standing Water Column (m)	6.76	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Galc			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW18
Job No:	SC210108.03	**Date:**	10/10/2023 09:02
Recorded By:	Joy X	**Lat / Long:**	-33.82564,151.0211
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.34
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
10/10	09:04	0.4			6.04	8,824	-235	0.4	4.2			5,732	17.2	No	Sulphric
10/10	09:07	0.8	0.2		6.02	8,794	-239.5	0.49	5.4			5,716	17.3		
10/10	09:10	1.2	0.2		6.02	8,789	-242.4	1	10.9			5,711	17.3		
Other Observations	stickup vertically: 0.34m, length: 0.42m														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	Peristatic

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	Bent tubing, cannot dip. GALC telemetry attached

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW26
Job No:	SC210108.03	**Date:**	12/10/2023 07:49
Recorded By:	Natalie C	**Lat / Long:**	-33.81514,151.00543
Weather:	Sunny cool		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	8.96	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	30.16		
Height of Standing Water Column (m)	21.2	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	A (more north)			

PHOTOS (IF TAKEN)

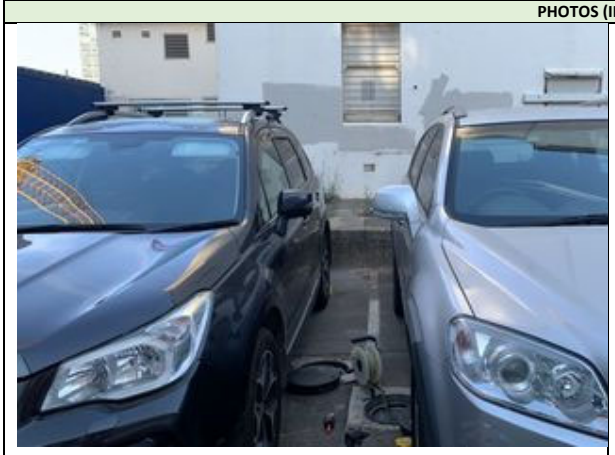


Photo1: Area

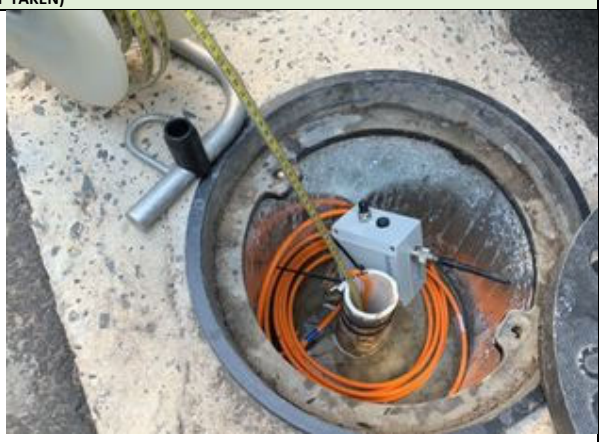


Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW26
Job No:	SC210108.03	**Date:**	12/10/2023 07:55
Recorded By:	Natalie C	**Lat / Long:**	-33.81508,151.00544
Weather:	Sunny cool		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	4.23	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	8.64		
Height of Standing Water Column (m)	4.41	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	B (more south towards PM site.) Also has telemetry No well cap			

PHOTOS (IF TAKEN)

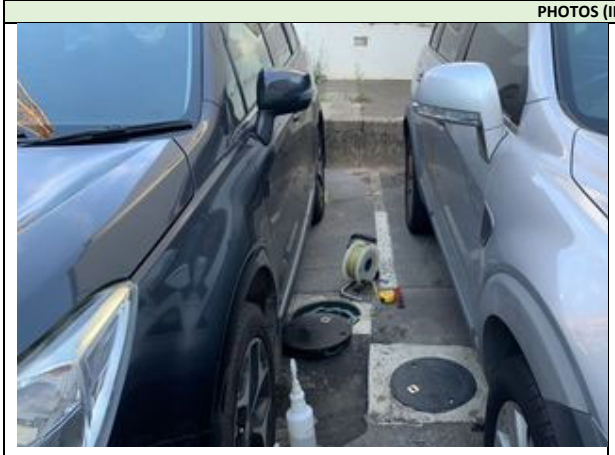


Photo1: Area

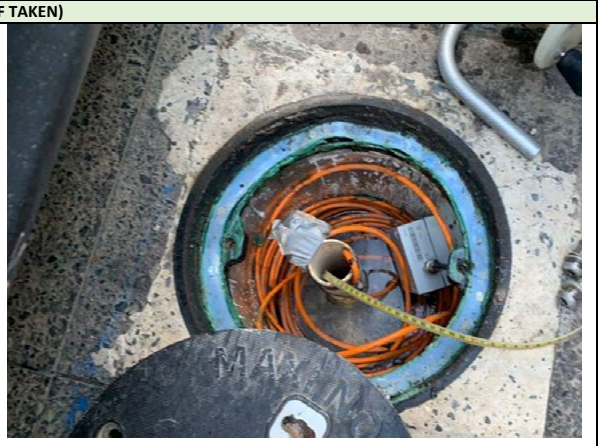


Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW31
Job No:	SC210108.03	**Date:**	12/10/2023 14:23
Recorded By:	Natalie C	**Lat / Long:**	-33.81424,151.00424
Weather:	Hpt		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	7.88	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	26.58		
Height of Standing Water Column (m)	18.7	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW32
Job No:	SC210108.03	**Date:**	12/10/2023 13:38
Recorded By:	Natalie C	**Lat / Long:**	-33.81433,151.00336
Weather:	Sunny hot		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	8.48	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	30.3		
Height of Standing Water Column (m)	21.82	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW33
Job No:	SC210108.03	**Date:**	12/10/2023 13:23
Recorded By:	Natalie C	**Lat / Long:**	-33.81438,151.00337
Weather:	Hot		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	8.94	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	33.08		
Height of Standing Water Column (m)	24.14	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW38
Job No:	SC210108.03	**Date:**	11/10/2023 08:58
Recorded By:	Joy X	**Lat / Long:**	-33.80967,150.98851
Weather:	Cloudy		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	0.5
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	17.425	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	36.08		
Height of Standing Water Column (m)	18.655	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area | **Photo 2: Bore condition**

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW47
Job No:	SC210108.03	**Date:**	11/10/2023 08:38
Recorded By:	Joy X	**Lat / Long:**	-33.80856,150.98731
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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	11.83	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	14.85		
Height of Standing Water Column (m)	3.02	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	No cap			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	GALC-MW79
Job No:	SC210108.03	**Date:**	12/10/2023 15:08
Recorded By:	Natalie C	**Lat / Long:**	-33.814,151.0041
Weather:			

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

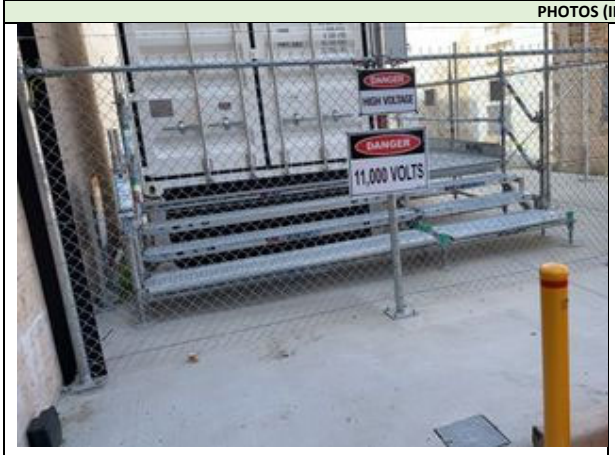


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW014
Job No:	SC210108.03	**Date:**	12/10/2023 10:02
Recorded By:	Natalie C	**Lat / Long:**	-33.81508,151.0043
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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.44	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	5.94		
Height of Standing Water Column (m)	0.5	Well Annulus (mm)	100
Discharge Water Disposal Method	Other		

FIELD PARAMETER MEASUREMENT[1]

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			°C		
12/10	10:11	0.4		4.51	6.37	622	113.8	3.65	39.3			393.1	18.3		
12/10	10:14	0.7	0.1	5.55	6.32	590	127.9	3.15	32.9			383.1	18.4		
12/10	10:17	1.1	0.2	5.59	6.31	593	131.9	2.98	32			380	18.5		
12/10	10:20	1.6	0.25	5.6	6.28	570	135.6	2.62	27.9			370.8	18.6		
12/10	10:23	1.8	0.1	5.63	6.28	562	138.7	2.28	24.4			365	18.7		
12/10	10:26	1.9	0.05	5.65	6.29	561	139.3	2.45	26.1			364.9	18.7		
Other Observations			no odour, copper orange colkur, slightly cloudy, no sheen												

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_MW014			

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 5.0 m Cap 0.08 m Logger 0.12 m

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW015
Job No:	SC210108.03	**Date:**	12/10/2023 11:30
Recorded By:	Natalie C	**Lat / Long:**	-33.81384,151.00435
Weather:	Sunny, hot		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.2	Pump Intake Depth (mBTOC)	3
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	9.99		
Height of Standing Water Column (m)	4.79	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
12/10	11:41	0.3		5.35	5.83	679	190.7	1.79	19.9			440.5	21.2		
12/10	11:44	0.6	0.1	5.49	5.75	670	189.5	1.17	129			435	20.6		
12/10	11:47	1.5	0.45	5.68	5.74	665	184.8	1.09	12			431.5	20.6		
12/10	11:50	1.5	0	5.8	5.74	663	181.2	1.14	12.8			431	20.9		
12/10	11:53	1.7	0.1	5.9	5.73	664	178.6	1.27	14.3			432	20.8		
12/10	11:56	1.7	0	5.96	5.73	656	175	1.53	17.5			21.5	21.4		
Other Observations			No odour, colourless, sligtly turbid, no sheen												

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	PM_MW015			

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	Hard to open, well head flooded, no logger, no well cap

PHOTOS (IF TAKEN)

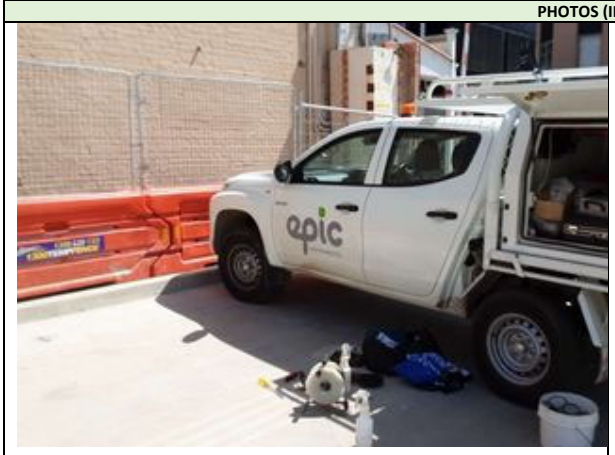


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW018
Job No:	SC210108.03	**Date:**	12/10/2023 13:58
Recorded By:	Natalie C	**Lat / Long:**	-33.81457,151.00381
Weather:	Hot 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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Sandy fill obstructiin at 0.58 mbgl. Cannot retrieve tubing. Well pvc looks like two diff parts (ie well top replaced or lengthened)			

PHOTOS (IF TAKEN)

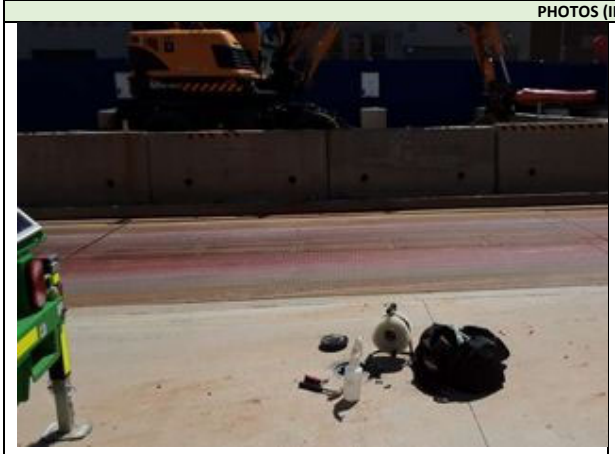


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW021
Job No:	SC210108.03	**Date:**	12/10/2023 14:58
Recorded By:	Natalie C	**Lat / Long:**	-33.81405,151.0049
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	1.13	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	6.93		
Height of Standing Water Column (m)	5.8	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	PM_MW057
Job No:	SC210108.03	**Date:**	12/10/2023 14:35
Recorded By:	Natalie C	**Lat / Long:**	-33.81414,151.00511
Weather:			

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Under stockpile /cannot locate			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ADD_BH02
Job No:	SC210108.03	**Date:**	13/10/2023 12:12
Recorded By:	Natalie C	**Lat / Long:**	-33.82243,151.02154
Weather:	Sunny cool		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	26.71	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	30.76		
Height of Standing Water Column (m)	4.05	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well cap 0.08 Barro string 0.62 Barro logger 0.14 Logger string 28.15 Dropped bailer Couldnot get sample			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH002_w
Job No:	SC210108.03	**Date:**	12/10/2023 07:00
Recorded By:	Natalie C	**Lat / Long:**	-33.81485,151.00553
Weather:	Cool, 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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	10.25	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	34.26		
Height of Standing Water Column (m)	24.01	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment

Well cap 0.08 m Logger string 27.59 m Logger 0.16 m Logger not working. Water fell out when opening

PHOTOS (IF TAKEN)

Photo1: Area

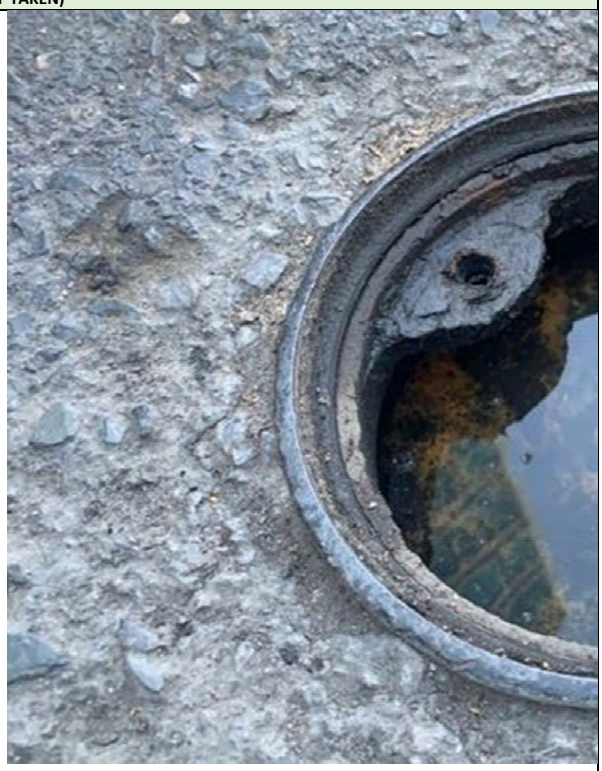


Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_s
Job No:	SC210108.03	**Date:**	11/10/2023 06:29
Recorded By:	Joy X	**Lat / Long:**	-33.8132,151.00566
Weather:	Cloudy		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.04	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	11.23		
Height of Standing Water Column (m)	6.19	Well Annulus (mm)	100
Discharge Water Disposal Method	Drums		

FIELD PARAMETER MEASUREMENT[1]

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			°C		
11/10	06:39	0.3		5.03	6.42	362.5	-77	1.01	9.7			240.8	16.7	Clear	No
11/10	06:42	0.8	0.17	5.03	6.32	298.5	24.5	0.4	4.2			172.3	19.3		
11/10	06:46	1.5	0.23	5.02	6.3	273.4	25.3	0.37	3.8			176.7	17.1		
11/10	06:49	1.8	0.15	5.03	6.29	268.1	78.9	0.34	3.5			174.5	17.2		
11/10	06:52	2	0.1	5.04	6.23	276.5	81.6	0.37	3.8			172.2	19.3		
11/10	06:56	2	0	5.03	6.17	310.4	81.9	0.46	4.8			202.9	17.3		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH004_s	QC03	QC03	

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	Logger, string 6.3m, cap 0.12m, logger 0.16m. One bolt missing

PHOTOS (IF TAKEN)

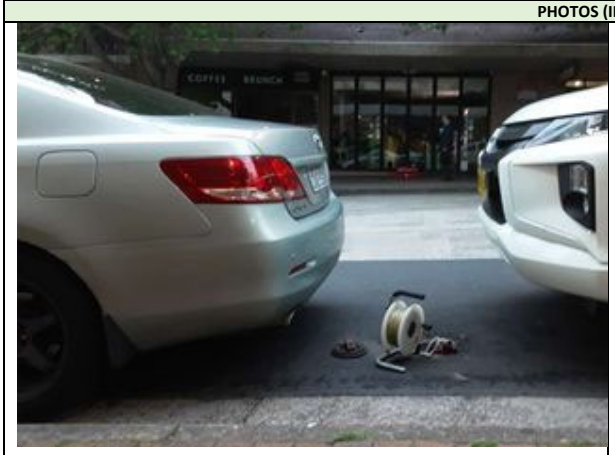


Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH004_w
Job No:	SC210108.03	**Date:**	12/10/2023 08:13
Recorded By:	Natalie C	**Lat / Long:**	-33.81314,151.00566
Weather:	Sunny cool		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	9.12	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	24.19		
Height of Standing Water Column (m)	15.07	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	14.48 levellogger 22.43 ct2x			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH008_w
Job No:	SC210108.03	**Date:**	13/10/2023 06:58
Recorded By:	Natalie C	**Lat / Long:**	-33.80945,150.9908
Weather:	Cool		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	8.44	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	18.02		
Height of Standing Water Column (m)	9.58	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well cap 0.07 String 11.76 Logger 0.155			

PHOTOS (IF TAKEN)

Photo1: Area

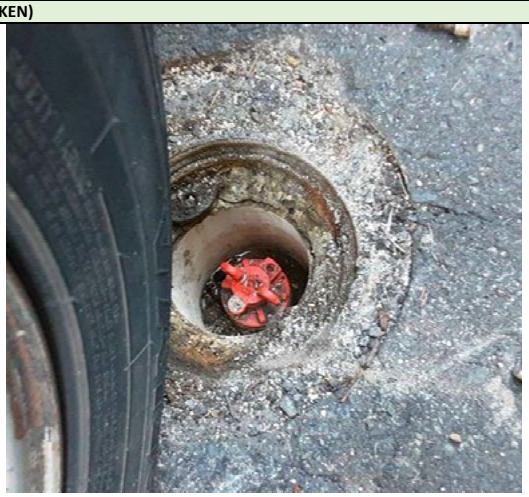


Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH010
Job No:	SC210108.03	**Date:**	10/10/2023 13:37
Recorded By:	Joy X	**Lat / Long:**	-33.82967,151.02751
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.04
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Bad	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	7.965	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	27.19		
Height of Standing Water Column (m)	19.225	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

Analysis/Bottles

Comment

Cap 0.11m. Levelogger, string 9.9m, 0.15m logger , CT2X string 26.3m, 0.4m logger No bolts, cannot close gatic

PHOTOS (IF TAKEN)

Photo1: Area | **Photo 2: Bore condition**

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_s
Job No:	SC210108.03	**Date:**	13/10/2023 09:21
Recorded By:	Natalie C	**Lat / Long:**	-33.81973,151.02221
Weather:	Sunny, cool		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.57	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	4.56		
Height of Standing Water Column (m)	1.99	Well Annulus (mm)	100
Discharge Water Disposal Method	Other		

FIELD PARAMETER MEASUREMENT[1]

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			°C		
13/10	09:30	0.3		2.6	6.35	561	-6.9	1.98	19.7			364	16.2		
13/10	09:33	0.6	0.15	2.58	6.32	543	56.3	1.14	11.7			352.7	16.6		
13/10	09:36	1	0.2	2.58	6.26	545	96.6	0.99	10			354.9	16.8		
13/10	09:39	1.4	0.2	2.58	6.22	556	119.3	0.74	7.5			362.4	16.9		
13/10	09:42	2	0.2	2.58	6.19	580	137.6	0.73	7.6			377	17		
13/10	09:45	2.4	0.2	2.58	6.17	596	146.1	0.86	9.1			388	17.1		
13/10	09:48	2.8	0.2	2.58	6.15	613	149	1.14	11.8			401	17		
13/10	09:51	3.2	0.2	2.58	6.14	636	150	1.33	13.9			413	17.1		
13/10	09:54	3.6	0.2	2.58	6.14	650	149.7	1.47	15.3			422	17.1		
13/10	09:57	4.2	0.3	2.58	6.13	662	150.1	1.54	16			430	17.1		
Other Observations	Colourless, no odour, no sheen, no turbidity														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_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	Well cap 0.07 String 2.85 Logger 0.15

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_BH057_w
Job No:	SC210108.03	**Date:**	13/10/2023 09:00
Recorded By:	Natalie C	**Lat / Long:**	-33.81979,151.02227
Weather:	Cool, sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.24
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Fair	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Bailer
Water Level Depth (WL in m BTOC)	12.86	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	23.8		
Height of Standing Water Column (m)	10.94	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
13/10	13:41	3			6.49	4,751	179.5	4.2	46			3,087	19.1		

Other Observations	No odour, no sheen, slightly cloudy white

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_BH057_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 0.07 m String 23.09 m Logger 0.41 m

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV009
Job No:	SC210108.03	**Date:**	13/10/2023 10:54
Recorded By:	Natalie C	**Lat / Long:**	-33.82019,151.02247
Weather:	Sunny, cool		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.54	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	7.1		
Height of Standing Water Column (m)	4.56	Well Annulus (mm)	100
Discharge Water Disposal Method	Other		

FIELD PARAMETER MEASUREMENT[1]

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			°C		
13/10	11:21	0.7		2.58	6.7	1,268	-131	1.25	13.7			824	19.9		
13/10	11:25	1	0.1	2.58	6.7	1,262	-139.9	1.03	11.3			820	19.9		
13/10	11:28	1.3	0.1	2.58	6.69	1,248	-151.3	0.9	9.9			811	19.9		
13/10	11:31	1.5	0.1	2.59	6.7	1,226	-165.9	1.1	12.1			796	19.8		
13/10	11:34	2	0.25	2.6	6.7	1,206	-166.9	1.28	14.4			783	19.8		
13/10	11:38	2.5	0.17	2.62	6.71	1,196	-170.9	1.38	15.4			777	19.8		
13/10	11:41	2.7	0.1	2.63	6.71	1,201	-172.4	1.46	16.1			781	19.8		
Other Observations	No odour, no sheen, slight pale brown turbidity														

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV009			

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 0.07 String 4.14 Logger 0.15

PHOTOS (IF TAKEN)

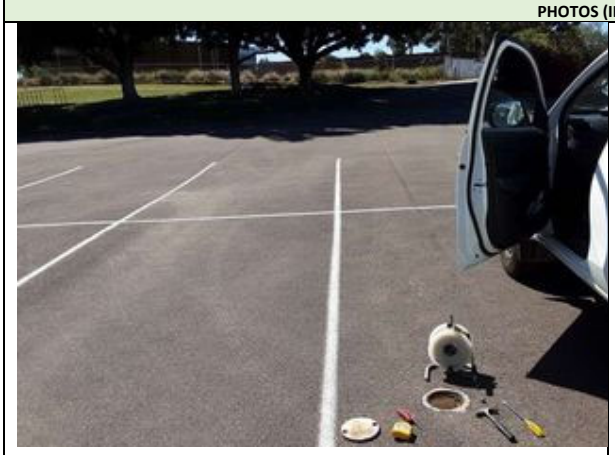


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV010
Job No:	SC210108.03	**Date:**	13/10/2023 12:03
Recorded By:	Natalie C	**Lat / Long:**	-33.82022,151.02226
Weather:	Sunny cool		

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	2.84	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	6.99		
Height of Standing Water Column (m)	4.15	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV039
Job No:	SC210108.03	**Date:**	9/10/2023 12:43
Recorded By:	Joy X	**Lat / Long:**	-33.82695,151.02168
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	5.815	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	10.315		
Height of Standing Water Column (m)	4.5	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
9/10	12:53	0.5		6.07	6.11	26,901	54.4	0.44	5.2			17,327	19.7	Clear	No
9/10	12:56	1	0.17	6.17	6.11	26,272	57.6	0.72	8.7			17,091	19.5		
9/10	12:59	1.5	0	6.2	6.11	26,516	53.8	1.25	15.1			17,244	19.6		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate

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	Cap length 0.12m, 8.4m string, 0.13 logger length

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV042
Job No:	SC210108.03	**Date:**	10/10/2023 13:07
Recorded By:	Joy X	**Lat / Long:**	-33.82975,151.02748
Weather:	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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	6.49	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	10.3		
Height of Standing Water Column (m)	3.81	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
10/10	13:17	0.5		6.73	5.6	23,279	-113.1	1.12	13.6			15,137	20.2	Clear	No
10/10	13:20	1	0.25	6.8	5.61	23,193	-110.2	2.19	26.3			15,037	19.8		
10/10	13:23	1.2	0.1	6.88	5.61	23,153	-109.6	2.74	32.7			15,049	19.8		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV042			

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	Levelogger, cap 0.12m, string 8m, logger 0.14m

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV145_w
Job No:	SC210108.03	**Date:**	9/10/2023 11:11
Recorded By:	Joy X	**Lat / Long:**	-33.82821,151.02788
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	8.25	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	14.63		
Height of Standing Water Column (m)	6.38	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	CT2X length 0.42m, 11.8m string length. Levelogger length 0.15m, 11.95m string. Cap length, 0.12m			

PHOTOS (IF TAKEN)

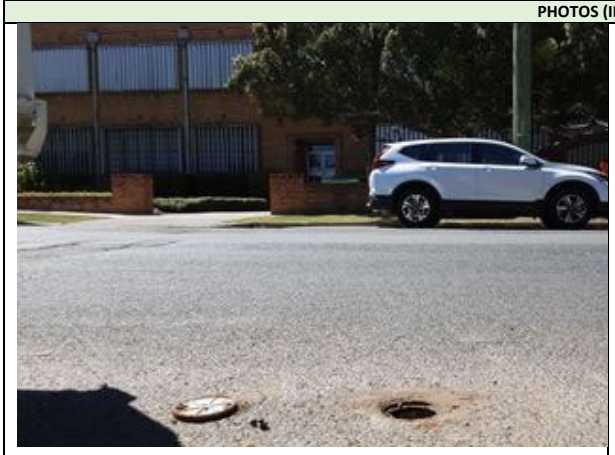


Photo1: Area

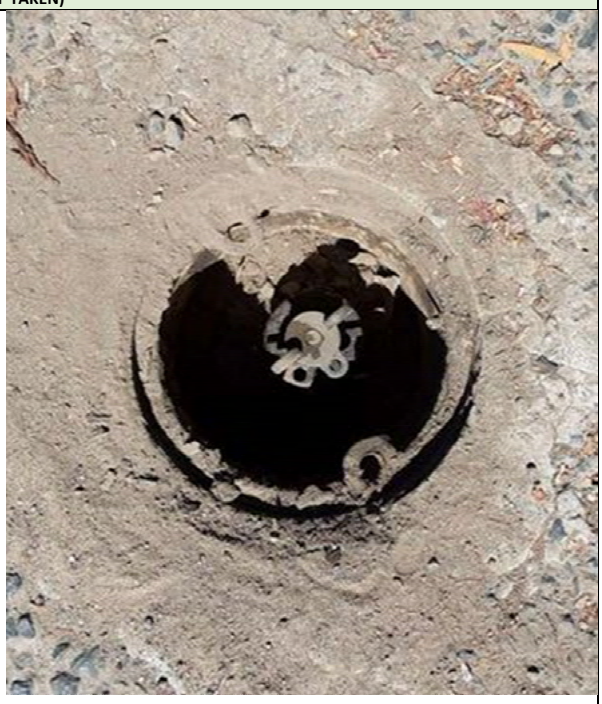


Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV227_w
Job No:	SC210108.03	**Date:**	6/10/2023 11:28
Recorded By:	Joy X	**Lat / Long:**	-33.82981,151.02546
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type	Monitor	Well stick up (m): (above/below ground level)	-0.135
Well Material	PVC	Screen interval - Top (m BTOC)	
Well Head Condition	Fair	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.585	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	3.4		
Height of Standing Water Column (m)	0.815	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
6/10	11:38	0.5		2.78	6.75	2,765	-255.9	0.22	2.2			1,806	17.3	Clear-slightly brown yellow	No, or light metallic ?
6/10	11:41	1.5	0.5	2.88	6.78	2,712	-250.5	0.16	1.7			1,762	17.1		
6/10	11:44	2	0.17	2.94	6.72	2,788	-243.2	0.28	3			1,820	17		
Other Observations															

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_ENV227_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	No bolts.

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV264_s
Job No:	SC210108.03	**Date:**	6/10/2023 12:15
Recorded By:	Joy X	**Lat / Long:**	-33.83004,151.02521
Weather:			

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		**Purge Method**	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations	

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Broken bolt, cannot open			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV264_w
Job No:	SC210108.03	**Date:**	6/10/2023 12:11
Recorded By:	Joy X	**Lat / Long:**	-33.83,151.02526
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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	1.745	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	6.05		
Height of Standing Water Column (m)	4.305	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations	

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Silty btm			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_ENV284_w
Job No:	SC210108.03	**Date:**	9/10/2023 11:00
Recorded By:	Joy X	**Lat / Long:**	-33.82815,151.024
Weather:	Sunny		

CONSTRUCTION INFORMATION

Well Type		Well stick up (m): (above/below ground level)	
Well Material		Screen interval - Top (m BTOC)	
Well Head Condition		Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)		Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)			
Height of Standing Water Column (m)		Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☑ No ☐ Other
Gauged	☐ Yes ☑ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Well flooded, filled with mud			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH02_w
Job No:	SC210108.03	**Date:**	11/10/2023 09:18
Recorded By:	Joy X	**Lat / Long:**	-33.80849,150.98616
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Bailer
Water Level Depth (WL in m BTOC)	6.25	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	20.67		
Height of Standing Water Column (m)	14.42	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
11/10	10:01	3		6	9.2	1,272	10.9	1.66	18			827	19.2	Brownish clear	No

Other Observations	

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH02_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	18.6 m string, 0.23m logger, 0.12 cap

PHOTOS (IF TAKEN)

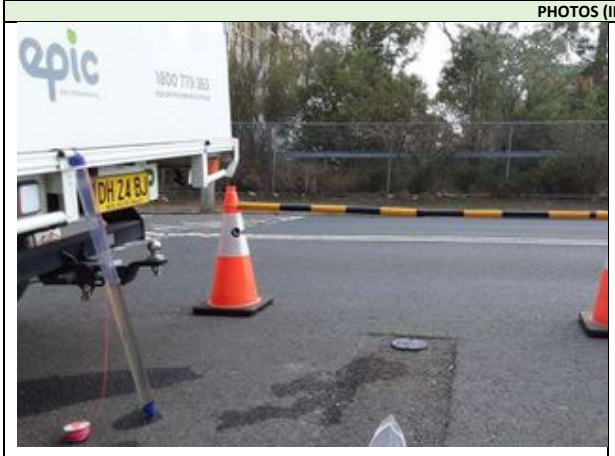


Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH03A_w
Job No:	SC210108.03	**Date:**	11/10/2023 10:42
Recorded By:	Joy X	**Lat / Long:**	-33.8093,150.98972
Weather:			

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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Bailer
Water Level Depth (WL in m BTOC)	10.305	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	21.835		
Height of Standing Water Column (m)	11.53	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
11/10	11:01	3		10.1	6.64	363.4	19.6	1.95	21.2			236.3	19.6	Slightly turbid	No

Other Observations	

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Bailer

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
	SMW_WTP_BH03A_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	20.1m string, 0.12m cap, 0.22m logger

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH13_w
Job No:	SC210108.03	**Date:**	9/10/2023 13:32
Recorded By:	Joy X	**Lat / Long:**	-33.8272,151.0248
Weather:	heat		

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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	2.23	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	7.28		
Height of Standing Water Column (m)	5.05	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
9/10	13:40	0.3		2.3	5.89	10,637	-326.1	0.51	5.5			6,899	18.1	No	Clear
9/10	13:43	1	0.23	2.38	5.87	9,737	-325.7	0.48	5.5			6,343	17.9		
9/10	13:46	1.5	0	2.44	5.87	9,525	-324.4	0.71	7.7			6,167	17.8		
Other Observations			Silty btm												

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

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	

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH22
Job No:	SC210108.03	**Date:**	11/10/2023 12:29
Recorded By:	Joy X	**Lat / Long:**	-33.84211,151.05854
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	1.875	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	24.9		
Height of Standing Water Column (m)	23.025	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		

Other Observations	

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	22.3m string length, 0.14m logger, 0.12m cap			

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH23_w
Job No:	SC210108.03	**Date:**	11/10/2023 11:44
Recorded By:	Joy X	**Lat / Long:**	-33.84369,151.06354
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	6.2	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	29.94		
Height of Standing Water Column (m)	23.74	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment				

PHOTOS (IF TAKEN)

Photo1: Area

Photo 2: Bore condition

Note:
1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_s
Job No:	SC210108.03	**Date:**	6/10/2023 10:21
Recorded By:	Joy X	**Lat / Long:**	-33.82972,151.02568
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	Good	Screen interval - Bottom (m BTOC)	

WELL PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	Peristatic
Water Level Depth (WL in m BTOC)	3.07	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	5.67		
Height of Standing Water Column (m)	2.6	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
6/10	10:30	0.5		3.145	7.12	2,597	-50.2	0.38	4			1,683	16.8	Slightly brownish - clear	No
6/10	10:34	1	0.17	3.19	7.12	2,445	-84.3	0.28	3			1,586	16.8		
6/10	10:38	1.5	0.13	3.205	7.12	2,390	-330.5	0.31	3.2			1,551	16.7		
6/10	10:42		0	3.215	7.12	2,358	-335.4	0.43	4.5			1,533	16.7		
6/10	10:45	2.2	1.1	3.245	7.11	2,365	-340	0.58	6			1,538	16.7		
Other Observations			Organic sulphric smell												

WELL SAMPLING

Sampled	☑ Yes ☐ No	**Logger download**	☐ Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	Peristatic

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	No bolts, between stockpiles

PHOTOS (IF TAKEN)

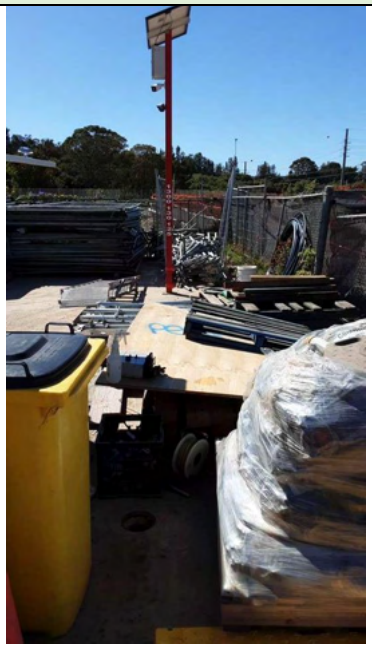


Photo1: Area

Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

STANDARD GROUNDWATER SAMPLING FIELD SHEET

Round number: Round 5 - October

Job Name:	Gamuda - Groundwater Monitoring Program	**Well No:**	SMW_WTP_BH25_w
Job No:	SC210108.03	**Date:**	6/10/2023 10:51
Recorded By:	Joy X	**Lat / Long:**	-33.82972,151.02568
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 PURGING

Measured Levels		Purge Method	
LNAPL Level Depth (LL in m BTOC)		Method	
Water Level Depth (WL in m BTOC)	7.37	Pump Intake Depth (mBTOC)	
DNAPL Level Depth (DL in m BTOC)		Well Diameter (mm)	50
Total Depth of Well (TD in m BTOC)	10.105		
Height of Standing Water Column (m)	2.735	Well Annulus (mm)	100
Discharge Water Disposal Method			

FIELD PARAMETER MEASUREMENT[1]

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			°C		
Other Observations															

WELL SAMPLING

Sampled	☐ Yes ☑ No	**Logger download**	☑ Yes : Yes ☐ No ☐ Other
Gauged	☑ Yes ☐ No	**Sampling Method:**	

Sample ID & QC Samples	Primary	Duplicate	Triplicate	Rinsate
Analysis/Bottles				
Comment	Flooded inside. 7.94 string len, 0.13 logger, 0.12 cap len. Logger data downloaded			

PHOTOS (IF TAKEN)

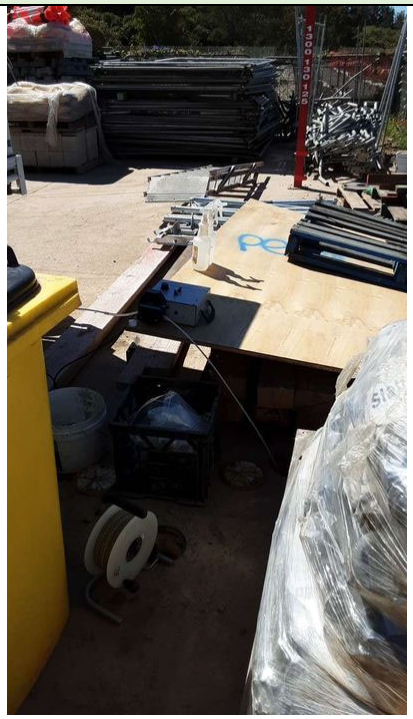


Photo1: Area

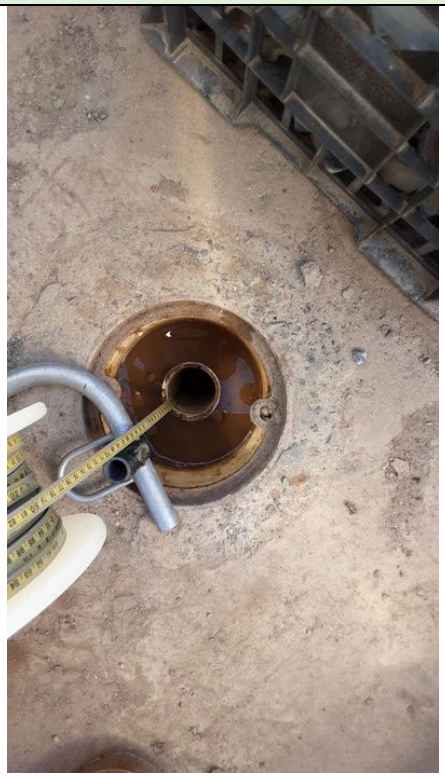


Photo 2: Bore condition

Note:

1.Results are acceptable after all parameters have achieved stabilisation for three successive readings within nominated tolerances as adopted from AS/NZS 5667.11:1998 low-flow groundwater sampling procedures

APPENDIX E – LABORATORY DOCUMENTATION

July 2023 monitoring event

LAB
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

JOB NO: 328369
Date Received: 14/7/23
Time Received: 1200 3°C
Received By: CH
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	Envirolab Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	Jieli Xie (JX)	Lab Batch No:	
Phone / Email:	426205616	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au; ixie@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	PFAS Jar	Plastic Bag	water/liquid 40ml Amber Vial	100-500ml Amber Bottle	60ml Metals	60ml Nutrients	250-500ml Plastic (Unpreserved)	60-250ml Plastic (PFAS)	ASS	Combo 8L (13 Metals - Low level)	VOC Suite - ADWG Level	PFAS (Short Suite)	Nutrient Suite	Ionic Balance	Hexavalent Chromium	TDS, pH, EC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	CZ1_BH13	18/07	W										X						X			
2	SMW_ENV227_W	—											X						X			
3	SMW_ENV210_W	—											X						X			
4	SMW_WTP_BH25_S	—											X						X			
5	CZ5_MW16	—											X						X			
																					X	
6	RS01	—	—																		X	X
7	TS	—	—																	X		
8	TB	—	—																	X		
			TOTALS										0	0	0	0	0	0	0	0		0

Relinquished By: JX		Received By:		Custody Seals Intact	Y N
NAME Jieli XIE (JX)	SIGNATURE	NAME Christine Ho	SIGNATURE	Samples Received Chilled	(Y) N
DATE 18/07		DATE 14/7/23		Method of Shipment	

NOTES: Bottles supplied for As speciation to be placed on HOLD and not analysed.

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, j Xie

Sample Login Details	
Your reference	SC210108.03 - GWMP
Envirolab Reference	328369
Date Sample Received	19/07/2023
Date Instructions Received	19/07/2023
Date Results Expected to be Reported	26/07/2023

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	8 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	3
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	PFAS in Waters Short	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	Total Phenolicsin Water	HM in water - dissolved	Metals in Waters -Acid extractable	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	pH	Electrical Conductivity	Total Dissolved Solids(grav)	Hexavalent Chromium, Cr6+	Total Nitrogen in water	TKN in water	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Organic Nitrogen as N	Phosphate as P in water
CZ1-BH13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_ENV227_W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_ENV210_W	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_WTP_BH25_S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CZ5_MW16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RS01			✓	✓						✓																									
TS			✓																																
TB			✓																																

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 328369

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden, j Xie
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SC210108.03 - GWMP**
Number of Samples	8 Water
Date samples received	19/07/2023
Date completed instructions received	19/07/2023

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	26/07/2023
Date of Issue	26/07/2023

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
Alexander Mitchell Maclean, Senior Chemist
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	<2	<2	<2	<2	<2
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	690	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	21	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<0.3	<0.3	<0.3	42	<0.3
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	2	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	2	<1
Hexachlorobutadiene	µg/L	<0.7	<0.7	<0.7	<0.7	<0.7
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	109	107	107	101	107
Surrogate toluene-d8	%	102	102	101	98	102
Surrogate 4-BFB	%	104	102	102	100	103

PFAS in Waters Short						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.35	0.02	<0.01	0.08	0.02
Perfluorooctanesulfonic acid PFOS	µg/L	0.08	<0.01	<0.01	0.02	<0.01
Perfluorooctanoic acid PFOA	µg/L	0.02	0.02	0.01	0.04	0.03
6:2 FTS	µg/L	<0.01	<0.01	0.02	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	97	99	99	98	97
Surrogate $^{13}C_2$ *PFOA*	%	101	104	101	105	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	100	102	100	105	103
Extracted ISTD $^{13}C_4$ *PFOS*	%	105	103	94	100	99
Extracted ISTD $^{13}C_4$ *PFOA*	%	101	124	98	123	105
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	71	#	78	195	106
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	85	167	82	149	115
Total Positive PFHxS & PFOS	µg/L	0.43	0.02	<0.01	0.10	0.02
Total Positive PFOA & PFOS	µg/L	0.1	0.02	0.01	0.06	0.03
Total Positive PFAS	µg/L	0.45	0.04	0.04	0.14	0.05

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
TRH C_6 - C_9	µg/L	<10	<10	<10	870	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	870	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	870	<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	%	109	107	107	101	107
Surrogate toluene-d8	%	102	102	101	98	102
Surrogate 4-BFB	%	104	102	102	100	103

vTRH(C6-C10)/BTEXN in Water				
Our Reference		328369-6	328369-7	328369-8
Your Reference	UNITS	RS01	TS	TB
Date Sampled		18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023
TRH C_6 - C_9	µg/L	<10	[NA]	<10
TRH C_6 - C_{10}	µg/L	<10	[NA]	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	[NA]	<10
Benzene	µg/L	<1	116%	<1
Toluene	µg/L	<1	115%	<1
Ethylbenzene	µg/L	<1	113%	<1
m+p-xylene	µg/L	<2	110%	<2
o-xylene	µg/L	<1	108%	<1
Naphthalene	µg/L	<1	[NA]	<1
Surrogate Dibromofluoromethane	%	107	109	105
Surrogate toluene-d8	%	101	104	101
Surrogate 4-BFB	%	103	96	103

svTRH (C10-C40) in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
TRH C_{10} - C_{14}	µg/L	<50	83	<50	87	<50
TRH C_{15} - C_{28}	µg/L	<100	2,500	<100	530	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	2,600	<50	620	<50
TRH >C_{10} - C_{16}	µg/L	<50	220	<50	91	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	220	<50	91	<50
TRH >C_{16} - C_{34}	µg/L	<100	2,400	<100	500	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	2,600	<50	590	<50
Surrogate o-Terphenyl	%	83	110	89	92	89

svTRH (C10-C40) in Water		
Our Reference		328369-6
Your Reference	UNITS	RS01
Date Sampled		18/07/2023
Type of sample		Water
Date extracted	-	21/07/2023
Date analysed	-	21/07/2023
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	%	83

PAHs in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
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	%	103	106	106	95	104

Organochlorine Pesticides in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
HCB	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	101	102	104	97	100

OP Pesticides in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Dichlorvos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-Methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenamiphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Phosalone	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Coumaphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	101	102	104	97	100

PCBs in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Aroclor 1016	µg/L	<2	<2	<2	<5	<2
Aroclor 1221	µg/L	<2	<2	<2	<5	<2
Aroclor 1232	µg/L	<2	<2	<2	<5	<2
Aroclor 1242	µg/L	<2	<2	<2	<5	<2
Aroclor 1248	µg/L	<2	<2	<2	<5	<2
Aroclor 1254	µg/L	<2	<2	<2	<5	<2
Aroclor 1260	µg/L	<2	<2	<2	<5	<2
Surrogate TCMX	%	101	102	104	97	100

Total Phenolics in Water						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

HM in water - dissolved						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Arsenic-Dissolved	µg/L	1	3	2	4	11
Cadmium-Dissolved	µg/L	<0.1	<0.1	0.3	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	2	<1	<1
Copper-Dissolved	µg/L	<1	<1	5	<1	<1
Lead-Dissolved	µg/L	<1	<1	2	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	<1	36	<1	6
Zinc-Dissolved	µg/L	5	3	130	2	15
Boron-Dissolved	µg/L	750	200	40	200	420
Beryllium-Dissolved	µg/L	<0.5	<0.5	3	<0.5	<0.5
Cobalt-Dissolved	µg/L	6	<1	94	<1	10
Manganese-Dissolved	µg/L	710	500	800	260	100
Selenium-Dissolved	µg/L	<1	1	<1	<1	<1

HM in water - dissolved		
Our Reference		328369-6
Your Reference	UNITS	RS01
Date Sampled		18/07/2023
Type of sample		Water
Date prepared	-	20/07/2023
Date analysed	-	20/07/2023
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	<1
Zinc-Dissolved	µg/L	<1
Boron-Dissolved	µg/L	<20
Beryllium-Dissolved	µg/L	<0.5
Cobalt-Dissolved	µg/L	<1
Manganese-Dissolved	µg/L	<5
Selenium-Dissolved	µg/L	<1

Metals in Waters - Acid extractable						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Phosphorus - Total	mg/L	<0.05	0.1	<0.05	0.1	<0.05

Ion Balance						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Date analysed	-	19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Calcium - Dissolved	mg/L	310	100	170	250	32
Potassium - Dissolved	mg/L	170	17	6.8	19	29
Sodium - Dissolved	mg/L	7,500	500	3,400	320	1,000
Magnesium - Dissolved	mg/L	710	91	520	77	77
Hardness	mgCaCO 3 /L	3,700	630	2,600	930	400
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	280	500	120	1,100	140
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	280	500	120	1,100	140
Sulphate, SO4	mg/L	2,400	180	640	320	570
Chloride, Cl	mg/L	12,000	730	7,300	250	1,900
Ionic Balance	%	3.0	1.0	-5.0	-4.0	-12

Miscellaneous Inorganics						
Our Reference		328369-1	328369-2	328369-3	328369-4	328369-5
Your Reference	UNITS	CZ1-BH13	SMW_ENV227_W	SMW_ENV210_W	SMW_WTP_BH25_S	CZ5_MW16
Date Sampled		18/07/2023	18/07/2023	18/07/2023	18/07/2023	18/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Date analysed	-	19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
pH	pH Units	6.5	6.7	5.9	7.4	6.3
Electrical Conductivity	µS/cm	32,000	3,300	20,000	2,900	6,600
Total Dissolved Solids (grav)	mg/L	24,000	2,000	14,000	1,900	3,600
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Total Nitrogen in water	mg/L	0.5	13	0.2	17	2.1
TKN in water	mg/L	0.5	13	0.2	16	2.1
Ammonia as N in water	mg/L	0.53	11	0.11	16	2.1
Nitrate as N in water	mg/L	<0.005	0.31	<0.005	0.26	0.02
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
NOx as N in water	mg/L	<0.005	0.3	<0.005	0.3	0.02
Organic Nitrogen as N	mg/L	<0.2	1.1	<0.2	<0.2	<0.2
Phosphate as P in water	mg/L	0.03	<0.005	<0.005	<0.005	<0.005

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-024	Hexavalent Chromium (Cr6+) - determined colourimetrically. Waters samples are filtered on receipt prior to analysis.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
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.
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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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-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	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[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	0.3	Org-023	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
Bromomethane	µg/L	2	Org-023	<2	1	<2	<2	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	113	[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	120	[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	120	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	114	[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	[NT]	[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	118	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	106	[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	[NT]	[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	100	[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	120	[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	[NT]	[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	[NT]	[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-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[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]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	0.3	Org-023	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
n-butyl benzene	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]
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	0.7	Org-023	<0.7	1	<0.7	<0.7	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	1	109	108	1	102	[NT]
Surrogate toluene-d8	%		Org-023	102	1	102	102	0	101	[NT]
Surrogate 4-BFB	%		Org-023	102	1	104	107	3	98	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date prepared	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Date analysed	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	0.35	0.34	3	95	97
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	0.08	0.07	13	94	93
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	0.02	0.02	0	100	93
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	92
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	93	98
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	100	1	97	97	0	97	101
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	97	1	101	106	5	100	105
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	99	1	100	103	3	103	100
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	102	1	105	109	4	104	100
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	109	1	101	106	5	104	116
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	108	1	71	77	8	105	#
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	116	1	85	83	2	112	173

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	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	111	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	111	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	111	[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	114	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	109	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	1	109	108	1	102	[NT]
Surrogate toluene-d8	%		Org-023	102	1	102	102	0	101	[NT]
Surrogate 4-BFB	%		Org-023	102	1	104	107	3	98	[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	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[NT]
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	94	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	95	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	86	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	94	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	95	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	86	[NT]
Surrogate o-Terphenyl	%		Org-020	117	1	83	79	5	102	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date extracted	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Naphthalene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	88	90
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	94	99
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	88	95
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	90	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	93	99
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	105
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	94	102
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	87	94
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	102	1	103	96	7	99	92

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date extracted	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	96	103
HCB	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	95	103
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	105	113
delta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	95	99
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	94	96
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	104	110
Dieldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	103	114
Endrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	90	106
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	99	113
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	89	114
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	111	1	101	95	6	113	91

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date extracted	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	104	126
Mevinphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	91	92
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	107	118
Malathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	111	124
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	99	98
Fenthion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	105	130
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	99	134
Phosalone	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	111	1	101	95	6	113	117

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date extracted	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Aroclor 1016	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	1	<2	<2	0	115	90
Aroclor 1260	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	111	1	101	95	6	113	91

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date extracted	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Date analysed	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	99	93

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	328369-2
Date prepared	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Date analysed	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	103	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	107	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	109	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	102	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	109	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	107	72
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	108	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	5	4	22	111	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	1	750	770	3	104	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	102	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	6	6	0	104	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	710	710	0	108	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	110	[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	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	<0.05	<0.05	0	101	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date prepared	-			19/07/2023	1	19/07/2023	19/07/2023		19/07/2023	19/07/2023
Date analysed	-			19/07/2023	1	19/07/2023	19/07/2023		19/07/2023	19/07/2023
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	310	300	3	107	#
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	170	170	0	117	105
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	7500	7300	3	114	#
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	710	690	3	120	#
Hardness	mgCaCO 3 /L	3	Metals-020	[NT]	1	3700	3600	3	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	280	270	4	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	280	270	4	103	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	2400	[NT]		115	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	1	12000	[NT]		101	[NT]
Ionic Balance	%		Inorg-040	[NT]	1	3.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328369-2
Date prepared	-			19/07/2023	1	19/07/2023	19/07/2023		19/07/2023	19/07/2023
Date analysed	-			19/07/2023	1	19/07/2023	19/07/2023		19/07/2023	19/07/2023
pH	pH Units		Inorg-001	[NT]	1	6.5	6.5	0	99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	32000	33000	3	100	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	24000	24000	0	87	[NT]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	Inorg-024	<0.005	1	<0.005	<0.005	0	103	107
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.5	0.6	18	105	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.5	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.53	[NT]		97	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		97	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		98	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	[NT]		97	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	<0.2	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.03	[NT]		104	[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: no filtered, preserved sample was received for #6, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

Ion Balance - # 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.

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.

PCBs in Water - The PQL has been raised due to interferences from analytes (other than those being tested) in sample/s 328369-4.

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	Envirolab Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	Jieli Xie	Lab Batch No:	
Phone / Email:	426205616	Date Results Required:	**Standard TAT**
Results to:	jpickerden@epicenvironmental.com.au; jxie@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	PFAS Jar	Plastic Bag	water/liquid: 40ml Amber Vial	100-500ml Amber Bottle	60ml Metals	60ml Nutrients	250-500ml Plastic (Unpreserved)	60-250ml Plastic (PFAS)	ASS	Combo 8L (13 Metals - Low level)	VOC Suite - ADWG Level	PFAS (Short Suite)	Nutrient Suite	Ionic Balance	Hexavalent Chromium	TDS, pH, EC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	SMWENV042	19.07	W										X						X			
2	SMW_WTP_BH13												X						X			
3	CZ4e_MW01												X						X			
4	CZ4e_MW03												X						X			
5	SMW-ENV039												X						X			
6	QC01												X						X			
P1S to ALS	QC02												X						X			
7	RS02																				X	X
8	TS																			X		
9	TB																			X		
			TOTALS										0	0	0	0	0	0	0	0		0

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 328537
Date Received: 20/7
Time Received: 17:15
Received By: SD
Temp: Cool/Ambient
Cooling: Ice/Icepack 4°C
Security: Intact/Broken/None

Relinquished By:	Jieli Xie (Joy)	Received By:	Sherry	Custody Seals Intact	Y	N
NAME		NAME		Samples Received Chilled	Y	N
SIGNATURE		SIGNATURE	SD	Method of Shipment		
DATE	19.07	DATE	20/7			

NOTES: Bottles supplied for As speciation to be placed on HOLD and not analysed.

Please send through QC02 to ALS for testing.

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	SC210108.03 - GWMP
Envirolab Reference	328537
Date Sample Received	20/07/2023
Date Instructions Received	20/07/2023
Date Results Expected to be Reported	27/07/2023

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	9 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	Total Phenolicsin Water	HM in water - dissolved	Metals in Waters -Acid extractable	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	pH	Electrical Conductivity	Total Dissolved Solids(grav)	Hexavalent Chromium, Cr6+	Total Nitrogen in water	TKN in water	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Organic Nitrogen as N	Phosphate as P in water	PFAS in Waters Short
SMW_ENV042	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_WTP_BH13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CZ4e_MW01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CZ4e_MW03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_ENV039	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
QC01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RS02		✓	✓						✓																										
TS		✓																																	
TB		✓																																	

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 328537

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	**SC210108.03 - GWMP**
Number of Samples	9 Water
Date samples received	20/07/2023
Date completed instructions received	20/07/2023

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	27/07/2023
Date of Issue	27/07/2023

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

Results Approved By
Alexander Mitchell Maclean, Senior Chemist
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Nancy Zhang, Laboratory Manager, Sydney
Nick Sarlamis, Assistant Operation Manager
Steven Luong, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	<2	<2	<2	<2	<2
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0.7	<0.7	<0.7	<0.7	<0.7
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	108	108	107	107	109
Surrogate toluene-d8	%	101	102	101	102	102
Surrogate 4-BFB	%	104	103	103	103	104

VOCs in water		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date extracted	-	20/07/2023
Date analysed	-	24/07/2023
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<0.3
Bromomethane	µg/L	<2
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		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
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
4-isopropyl toluene	µg/L	<1
1,4-dichlorobenzene	µg/L	<0.3
n-butyl benzene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<0.7
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	110
Surrogate toluene-d8	%	102
Surrogate 4-BFB	%	106

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
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	%	108	108	107	107	109
Surrogate toluene-d8	%	101	102	101	102	102
Surrogate 4-BFB	%	104	103	103	103	104

vTRH(C6-C10)/BTEXN in Water					
Our Reference		328537-6	328537-7	328537-8	328537-9
Your Reference	UNITS	QC01	RS02	TS	TB
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
TRH C_6 - C_9	µg/L	<10	<10	[NA]	<10
TRH C_6 - C_{10}	µg/L	<10	<10	[NA]	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	[NA]	[NA]	<10
Benzene	µg/L	<1	[NA]	129%	<1
Toluene	µg/L	<1	[NA]	121%	<1
Ethylbenzene	µg/L	<1	[NA]	117%	<1
m+p-xylene	µg/L	<2	[NA]	117%	<2
o-xylene	µg/L	<1	[NA]	115%	<1
Naphthalene	µg/L	<1	[NA]	[NA]	<1
Surrogate Dibromofluoromethane	%	110	103	111	108
Surrogate toluene-d8	%	102	101	104	101
Surrogate 4-BFB	%	106	105	93	104

svTRH (C10-C40) in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
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	%	76	79	82	68	85

svTRH (C10-C40) in Water			
Our Reference		328537-6	328537-7
Your Reference	UNITS	QC01	RS02
Date Sampled		19/07/2023	19/07/2023
Type of sample		Water	Water
Date extracted	-	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023
TRH C_{10} - C_{14}	µg/L	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100
TRH C_{29} - C_{36}	µg/L	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	[NT]
TRH >C_{16} - C_{34}	µg/L	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50
Surrogate o-Terphenyl	%	61	75

PAHs in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
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	%	83	85	82	73	94

PAHs in Water		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	24/07/2023
Naphthalene	µg/L	<0.2
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	%	67

Organochlorine Pesticides in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
HCB	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	82	84	83	74	91

Organochlorine Pesticides in Water		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	24/07/2023
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
Surrogate TCMX	%	66

OP Pesticides in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Dichlorvos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-Methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenamiphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Phosalone	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Coumaphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	82	84	83	74	91

OP Pesticides in Water		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	24/07/2023
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 TCMX	%	66

PCBs in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Aroclor 1016	µg/L	<2	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2	<2
Surrogate TCMX	%	82	84	83	74	91

PCBs in Water		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	24/07/2023
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 TCMX	%	66

Total Phenolics in Water						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

Total Phenolics in Water		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	24/07/2023
Total Phenolics (as Phenol)	mg/L	<0.05

HM in water - dissolved						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Arsenic-Dissolved	µg/L	6	<1	6	<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
Copper-Dissolved	µg/L	210	<1	4	1	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	12	7	11	15	3
Zinc-Dissolved	µg/L	32	4	38	30	8
Boron-Dissolved	µg/L	100	60	70	40	60
Beryllium-Dissolved	µg/L	<0.5	<0.5	0.5	<0.5	<0.5
Cobalt-Dissolved	µg/L	16	22	16	38	35
Manganese-Dissolved	µg/L	350	230	1,800	2,400	1,900
Selenium-Dissolved	µg/L	<1	<1	<1	<1	<1

HM in water - dissolved			
Our Reference		328537-6	328537-7
Your Reference	UNITS	QC01	RS02
Date Sampled		19/07/2023	19/07/2023
Type of sample		Water	Water
Date prepared	-	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023
Arsenic-Dissolved	µg/L	3	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	1	<1
Lead-Dissolved	µg/L	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05
Nickel-Dissolved	µg/L	3	<1
Zinc-Dissolved	µg/L	8	<1
Boron-Dissolved	µg/L	60	[NA]
Beryllium-Dissolved	µg/L	<0.5	[NA]
Cobalt-Dissolved	µg/L	32	[NA]
Manganese-Dissolved	µg/L	1,800	[NA]
Selenium-Dissolved	µg/L	<1	[NA]

Metals in Waters - Acid extractable						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Phosphorus - Total	mg/L	<0.05	<0.05	<0.05	0.05	<0.05

Metals in Waters - Acid extractable		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date prepared	-	24/07/2023
Date analysed	-	25/07/2023
Phosphorus - Total	mg/L	<0.05

Ion Balance						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Calcium - Dissolved	mg/L	180	50	120	63	360
Potassium - Dissolved	mg/L	14	8.2	5.4	3	27
Sodium - Dissolved	mg/L	5,400	2,300	2,000	1,400	7,200
Magnesium - Dissolved	mg/L	730	200	190	99	950
Hardness	mgCaCO 3 /L	3,500	960	1,100	570	4,800
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	94	140	430	130	430
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	94	140	430	130	430
Sulphate, SO4	mg/L	1,200	450	1,300	840	1,900
Chloride, Cl	mg/L	8,800	3,200	2,800	1,600	10,000
Ionic Balance	%	5.0	8.0	-2.0	6.0	10

Ion Balance		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date prepared	-	20/07/2023
Date analysed	-	20/07/2023
Calcium - Dissolved	mg/L	350
Potassium - Dissolved	mg/L	26
Sodium - Dissolved	mg/L	6,900
Magnesium - Dissolved	mg/L	940
Hardness	mgCaCO 3 /L	4,700
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	440
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	440
Sulphate, SO4	mg/L	1,900
Chloride, Cl	mg/L	10,000
Ionic Balance	%	8.0

Miscellaneous Inorganics						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
Date analysed	-	20/07/2023	20/07/2023	20/07/2023	20/07/2023	20/07/2023
pH	pH Units	5.8	6.4	6.4	6.2	6.6
Electrical Conductivity	µS/cm	24,000	10,000	10,000	6,200	29,000
Total Dissolved Solids (grav)	mg/L	16,000	6,400	6,800	3,600	20,000
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Total Nitrogen in water	mg/L	1.3	0.2	0.3	0.1	0.7
TKN in water	mg/L	1.3	0.2	0.3	0.1	0.7
Ammonia as N in water	mg/L	0.79	0.022	0.064	0.042	0.77
Nitrate as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
NOx as N in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Organic Nitrogen as N	mg/L	0.5	<0.2	0.2	<0.2	<0.2
Phosphate as P in water	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Miscellaneous Inorganics		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date prepared	-	20/07/2023
Date analysed	-	20/07/2023
pH	pH Units	6.6
Electrical Conductivity	µS/cm	29,000
Total Dissolved Solids (grav)	mg/L	21,000
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005
Total Nitrogen in water	mg/L	0.8
TKN in water	mg/L	0.8
Ammonia as N in water	mg/L	0.78
Nitrate as N in water	mg/L	<0.005
Nitrite as N in water	mg/L	<0.005
NOx as N in water	mg/L	<0.005
Organic Nitrogen as N	mg/L	<0.2
Phosphate as P in water	mg/L	<0.005

PFAS in Waters Short						
Our Reference		328537-1	328537-2	328537-3	328537-4	328537-5
Your Reference	UNITS	SMW_ENV042	SMW_WTP_BH13	CZ4e_MW01	CZ4e_MW03	SMW_ENV039
Date Sampled		19/07/2023	19/07/2023	19/07/2023	19/07/2023	19/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	0.03	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
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*	%	96	102	101	101	98
Surrogate $^{13}C_2$ *PFOA*	%	100	100	98	100	103
Extracted ISTD $^{18}O_2$ *PFHxS*	%	104	103	102	102	104
Extracted ISTD $^{13}C_4$ *PFOS*	%	101	100	96	96	95
Extracted ISTD $^{13}C_4$ *PFOA*	%	108	105	107	100	97
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	87	87	81	79	80
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	101	97	98	88	86
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	<0.01	0.03	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	µg/L	<0.01	<0.01	<0.01	0.03	<0.01

PFAS in Waters Short		
Our Reference		328537-6
Your Reference	UNITS	QC01
Date Sampled		19/07/2023
Type of sample		Water
Date prepared	-	21/07/2023
Date analysed	-	21/07/2023
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*	%	99
Surrogate $^{13}C_2$ *PFOA*	%	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	102
Extracted ISTD $^{13}C_4$ *PFOS*	%	93
Extracted ISTD $^{13}C_4$ *PFOA*	%	99
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	73
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	87
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 in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-024	Hexavalent Chromium (Cr6+) - determined colourimetrically. Waters samples are filtered on receipt prior to analysis.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
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.
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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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-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	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	[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	0.3	Org-023	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
Bromomethane	µg/L	2	Org-023	<2	1	<2	<2	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	103	[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	109	[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	109	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	102	[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	[NT]	[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	108	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	93	[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	[NT]	[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	84	[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	108	[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	[NT]	[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	[NT]	[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-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[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]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	0.3	Org-023	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
n-butyl benzene	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]
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	0.7	Org-023	<0.7	1	<0.7	<0.7	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	108	103	5	104	[NT]
Surrogate toluene-d8	%		Org-023	100	1	101	100	1	102	[NT]
Surrogate 4-BFB	%		Org-023	107	1	104	104	0	98	[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	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	98	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	98	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	99	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	92	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	101	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	1	108	103	5	104	[NT]
Surrogate toluene-d8	%		Org-023	100	1	101	100	1	102	[NT]
Surrogate 4-BFB	%		Org-023	107	1	104	104	0	98	[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	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	[NT]
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	99	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	103	[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	99	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	103	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	114	[NT]
Surrogate o-Terphenyl	%		Org-020	82	1	76	82	8	93	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328537-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Naphthalene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	69	88
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	72	94
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	67	88
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	69	89
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	65	89
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	68	93
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	67	93
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	64	88
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	79	1	83	86	4	74	82

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328537-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	71	93
HCB	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	72	96
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	77	115
delta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	65	89
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	65	90
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	72	99
Dieldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	71	97
Endrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	61	97
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	68	100
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	67	96
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	73	1	82	85	4	73	84

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328537-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	82	108
Mevinphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	65	91
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	94	94
Malathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	88	125
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	72	103
Fenthion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	85	90
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	70	113
Phosalone	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	73	1	82	85	4	73	84

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328537-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Aroclor 1016	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	1	<2	<2	0	68	94
Aroclor 1260	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	73	1	82	85	4	73	84

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328537-2
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	104	94

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	[NT]
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	6	6	0	99	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	111	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	210	220	5	105	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		113	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	12	12	0	106	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	32	33	3	110	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	1	100	100	0	100	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	105	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	16	16	0	107	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	350	350	0	112	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	93	[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	-			24/07/2023	[NT]	[NT]	[NT]	[NT]	24/07/2023	[NT]
Date analysed	-			25/07/2023	[NT]	[NT]	[NT]	[NT]	25/07/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Date analysed	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	180	190	5	105	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	14	15	7	99	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	5400	5400	0	98	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	730	740	1	104	[NT]
Hardness	mgCaCO 3 /L	3	Metals-020	[NT]	1	3500	3500	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	94	87	8	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	94	87	8	99	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	1200	1200	0	117	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	1	8800	8500	3	109	[NT]
Ionic Balance	%		Inorg-040	[NT]	1	5.0	7.0	33	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328537-2
Date prepared	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
Date analysed	-			20/07/2023	1	20/07/2023	20/07/2023		20/07/2023	20/07/2023
pH	pH Units		Inorg-001	[NT]	1	5.8	5.8	0	99	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	24000	24000	0	99	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	16000	[NT]		88	[NT]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	Inorg-024	<0.005	1	<0.005	<0.005	0	104	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.3	1.3	0	100	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	1.3	1.3	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.79	0.80	1	103	87
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	97	93
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	104	115
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	97	93
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.5	0.5	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	<0.005	0	110	110

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[NT]
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	[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	<0.01	<0.01	0	103	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	99	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	101	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	104	[NT]
Surrogate $^{13}C_8$ PFOS	%		Org-029	100	1	96	95	1	98	[NT]
Surrogate $^{13}C_2$ PFOA	%		Org-029	104	1	100	99	1	96	[NT]
Extracted ISTD $^{18}O_2$ PFHxS	%		Org-029	100	1	104	104	0	98	[NT]
Extracted ISTD $^{13}C_4$ PFOS	%		Org-029	96	1	101	102	1	97	[NT]
Extracted ISTD $^{13}C_4$ PFOA	%		Org-029	103	1	108	105	3	102	[NT]
Extracted ISTD $^{13}C_2$ 6:2FTS	%		Org-029	108	1	87	79	10	108	[NT]
Extracted ISTD $^{13}C_2$ 8:2FTS	%		Org-029	121	1	101	93	8	116	[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.

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	Envirolab Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	Jieli Xie	Lab Batch No:	
Phone / Email:	426205616	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au; jxie@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	PFAS Jar	Plastic Bag	water/liquid: 40ml Amber Vial	100-500ml Amber Bottle	60ml Metals	60ml Nutrients	250-500ml Plastic (Unpreserved)	60-250ml Plastic (PFAS)	ASS	Combo 8L (13 Metals - Low level)	VOC Suite - ADWG Level	PFAS (Short Suite)	Nutrient Suite	Ionic Balance	Hexavalent Chromium	TDS, pH, EC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	GALC-MW18	20.07	W										X						X			
2	GALC-MW12	20.07	W										X						X			
3	SMW_WTP_BH02	21.07	W										X						X			
4	SMW_WTP_BH03A	21.07	W										X						X			
5	RS03																				X	X
6	RS04																				X	X
7	TS																			X		
8	TB																			X		
			TOTALS										0	0	0	0	0	0	0	0		0

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 328652
Date Received: 21/7/23
Time Received: 1700
Received By: KW
Temp: Cool/Ambient 2°C
Cooling: Ice/Icepack
Security: Intact/Broken

Relinquished By: Jieli Xie (Joy)			
NAME	SIGNATURE	DATE 21.07	
Received By: Katy Wayne			
NAME	SIGNATURE	DATE 21/7/23 1700	

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 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, j Xie

Sample Login Details

Your reference	SC210108.03 - GWMP
Envirolab Reference	328652
Date Sample Received	21/07/2023
Date Instructions Received	21/07/2023
Date Results Expected to be Reported	28/07/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	8 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	2
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Two samples labelled 'RS03'. No 'RS04' received, randomly assigned #5 & #6.

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	Total Phenolicsin Water	HM in water - dissolved	Metals in Waters -Acid extractable	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	pH	Electrical Conductivity	Total Dissolved Solids(grav)	Hexavalent Chromium, Cr6+	Total Nitrogen in water	TKN in water	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Organic Nitrogen as N	Phosphate as P in water	PFAS in Waters Short
GALC_MW18	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
GALC_MW12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_WTP_BH02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_WTP_BH03A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RS03		✓	✓						✓																										
RS04		✓	✓						✓																										
TS		✓																																	
TB		✓																																	

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 328652

Client Details

Client	Epic Environmental (Sydney) Pty Ltd
Attention	Jonathan Pickerden, j Xie
Address	Suite 5, Level 9, 189 Kent Street, SYDNEY, NSW, 2000

Sample Details

Your Reference	**SC210108.03 - GWMP**
Number of Samples	8 Water
Date samples received	21/07/2023
Date completed instructions received	21/07/2023

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	28/07/2023
Date of Issue	28/07/2023

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Results Approved By
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager
Phalak Inthakesone, Organics Development Manager, Sydney
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10
Vinyl Chloride	µg/L	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	<2	<2	<2	<2
Chloroethane	µg/L	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1

VOCs in water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<0.3	<0.3	<0.3	<0.3
n-butyl benzene	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0.7	<0.7	<0.7	<0.7
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	105	106	106	105
Surrogate toluene-d8	%	101	102	101	102
Surrogate 4-BFB	%	104	105	105	104

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328652-1	328652-2	328652-3	328652-4	328652-5
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A	RS03
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
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	%	105	106	106	105	104
Surrogate toluene-d8	%	101	102	101	102	102
Surrogate 4-BFB	%	104	105	105	104	104

vTRH(C6-C10)/BTEXN in Water				
Our Reference		328652-6	328652-7	328652-8
Your Reference	UNITS	RS04	TS	TB
Date Sampled		21/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023
TRH C_6 - C_9	µg/L	<10	[NA]	<10
TRH C_6 - C_{10}	µg/L	<10	[NA]	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	[NA]	<10
Benzene	µg/L	<1	117%	<1
Toluene	µg/L	<1	107%	<1
Ethylbenzene	µg/L	<1	115%	<1
m+p-xylene	µg/L	<2	102%	<2
o-xylene	µg/L	<1	109%	<1
Naphthalene	µg/L	<1	[NA]	<1
Surrogate Dibromofluoromethane	%	106	108	107
Surrogate toluene-d8	%	102	102	102
Surrogate 4-BFB	%	107	98	106

svTRH (C10-C40) in Water						
Our Reference		328652-1	328652-2	328652-3	328652-4	328652-5
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A	RS03
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	24/07/2023	24/07/2023
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	240	220	<100
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	<50	<50	240	220	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	220	180	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	220	180	<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	220	180	<50
Surrogate o-Terphenyl	%	70	64	72	81	72

svTRH (C10-C40) in Water		
Our Reference		328652-6
Your Reference	UNITS	RS04
Date Sampled		21/07/2023
Type of sample		Water
Date extracted	-	24/07/2023
Date analysed	-	24/07/2023
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	%	70

PAHs in Water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2
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	%	67	71	74	63

Organochlorine Pesticides in Water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
HCB	µg/L	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	67	69	72	62

OP Pesticides in Water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Dichlorvos	µg/L	<0.2	<0.2	<0.2	<0.2
Mevinphos	µg/L	<0.2	<0.2	<0.2	<0.2
Phorate	µg/L	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2
Disulfoton	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2
Parathion-Methyl	µg/L	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2
Fenthion	µg/L	<0.2	<0.2	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2
Methidathion	µg/L	<0.2	<0.2	<0.2	<0.2
Fenamiphos	µg/L	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2
Phosalone	µg/L	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2	<0.2
Coumaphos	µg/L	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	67	69	72	62

PCBs in Water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Aroclor 1016	µg/L	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2
Surrogate TCMX	%	67	69	72	62

Total Phenolics in Water					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05

HM in water - dissolved						
Our Reference		328652-1	328652-2	328652-3	328652-4	328652-5
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A	RS03
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Arsenic-Dissolved	µg/L	4	6	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
Copper-Dissolved	µg/L	<1	<1	4	5	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	5	2	2	<1
Zinc-Dissolved	µg/L	4	22	7	26	<1
Boron-Dissolved	µg/L	30	2,000	70	30	<20
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt-Dissolved	µg/L	6	4	<1	<1	<1
Manganese-Dissolved	µg/L	880	370	190	25	<5
Selenium-Dissolved	µg/L	<1	<1	<1	<1	<1

HM in water - dissolved		
Our Reference		328652-6
Your Reference	UNITS	RS04
Date Sampled		21/07/2023
Type of sample		Water
Date prepared	-	25/07/2023
Date analysed	-	25/07/2023
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	<1
Zinc-Dissolved	µg/L	<1
Boron-Dissolved	µg/L	<20
Beryllium-Dissolved	µg/L	<0.5
Cobalt-Dissolved	µg/L	<1
Manganese-Dissolved	µg/L	<5
Selenium-Dissolved	µg/L	<1

Metals in Waters - Acid extractable					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Phosphorus - Total	mg/L	<0.05	0.07	0.2	0.09

Ion Balance					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date prepared	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Calcium - Dissolved	mg/L	40	120	130	18
Potassium - Dissolved	mg/L	6.4	110	44	7.8
Sodium - Dissolved	mg/L	1,900	3,200	1,800	260
Magnesium - Dissolved	mg/L	110	260	290	33
Hardness	mgCaCO 3 /L	570	1,400	1,500	180
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	250	210	960	140
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	250	210	960	140
Sulphate, SO4	mg/L	520	890	190	66
Chloride, Cl	mg/L	2,500	4,800	3,000	330
Ionic Balance	%	4.0	3.0	1.0	7.0

Miscellaneous Inorganics					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date prepared	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023
Date analysed	-	21/07/2023	21/07/2023	21/07/2023	21/07/2023
pH	pH Units	6.3	6.0	7.1	7.1
Electrical Conductivity	µS/cm	8,400	14,000	10,000	1,400
Total Dissolved Solids (grav)	mg/L	4,900	9,500	6,800	750
Hexavalent Chromium, Cr^{6+}	mg/L	<0.005	<0.005	<0.005	<0.005
Total Nitrogen in water	mg/L	0.3	3.2	1.1	1.5
TKN in water	mg/L	0.3	3.2	1.1	1.2
Ammonia as N in water	mg/L	0.016	2.4	0.72	0.14
Nitrate as N in water	mg/L	<0.005	<0.005	0.02	0.33
Nitrite as N in water	mg/L	<0.005	<0.005	0.009	<0.005
NOx as N in water	mg/L	<0.005	<0.005	0.03	0.3
Organic Nitrogen as N	mg/L	0.3	0.7	0.4	1.1
Phosphate as P in water	mg/L	<0.005	<0.005	0.008	0.04

PFAS in Waters Short					
Our Reference		328652-1	328652-2	328652-3	328652-4
Your Reference	UNITS	GALC_MW18	GALC_MW12	SMW_WTP_BH02	SMW_WTP_BH03A
Date Sampled		20/07/2023	20/07/2023	21/07/2023	21/07/2023
Type of sample		Water	Water	Water	Water
Date prepared	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Date analysed	-	24/07/2023	24/07/2023	24/07/2023	24/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	0.03	<0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	100	100	99	97
Surrogate $^{13}C_2$ *PFOA*	%	100	104	104	105
Extracted ISTD $^{18}O_2$ *PFHxS*	%	107	102	104	105
Extracted ISTD $^{13}C_4$ *PFOS*	%	103	104	103	107
Extracted ISTD $^{13}C_4$ *PFOA*	%	119	113	117	110
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	117	108	126	97
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	119	115	123	120
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	µg/L	<0.01	<0.01	0.03	<0.01

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-024	Hexavalent Chromium (Cr6+) - determined colourimetrically. Waters samples are filtered on receipt prior to analysis.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
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.
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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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-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	-			24/07/2023	[NT]	[NT]	[NT]	[NT]	24/07/2023	[NT]
Date analysed	-			25/07/2023	[NT]	[NT]	[NT]	[NT]	25/07/2023	[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	0.3	Org-023	<0.3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	2	Org-023	<2	[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]	105	[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]	105	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[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]	[NT]	[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]	101	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[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]	[NT]	[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]	109	[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]	107	[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]	[NT]	[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]	[NT]	[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]	[NT]	[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]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	0.3	Org-023	<0.3	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	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]
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	0.7	Org-023	<0.7	[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	101	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-023	103	[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-W2	[NT]
Date extracted	-			24/07/2023	[NT]	[NT]	[NT]	[NT]	24/07/2023	[NT]
Date analysed	-			25/07/2023	[NT]	[NT]	[NT]	[NT]	25/07/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	107	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate 4-BFB	%		Org-023	103	[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-W2	328652-2
Date extracted	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			25/07/2023	3	25/07/2023	25/07/2023		25/07/2023	25/07/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	3	<50	<50	0	99	100
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	3	240	260	8	103	108
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	3	<100	<100	0	114	93
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	3	220	220	0	99	100
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	3	<100	<100	0	103	108
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	3	<100	<100	0	114	93
Surrogate o-Terphenyl	%		Org-020	84	3	72	72	0	93	82

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	328652-2
Date extracted	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Naphthalene	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	82	97
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	84	92
Fluorene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	78	88
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	78	86
Anthracene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	78	88
Pyrene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	81	95
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	80	91
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	74	88
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	3	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	88	3	74	74	0	84	82

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	328652-2
Date extracted	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	83	91
HCB	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	84	91
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	100	118
delta-BHC	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	76	90
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	79	92
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	85	99
Dieldrin	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	82	100
Endrin	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	78	97
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	85	105
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	79	101
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	84	3	72	75	4	85	82

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	328652-2
Date extracted	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	104	117
Mevinphos	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	84	97
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	95	119
Malathion	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	96	121
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	83	99
Fenthion	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	90	117
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	79	121
Phosalone	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	3	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	84	3	72	75	4	86	83

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	328652-2
Date extracted	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	3	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Aroclor 1016	µg/L	2	Org-021	<2	3	<2	<2	0	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	3	<2	<2	0	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	3	<2	<2	0	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	3	<2	<2	0	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	3	<2	<2	0	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	3	<2	<2	0	80	94
Aroclor 1260	µg/L	2	Org-021	<2	3	<2	<2	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	84	3	72	75	4	85	82

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	[NT]
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	104	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328652-2
Date prepared	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	4	4	0	99	101
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	98	99
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	111	125
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	105	105
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	86
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	110	77
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	106	109
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	4	2	67	110	114
Boron-Dissolved	µg/L	20	Metals-022	<20	1	30	30	0	100	#
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	105	101
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	6	6	0	107	114
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	880	900	2	112	#
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	93	90

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			24/07/2023	[NT]	[NT]	[NT]	[NT]	24/07/2023	[NT]
Date analysed	-			25/07/2023	[NT]	[NT]	[NT]	[NT]	25/07/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328652-3
Date prepared	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	40	40	0	105	#
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	6.4	6.4	0	99	117
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	1900	1900	0	98	#
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	110	110	0	104	#
Hardness	mgCaCO 3 /L	3	Metals-020	[NT]	1	570	570	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	250	250	0	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	250	250	0	105	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	520	550	6	116	#
Chloride, Cl	mg/L	1	Inorg-081	<1	1	2500	2600	4	104	#
Ionic Balance	%		Inorg-040	[NT]	1	4.0	3.0	29	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328652-2
Date prepared	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
Date analysed	-			21/07/2023	1	21/07/2023	21/07/2023		21/07/2023	21/07/2023
pH	pH Units		Inorg-001	[NT]	1	6.3	6.4	2	101	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	8400	8500	1	101	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	4900	[NT]		102	[NT]
Hexavalent Chromium, Cr^{6+}	mg/L	0.005	Inorg-024	<0.005	1	<0.005	[NT]		107	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.3	0.3	0	105	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.3	0.3	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.016	0.013	21	94	75
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	91	80
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	97	105
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	91	80
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.3	0.2	40	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	<0.005	0	98	#

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328652-2
Date prepared	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Date analysed	-			24/07/2023	1	24/07/2023	24/07/2023		24/07/2023	24/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	99	100
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	92	99
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	96	96
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	96
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	98	101
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	98	1	100	104	4	97	102
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	99	1	100	101	1	98	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	103	1	107	111	4	100	106
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	101	1	103	101	2	104	99
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	111	1	119	118	1	106	112
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	102	1	117	105	11	110	101
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	117	1	119	120	1	119	107

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: no filtered, preserved sample was received for #5 and 6, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

8 HM in water - dissolved - # 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.

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.

Ion Balance - # 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.

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	Envirolab Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	Jieli Xie	Lab Batch No:	
Phone / Email:	426205616	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au; jxie@epicenvironmental.com.au		
Page 1 of 1		Sample Disposal After:	
Number of Eskies:	3		

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	PFAS Jar	Plastic Bag	40ml Amber Vial	100-500ml Amber Bottle	60ml Metals	60ml Nutrients	250-500ml Plastic (Unpreserved)	60-250ml Plastic (PFAS)	ASS	Combo 8L (13 Metals - Low level)	VOC Suite - ADWG Level	PFAS (Short Suite)	Nutrient Suite	Ionic Balance	Hexavalent Chromium	TDS, pH, EC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
	water/liquid																					
	~~PM_MW15~~												X									
1	PM_MW15	24.07	W										X						X			
2	PM_MW14	24.07	W										X						X			
3	SMW_BH004_S	25.07											X						X			
4	SMW_BH057_S	25.07											X						X			
5	SMW_ENV010	25.07											X						X			
6	SMW_A02_BH02	25.07.											X						X			
7	RS05 ~~QC03~~																				X	X
8	RS06 ~~QC04~~																				X	X
9	TS																			X		
10	TB.																			X		
11	QC03												X					X	X			
~~12~~ S/c	QC04												X						X			
			TOTALS										0	0	0	0	0	0	0	0		0

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job: 328386
Date Received: 25/7/23
Time Received: 1545
Received By: [illegible]
Temp: Cool/Ambient 20C
Cooling: Icepack
Security: Intact

Relinquished By:	Jieli XIE (Joy)		Received By:	Lady Wayne	25/7/23 1545
NAME	SIGNATURE	DATE	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.

Please send through QC04 to ALS for inter lab testing THX

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	SC210108.03 - GWMP
Envirolab Reference	328886
Date Sample Received	25/07/2023
Date Instructions Received	25/07/2023
Date Results Expected to be Reported	01/08/2023

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	11 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	Total Phenolicsin Water	HM in water - dissolved	Metals in Waters -Acid extractable	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	pH	Electrical Conductivity	Total Dissolved Solids(grav)	Hexavalent Chromium, Cr6+	Total Nitrogen in water	TKN in water	Ammonia as N in water	Nitrate as N in water	Nitrite as N in water	NOx as N in water	Organic Nitrogen as N	Phosphate as P in water	PFAS in Waters Short
PM_MW15	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PM_MW14	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_BH004_S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_BH057_S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_ENV010	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SMW_ADD_BH02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RS05		✓	✓						✓																										
RS06		✓	✓						✓																										
TS		✓																																	
TB		✓																																	
QC03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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 328886

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	**SC210108.03 - GWMP**
Number of Samples	11 Water
Date samples received	25/07/2023
Date completed instructions received	25/07/2023

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	01/08/2023
Date of Issue	01/08/2023

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Results Approved By
Alexander Mitchell Maclean, Senior Chemist
Diego Bigolin, Inorganics Supervisor
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager
Priya Samarawickrama, Senior Chemist
Steven Luong, Senior Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	<2	<2	<2	<2	<2
Chloroethane	µg/L	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1	<1	<1
Chloroform	µg/L	<1	<1	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1	<1	<1
Benzene	µg/L	<1	<1	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	3	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Bromoform	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
Styrene	µg/L	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1	<1	<1
o-xylene	µg/L	<1	<1	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,4-dichlorobenzene	µg/L	<0.3	<0.3	<0.3	<0.3	<0.3
n-butyl benzene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Hexachlorobutadiene	µg/L	<0.7	<0.7	<0.7	<0.7	<0.7
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	103	102	101	101	101
Surrogate toluene-d8	%	97	97	99	96	97
Surrogate 4-BFB	%	108	109	107	108	107

VOCs in water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date extracted	-	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<0.3	<0.3
Bromomethane	µg/L	<2	<2
Chloroethane	µg/L	<10	<10
Trichlorofluoromethane	µg/L	<10	<10
1,1-Dichloroethene	µg/L	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1
1,1-dichloroethane	µg/L	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1
Bromochloromethane	µg/L	<1	<1
Chloroform	µg/L	<1	<1
2,2-dichloropropane	µg/L	<1	<1
1,2-dichloroethane	µg/L	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1
1,1-dichloropropene	µg/L	<1	<1
Cyclohexane	µg/L	<1	<1
Carbon tetrachloride	µg/L	<1	<1
Benzene	µg/L	<1	<1
Dibromomethane	µg/L	<1	<1
1,2-dichloropropane	µg/L	<1	<1
Trichloroethene	µg/L	<1	<1
Bromodichloromethane	µg/L	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1
Toluene	µg/L	<1	<1
1,3-dichloropropane	µg/L	<1	<1
Dibromochloromethane	µg/L	<1	<1
1,2-dibromoethane	µg/L	<1	<1
Tetrachloroethene	µg/L	<1	3
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1

VOCs in water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Bromoform	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
Styrene	µg/L	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1
o-xylene	µg/L	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1
Isopropylbenzene	µg/L	<1	<1
Bromobenzene	µg/L	<1	<1
n-propyl benzene	µg/L	<1	<1
2-chlorotoluene	µg/L	<1	<1
4-chlorotoluene	µg/L	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1
Tert-butyl benzene	µg/L	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1
Sec-butyl benzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,4-dichlorobenzene	µg/L	<0.3	<0.3
n-butyl benzene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<0.7	<0.7
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	101	101
Surrogate toluene-d8	%	95	98
Surrogate 4-BFB	%	107	108

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023
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	%	103	102	101	101	101
Surrogate toluene-d8	%	97	97	99	96	97
Surrogate 4-BFB	%	108	109	107	108	107

vTRH(C6-C10)/BTEXN in Water						
Our Reference		328886-6	328886-7	328886-8	328886-9	328886-10
Your Reference	UNITS	SMW_ADD_BH02	RS05	RS06	TS	TB
Date Sampled		25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023
TRH C_6 - C_9	µg/L	<10	<10	<10	[NA]	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	[NA]	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	[NA]	<10
Benzene	µg/L	<1	<1	<1	115%	<1
Toluene	µg/L	<1	<1	<1	102%	<1
Ethylbenzene	µg/L	<1	<1	<1	111%	<1
m+p-xylene	µg/L	<2	<2	<2	98%	<2
o-xylene	µg/L	<1	<1	<1	109%	<1
Naphthalene	µg/L	<1	<1	<1	[NA]	<1
Surrogate Dibromofluoromethane	%	101	102	99	100	99
Surrogate toluene-d8	%	95	97	97	98	96
Surrogate 4-BFB	%	107	106	106	98	108

vTRH(C6-C10)/BTEXN in Water		
Our Reference		328886-11
Your Reference	UNITS	QC03
Date Sampled		25/07/2023
Type of sample		Water
Date extracted	-	26/07/2023
Date analysed	-	27/07/2023
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	%	98
Surrogate 4-BFB	%	108

svTRH (C10-C40) in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023
TRH C_{10} - C_{14}	µg/L	110	<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	110	<50	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	110	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	110	<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	110	<50	<50	<50	<50
Surrogate o-Terphenyl	%	69	79	73	80	81

svTRH (C10-C40) in Water					
Our Reference		328886-6	328886-7	328886-8	328886-11
Your Reference	UNITS	SMW_ADD_BH02	RS05	RS06	QC03
Date Sampled		25/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023	27/07/2023	27/07/2023
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	%	79	84	75	84

PAHs in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Naphthalene	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
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	89	83	84	83

PAHs in Water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date extracted	-	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023
Naphthalene	µg/L	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	77	87

Organochlorine Pesticides in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
alpha-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
HCB	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	75	86	82	86	87

Organochlorine Pesticides in Water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date extracted	-	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023
alpha-BHC	µg/L	<0.2	<0.2
HCB	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
pp-DDT	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Surrogate TCMX	%	83	90

OP Pesticides in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Dichlorvos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Mevinphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Phorate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Disulfoton	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion-Methyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenthion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Fenamiphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Phosalone	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Coumaphos	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2
Surrogate TCMX	%	75	86	82	86	87

OP Pesticides in Water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date extracted	-	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023
Dichlorvos	µg/L	<0.2	<0.2
Mevinphos	µg/L	<0.2	<0.2
Phorate	µg/L	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2
Diazinon	µg/L	<0.2	<0.2
Disulfoton	µg/L	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2
Parathion-Methyl	µg/L	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2
Malathion	µg/L	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2
Fenthion	µg/L	<0.2	<0.2
Parathion	µg/L	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2
Methidathion	µg/L	<0.2	<0.2
Fenamiphos	µg/L	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2
Phosalone	µg/L	<0.2	<0.2
Azinphos-methyl (Guthion)	µg/L	<0.2	<0.2
Coumaphos	µg/L	<0.2	<0.2
Surrogate TCMX	%	83	90

PCBs in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Aroclor 1016	µg/L	<2	<2	<2	<2	<2
Aroclor 1221	µg/L	<2	<2	<2	<2	<2
Aroclor 1232	µg/L	<2	<2	<2	<2	<2
Aroclor 1242	µg/L	<2	<2	<2	<2	<2
Aroclor 1248	µg/L	<2	<2	<2	<2	<2
Aroclor 1254	µg/L	<2	<2	<2	<2	<2
Aroclor 1260	µg/L	<2	<2	<2	<2	<2
Surrogate TCMX	%	75	86	82	86	87

PCBs in Water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date extracted	-	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023
Aroclor 1016	µg/L	<2	<2
Aroclor 1221	µg/L	<2	<2
Aroclor 1232	µg/L	<2	<2
Aroclor 1242	µg/L	<2	<2
Aroclor 1248	µg/L	<2	<2
Aroclor 1254	µg/L	<2	<2
Aroclor 1260	µg/L	<2	<2
Surrogate TCMX	%	83	90

Total Phenolics in Water						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05	<0.05	<0.05	<0.05

Total Phenolics in Water			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date extracted	-	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05

HM in water - dissolved						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Arsenic-Dissolved	µg/L	7	<1	<1	<1	15
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	2	<1	<1	<1	<1
Copper-Dissolved	µg/L	<1	21	10	82	<1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	2	<1	4	3	7
Zinc-Dissolved	µg/L	2	2	29	8	2
Boron-Dissolved	µg/L	50	100	60	200	870
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cobalt-Dissolved	µg/L	3	<1	8	7	14
Manganese-Dissolved	µg/L	180	<5	70	830	1,300
Selenium-Dissolved	µg/L	<1	3	5	<1	<1

HM in water - dissolved					
Our Reference		328886-6	328886-7	328886-8	328886-11
Your Reference	UNITS	SMW_ADD_BH02	RS05	RS06	QC03
Date Sampled		25/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water
Date prepared	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Arsenic-Dissolved	µg/L	9	<1	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1	<1
Copper-Dissolved	µg/L	1,000	<1	<1	12
Lead-Dissolved	µg/L	<1	<1	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05
Nickel-Dissolved	µg/L	39	<1	<1	4
Zinc-Dissolved	µg/L	43	<1	<1	32
Boron-Dissolved	µg/L	200	<20	<20	60
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5
Cobalt-Dissolved	µg/L	43	<1	<1	8
Manganese-Dissolved	µg/L	570	<5	<5	74
Selenium-Dissolved	µg/L	<1	<1	<1	5

Metals in Waters - Acid extractable						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023	27/07/2023	27/07/2023	27/07/2023
Phosphorus - Total	mg/L	0.51	<0.05	<0.05	<0.05	<0.05

Metals in Waters - Acid extractable			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date prepared	-	26/07/2023	26/07/2023
Date analysed	-	27/07/2023	27/07/2023
Phosphorus - Total	mg/L	<0.05	<0.05

Ion Balance						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Calcium - Dissolved	mg/L	7.2	3	6.4	13	8.0
Potassium - Dissolved	mg/L	0.6	1	3	13	24
Sodium - Dissolved	mg/L	110	110	62	120	180
Magnesium - Dissolved	mg/L	5.1	4	7.3	27	21
Hardness	mgCaCO 3 /L	39	25	46	140	110
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	60	99	61	150	230
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	60	99	61	150	230
Sulphate, SO4	mg/L	32	92	48	160	220
Chloride, Cl	mg/L	160	46	44	110	140
Ionic Balance	%	-7.0	0	3.0	-5.0	-10

Ion Balance			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date prepared	-	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023
Calcium - Dissolved	mg/L	490	6.6
Potassium - Dissolved	mg/L	54	3
Sodium - Dissolved	mg/L	2,400	61
Magnesium - Dissolved	mg/L	510	7.3
Hardness	mgCaCO 3 /L	3,300	47
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	820	62
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	820	62
Sulphate, SO4	mg/L	1,900	48
Chloride, Cl	mg/L	4,800	46
Ionic Balance	%	-4.0	2.0

Miscellaneous Inorganics						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023	25/07/2023	25/07/2023	25/07/2023
pH	pH Units	6.1	6.3	6.0	6.1	6.0
Electrical Conductivity	µS/cm	710	580	440	950	1,300
Total Dissolved Solids (grav)	mg/L	430	370	260	520	820
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Total Nitrogen in water	mg/L	0.2	4.4	9.2	0.2	5.3
TKN in water	mg/L	0.2	0.9	0.9	0.2	5.3
Ammonia as N in water	mg/L	0.10	<0.005	<0.005	0.061	4.3
Nitrate as N in water	mg/L	<0.005	3.5	8.0	0.03	<0.005
Nitrite as N in water	mg/L	<0.005	<0.005	0.18	<0.005	<0.005
NOx as N in water	mg/L	<0.005	3.5	8.2	0.03	<0.005
Organic Nitrogen as N	mg/L	<0.2	0.9	0.9	<0.2	1.0
Phosphate as P in water	mg/L	0.04	<0.005	0.01	<0.005	<0.005

Miscellaneous Inorganics			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date prepared	-	25/07/2023	25/07/2023
Date analysed	-	25/07/2023	25/07/2023
pH	pH Units	6.4	6.5
Electrical Conductivity	µS/cm	17,000	440
Total Dissolved Solids (grav)	mg/L	13,000	250
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005
Total Nitrogen in water	mg/L	4.1	8.7
TKN in water	mg/L	4.1	0.6
Ammonia as N in water	mg/L	3.8	<0.005
Nitrate as N in water	mg/L	<0.005	7.9
Nitrite as N in water	mg/L	0.013	0.17
NOx as N in water	mg/L	0.01	8.1
Organic Nitrogen as N	mg/L	0.3	0.6
Phosphate as P in water	mg/L	<0.005	0.01

PFAS in Waters Short						
Our Reference		328886-1	328886-2	328886-3	328886-4	328886-5
Your Reference	UNITS	PM_MW15	PM_MW14	SMW_BH004_S	SMW_BH057_S	SMW_ENV010
Date Sampled		24/07/2023	24/07/2023	25/07/2023	25/07/2023	25/07/2023
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023	26/07/2023	26/07/2023	26/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	0.14	<0.01	0.02	0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.13	0.02	0.02	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	0.09	0.04	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*	%	96	89	95	95	88
Surrogate $^{13}C_2$ *PFOA*	%	94	93	95	92	89
Extracted ISTD $^{18}O_2$ *PFHxS*	%	107	101	106	105	99
Extracted ISTD $^{13}C_4$ *PFOS*	%	117	121	118	116	123
Extracted ISTD $^{13}C_4$ *PFOA*	%	108	107	109	110	116
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	105	113	109	115	133
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	103	103	112	108	113
Total Positive PFHxS & PFOS	µg/L	<0.01	0.27	0.02	0.04	0.01
Total Positive PFOA & PFOS	µg/L	<0.01	0.22	0.06	0.03	<0.01
Total Positive PFAS	µg/L	<0.01	0.35	0.06	0.06	0.01

PFAS in Waters Short			
Our Reference		328886-6	328886-11
Your Reference	UNITS	SMW_ADD_BH02	QC03
Date Sampled		25/07/2023	25/07/2023
Type of sample		Water	Water
Date prepared	-	26/07/2023	26/07/2023
Date analysed	-	26/07/2023	26/07/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.02
Perfluorooctanoic acid PFOA	µg/L	<0.01	0.04
6:2 FTS	µg/L	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	88	87
Surrogate $^{13}C_2$ *PFOA*	%	87	94
Extracted ISTD $^{18}O_2$ *PFHxS*	%	86	99
Extracted ISTD $^{13}C_4$ *PFOS*	%	115	117
Extracted ISTD $^{13}C_4$ *PFOA*	%	95	101
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	80	104
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	77	117
Total Positive PFHxS & PFOS	µg/L	<0.01	0.02
Total Positive PFOA & PFOS	µg/L	<0.01	0.06
Total Positive PFAS	µg/L	<0.01	0.06

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.

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+. 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.
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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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-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	-			26/07/2023	1	26/07/2023	27/07/2023		26/07/2023	[NT]
Date analysed	-			27/07/2023	1	27/07/2023	28/07/2023		27/07/2023	[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	0.3	Org-023	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
Bromomethane	µg/L	2	Org-023	<2	1	<2	<2	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	108	[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	115	[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	118	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	110	[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	[NT]	[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	119	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	103	[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	[NT]	[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	94	[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	111	[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	[NT]	[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	[NT]	[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	[NT]	[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]
4-isopropyl toluene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	0.3	Org-023	<0.3	1	<0.3	<0.3	0	[NT]	[NT]
n-butyl benzene	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]
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	0.7	Org-023	<0.7	1	<0.7	<0.7	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	95	1	103	99	4	95	[NT]
Surrogate toluene-d8	%		Org-023	97	1	97	97	0	98	[NT]
Surrogate 4-BFB	%		Org-023	108	1	108	113	5	100	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	6	26/07/2023	27/07/2023		[NT]	[NT]
Date analysed	-			[NT]	6	27/07/2023	28/07/2023		[NT]	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	[NT]	6	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	[NT]	6	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	0.3	Org-023	[NT]	6	<0.3	<0.3	0	[NT]	[NT]
Bromomethane	µg/L	2	Org-023	[NT]	6	<2	<2	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	[NT]	6	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	[NT]	6	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Chloroform	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
2,2-dichloropropane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,1-dichloropropene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Cyclohexane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Carbon tetrachloride	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Dibromomethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2-dichloropropane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Trichloroethene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Bromodichloromethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,1,2-trichloroethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,3-dichloropropane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Dibromochloromethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2-dibromoethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Bromoform	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	[NT]	6	<2	<2	0	[NT]	[NT]
Styrene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
o-xylene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,4-dichlorobenzene	µg/L	0.3	Org-023	[NT]	6	<0.3	<0.3	0	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Hexachlorobutadiene	µg/L	0.7	Org-023	[NT]	6	<0.7	<0.7	0	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	6	101	102	1	[NT]	[NT]
Surrogate toluene-d8	%		Org-023	[NT]	6	95	95	0	[NT]	[NT]
Surrogate 4-BFB	%		Org-023	[NT]	6	107	109	2	[NT]	[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	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	[NT]
Date analysed	-			27/07/2023	1	27/07/2023	27/07/2023		27/07/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	112	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	112	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	117	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	111	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	113	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	109	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	119	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	95	1	103	99	4	95	[NT]
Surrogate toluene-d8	%		Org-023	97	1	97	97	0	98	[NT]
Surrogate 4-BFB	%		Org-023	108	1	108	113	5	100	[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]	6	26/07/2023	26/07/2023		[NT]	[NT]
Date analysed	-			[NT]	6	27/07/2023	27/07/2023		[NT]	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	[NT]	6	<10	<10	0	[NT]	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	[NT]	6	<10	<10	0	[NT]	[NT]
Benzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Toluene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	[NT]	6	<2	<2	0	[NT]	[NT]
o-xylene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Naphthalene	µg/L	1	Org-023	[NT]	6	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	[NT]	6	101	102	1	[NT]	[NT]
Surrogate toluene-d8	%		Org-023	[NT]	6	95	95	0	[NT]	[NT]
Surrogate 4-BFB	%		Org-023	[NT]	6	107	109	2	[NT]	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-3
Date extracted	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			27/07/2023	1	26/07/2023	27/07/2023		26/07/2023	27/07/2023
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	110	110	0	84	79
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	89	84
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	100	82
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	110	130	17	84	79
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	89	84
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	100	82
Surrogate o-Terphenyl	%		Org-020	83	1	69	87	23	80	86

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			[NT]	[NT]	[NT]	[NT]	[NT]	26/07/2023	[NT]
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	27/07/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	[NT]	[NT]	[NT]	[NT]	[NT]	79	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date extracted	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Naphthalene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	82	78
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	85	78
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	73
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	81	76
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	78
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	84	77
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	81	79
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	77	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	104	1	74	96	26	88	91

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date extracted	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	87	78
HCB	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
beta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	87	78
gamma-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Heptachlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	82	76
delta-BHC	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Aldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	80	77
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	83	75
gamma-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
alpha-Chlordane	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan I	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDE	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	88	84
Dieldrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	95	84
Endrin	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	84	75
Endosulfan II	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDD	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	83	76
Endrin Aldehyde	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
pp-DDT	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Endosulfan Sulphate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	85	75
Methoxychlor	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	97	1	75	97	26	83	91

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date extracted	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	106	90
Mevinphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Phorate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Dimethoate	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Diazinon	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Disulfoton	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Chlorpyriphos-methyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Parathion-Methyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Ronnel	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	83	76
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	105	86
Malathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	101	87
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	86	77
Fenthion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Parathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	98	79
Bromophos ethyl	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Methidathion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Fenamiphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Ethion	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	86	74
Phosalone	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Azinphos-methyl (Guthion)	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Coumaphos	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Surrogate TCMX	%		Org-022/025	97	1	75	97	26	83	91

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date extracted	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Aroclor 1016	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	1	<2	<2	0	83	79
Aroclor 1260	µg/L	2	Org-021	<2	1	<2	<2	0	[NT]	[NT]
Surrogate TCMX	%		Org-021	97	1	75	97	26	83	91

QUALITY CONTROL: Total Phenolics in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date extracted	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	1	<0.05	<0.05	0	104	97

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W6	328886-2
Date prepared	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	26/07/2023
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	7	7	0	95	98
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	96	99
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	101	103
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	101
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	93
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		117	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	100	101
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	103	110
Boron-Dissolved	µg/L	20	Metals-022	<20	1	50	50	0	103	109
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	91	97
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	101	102
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	180	180	0	102	105
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	100

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	328886-5
Date prepared	-			[NT]	4	26/07/2023	26/07/2023		[NT]	26/07/2023
Date analysed	-			[NT]	4	26/07/2023	26/07/2023		[NT]	26/07/2023
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]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	4	82	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	94
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	4	3	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	4	8	[NT]		[NT]	[NT]
Boron-Dissolved	µg/L	20	Metals-022	[NT]	4	200	[NT]		[NT]	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	[NT]	4	<0.5	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	4	7	[NT]		[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	4	830	[NT]		[NT]	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Acid extractable						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	[NT]
Date analysed	-			27/07/2023	1	27/07/2023	27/07/2023		27/07/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.51	0.54	6	112	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date prepared	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	7.2	7.2	0	97	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	0.6	0.6	0	88	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	110	110	0	88	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	5.1	5.1	0	92	[NT]
Hardness	mgCaCO 3 /L	3	Metals-020	[NT]	1	39	39	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	60	59	2	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	60	59	2	100	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	32	32	0	110	#
Chloride, Cl	mg/L	1	Inorg-081	<1	1	160	160	0	98	84
Ionic Balance	%		Inorg-040	[NT]	1	-7.0	-6.0	-15	[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	328886-3
Date prepared	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	25/07/2023
Date analysed	-			[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	25/07/2023
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	95
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	90
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	#
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]	91

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	328886-2
Date prepared	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
Date analysed	-			25/07/2023	1	25/07/2023	25/07/2023		25/07/2023	25/07/2023
pH	pH Units		Inorg-001	[NT]	1	6.1	5.9	3	98	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	710	710	0	102	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	430	[NT]		97	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	107	100
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.2	0.2	0	80	74
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	0.2	0.2	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.10	0.099	1	[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	<0.005	<0.005	0	[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.04	0.04	0	[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	6	25/07/2023	25/07/2023		[NT]	[NT]
Date analysed	-			[NT]	6	25/07/2023	25/07/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	6	6.4	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	6	17000	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	6	13000	13000	0	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	6	<0.005	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	6	4.1	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	6	4.1	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	6	3.8	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	6	<0.005	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	6	0.013	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	6	0.01	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	6	0.3	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	6	<0.005	[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	25/07/2023	25/07/2023		[NT]	[NT]
Date analysed	-			[NT]	11	25/07/2023	25/07/2023		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	11	6.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	11	440	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	11	250	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	[NT]	11	<0.005	<0.005	0	[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	11	8.7	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	11	0.6	[NT]		[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	11	<0.005	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	11	7.9	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	11	0.17	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	11	8.1	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	11	0.6	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	11	0.01	[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	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	[NT]
Date analysed	-			26/07/2023	1	26/07/2023	26/07/2023		26/07/2023	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	98	[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	109	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	99	1	96	95	1	100	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	94	1	94	95	1	101	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	105	1	107	106	1	100	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	107	1	117	114	3	105	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	104	1	108	106	2	99	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	107	1	105	116	10	105	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	122	1	103	111	7	118	[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: no filtered, preserved sample was received for #7 and 8, therefore the unpreserved sample was filtered through 0.45µm filter at the lab.
Note: there is a possibility some elements may be underestimated.

Ion Balance - # 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.

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.

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	Envirolab Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	Jieli Xie	Lab Batch No:	
Phone / Email:	426205616	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au; jxie@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	PFAS jar	Plastic Bag	water/liquid: 40ml Amber Vial	100-500ml Amber Bottle	60ml Metals	60ml N[illegible]	250-500ml Plastic (Unpreserved)	60-250ml Plastic (PFAS)	ASS	Combo 8L (13 Metals - Low level)	VOC Suite - ADWG Level	PFAS (Short Suite)	Nutrient Suite	Ionic Balance	Hexavalent Chromium	TDS, pH, EC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
1	SMWENV042	19.07	W										X						X			
2	SMW_WTP_BH13												X						X			
3	CZ4e_MW01												X						X			
4	CZ4e_MW03												X						X			
5	SMW-ENV039												X						X			
6	QC01												X						X			
P/S to ALS	QC02												X						X			
7	RS02																				X	X
8	TS																			X		
9	TB																			X		
			TOTALS										0	0	0	0	0	0	0	0		0

HT

Environmental Division
Sydney
Work Order Reference
ES2324492
Telephone : +61-2-8784 8555

Relinquished By: NAME	Jieli XIE (Joy)	Sherry D-A ELS SYD SIGNATURE	21/7/23 DATE 19.07	Received By: NAME Sherry SIGNATURE SD	DATE 20/7

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.

Please send through QC02 to ALS for testing.

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. FAD: [signature] 21/7/23 J. Ly

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2324492**

Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: Joy Xie	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: jxie@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SC210108.03 - GWMP	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017EPIENV0004 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: Jieli Xie		

Dates

Date Samples Received	: 21-Jul-2023 17:20	Issue Date	: 21-Jul-2023
Client Requested Due Date	: 28-Jul-2023	Scheduled Reporting Date	: **28-Jul-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 12.2, 13.8, 10.1'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please 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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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 - EG050G-T Total Hexavalent Chromium	WATER - EG094-F Dissolved Metals by ORC - Ultra Trace in Fresh	WATER - EP074 (water) Volatile Organic Compounds	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-08 Total Nitrogen + NO2 + NO3 + NH3 + Total P	WATER - W-33 TRH/BTEXN/PAH/Phenols/OC/OP
ES2324492-001	19-Jul-2023 00:00	QC02	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EP231 PFAS - Short Suite (12 analytes)
ES2324492-001	19-Jul-2023 00:00	QC02	✓	✓	✓

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							
QC02	Clear Plastic Bottle - Natural	----	19-Jul-2023	21-Jul-2023	×	----	----

Requested Deliverables

ESDAT REPORTS		
- EDI Format - ESDAT (ESDAT)	Email	epicenvironmental@esdat.com.au
INVOICES		
- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au
INVOICES & RESULTS		
- *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
- A4 - AU Tax Invoice (INV)	Email	labs@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	labs@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	labs@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	labs@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
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au
Joy Xie		
- *AU Certificate of Analysis - NATA (COA)	Email	jxie@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jxie@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jxie@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jxie@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	jxie@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	jxie@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	jxie@epicenvironmental.com.au

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2324492**	Page	: 1 of 11
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: Joy Xie	Telephone	: +61-2-8784 8555
Project	: SC210108.03 - GWMP	Date Samples Received	: 21-Jul-2023
Site	: ----	Issue Date	: 28-Jul-2023
Sampler	: Jieli Xie	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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	ES2324492--001	QC02	**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	ES2324492--001	QC02	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK055G: Ammonia as N by Discrete Analyser	ES2324415--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						
QC02	----	----	----	27-Jul-2023	19-Jul-2023	**8**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	20	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	5	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	20	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)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	19-Jul-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	16-Aug-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
QC02	19-Jul-2023	----	----	----	26-Jul-2023	26-Jul-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	02-Aug-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
QC02	19-Jul-2023	----	----	----	21-Jul-2023	16-Aug-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
QC02	19-Jul-2023	----	----	----	21-Jul-2023	16-Aug-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
QC02	19-Jul-2023	----	----	----	25-Jul-2023	16-Aug-2023	✓
EG050T: Total Hexavalent Chromium							
Clear Plastic Bottle - NaOH (EG050G-T)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	16-Aug-2023	✓
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG093A-F)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	15-Jan-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	16-Aug-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
QC02	19-Jul-2023	----	----	----	21-Jul-2023	21-Jul-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G)							
QC02	19-Jul-2023	----	----	----	27-Jul-2023	16-Aug-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G)							
QC02	19-Jul-2023	26-Jul-2023	16-Aug-2023	✓	27-Jul-2023	16-Aug-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G)							
QC02	19-Jul-2023	26-Jul-2023	16-Aug-2023	✓	27-Jul-2023	16-Aug-2023	✓

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)							
QC02	19-Jul-2023	25-Jul-2023	26-Jul-2023	✓	27-Jul-2023	03-Sep-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068)							
QC02	19-Jul-2023	25-Jul-2023	26-Jul-2023	✓	27-Jul-2023	03-Sep-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074B: Oxygenated Compounds							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074C: Sulfonated Compounds							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074D: Fumigants							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074F: Halogenated Aromatic Compounds							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074G: Trihalomethanes							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP074H: Naphthalene							
Clear glass VOC vial - HCl (EP074)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP075(SIM)A: Phenolic Compounds							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC02	19-Jul-2023	25-Jul-2023	26-Jul-2023	✓	27-Jul-2023	03-Sep-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP075(SIM))							
QC02	19-Jul-2023	25-Jul-2023	26-Jul-2023	✓	27-Jul-2023	03-Sep-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC02	19-Jul-2023	25-Jul-2023	26-Jul-2023	✓	26-Jul-2023	03-Sep-2023	✓
Clear glass VOC vial - HCl (EP080)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓

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)							
QC02	19-Jul-2023	25-Jul-2023	26-Jul-2023	✓	26-Jul-2023	03-Sep-2023	✓
Clear glass VOC vial - HCl (EP080)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP080-UT / EP071-SD: Total Recoverable Hydrocarbons							
Clear glass VOC vial - HCl (EP080)							
QC02	19-Jul-2023	25-Jul-2023	02-Aug-2023	✓	25-Jul-2023	02-Aug-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC02	19-Jul-2023	26-Jul-2023	15-Jan-2024	✓	27-Jul-2023	15-Jan-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC02	19-Jul-2023	26-Jul-2023	15-Jan-2024	✓	27-Jul-2023	15-Jan-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC02	19-Jul-2023	26-Jul-2023	15-Jan-2024	✓	27-Jul-2023	15-Jan-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC02	19-Jul-2023	26-Jul-2023	15-Jan-2024	✓	27-Jul-2023	15-Jan-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		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	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	32	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	10	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	8	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	1	100.00	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	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	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
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	39	10.26	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 Phosphorus as P By Discrete Analyser	EK067G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	20	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	12.50	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	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	1	200.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	32	9.38	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	1	100.00	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	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	20.00	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

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							
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	1	**200.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	5	39	**12.82**	**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 Phosphorus as P By Discrete Analyser	EK067G	3	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	32	**3.13**	**1.67**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	1	**100.00**	**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	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	2	39	**5.13**	**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 Phosphorus as P By Discrete Analyser	EK067G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	1	**100.00**	**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	11	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	5	**0.00**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	1	**100.00**	**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 Phosphorus as P By Discrete Analyser	EK067G	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*	
Matrix Spikes (MS) - Continued							
TRH - Semivolatile Fraction	EP071	0	20	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	8	**12.50**	**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)
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)
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	WATER	In house: Referenced to APHA 3500 Cr-A & B. 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).
Dissolved Metals in Saline Water -Suite A by ORC-ICPMS	EG093A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM Schedule B(3).
Dissolved Metals in Saline Water -Suite B by ORC-ICPMS	EG093B-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM Schedule B(3).

Analytical Methods	Method	Matrix	Method Descriptions
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)
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)
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)

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

Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	In house: Referenced to APHA 4500 Norg - D; APHA 4500 P - H. This method is compliant with NEPM Schedule B(3)
Separatory Funnel Extraction of Liquids	ORG14	WATER	In house: Referenced to USEPA SW 846 - 3510 100 mL to 1L of sample is transferred to a separatory funnel and serially extracted three times using DCM for each extract. The resultant extracts are combined, dehydrated and concentrated for analysis. This method is compliant with NEPM Schedule B(3) . ALS default excludes sediment which may be resident in the container.
Volatiles Water Preparation	ORG16-W	WATER	A 5 mL aliquot or 5 mL of a diluted sample is added to a 40 mL VOC vial for purging.
Solid Phase Extraction (SPE) for PFAS in water	ORG72	WATER	In-house: Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to the sample container. The entire contents are transferred to a solid phase extraction (SPE) cartridge. The sample container is successively rinsed with aliquots of the elution solvent. The eluted extract is combined with an equal volume of reagent water and a portion is filtered for analysis. Method procedures conform to US DoD QSM 5.3, table B-15 requirements.

QUALITY CONTROL REPORT

Work Order	: **ES2324492**	Page	: 1 of 18
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: Joy Xie	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	: SC210108.03 - GWMP	Date Samples Received	: 21-Jul-2023
Order number	: ----	Date Analysis Commenced	: 21-Jul-2023
C-O-C number	: ----	Issue Date	: 28-Jul-2023
Sampler	: Jieli Xie		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This 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

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: 5196310)									
ES2324686-002	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.95	7.85	1.3	0% - 20%
ES2324686-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.92	7.92	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5196309)									
ES2324443-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	2180	2190	0.3	0% - 20%
ES2324686-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	820	835	1.8	0% - 20%
ES2324762-007	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1080	1070	0.8	0% - 20%
ES2324686-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	823	835	1.5	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5196270)									
ES2324405-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	418	417	0.4	0% - 20%
ES2324405-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	518	522	0.7	0% - 20%
EW2303093-004	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	634	640	1.0	0% - 20%
EW2303299-009	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	97	102	5.0	0% - 50%
ED037P: Alkalinity by PC Titrator (QC Lot: 5196308)									
ES2324492-001	QC02	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	416	408	2.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	416	408	2.0	0% - 20%
ES2324686-001	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	170	170	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	170	170	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5188531)									
ES2324492-001	QC02	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1650	1680	1.5	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 (%)
ED045G: Chloride by Discrete Analyser (QC Lot: 5188532)									
ES2324492-001	QC02	ED045G: Chloride	16887-00-6	1	mg/L	9800	9840	0.4	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5193829)									
ES2324381-001	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	7	7	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ES2324405-010	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	67	65	3.1	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	36	35	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	65	64	2.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
EG050T: Total Hexavalent Chromium (QC Lot: 5194920)									
ES2324152-002	Anonymous	EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 5194937)									
EM2313199-001	Anonymous	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	8.1	8.2	0.0	0% - 50%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	53	50	5.1	0% - 50%
		EG093A-F: Zinc	7440-66-6	5	µg/L	8	7	0.0	No Limit
ES2324492-001	QC02	EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Cobalt	7440-48-4	0.2	µg/L	30.0	30.8	2.8	0% - 20%
		EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	<0.2	0.0	No Limit
		EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	<0.5	0.0	No Limit
		EG093A-F: Manganese	7439-96-5	0.5	µg/L	1410	1380	2.2	0% - 20%
		EG093A-F: Nickel	7440-02-0	0.5	µg/L	2.6	2.5	5.2	No Limit
		EG093A-F: Copper	7440-50-8	1	µg/L	<1	<1	0.0	No Limit
		EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	<5	0.0	No Limit
		EG093A-F: Zinc	7440-66-6	5	µg/L	<5	<5	0.0	No Limit
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QC Lot: 5194938)									
ES2324492-001	QC02	EG093B-F: Iron	7439-89-6	5	µg/L	6960	7450	6.7	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5194748)									
ES2324415-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	332	363	8.9	0% - 20%
ES2324488-005	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.07	0.03	85.9	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5188533)									

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: 5188533) - continued									
ES2324492-001	QC02	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: 5194750)									
ES2324586-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.47	0.47	0.0	0% - 20%
ES2324563-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.49	0.49	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5194747)									
ES2324488-012	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.2	2.2	0.0	0% - 20%
ES2324597-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	77.3	77.6	0.4	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5194746)									
ES2324488-012	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.13	0.14	9.9	0% - 50%
ES2324597-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	29.6	30.4	2.8	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5192692)									
CA2304425-001	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		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
ES2324492-001	QC02	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		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

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: 5192692) - continued									
ES2324492-001	QC02	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: 5192692)									
CA2304425-001	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
ES2324492-001	QC02	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: 5192692)									
CA2304425-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	28	28	0.0	No Limit
ES2324492-001	QC02	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5192692)									
CA2304425-001	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
ES2324492-001	QC02	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: 5192692)									
CA2304425-001	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

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: 5192692) - continued									
CA2304425-001	Anonymous	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
ES2324492-001	QC02	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 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: 5192692) - continued									
ES2324492-001	QC02	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: 5192692)									
CA2304425-001	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
ES2324492-001	QC02	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: 5192692)									
CA2304425-001	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
ES2324492-001	QC02	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
EP074H: Naphthalene (QC Lot: 5192692)									
CA2304425-001	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2324492-001	QC02	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5192693)									
ES2324492-001	QC02	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5192693)									
ES2324492-001	QC02	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5192693)									

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: 5192693) - continued									
ES2324492-001	QC02	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: 5193395)									
ES2324492-001	QC02	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
ES2324407-006	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	0.02	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: 5193395)									
ES2324492-001	QC02	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
ES2324407-006	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: 5193395)									
ES2324492-001	QC02	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
ES2324407-006	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

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: 5193395) - continued									
ES2324407-006	Anonymous	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: 5196310)								
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: 5196309)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	106	89.9	110
				<1	2100 µS/cm	102	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5196270)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	97.4	87.0	109
				<10	293 mg/L	100	75.2	126
				<10	2320 mg/L	106	83.0	124
ED037P: Alkalinity by PC Titrator (QCLot: 5196308)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	102	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5188531)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	94.5	82.0	122
				<1	500 mg/L	93.8	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5188532)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	102	80.9	127
				<1	1000 mg/L	103	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5193829)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	95.1	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	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	97.4	85.0	113
EG050T: Total Hexavalent Chromium (QCLot: 5194920)								
EG050G-T: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	108	87.0	113
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 5194937)								
EG093A-F: Aluminium	7429-90-5	5	µg/L	<5	50 µg/L	95.7	76.0	122
EG093A-F: Arsenic	7440-38-2	0.5	µg/L	<0.5	10 µg/L	100	76.0	134
EG093A-F: Cadmium	7440-43-9	0.2	µg/L	<0.2	10 µg/L	99.7	69.0	117
EG093A-F: Chromium	7440-47-3	0.5	µg/L	<0.5	10 µg/L	97.4	76.0	122
EG093A-F: Cobalt	7440-48-4	0.2	µg/L	<0.2	10 µg/L	100	75.0	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
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 5194937) - continued								
EG093A-F: Copper	7440-50-8	1	µg/L	<1	10 µg/L	100	71.0	129
EG093A-F: Lead	7439-92-1	0.2	µg/L	<0.2	10 µg/L	94.6	74.0	120
EG093A-F: Manganese	7439-96-5	0.5	µg/L	<0.5	10 µg/L	96.5	72.0	122
EG093A-F: Nickel	7440-02-0	0.5	µg/L	<0.5	10 µg/L	104	72.0	124
EG093A-F: Zinc	7440-66-6	5	µg/L	<5	10 µg/L	101	70.0	126
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 5194938)								
EG093B-F: Iron	7439-89-6	5	µg/L	<5	50 µg/L	88.3	70.0	120
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5194748)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	108	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5188533)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	97.6	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5194750)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	99.2	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5194747)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	97.6	69.0	101
				<0.1	1 mg/L	104	70.0	118
				<0.1	5 mg/L	103	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5194746)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	97.0	71.3	126
				<0.01	0.442 mg/L	102	71.3	126
				<0.01	1 mg/L	110	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 5189845)								
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	76.2	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	84.2	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	83.5	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	88.5	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	82.3	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	82.6	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	82.8	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	81.2	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	82.8	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	83.0	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	84.1	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: 5189845) - continued								
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	82.1	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	90.4	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	84.2	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	84.4	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	94.4	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	81.7	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	82.8	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	81.4	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	86.1	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5189845)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	81.2	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	82.4	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	80.2	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	84.4	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	87.0	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	84.7	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	87.6	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	82.4	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	83.7	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	81.8	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	84.5	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	83.5	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	87.0	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	87.4	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	82.9	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	80.2	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	82.0	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	88.0	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5192692)								
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.6	77.0	119
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	97.2	69.0	129
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	92.3	76.0	118

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
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5192692) - continued								
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	92.8	77.0	119
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	91.0	73.0	119
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	95.5	79.0	117
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	91.9	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	91.0	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	92.6	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	93.9	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	94.6	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	95.4	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	89.4	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5192692)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	92.5	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	77.7	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	85.6	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	75.6	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5192692)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	89.0	72.8	127
EP074D: Fumigants (QCLot: 5192692)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	89.7	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	97.7	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	92.4	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	96.2	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	98.2	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5192692)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	85.9	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	87.6	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	86.5	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	96.1	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	91.1	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	89.2	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	87.8	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	93.5	70.2	128

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: 5192692) - continued								
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	92.1	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	91.4	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	95.6	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	91.7	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	88.9	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	91.1	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	98.7	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	89.4	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	100	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	99.7	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	100	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	99.2	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	87.1	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	98.8	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	99.8	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	105	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.0	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	127	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	111	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5192692)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	96.8	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	99.7	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	97.7	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	102	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	100	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	102	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	105	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	121	67.0	123
EP074G: Trihalomethanes (QCLot: 5192692)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	99.0	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	94.8	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	102	65.0	115

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
EP074G: Trihalomethanes (QCLot: 5192692) - continued								
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	97.2	73.5	126
EP074H: Naphthalene (QCLot: 5192692)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	115	72.0	122
EP075(SIM)A: Phenolic Compounds (QCLot: 5189846)								
EP075(SIM): Phenol	108-95-2	1	µg/L	<1.0	5 µg/L	33.4	24.5	61.9
EP075(SIM): 2-Chlorophenol	95-57-8	1	µg/L	<1.0	5 µg/L	65.0	52.0	90.0
EP075(SIM): 2-Methylphenol	95-48-7	1	µg/L	<1.0	5 µg/L	58.2	51.0	91.0
EP075(SIM): 3- & 4-Methylphenol	1319-77-3	2	µg/L	<2.0	10 µg/L	53.9	44.0	88.0
EP075(SIM): 2-Nitrophenol	88-75-5	1	µg/L	<1.0	5 µg/L	65.2	48.0	100
EP075(SIM): 2.4-Dimethylphenol	105-67-9	1	µg/L	<1.0	5 µg/L	92.0	49.0	99.0
EP075(SIM): 2.4-Dichlorophenol	120-83-2	1	µg/L	<1.0	5 µg/L	63.1	53.0	105
EP075(SIM): 2.6-Dichlorophenol	87-65-0	1	µg/L	<1.0	5 µg/L	67.5	57.0	105
EP075(SIM): 4-Chloro-3-methylphenol	59-50-7	1	µg/L	<1.0	5 µg/L	59.6	53.0	99.0
EP075(SIM): 2.4.6-Trichlorophenol	88-06-2	1	µg/L	<1.0	5 µg/L	65.7	50.0	106
EP075(SIM): 2.4.5-Trichlorophenol	95-95-4	1	µg/L	<1.0	5 µg/L	57.2	51.0	105
EP075(SIM): Pentachlorophenol	87-86-5	2	µg/L	<2.0	10 µg/L	17.3	10.0	95.0
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5189846)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	60.9	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	80.8	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.2	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	72.6	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	86.1	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	111	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	90.4	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	94.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	90.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	100	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	86.4	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	106	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	102	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	89.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	91.1	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	89.7	59.1	118

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: 5189844)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	63.4	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	82.8	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5192693)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	81.7	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5189844)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	85.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	94.0	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	83.5	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5192693)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	81.0	75.0	127
EP080: BTEXN (QCLot: 5192693)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	87.0	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	93.9	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.5	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	94.0	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	98.3	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	93.7	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5193395)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	89.6	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	77.4	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	81.5	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5193395)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	80.0	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	88.8	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	101	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.4	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5193395)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	77.3	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	98.6	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	96.7	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	83.4	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: 5188531)							
ES2324492-001	QC02	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5188532)							
ES2324492-001	QC02	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG050T: Total Hexavalent Chromium (QCLot: 5194920)							
ES2324152-002	Anonymous	EG050G-T: Hexavalent Chromium	18540-29-9	0.5 mg/L	101	70.0	130
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS (QCLot: 5194937)							
EM2313199-002	Anonymous	EG093A-F: Arsenic	7440-38-2	50 µg/L	102	70.0	130
		EG093A-F: Cadmium	7440-43-9	12.5 µg/L	99.0	70.0	130
		EG093A-F: Chromium	7440-47-3	50 µg/L	98.0	70.0	130
		EG093A-F: Cobalt	7440-48-4	50 µg/L	106	70.0	130
		EG093A-F: Copper	7440-50-8	50 µg/L	106	70.0	130
		EG093A-F: Lead	7439-92-1	50 µg/L	92.3	70.0	130
		EG093A-F: Manganese	7439-96-5	50 µg/L	94.8	70.0	130
		EG093A-F: Nickel	7440-02-0	50 µg/L	102	70.0	130
		EG093A-F: Zinc	7440-66-6	50 µg/L	105	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5194748)							
ES2324415-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	# Not Determined	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5188533)							
ES2324492-001	QC02	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	107	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5194750)							
ES2324563-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	103	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5194747)							
ES2324488-013	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	107	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5194746)							
ES2324488-013	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	107	70.0	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5192692)							
CA2304425-001	Anonymous	EP074: Benzene	71-43-2	25 µg/L	104	70.0	130
		EP074: Toluene	108-88-3	25 µg/L	102	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: 5192692)							
CA2304425-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	94.6	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	101	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5192692)							
CA2304425-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	106	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5192693)							
ES2324492-001	QC02	EP080: C6 - C9 Fraction	----	325 µg/L	96.9	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5192693)							
ES2324492-001	QC02	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	92.9	70.0	130
EP080: BTEXN (QCLot: 5192693)							
ES2324492-001	QC02	EP080: Benzene	71-43-2	25 µg/L	95.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	111	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	114	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	115	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	115	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	99.6	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5193395)							
ES2324407-006	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	98.5	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	78.0	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	78.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5193395)							
ES2324407-006	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	77.9	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	107	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	86.4	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	95.6	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.7	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5193395)							
ES2324407-006	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	88.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	105	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	93.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	102	71.4	144

CERTIFICATE OF ANALYSIS

Work Order	: **ES2324492**	Page	: 1 of 12
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: Joy Xie	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	: SC210108.03 - GWMP	Date Samples Received	: 21-Jul-2023 17:20
Order number	: ----	Date Analysis Commenced	: 21-Jul-2023
C-O-C number	: ----	Issue Date	: 28-Jul-2023 15:48
Sampler	: Jieli Xie		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
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 QSM5.3 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 may bias high due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- 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.
- EG093: Samples containing high levels of sulfate may precipitate barium under the acidic conditions of this method and may therefore bias results low.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.06	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	32000	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	20000	----	----	----	----
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	416	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	416	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1650	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	9800	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	371	----	----	----	----
Magnesium	7439-95-4	1	mg/L	938	----	----	----	----
Sodium	7440-23-5	1	mg/L	5440	----	----	----	----
Potassium	7440-09-7	1	mg/L	22	----	----	----	----
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	----	----	----	----
EG093F: Dissolved Metals in Saline Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	<5	----	----	----	----
Arsenic	7440-38-2	0.5	µg/L	<0.5	----	----	----	----
Cadmium	7440-43-9	0.2	µg/L	<0.2	----	----	----	----
Chromium	7440-47-3	0.5	µg/L	<0.5	----	----	----	----
Cobalt	7440-48-4	0.2	µg/L	30.0	----	----	----	----
Copper	7440-50-8	1	µg/L	<1	----	----	----	----
Iron	7439-89-6	5	µg/L	6960	----	----	----	----
Lead	7439-92-1	0.2	µg/L	<0.2	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	1410	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	2.6	----	----	----	----
Zinc	7440-66-6	5	µg/L	<5	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.58**	----	----	----	----
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	**0.7**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**0.7**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.07**	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**319**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**333**	----	----	----	----
ø Ionic Balance	----	0.01	%	**2.12**	----	----	----	----
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	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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
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	----	----	----	----
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								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
Styrene	100-42-5	5	µg/L	<5	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP075(SIM)A: Phenolic Compounds								
Phenol	108-95-2	1.0	µg/L	<1.0	----	----	----	----
2-Chlorophenol	95-57-8	1.0	µg/L	<1.0	----	----	----	----
2-Methylphenol	95-48-7	1.0	µg/L	<1.0	----	----	----	----
3- & 4-Methylphenol	1319-77-3	2.0	µg/L	<2.0	----	----	----	----
2-Nitrophenol	88-75-5	1.0	µg/L	<1.0	----	----	----	----
2.4-Dimethylphenol	105-67-9	1.0	µg/L	<1.0	----	----	----	----
2.4-Dichlorophenol	120-83-2	1.0	µg/L	<1.0	----	----	----	----
2.6-Dichlorophenol	87-65-0	1.0	µg/L	<1.0	----	----	----	----
4-Chloro-3-methylphenol	59-50-7	1.0	µg/L	<1.0	----	----	----	----
2.4.6-Trichlorophenol	88-06-2	1.0	µg/L	<1.0	----	----	----	----
2.4.5-Trichlorophenol	95-95-4	1.0	µg/L	<1.0	----	----	----	----
Pentachlorophenol	87-86-5	2.0	µg/L	<2.0	----	----	----	----
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	----	----	----	----
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								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
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 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	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080-UT / EP071-SD: Total Recoverable Hydrocarbons								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
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	<0.01	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----
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	<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**73.7**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**69.5**	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**120**	----	----	----	----
Toluene-D8	2037-26-5	5	%	**112**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	**109**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**32.9**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**61.9**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**67.6**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**69.9**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	**83.4**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**84.3**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC02	----	----	----	----
			Sampling date / time	19-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2324492-001	--------	--------	--------	--------
				Result	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates - Continued								
1.2-Dichloroethane-D4	17060-07-0	2	%	114	----	----	----	----
Toluene-D8	2037-26-5	2	%	110	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	121	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	108	----	----	----	----
13C8-PFOA	----	0.02	%	97.4	----	----	----	----

Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
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

Environmental Division
Sydney
Work Order Reference
ES2325025

Telephone : +61-2-8784 8555

HT

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP
Project/Site:	SC210108.03 - GWMP
Sampled By:	Jieli Xie
Phone / Email:	426205616
Results to:	jpickerden@epicenvironmental.com.au; jxie@epicenvironmental.com.au
Page 1 of	1
Number of Eskies:	3

Lab:	Envirolab Sydney
Lab Quote No:	
Lab Batch No:	
Date Results Required:	Standard TAT
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	PFAS jar	Plastic Bag	40ml Amber Vial	100-500ml Amber Bottle	60ml Metals	60ml Nutrients	250-500ml Plastic (Unpreserved)	60-250ml Plastic (PFAS)	ASS	Combo 8L (13 Metals - Low level)	VOC Suite - ADWG Level	PFAS (Short Suite)	Nutrient Suite	Ionic Balance	Hexavalent Chromium	TDS, pH, EC	Trip: TRH C6-C10/BTEXN	Rinsate: TRH C6-C40	Rinsate: 8 metals
	~~PM_BH15~~												X									
1	PM_MW15	24.07	W										X						X			
2	PM_MW14	24.07	W										X						X			
3	SMW_BH004_S	25.07											X									
4	SMW_BH057_S	25.07											X						X			
5	SMW_ENV010	25.07											X						X			
6	SMW_ADP_BH02	25.07											X						X			
7	RS05 ~~RC03~~																				X	X
8	RS06 ~~RC04~~																				X	X
9	TS																			X		
10	TB																			X		
11	QC03												X					X	X			
(1) ~~12~~ S/O	QC04												X						X			
			TOTALS										0	0	0	0	0	0	0	0		0

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 328886
Date Received: 25/7/23
Time Received: 1545
Received By: RW
Temp: Cool/Ambient
Cooling: Ice/Gel
Security: Intact/Broken

	NAME	SIGNATURE	DATE
Relinquished By:	Jieli XIE (Joy)		
Received By:	Katy Wayne		25/7/23 1545

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.

Please send through QC04 to ALS for inter lab testing THX

Relinquished by: Christine Ho
ELS SYD
25/7/23 1130

Rec: LRW
26/7/23
@1420

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2325025**

Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: INVOICES & RESULTS	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: labs@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SC210108.03 - GWMP	Page	: 1 of 4
Order number	: ----	Quote number	: EB2017EPIENV0004 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: SC210108.03 - GWMP		
Sampler	: JIELI XIE		

Dates

Date Samples Received	: 26-Jul-2023 14:20	Issue Date	: 27-Jul-2023
Client Requested Due Date	: 02-Aug-2023	Scheduled Reporting Date	: **02-Aug-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10'C, 14.3'C, 10.2'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please 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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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
Total Metals by ICP-MS - Suite A : EG020A-T		
QC04	- Clear Plastic Bottle - Natural	- Clear Plastic Bottle - Nitric Acid; Unfiltered

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 - EG049G-T Trivalent Chromium - Total	WATER - EG050G-T Total Hexavalent Chromium	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-04 TRH/BTEXN	WATER - W-13 OC/OP/PCB
ES2325025-001	25-Jul-2023 00:00	QC04	✓	✓	✓	✓	✓	✓	✓

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 - EG035F-UT Dissolved Mercury - Ultra-Trace	WATER - EG094-F Dissolved Metals by ORC - Ultra Trace in Fresh	WATER - EP074-WF ADWG + Acetone & Total DCE	WATER - EP132B(PAH) Ultra Trace Polynuclear Aromatic Compounds
ES2325025-001	25-Jul-2023 00:00	QC04	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP035SF Total Phenol by Segmented Flow Analyser
ES2325025-001	25-Jul-2023 00:00	QC04	✓

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							
QC04	Clear Plastic Bottle - Natural	----	25-Jul-2023	26-Jul-2023	×	----	----

Requested Deliverables

EPIC		
- EDI Format - ESDAT (ESDAT)	Email	epicenvironmental@esdat.com.au
INVOICES		
- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au
INVOICES & RESULTS		
- *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
- A4 - AU Tax Invoice (INV)	Email	labs@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	labs@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	labs@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	labs@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
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au
Joy Xie		
- *AU Certificate of Analysis - NATA (COA)	Email	jxie@epicenvironmental.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI)	Email	jxie@epicenvironmental.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC)	Email	jxie@epicenvironmental.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN)	Email	jxie@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	jxie@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	jxie@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	jxie@epicenvironmental.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2325025**

Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: INVOICES & RESULTS	Contact	: Jason Dighton
Address	: SUITE 5, LEVEL 9/189 KENT STREET SYDNEY 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: labs@epicenvironmental.com.au	E-mail	: jason.dighton@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: SC210108.03 - GWMP	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017EPIENV0004 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: SC210108.03 - GWMP		
Sampler	: JIELI XIE		

Dates

Date Samples Received	: 26-Jul-2023 14:20	Issue Date	: 27-Jul-2023
Client Requested Due Date	: 02-Aug-2023	Scheduled Reporting Date	: **02-Aug-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10'C, 14.3'C, 10.2'C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 1 / 1

General Comments

- This report contains the following information:
  - Sample Container(s)/Preservation Non-Compliances
  - Summary of Sample(s) and Requested Analysis
  - Proactive Holding Time Report
  - Requested Deliverables
- **Please 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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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 - EG050G-T Total Hexavalent Chromium	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-01 & 02 Ca, Mg, Na, K, Cl, SO4, Alkalinity	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - W-04 TRH/BTEXN	WATER - W-13 OC/OP/PCB
ES2325025-001	25-Jul-2023 00:00	QC04	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - EG035F-UT Dissolved Mercury - Ultra-Trace	WATER - EG094-F Dissolved Metals by ORC - Ultra Trace in Fresh	WATER - EP035SF Total Phenol by Segmented Flow Analyser	WATER - EP074-WF ADWG + Acetone & Total DCE	WATER - EP132B(PAH) Ultra Trace Polynuclear Aromatic Compounds
ES2325025-001	25-Jul-2023 00:00	QC04	✓	✓	✓	✓	✓	✓	✓

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							
QC04	Clear Plastic Bottle - Natural	----	24-Jul-2023	26-Jul-2023	✗	----	----

Requested Deliverables

INVOICES

- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au

INVOICES & RESULTS

- *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
- A4 - AU Tax Invoice (INV)	Email	labs@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	labs@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	labs@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	labs@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
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

Joy Xie

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

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2325025**	Page	: 1 of 12
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: INVOICES & RESULTS	Telephone	: +61-2-8784 8555
Project	: SC210108.03 - GWMP	Date Samples Received	: 26-Jul-2023
Site	: SC210108.03 - GWMP	Issue Date	: 02-Aug-2023
Sampler	: JIELI XIE	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

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

Outliers : Analysis Holding Time Compliance

- **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	ES2325025--001	QC04	**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 / Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator						
Clear Plastic Bottle - Natural						
QC04	----	----	----	28-Jul-2023	25-Jul-2023	**3**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
	1				
Laboratory Duplicates (DUP)					
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	19	5.26	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	2	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	1	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
Pesticides by GCMS	0	2	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	0	1	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	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.

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)							
QC04	25-Jul-2023	----	----	----	28-Jul-2023	25-Jul-2023	×
EA010P: Conductivity by PC Titrator							
Clear Plastic Bottle - Natural (EA010-P)							
QC04	25-Jul-2023	----	----	----	28-Jul-2023	22-Aug-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C							
Clear Plastic Bottle - Natural (EA015H)							
QC04	25-Jul-2023	----	----	----	28-Jul-2023	01-Aug-2023	✓
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P)							
QC04	25-Jul-2023	----	----	----	28-Jul-2023	08-Aug-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G)							
QC04	25-Jul-2023	----	----	----	27-Jul-2023	22-Aug-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G)							
QC04	25-Jul-2023	----	----	----	27-Jul-2023	22-Aug-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)							
QC04	25-Jul-2023	----	----	----	28-Jul-2023	22-Aug-2023	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Natural (EG020A-T)							
QC04	25-Jul-2023	28-Jul-2023	21-Jan-2024	✓	28-Jul-2023	21-Jan-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F-UT)							
QC04	25-Jul-2023	----	----	----	28-Jul-2023	22-Aug-2023	✓
EG050T: Total Hexavalent Chromium							
Clear Plastic Bottle - NaOH (EG050G-T)							
QC04	25-Jul-2023	----	----	----	01-Aug-2023	22-Aug-2023	✓
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG094B-F)							
QC04	25-Jul-2023	----	----	----	31-Jul-2023	21-Jan-2024	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G)							
QC04	25-Jul-2023	----	----	----	31-Jul-2023	22-Aug-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G)							
QC04	25-Jul-2023	----	----	----	27-Jul-2023	27-Jul-2023	✓

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
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) QC04	25-Jul-2023	----	----	----	31-Jul-2023	22-Aug-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) QC04	25-Jul-2023	29-Jul-2023	22-Aug-2023	✓	31-Jul-2023	22-Aug-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) QC04	25-Jul-2023	29-Jul-2023	22-Aug-2023	✓	31-Jul-2023	22-Aug-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) QC04	25-Jul-2023	----	----	----	27-Jul-2023	27-Jul-2023	✓
EP035SF: Total Phenol by Segmented Flow Analyser							
Clear Plastic Bottle - Sulfuric Acid (EP035SF) QC04	25-Jul-2023	----	----	----	28-Jul-2023	22-Aug-2023	✓
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) QC04	25-Jul-2023	28-Jul-2023	01-Aug-2023	✓	31-Jul-2023	06-Sep-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) QC04	25-Jul-2023	28-Jul-2023	01-Aug-2023	✓	31-Jul-2023	06-Sep-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) QC04	25-Jul-2023	28-Jul-2023	01-Aug-2023	✓	31-Jul-2023	06-Sep-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Clear glass VOC vial - HCl (EP074-WF) QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074B: Oxygenated Compounds							
Clear glass VOC vial - HCl (EP074-WF) QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074C: Sulfonated Compounds							
Clear glass VOC vial - HCl (EP074-WF) QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074D: Fumigants							
Clear glass VOC vial - HCl (EP074-WF) QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074E: Halogenated Aliphatic Compounds							
Clear glass VOC vial - HCl (EP074-WF) QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓

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							
Clear glass VOC vial - HCl (EP074-WF)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074G: Trihalomethanes							
Clear glass VOC vial - HCl (EP074-WF)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074H: Naphthalene							
Clear glass VOC vial - HCl (EP074-WF)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP074K: Miscellaneous Volatile Compounds							
Clear glass VOC vial - HCl (EP074-WF)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP080/071: Total Petroleum Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP071)							
QC04	25-Jul-2023	28-Jul-2023	01-Aug-2023	✓	01-Aug-2023	06-Sep-2023	✓
Clear glass VOC vial - HCl (EP080)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071)							
QC04	25-Jul-2023	28-Jul-2023	01-Aug-2023	✓	01-Aug-2023	06-Sep-2023	✓
Clear glass VOC vial - HCl (EP080)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP080: BTEXN							
Clear glass VOC vial - HCl (EP080)							
QC04	25-Jul-2023	31-Jul-2023	08-Aug-2023	✓	31-Jul-2023	08-Aug-2023	✓
EP132B: Polynuclear Aromatic Hydrocarbons							
Amber Glass Bottle - Unpreserved (EP132)							
QC04	25-Jul-2023	28-Jul-2023	01-Aug-2023	✓	01-Aug-2023	06-Sep-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC04	25-Jul-2023	28-Jul-2023	21-Jan-2024	✓	01-Aug-2023	21-Jan-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X)							
QC04	25-Jul-2023	28-Jul-2023	21-Jan-2024	✓	01-Aug-2023	21-Jan-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X)							
QC04	25-Jul-2023	28-Jul-2023	21-Jan-2024	✓	01-Aug-2023	21-Jan-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
QC04	25-Jul-2023	28-Jul-2023	21-Jan-2024	✓	01-Aug-2023	21-Jan-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		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	12	16.67	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	5	43	11.63	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS - Ultra-trace	EG035F-UT	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	1	100.00	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	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	19	5.26	10.00	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	2	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	1	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	100.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	1	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	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	4	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phenol by Segmented Flow Analyser	EP035SF	1	6	16.67	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	4	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	9	11.11	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	12	8.33	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	4	43	9.30	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS - Ultra-trace	EG035F-UT	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	14.29	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	1	100.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	1	100.00	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	19	**5.26**	**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
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	2	**50.00**	**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	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	1	**100.00**	**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	20	**15.00**	**15.00**	✓	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 Phenol by Segmented Flow Analyser	EP035SF	1	6	**16.67**	**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	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	12	**8.33**	**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	1	43	**2.33**	**1.67**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS - Ultra-trace	EG035F-UT	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	1	**100.00**	**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	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	2	**50.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	1	1	**100.00**	**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 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	20	**5.00**	**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 Phenol by Segmented Flow Analyser	EP035SF	1	6	**16.67**	**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	4	**25.00**	**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 Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	1	9	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	12	**8.33**	**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 - Ultra-trace	EG035F-UT	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	1	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Total	EG050G-T	1	1	**100.00**	**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	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	0	2	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	1	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	1	**100.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	0	1	**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	20	**5.00**	**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 Phenol by Segmented Flow Analyser	EP035SF	1	6	**16.67**	**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	4	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds WF Detection Limits	EP074-WF	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)
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)
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.
Dissolved Mercury by FIMS - Ultra-trace	EG035F-UT	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.
Trivalent Chromium - Total	EG049G-T	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 - Total	EG050G-T	WATER	In house: Referenced to APHA 3500 Cr-A & B. 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).

Analytical Methods	Method	Matrix	Method Descriptions
Dissolved Metals in Fresh Water -Suite A by ORC-ICPMS	EG094A-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. This method is compliant with NEPM Schedule B(3).
Dissolved Metals in Fresh Water -Suite B by ORC-ICPMS	EG094B-F	WATER	In house: Referenced to APHA 3125; USEPA SW846 - 6020 Samples are 0.45µm filtered prior to analysis. The ORC-ICPMS technique removes interfering species through a series of chemical reactions prior to ion detection. Ions are passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to measurement by a discrete dynode ion detector. 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)
Total Phenol by Segmented Flow Analyser	EP035SF	WATER	In house: Referenced to ISO 14402. The sample is in-line-distilled at pH 1- 4. The distillate, containing steam-volatile phenolic compounds is then oxidised by hexacyanoferrate(III). The resulting quinones react with 4-aminoantipyrine forming red condensation products, which are measured spectrometrically in a flow spectrometer at 505 nm.. This method is compliant with NEPM Schedule B(3)

Analytical Methods	Method	Matrix	Method Descriptions
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 WF Detection Limits	EP074-WF	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)
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)
Semivolatile Compounds by GCMS(SIM - Ultra-trace)	EP132	WATER	In house: Referenced to USEPA 3640 (GPC Cleanup), 8270 GCMS Capiliary column, SIM mode. This method is compliant with 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 5.3, 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.
Sep. Funnel Extraction /Acetylation of Phenolic Compounds	ORG14-AC	WATER	In house: Referenced to USEPA 3510 (Extraction) / In-house (Acetylation): A 1L sample is extracted into dichloromethane and concentrated to 1 mL with echange into cyclohexane. Phenolic compounds are reacted with acetic anhydride to yield phenyl acetates suitable for ultra-trace 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.

CERTIFICATE OF ANALYSIS

Work Order	: **ES2325025**	Page	: 1 of 12
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: INVOICES & RESULTS	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	: SC210108.03 - GWMP	Date Samples Received	: 26-Jul-2023 14:20
Order number	: ----	Date Analysis Commenced	: 27-Jul-2023
C-O-C number	: ----	Issue Date	: 02-Aug-2023 15:03
Sampler	: JIELI XIE		
Site	: SC210108.03 - GWMP		
Quote number	: EN/222		
No. of samples received	: 1		
No. of samples analysed	: 1		

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

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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

Signatories	*Position*	*Accreditation Category*
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.

- EP231X - Per- and Polyfluoroalkyl Substances (PFAS): Samples received in 20ml or 125ml bottles have been tested in accordance with the QSM5.3 compliant, NATA accredited method. 60mL or 250mL bottles have been tested to the legacy QSM 5.1 aligned, NATA accredited method.
- EP074-WF: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP074-WF: Where reported, Total Trihalomethanes is the sum of the reported concentrations of all Trihalomethanes at or above the LOR.
- EP074-WF: 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.
- 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-WF: Where reported, Total 1.2-Dichloroethene is the sum of the reported concentrations of trans-1.2-Dichloroethene and cis-1.2-Dichloroethene at or above the LOR.
- EP074-WF: Where reported, Sum of Trichlorobenzenes is the sum of the reported concentrations of 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene, and 1,3,5-Trichlorobenzene 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.
- EP074-WF: The result for sample ES2325025-001 was confirmed by re-analysis.
- EP132: Where reported, Total PAH reported as the sum of Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benz(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene and Benzo(g,h,i)perylene.
- 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.37	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	438	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	280	----	----	----	----
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	60	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	60	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	42	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	45	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	8	----	----	----	----
Magnesium	7439-95-4	1	mg/L	9	----	----	----	----
Sodium	7440-23-5	1	mg/L	74	----	----	----	----
Potassium	7440-09-7	1	mg/L	3	----	----	----	----
EG020T: Total Metals by ICP-MS								
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.005	µg/L	<0.005	----	----	----	----
EG049T: Total Trivalent Chromium								
Trivalent Chromium	16065-83-1	0.01	mg/L	<0.01	----	----	----	----
EG050T: Total Hexavalent Chromium								
Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	----	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS								
Aluminium	7429-90-5	5	µg/L	<5	----	----	----	----
Arsenic	7440-38-2	0.2	µg/L	<0.2	----	----	----	----
Cadmium	7440-43-9	0.05	µg/L	<0.05	----	----	----	----
Chromium	7440-47-3	0.2	µg/L	<0.2	----	----	----	----
Cobalt	7440-48-4	0.1	µg/L	7.6	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EG094F: Dissolved Metals in Fresh Water by ORC-ICPMS - Continued								
Copper	7440-50-8	0.5	µg/L	**7.0**	----	----	----	----
Iron	7439-89-6	2	µg/L	<2	----	----	----	----
Lead	7439-92-1	0.1	µg/L	<0.1	----	----	----	----
Manganese	7439-96-5	0.5	µg/L	**71.6**	----	----	----	----
Nickel	7440-02-0	0.5	µg/L	**3.6**	----	----	----	----
Zinc	7440-66-6	1	µg/L	**28**	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	**0.01**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.16**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**8.71**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**8.87**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.7**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**9.6**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.06**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**4.03**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**4.44**	----	----	----	----
ø Ionic Balance	----	0.01	%	**4.80**	----	----	----	----
EP035SF: Total Phenol by Segmented Flow Analyser								
Phenols (Total)	----	0.05	mg/L	<0.05	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
beta-BHC	319-85-7	0.5	µg/L	<0.5	----	----	----	----
gamma-BHC	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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	1	µg/L	<1	----	----	----	----
Ethylbenzene	100-41-4	1	µg/L	<1	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	1	µg/L	<1	----	----	----	----
Styrene	100-42-5	1	µg/L	<1	----	----	----	----
ortho-Xylene	95-47-6	1	µg/L	<1	----	----	----	----
Isopropylbenzene	98-82-8	1	µg/L	<1	----	----	----	----
n-Propylbenzene	103-65-1	1	µg/L	<1	----	----	----	----
1.3.5-Trimethylbenzene	108-67-8	1	µg/L	<1	----	----	----	----
sec-Butylbenzene	135-98-8	1	µg/L	<1	----	----	----	----
1.2.4-Trimethylbenzene	95-63-6	1	µg/L	<1	----	----	----	----
tert-Butylbenzene	98-06-6	1	µg/L	<1	----	----	----	----
p-Isopropyltoluene	99-87-6	1	µg/L	<1	----	----	----	----
n-Butylbenzene	104-51-8	1	µg/L	<1	----	----	----	----
^ Total Xylenes	----	1	µg/L	<1	----	----	----	----
EP074B: Oxygenated Compounds								
2-Propanone (Acetone)	67-64-1	10	µg/L	<10	----	----	----	----
Vinyl Acetate	108-05-4	10	µg/L	<10	----	----	----	----
2-Butanone (MEK)	78-93-3	10	µg/L	<10	----	----	----	----
4-Methyl-2-pentanone (MIBK)	108-10-1	10	µg/L	<10	----	----	----	----
2-Hexanone (MBK)	591-78-6	10	µg/L	<10	----	----	----	----
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	1	µg/L	<1	----	----	----	----
EP074D: Fumigants								
2.2-Dichloropropane	594-20-7	1	µg/L	<1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074D: Fumigants - Continued								
1.2-Dichloropropane	78-87-5	1	µg/L	<1	----	----	----	----
cis-1.3-Dichloropropylene	10061-01-5	2	µg/L	<2	----	----	----	----
trans-1.3-Dichloropropylene	10061-02-6	2	µg/L	<2	----	----	----	----
1.2-Dibromoethane (EDB)	106-93-4	1	µg/L	<1	----	----	----	----
^ 1.3-Dichloropropylene (cis & trans)	----	2	µg/L	<2	----	----	----	----
EP074E: Halogenated Aliphatic Compounds								
Dichlorodifluoromethane	75-71-8	10	µg/L	<10	----	----	----	----
Chloromethane	74-87-3	10	µg/L	<10	----	----	----	----
Vinyl chloride	75-01-4	0.2	µg/L	<0.2	----	----	----	----
Bromomethane	74-83-9	10	µg/L	<10	----	----	----	----
Chloroethane	75-00-3	10	µg/L	<10	----	----	----	----
Trichlorofluoromethane	75-69-4	10	µg/L	<10	----	----	----	----
1.1-Dichloroethene	75-35-4	1	µg/L	<1	----	----	----	----
Iodomethane	74-88-4	1	µg/L	<1	----	----	----	----
Methylene chloride	75-09-2	2	µg/L	<2	----	----	----	----
trans-1.2-Dichloroethene	156-60-5	1	µg/L	<1	----	----	----	----
1.1-Dichloroethane	75-34-3	1	µg/L	<1	----	----	----	----
cis-1.2-Dichloroethene	156-59-2	1	µg/L	<1	----	----	----	----
1.1.1-Trichloroethane	71-55-6	1	µg/L	<1	----	----	----	----
1.1-Dichloropropylene	563-58-6	1	µg/L	<1	----	----	----	----
Carbon Tetrachloride	56-23-5	1	µg/L	<1	----	----	----	----
1.2-Dichloroethane	107-06-2	1	µg/L	<1	----	----	----	----
Trichloroethene	79-01-6	1	µg/L	<1	----	----	----	----
Dibromomethane	74-95-3	1	µg/L	<1	----	----	----	----
1.1.2-Trichloroethane	79-00-5	1	µg/L	<1	----	----	----	----
1.3-Dichloropropane	142-28-9	1	µg/L	<1	----	----	----	----
Tetrachloroethene	127-18-4	1	µg/L	2	----	----	----	----
1.1.1.2-Tetrachloroethane	630-20-6	1	µg/L	<1	----	----	----	----
trans-1.4-Dichloro-2-butene	110-57-6	1	µg/L	<1	----	----	----	----
cis-1.4-Dichloro-2-butene	1476-11-5	1	µg/L	<1	----	----	----	----
1.1.2.2-Tetrachloroethane	79-34-5	1	µg/L	<1	----	----	----	----
1.2.3-Trichloropropane	96-18-4	1	µg/L	<1	----	----	----	----
Pentachloroethane	76-01-7	1	µg/L	<1	----	----	----	----
1.2-Dibromo-3-chloropropane	96-12-8	1	µg/L	<1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
Hexachlorobutadiene	87-68-3	0.5	µg/L	<0.5	----	----	----	----
Bromochloromethane	74-97-5	1	µg/L	<1	----	----	----	----
^ Total 1.2-Dichloroethene	----	1	µg/L	<1	----	----	----	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	1	µg/L	<1	----	----	----	----
Bromobenzene	108-86-1	1	µg/L	<1	----	----	----	----
2-Chlorotoluene	95-49-8	1	µg/L	<1	----	----	----	----
4-Chlorotoluene	106-43-4	1	µg/L	<1	----	----	----	----
1.3-Dichlorobenzene	541-73-1	1	µg/L	<1	----	----	----	----
1.4-Dichlorobenzene	106-46-7	0.1	µg/L	<0.1	----	----	----	----
1.2-Dichlorobenzene	95-50-1	1	µg/L	<1	----	----	----	----
1.2.4-Trichlorobenzene	120-82-1	1	µg/L	<1	----	----	----	----
1.2.3-Trichlorobenzene	87-61-6	1	µg/L	<1	----	----	----	----
^ Sum of Trichlorobenzenes	----	1	µg/L	<1	----	----	----	----
EP074G: Trihalomethanes								
Chloroform	67-66-3	1	µg/L	<1	----	----	----	----
Bromodichloromethane	75-27-4	1	µg/L	<1	----	----	----	----
Dibromochloromethane	124-48-1	1	µg/L	<1	----	----	----	----
Bromoform	75-25-2	1	µg/L	<1	----	----	----	----
^ Total Trihalomethanes	----	1	µg/L	<1	----	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP074K: Miscellaneous Volatile Compounds								
1.2.3-Trimethylbenzene	526-73-8	1	µg/L	<1	----	----	----	----
^ Total Trimethylbenzenes	----	1	µg/L	<1	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ 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	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons								
3-Methylcholanthrene	56-49-5	0.1	µg/L	<0.1	----	----	----	----
2-Methylnaphthalene	91-57-6	0.1	µg/L	<0.1	----	----	----	----
7.12-Dimethylbenz(a)anthracene	57-97-6	0.1	µg/L	<0.1	----	----	----	----
Acenaphthene	83-32-9	0.1	µg/L	<0.1	----	----	----	----
Acenaphthylene	208-96-8	0.1	µg/L	<0.1	----	----	----	----
Anthracene	120-12-7	0.1	µg/L	<0.1	----	----	----	----
Benz(a)anthracene	56-55-3	0.1	µg/L	<0.1	----	----	----	----
Benzo(a)pyrene	50-32-8	0.05	µg/L	<0.05	----	----	----	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.1	µg/L	<0.1	----	----	----	----
Benzo(e)pyrene	192-97-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(g.h.i)perylene	191-24-2	0.1	µg/L	<0.1	----	----	----	----
Benzo(k)fluoranthene	207-08-9	0.1	µg/L	<0.1	----	----	----	----
Chrysene	218-01-9	0.1	µg/L	<0.1	----	----	----	----
Coronene	191-07-1	0.1	µg/L	<0.1	----	----	----	----
Dibenz(a.h)anthracene	53-70-3	0.1	µg/L	<0.1	----	----	----	----
Fluoranthene	206-44-0	0.1	µg/L	<0.1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP132B: Polynuclear Aromatic Hydrocarbons - Continued								
Fluorene	86-73-7	0.1	µg/L	<0.1	----	----	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.1	µg/L	<0.1	----	----	----	----
Naphthalene	91-20-3	0.1	µg/L	<0.1	----	----	----	----
Perylene	198-55-0	0.1	µg/L	<0.1	----	----	----	----
Phenanthrene	85-01-8	0.1	µg/L	<0.1	----	----	----	----
Pyrene	129-00-0	0.1	µg/L	<0.1	----	----	----	----
^ Sum of PAHs	----	0.05	µg/L	<0.05	----	----	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.05	µg/L	<0.05	----	----	----	----
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	<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.02**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.03**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**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	----	----	----	----
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	**0.02**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.08**	----	----	----	----
EP066S: PCB Surrogate								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	QC04	----	----	----	----
			Sampling date / time	25-Jul-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2325025-001	--------	--------	--------	--------
				Result	----	----	----	----
EP066S: PCB Surrogate - Continued								
Decachlorobiphenyl	2051-24-3	1	%	93.2	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	77.9	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	87.7	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	1	%	97.3	----	----	----	----
Toluene-D8	2037-26-5	1	%	109	----	----	----	----
4-Bromofluorobenzene	460-00-4	1	%	100	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	96.0	----	----	----	----
Toluene-D8	2037-26-5	2	%	109	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	102	----	----	----	----
EP132T: Base/Neutral Extractable Surrogates								
2-Fluorobiphenyl	321-60-8	0.1	%	58.8	----	----	----	----
Anthracene-d10	1719-06-8	0.1	%	68.4	----	----	----	----
4-Terphenyl-d14	1718-51-0	0.1	%	69.3	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	91.5	----	----	----	----
13C8-PFOA	----	0.02	%	84.0	----	----	----	----

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	73	125
Toluene-D8	2037-26-5	69	127
4-Bromofluorobenzene	460-00-4	75	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
EP132T: Base/Neutral Extractable Surrogates			
2-Fluorobiphenyl	321-60-8	43	135
Anthracene-d10	1719-06-8	48	138
4-Terphenyl-d14	1718-51-0	48	144
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

October 2023 monitoring event

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

* There is no electronic COC for this.

Environmental Division
Sydney
Work Order Reference
ES2335415

Telephone : + 61-2-8784 8555

HT

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	ALS Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	NC	Lab Batch No:	
Phone / Email:	nchandra@epicenvironmental.com.au	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 of 1		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 (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	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	PM-MW014	12/10	W									X	X	X	X	X	X	X				
2	PM-MW015											X	X	X	X	X	X	X				
3	RS05																				X	X
4	RS06	13/10																			X	X
5	SMW-BH057_S											X	X	X	X	X	X	X				
6	SMW-ENV009											X	X	X	X	X	X	X				
7	TB05																			X		
8	TS05																			X		
9	SMW-BH057_W											X	X	X	X	X	X	X				
			TOTALS									0	0	0	0	0	0	0	0	0	0	0

Relinquished By:			Received By:			
NAME Natabelchandra	SIGNATURE [signature]	DATE 13/10	NAME Lucas	SIGNATURE [signature]	DATE 13/10/23 1512	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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2335415**

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	: SC210108.03 - GWMP	Page	: 1 of 3
Order number	: ----	Quote number	: EB2017EPIENV0004 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	: NC		

Dates

Date Samples Received	: 13-Oct-2023 15:12	Issue Date	: 13-Oct-2023
Client Requested Due Date	: 20-Oct-2023	Scheduled Reporting Date	: **20-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 9.5, 9.0, 10.5'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 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
- **3 sets of trip spikes and blanks received. Only 1 set analysed.**
- **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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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	(On Hold) WATER No analysis requested	WATER - EA005P pH (Auto Titrator)	WATER - EA010P Electrical Conductivity (Auto Titrator)	WATER - EA015H Total Dissolved Solids - Standard Level	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - TPH TRH (C6-C40)	WATER - W-02T 8 metals (Total)
ES2335415-001	12-Oct-2023 00:00	PM_MW014	✓						
ES2335415-002	12-Oct-2023 00:00	PM_MW015	✓						
ES2335415-003	12-Oct-2023 00:00	RS05						✓	✓
ES2335415-004	13-Oct-2023 00:00	RS06						✓	✓
ES2335415-005	13-Oct-2023 00:00	SMW_BH057_S	✓						
ES2335415-006	13-Oct-2023 00:00	SMW_ENV009		✓	✓	✓	✓		
ES2335415-009	13-Oct-2023 00:00	SMW_BH057_W		✓	✓	✓	✓		
ES2335415-010	03-Oct-2023 00:00	Trip Spike 7	✓						
ES2335415-011	03-Oct-2023 00:00	Trip Spike 8	✓						

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 - 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
ES2335415-006	13-Oct-2023 00:00	SMW_ENV009	✓	✓	✓	✓	✓	✓	✓
ES2335415-009	13-Oct-2023 00:00	SMW_BH057_W	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2335415-007	03-Oct-2023 00:00	TB05 Trip Blank		✓
ES2335415-008	03-Oct-2023 00:00	TS05 Trip Spike 6	✓	

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

INVOICES & RESULTS

- *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
- A4 - AU Tax Invoice (INV)	Email	labs@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	labs@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	labs@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	labs@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
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2335415**
Amendment : **1**

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	: SC210108.03 - GWMP	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	: NC		

Dates

Date Samples Received	: 13-Oct-2023 15:12	Issue Date	: 27-Oct-2023
Client Requested Due Date	: 01-Nov-2023	Scheduled Reporting Date	: **01-Nov-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 9.5, 9.0, 10.5'C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 11 / 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
- 26/10/2023: This is an updated SRN which indicates updated analysis for samples 001, 002, and 005. This SRN also indicates the new scheduled release date for this work order.
- **3 sets of trip spikes and blanks received. Only 1 set analysed.**
- **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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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
ES2335415-001	12-Oct-2023 00:00	PM_MW014	✓	✓	✓	✓	✓	✓	✓
ES2335415-002	12-Oct-2023 00:00	PM_MW015	✓	✓	✓	✓	✓	✓	✓
ES2335415-005	13-Oct-2023 00:00	SMW_BH057_S	✓	✓	✓	✓	✓	✓	✓
ES2335415-006	13-Oct-2023 00:00	SMW_ENV009	✓	✓	✓	✓			
ES2335415-009	13-Oct-2023 00:00	SMW_BH057_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 - 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 +
ES2335415-001	12-Oct-2023 00:00	PM_MW014	✓	✓	✓	✓	✓	✓	✓
ES2335415-002	12-Oct-2023 00:00	PM_MW015	✓	✓	✓	✓	✓	✓	✓
ES2335415-005	13-Oct-2023 00:00	SMW_BH057_S	✓	✓	✓	✓	✓	✓	✓
ES2335415-006	13-Oct-2023 00:00	SMW_ENV009	✓	✓	✓		✓	✓	✓
ES2335415-009	13-Oct-2023 00:00	SMW_BH057_W	✓	✓	✓		✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	(On Hold) WATER No analysis requested	WATER - EP080 BTEXN	WATER - TPH TRH (C6-C40)	WATER - W-02T 8 metals (Total)	WATER - W-16 TRH/BTEXN/PAH/OC/OP/PCB/8 Metals	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2335415-003	12-Oct-2023 00:00	RS05			✓	✓		
ES2335415-004	13-Oct-2023 00:00	RS06			✓	✓		
ES2335415-006	13-Oct-2023 00:00	SMW_ENV009					✓	
ES2335415-007	03-Oct-2023 00:00	TB05 Trip Blank						✓
ES2335415-008	03-Oct-2023 00:00	TS05 Trip Spike 6		✓				
ES2335415-009	13-Oct-2023 00:00	SMW_BH057_W					✓	
ES2335415-010	03-Oct-2023 00:00	Trip Spike 7	✓					
ES2335415-011	03-Oct-2023 00:00	Trip Spike 8	✓					

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
EA075: Redox Potential							
PM_MW014	Clear Plastic Bottle - Natural	----	12-Oct-2023	13-Oct-2023	×	----	----
PM_MW015	Clear Plastic Bottle - Natural	----	12-Oct-2023	13-Oct-2023	×	----	----
EP025: Oxygen - Dissolved							
PM_MW014	Clear Plastic Bottle - Natural	----	12-Oct-2023	13-Oct-2023	×	----	----
PM_MW015	Clear Plastic Bottle - Natural	----	12-Oct-2023	13-Oct-2023	×	----	----

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2335415**	Page	: 1 of 16
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	: SC210108.03 - GWMP	Date Samples Received	: 13-Oct-2023 15:12
Order number	: ----	Date Analysis Commenced	: 13-Oct-2023
C-O-C number	: ----	Issue Date	: 23-Oct-2023 10:42
Sampler	: NC		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 11		
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.

- 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 QSM5.3 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.
- 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.
- EK055, EK061/62G: It has been noted that Ammonia is greater than TKN/TN for sample no.9, however this difference is within the limits of experimental variation.
- EG050G: Poor spike recovery for Hexavalent Chromium due to matrix interferences(confirmed by re-analysis).
- 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	7.30	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	1250	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	691	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	----	392	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	----	-40.6	----	----
pH Redox	----	0.01	pH Unit	----	----	6.71	----	----
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	----	----	464	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	----	464	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	----	9	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	149	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	96	----	----
Magnesium	7439-95-4	1	mg/L	----	----	37	----	----
Sodium	7440-23-5	1	mg/L	----	----	117	----	----
Potassium	7440-09-7	1	mg/L	----	----	16	----	----
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	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	----	----	**0.588**	----	----
Iron	7439-89-6	0.05	mg/L	----	----	**15.0**	----	----
EG020T: Total Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
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	----	----	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	----	<0.0001	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	<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	----	----	**6.26**	----	----
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	----	----	**7.5**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	----	**7.5**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	**0.66**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	----	13.7	----	----
ø Total Cations	----	0.01	meq/L	----	----	13.3	----	----
ø Ionic Balance	----	0.01	%	----	----	1.21	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	----	3.5	----	----
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	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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
^ 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	----	----
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	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----
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	<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	<1	<1	<1	**15**
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	**15**
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	**15**
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	**15**
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	**15**
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	**30**
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	**75**
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	**17**
EP231A: Perfluoroalkyl Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	----	----	**0.08**	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EP231A: Perfluoroalkyl Sulfonic Acids - Continued								
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	----	----	<0.01	----	----
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	----	----	<0.02	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	----	<0.02	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	----	----	<0.02	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	----	----	<0.01	----	----
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	----	----	<0.01	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	----	**0.08**	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	----	**79.1**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	**57.7**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	**59.1**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	----	**20.3**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	**39.3**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	**40.4**	----	----
EP075(SIM)T: PAH Surrogates								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	RS05	RS06	SMW_ENV009	TB05 Trip Blank	TS05 Trip Spike 6
			Sampling date / time	12-Oct-2023 00:00	13-Oct-2023 00:00	13-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335415-003	ES2335415-004	ES2335415-006	ES2335415-007	ES2335415-008
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	55.3	----	----
Anthracene-d10	1719-06-8	1.0	%	----	----	58.8	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	60.5	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	99.2	93.2	98.5	89.4	95.3
Toluene-D8	2037-26-5	2	%	116	111	123	109	112
4-Bromofluorobenzene	460-00-4	2	%	104	99.1	106	96.6	100.0
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	----	89.4	----	----
13C8-PFOA	----	0.02	%	----	----	98.4	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH057_W	----	----	----	----
			Sampling date / time	13-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335415-009	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**7.26**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**8190**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**5300**	----	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**1360**	----	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**35.0**	----	----	----	----
pH Redox	----	0.01	pH Unit	**6.66**	----	----	----	----
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	**602**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**602**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**262**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**2370**	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**232**	----	----	----	----
Magnesium	7439-95-4	1	mg/L	**190**	----	----	----	----
Sodium	7440-23-5	1	mg/L	**1320**	----	----	----	----
Potassium	7440-09-7	1	mg/L	**38**	----	----	----	----
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	----	----	----	----
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	**0.008**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.015**	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH057_W	----	----	----	----
			Sampling date / time	13-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335415-009	--------	--------	--------	--------
				Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**0.641**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	**1.18**	----	----	----	----
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	**2.66**	----	----	----	----
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	<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**2.6**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**2.6**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.06**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.01**	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**84.3**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**85.6**	----	----	----	----
ø Ionic Balance	----	0.01	%	**0.74**	----	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**6.8**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH057_W	----	----	----	----
			Sampling date / time	13-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335415-009	--------	--------	--------	--------
				Result	----	----	----	----
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	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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH057_W	----	----	----	----
			Sampling date / time	13-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335415-009	--------	--------	--------	--------
				Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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	----	----	----	----
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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH057_W	----	----	----	----
			Sampling date / time	13-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335415-009	--------	--------	--------	--------
				Result	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ 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	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<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	<0.01	----	----	----	----
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	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW_BH057_W	----	----	----	----
			Sampling date / time	13-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335415-009	--------	--------	--------	--------
				Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
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	<0.01	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	98.8	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	75.3	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	87.5	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	26.6	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	48.0	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	46.4	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	51.4	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	61.7	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	64.3	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	92.1	----	----	----	----
Toluene-D8	2037-26-5	2	%	107	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	98.1	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	88.8	----	----	----	----
13C8-PFOA	----	0.02	%	95.9	----	----	----	----

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
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	: **ES2335415**	Page	: 1 of 12
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	: SC210108.03 - GWMP	Date Samples Received	: 13-Oct-2023
Order number	: ----	Date Analysis Commenced	: 13-Oct-2023
C-O-C number	: ----	Issue Date	: 23-Oct-2023
Sampler	: NC		
Site	: ----		
Quote number	: ES23EPIENV0004_V2		
No. of samples received	: 11		
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

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: 5359963)									
EW2304568-005	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	5.83	5.82	0.2	0% - 20%
ES2335291-008	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	8.35	8.35	0.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5359961)									
ES2335291-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4280	4250	0.6	0% - 20%
EW2304568-005	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	141	142	1.2	0% - 20%
ES2335291-008	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3730	3680	1.4	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5368296)									
ES2334764-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1340	1350	0.8	0% - 20%
ES2335478-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1320	1230	7.0	0% - 20%
ES2335558-003	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	317	296	6.7	0% - 20%
EW2304571-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	86	85	1.5	No Limit
EA075: Redox Potential (QC Lot: 5359757)									
ES2335415-006	SMW_ENV009	EA075: Redox Potential	----	0.1	mV	-40.6	-47.4	15.5	No Limit
		EA075: pH Redox	----	0.01	pH Unit	6.71	6.73	0.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5359962)									
ES2335291-001	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	155	151	2.4	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	156	152	2.2	0% - 20%
ES2335291-008	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	4	3	0.0	No Limit
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	236	236	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	240	239	0.5	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					
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5359510)									
ES2335354-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	253	261	3.1	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5359509)									
ES2335354-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1100	1120	2.3	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5367929)									
ES2335214-002	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	30	29	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	17	16	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	49	50	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	6	6	0.0	No Limit
ES2335214-011	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	11	11	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	59	59	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5367930)									
ES2335476-005	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	<0.001	<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	0.004	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	0.106	0.107	0.0	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.038	0.037	3.3	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	0.07	0.07	0.0	No Limit
ES2335458-006	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	0.034	0.033	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
		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: 5366524)									
ES2335214-015	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

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					
EG020T: Total Metals by ICP-MS (QC Lot: 5366524) - continued									
ES2335214-015	Anonymous	EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.0	No Limit
ES2335317-001	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	0.001	0.003	77.6	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.035	0.033	5.5	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5367928)									
ES2335214-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2335214-009	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: 5368093)									
ES2335140-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
WN2312183-005	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5363018)									
--------		EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	----	<0.01	0.0	No Limit
ES2335226-001	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: 5363459)									
ES2335226-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.08	0.08	0.0	No Limit
ES2335573-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.09	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5359508)									
ES2335360-002	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.14	0.14	0.0	No Limit
ES2335214-013	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: 5363460)									
ES2335226-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.44	0.45	0.0	0% - 20%
ES2335573-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.94	0.94	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5363457)									
ES2335226-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.3	0.0	No Limit
ES2335571-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	0.3	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5363456)									
ES2335226-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	0.02	66.7	No Limit
ES2335571-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.06	0.05	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5359511)									
ES2335378-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5362773)									
ES2335415-004	RS06	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2335083-001	Anonymous	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: 5362773)									
ES2335415-004	RS06	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2335083-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5362773)									
ES2335415-004	RS06	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
ES2335083-001	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: 5363629)									
ES2335270-001	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: 5363629)									
ES2335270-001	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
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5363629)									
ES2335270-001	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

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: 5359963)								
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: 5359961)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	102	89.9	110
				<1	2100 µS/cm	98.7	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5368296)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.5	87.0	109
				<10	293 mg/L	124	75.2	126
				<10	2470 mg/L	105	83.0	124
EA075: Redox Potential (QCLot: 5359757)								
EA075: Redox Potential	----	----	mV	----	234 mV	100	96.0	106
				----	300 mV	102	97.0	105
				----	86 mV	109	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5359962)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	97.4	81.0	115
				----	50 mg/L	105	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5359510)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	91.0	82.0	122
				<1	500 mg/L	94.1	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5359509)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	99.7	80.9	127
				<1	1000 mg/L	99.7	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5367929)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	111	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	102	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.4	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	101	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5367930)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	98.8	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	100	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.2	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	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5367930) - continued								
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.4	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	101	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	95.0	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	96.4	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.3	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.8	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.0	82.0	112
EG020T: Total Metals by ICP-MS (QCLot: 5366524)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.1	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	94.8	84.0	112
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.8	86.0	116
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	97.2	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.7	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	91.1	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5367928)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	97.3	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5368093)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	101	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 5363018)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	103	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5363459)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	97.1	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5359508)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	95.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5363460)								
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: 5363457)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	83.1	69.0	101
				<0.1	1 mg/L	92.0	70.0	118
				<0.1	5 mg/L	95.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5363456)								

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: 5363456) - continued								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	91.5	71.3	126
				<0.01	0.442 mg/L	93.7	71.3	126
				<0.01	1 mg/L	105	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5359511)								
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: 5359583)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	87.1	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5359584)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	79.9	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	76.8	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	88.9	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	92.6	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	81.0	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	82.7	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	88.4	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	91.4	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	91.8	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	88.9	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	87.5	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	96.8	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	83.5	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	95.3	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	93.0	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	75.5	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	85.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	88.8	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	79.6	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5359584)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	78.0	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	84.9	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	82.6	69.5	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	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5359584) - continued								
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	93.4	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	85.6	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	82.4	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	89.6	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	89.6	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	88.1	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	87.3	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	90.0	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	90.2	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	93.5	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	75.2	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	92.8	51.6	128
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5359581)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.9	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	73.3	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	74.8	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	77.3	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	83.7	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	84.1	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	90.2	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	90.9	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	92.5	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	93.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	96.0	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	99.5	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	94.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	90.5	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	91.4	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.4	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5359582)								

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: 5359582) - continued								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	68.2	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	81.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	80.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5362773)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5359582)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	66.5	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	73.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	77.4	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5362773)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75.0	127
EP080: BTEXN (QCLot: 5362773)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.1	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.2	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.0	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.5	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	93.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	87.5	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5363629)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	88.3	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	94.9	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	82.6	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5363629)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	79.6	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	106	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	100	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	83.6	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	110	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5363629)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	78.7	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	87.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	76.1	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	74.2	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: 5359510)							
ES2335354-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5359509)							
ES2335354-002	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5367930)							
ES2335415-009	SMW_BH057_W	EG020A-F: Arsenic	7440-38-2	1 mg/L	107	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	97.0	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	103	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	93.8	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	96.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	99.7	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5366524)							
ES2335214-016	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	99.2	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	99.2	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	103	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	101	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	98.4	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	99.6	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	97.2	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5367928)							
ES2335140-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	88.1	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5368093)							
ES2335359-001	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	90.8	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5363018)							
--------		EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	# 69.8	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5363459)							
ES2335226-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	113	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5359508)							
ES2335214-013	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	101	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
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5363460)							
ES2335226-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	104	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5363457)							
ES2335226-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	88.1	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5363456)							
ES2335226-002	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5359511)							
ES2335378-003	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	99.2	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5362773)							
ES2335083-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	73.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5362773)							
ES2335083-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	77.5	70.0	130
EP080: BTEXN (QCLot: 5362773)							
ES2335083-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	95.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	79.8	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	81.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	80.1	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	88.0	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5363629)							
ES2335270-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	77.9	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	97.6	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	89.3	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5363629)							
ES2335270-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	117	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	74.8	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	102	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	80.0	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	103	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5363629)							
ES2335270-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	77.0	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	79.4	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	75.4	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	77.5	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2335415**	Page	: 1 of 13
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SC210108.03 - GWMP	Date Samples Received	: 13-Oct-2023
Site	: ----	Issue Date	: 23-Oct-2023
Sampler	: NC	No. of samples received	: 11
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.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

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

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **WATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA	ES2335354--002	Anonymous	**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	ES2335354--002	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EG050F: Dissolved Hexavalent Chromium		-	**Hexavalent Chromium**	18540-29-9	69.8 %	70.0-130%	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	18	5.56	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	8	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	11	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	8	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	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*

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)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	13-Oct-2023	✓
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	10-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**18-Oct-2023**	20-Oct-2023	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**19-Oct-2023**	10-Nov-2023	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	13-Oct-2023	✓
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	27-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	10-Nov-2023	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	10-Nov-2023	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**19-Oct-2023**	10-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**19-Oct-2023**	10-Apr-2024	✓
EG020T: Total Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)								
RS05		**12-Oct-2023**	**18-Oct-2023**	09-Apr-2024	✓	**18-Oct-2023**	09-Apr-2024	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T)								
RS06		**13-Oct-2023**	**18-Oct-2023**	10-Apr-2024	✓	**18-Oct-2023**	10-Apr-2024	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**20-Oct-2023**	10-Nov-2023	✓

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
EG035T: Total Recoverable Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)								
RS05		**12-Oct-2023**	**----**	----	----	**20-Oct-2023**	09-Nov-2023	✓
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T)								
RS06		**13-Oct-2023**	**----**	----	----	**20-Oct-2023**	10-Nov-2023	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**16-Oct-2023**	10-Nov-2023	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**16-Oct-2023**	10-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	15-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK059G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**16-Oct-2023**	10-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK061G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**16-Oct-2023**	10-Nov-2023	✓	**17-Oct-2023**	10-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK067G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**16-Oct-2023**	10-Nov-2023	✓	**17-Oct-2023**	10-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser								
Clear Plastic Bottle - Natural (EK071G)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	15-Oct-2023	✓
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**----**	----	----	**13-Oct-2023**	13-Oct-2023	✓
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	20-Oct-2023	✓	**20-Oct-2023**	26-Nov-2023	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	20-Oct-2023	✓	**20-Oct-2023**	26-Nov-2023	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068)								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	20-Oct-2023	✓	**20-Oct-2023**	26-Nov-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	20-Oct-2023	✓	**20-Oct-2023**	26-Nov-2023	✓

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) RS05		**12-Oct-2023**	**17-Oct-2023**	19-Oct-2023	✓	**19-Oct-2023**	26-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP071) RS06, SMW_BH057_W	SMW_ENV009,	**13-Oct-2023**	**17-Oct-2023**	20-Oct-2023	✓	**19-Oct-2023**	26-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB05 - Trip Blank		**03-Oct-2023**	**17-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS05		**12-Oct-2023**	**17-Oct-2023**	26-Oct-2023	✓	**18-Oct-2023**	26-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS06, SMW_BH057_W	SMW_ENV009,	**13-Oct-2023**	**17-Oct-2023**	27-Oct-2023	✓	**18-Oct-2023**	27-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) RS05		**12-Oct-2023**	**17-Oct-2023**	19-Oct-2023	✓	**19-Oct-2023**	26-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP071) RS06, SMW_BH057_W	SMW_ENV009,	**13-Oct-2023**	**17-Oct-2023**	20-Oct-2023	✓	**19-Oct-2023**	26-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB05 - Trip Blank		**03-Oct-2023**	**17-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS05		**12-Oct-2023**	**17-Oct-2023**	26-Oct-2023	✓	**18-Oct-2023**	26-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS06, SMW_BH057_W	SMW_ENV009,	**13-Oct-2023**	**17-Oct-2023**	27-Oct-2023	✓	**18-Oct-2023**	27-Oct-2023	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) TB05 - Trip Blank,	TS05 - Trip Spike 6	**03-Oct-2023**	**17-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS05		**12-Oct-2023**	**17-Oct-2023**	26-Oct-2023	✓	**18-Oct-2023**	26-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) RS06, SMW_BH057_W	SMW_ENV009,	**13-Oct-2023**	**17-Oct-2023**	27-Oct-2023	✓	**18-Oct-2023**	27-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X) SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	10-Apr-2024	✓	**18-Oct-2023**	10-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X) SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	10-Apr-2024	✓	**18-Oct-2023**	10-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X) SMW_ENV009,	SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	10-Apr-2024	✓	**18-Oct-2023**	10-Apr-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
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
SMW_ENV009, SMW_BH057_W	**13-Oct-2023**	**17-Oct-2023**	10-Apr-2024	✓	**18-Oct-2023**	10-Apr-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	10	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	27	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	9	22.22	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	8	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	5.56	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	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	0	8	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	6	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	1	2	50.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	3	33.33	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	13	15.38	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	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	14	14.29	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	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	10	10.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	3	66.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	27	11.11	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	9	11.11	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	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**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	17	**11.76**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	EP066	1	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	2	**150.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	3	**66.67**	**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	13	**23.08**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	14	**21.43**	**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	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	9	**11.11**	**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	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**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	8	**12.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	3	**33.33**	**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	13	**7.69**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	**7.14**	**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	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Chloride by Discrete Analyser	ED045G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	9	**11.11**	**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	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	18	**5.56**	**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	8	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	3	**33.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	13	**7.69**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	14	**7.14**	**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	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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)
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 5.3, 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.

CHAIN OF CUSTODY

ALS COC#: 58623 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	ZRW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jxie@epicenvironmental.com.au, nchandra@epicenvironmnetal.com.au, jpickerden@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE DETAILS / **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	SMW_BH004_s		11/10/2023 06:54 AM	WATER	ALS: 10 Non ALS: 0	No		X		
002	SMW_WTP_BH02		11/10/2023 10:34 AM	WATER	ALS: 10 Non ALS: 0	No		X		
003	SMW_WTP_BH03A		11/10/2023 10:32 AM	WATER	ALS: 10 Non ALS: 0	No		X		
004	Rinsate 04		11/10/2023 03:48 PM	WATER	ALS: 4 Non ALS: 0	No		Partial 1/14	TRH C6-C40	
005	TS04		11/10/2023 04:48 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	
006	TB04		11/10/2023 04:50 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	
007	QC03		11/10/2023 06:59 AM	WATER	ALS: 10 Non ALS: 0	No		X		

HT

Environmental Division Sydney
Work Order Reference
ES2335083

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	TRW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	QC04	Please send QC04 to Envirolab	11/10/2023 07:05 AM	WATER	ALS: 10 Non ALS: 0	Yes		-	Arsenic speciation on hold	

CHAIN OF CUSTODY

(ALS) COC#: 58623 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	LRW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

LABORATORY USE ONLY (Circle)

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

Other comments:

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
004	Rinsate 04	Quarterly Groundwater GROUNDWATER	WATER	- W-02 8 Metals

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	ARW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	SMW_BH004_s	Clear Plastic Bottle - Natural	500 mL	00071122237901	Green	No	
001	SMW_BH004_s	Amber Glass Bottle - Unpreserved	100 mL	00400423034853	Orange	No	
001	SMW_BH004_s	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062576	Purple	No	
001	SMW_BH004_s	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062562	Purple	No	
001	SMW_BH004_s	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222035065	Blue	Yes	
001	SMW_BH004_s	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011241	White	No	
001	SMW_BH004_s	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051833	Red	Yes	
001	SMW_BH004_s	HDPE (no PTFE)	20 mL	00351221009746	Grey	No	
001	SMW_BH004_s	HDPE (no PTFE)	20 mL	00351221000020	Grey	No	
001	SMW_BH004_s	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037538	Purple	No	
002	SMW_WTP_BH02	Clear Plastic Bottle - Natural	500 mL	00071122237970	Green	No	
002	SMW_WTP_BH02	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051837	Red	Yes	
002	SMW_WTP_BH02	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038602	Purple	No	
002	SMW_WTP_BH02	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041295	Blue	Yes	
002	SMW_WTP_BH02	HDPE (no PTFE)	20 mL	00351221009761	Grey	No	
002	SMW_WTP_BH02	HDPE (no PTFE)	20 mL	00351221000139	Grey	No	
002	SMW_WTP_BH02	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011242	White	No	
002	SMW_WTP_BH02	Amber Glass Bottle - Unpreserved	100 mL	00400423034826	Orange	No	
002	SMW_WTP_BH02	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062611	Purple	No	
002	SMW_WTP_BH02	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059360	Purple	No	
003	SMW_WTP_BH03A	Clear Plastic Bottle - Natural	500 mL	00071122237990	Green	No	
003	SMW_WTP_BH03A	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052334	Red	Yes	
003	SMW_WTP_BH03A	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041293	Blue	Yes	
003	SMW_WTP_BH03A	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037576	Purple	No	
003	SMW_WTP_BH03A	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011555	White	No	
003	SMW_WTP_BH03A	HDPE (no PTFE)	20 mL	00351221009821	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 58623 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	LRN DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jxie@epicenvironmental.com.au, nchandra@epicenvironmnetal.com.au, jpickerden@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

003	SMW_WTP_BH03A	HDPE (no PTFE)	20 mL	00351221009764	Grey	No	
003	SMW_WTP_BH03A	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080362	Purple	No	
003	SMW_WTP_BH03A	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080414	Purple	No	
003	SMW_WTP_BH03A	Amber Glass Bottle - Unpreserved	100 mL	00400423034970	Orange	No	
004	Rinsate 04	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080433	Purple	No	
004	Rinsate 04	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080363	Purple	No	
004	Rinsate 04	Amber Glass Bottle - Unpreserved	100 mL	00400423034305	Orange	No	
004	Rinsate 04	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052311	Red	No	Ribs are
005	TS04	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062545	Purple	No	
006	TB04	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080407	Purple	No	
007	QC03	Clear Plastic Bottle - Natural	500 mL	00071122237935	Green	No	
007	QC03	Amber Glass Bottle - Unpreserved	100 mL	00400423034790	Orange	No	
007	QC03	HDPE (no PTFE)	20 mL	00351221000060	Grey	No	
007	QC03	HDPE (no PTFE)	20 mL	00351221000198	Grey	No	
007	QC03	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052352	Red	Yes	
007	QC03	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011227	White	No	
007	QC03	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041278	Blue	Yes	
007	QC03	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062542	Purple	No	
007	QC03	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062600	Purple	No	
007	QC03	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038589	Purple	No	
008	QC04	Clear Plastic Bottle - Natural	500 mL	00071122237902	Green	No	
008	QC04	Amber Glass Bottle - Unpreserved	100 mL	00400423034715	Orange	No	
008	QC04	HDPE (no PTFE)	20 mL	00351221009785	Grey	No	
008	QC04	HDPE (no PTFE)	20 mL	00351221000083	Grey	No	
008	QC04	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062524	Purple	No	
008	QC04	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062529	Purple	No	
008	QC04	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011221	White	No	

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jxie@epicenvironmental.com.au, nchandra@epicenvironmnetal.com.au, jpickerden@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

008	QC04	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038607	Purple	No	
008	QC04	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041296	Blue	Yes	
008	QC04	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051843	Red	Yes	

Total Bottle Count: ALS: 56, Non ALS: 0

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	ZRW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	SMW_BH004_s		11/10/2023 06:54 AM	WATER	ALS: 10 Non ALS: 0	No		X		
002	SMW_WTP_BH02		11/10/2023 10:34 AM	WATER	ALS: 10 Non ALS: 0	No		X		
003	SMW_WTP_BH03A		11/10/2023 10:32 AM	WATER	ALS: 10 Non ALS: 0	No		X		
004	Rinsate 04		11/10/2023 03:48 PM	WATER	ALS: 4 Non ALS: 0	No		Partial 1/14	TRH C6-C40	
005	TS04		11/10/2023 04:48 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	
006	TB04		11/10/2023 04:50 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	
007	QC03		11/10/2023 06:59 AM	WATER	ALS: 10 Non ALS: 0	No		X		

HT

Environmental Division Sydney
Work Order Reference
ES2335083

Telephone : + 61-2-8784 8555

Subcon / Forward Lab / Split WO
Lab / Analysis: ENVIROLAB
Organised By / Date: QC04
Relinquished By / Date:
Connote / Courier:
WO No: ES2335083
Attached By PO / Internal Sheet:

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	ZRW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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SAMPLE DETAILS / **ANALYSIS REQUIRED**

SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	QC04	Please send QC04 to Envirolab	11/10/2023 07:05 AM	WATER	ALS: 10 Non ALS: 0	Yes	-	-	Arsenic speciation on hold	

CHAIN OF CUSTODY

ALS COC#: 58623 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
004	Rinsate 04	Quarterly Groundwater GROUNDWATER	WATER	- W-02 8 Metals

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	TRW DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

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EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	SMW_BH004_s	Clear Plastic Bottle - Natural	500 mL	00071122237901	Green	No	
001	SMW_BH004_s	Amber Glass Bottle - Unpreserved	100 mL	00400423034853	Orange	No	
001	SMW_BH004_s	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062576	Purple	No	
001	SMW_BH004_s	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062562	Purple	No	
001	SMW_BH004_s	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222035065	Blue	Yes	
001	SMW_BH004_s	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011241	White	No	
001	SMW_BH004_s	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051833	Red	Yes	
001	SMW_BH004_s	HDPE (no PTFE)	20 mL	00351221009746	Grey	No	
001	SMW_BH004_s	HDPE (no PTFE)	20 mL	00351221000020	Grey	No	
001	SMW_BH004_s	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037538	Purple	No	
002	SMW_WTP_BH02	Clear Plastic Bottle - Natural	500 mL	00071122237970	Green	No	
002	SMW_WTP_BH02	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051837	Red	Yes	
002	SMW_WTP_BH02	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038602	Purple	No	
002	SMW_WTP_BH02	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041295	Blue	Yes	
002	SMW_WTP_BH02	HDPE (no PTFE)	20 mL	00351221009761	Grey	No	
002	SMW_WTP_BH02	HDPE (no PTFE)	20 mL	00351221000139	Grey	No	
002	SMW_WTP_BH02	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011242	White	No	
002	SMW_WTP_BH02	Amber Glass Bottle - Unpreserved	100 mL	00400423034826	Orange	No	
002	SMW_WTP_BH02	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062611	Purple	No	
002	SMW_WTP_BH02	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059360	Purple	No	
003	SMW_WTP_BH03A	Clear Plastic Bottle - Natural	500 mL	00071122237990	Green	No	
003	SMW_WTP_BH03A	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052334	Red	Yes	
003	SMW_WTP_BH03A	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041293	Blue	Yes	
003	SMW_WTP_BH03A	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037576	Purple	No	
003	SMW_WTP_BH03A	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011555	White	No	
003	SMW_WTP_BH03A	HDPE (no PTFE)	20 mL	00351221009821	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	ARN DATE TIME: 12/10/23 1588	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jxie@epicenvironmental.com.au, nchandra@epicenvironmnetal.com.au, jpickerden@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

003	SMW_WTP_BH03A	HDPE (no PTFE)	20 mL	00351221009764	Grey	No	
003	SMW_WTP_BH03A	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080362	Purple	No	
003	SMW_WTP_BH03A	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080414	Purple	No	
003	SMW_WTP_BH03A	Amber Glass Bottle - Unpreserved	100 mL	00400423034970	Orange	No	
004	Rinsate 04	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080433	Purple	No	
004	Rinsate 04	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080363	Purple	No	
004	Rinsate 04	Amber Glass Bottle - Unpreserved	100 mL	00400423034305	Orange	No	
004	Rinsate 04	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052311	Red	No	Ribs are
005	TS04	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062545	Purple	No	
006	TB04	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080407	Purple	No	
007	QC03	Clear Plastic Bottle - Natural	500 mL	00071122237935	Green	No	
007	QC03	Amber Glass Bottle - Unpreserved	100 mL	00400423034790	Orange	No	
007	QC03	HDPE (no PTFE)	20 mL	00351221000060	Grey	No	
007	QC03	HDPE (no PTFE)	20 mL	00351221000198	Grey	No	
007	QC03	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052352	Red	Yes	
007	QC03	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011227	White	No	
007	QC03	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041278	Blue	Yes	
007	QC03	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062542	Purple	No	
007	QC03	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062600	Purple	No	
007	QC03	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038589	Purple	No	
008	QC04	Clear Plastic Bottle - Natural	500 mL	00071122237902	Green	No	
008	QC04	Amber Glass Bottle - Unpreserved	100 mL	00400423034715	Orange	No	
008	QC04	HDPE (no PTFE)	20 mL	00351221009785	Grey	No	
008	QC04	HDPE (no PTFE)	20 mL	00351221000083	Grey	No	
008	QC04	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062524	Purple	No	
008	QC04	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062529	Purple	No	
008	QC04	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011221	White	No	

CHAIN OF CUSTODY

(ALS) COC#: **58623** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jxie@epicenvironmental.com.au, nchandra@epicenvironmnetal.com.au, jpickerden@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

008	QC04	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038607	Purple	No	
008	QC04	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041296	Blue	Yes	
008	QC04	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051843	Red	Yes	

Total Bottle Count: ALS: 56, Non ALS: 0

HT

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	ALS Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	JX	Lab Batch No:	
Phone / Email:	0426205616	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	60 mL Clear Plastic Bottle - Nitric Acid; Filtered (water/liquid)	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 (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	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-BH004-S	—	W									X						X				
2	SMW-WTP-BH02	—	W									X						X				
3	SMW-WTP-BH03A	—	W									X						X				
4	QC03	—	W									X						X				
5	QC04	—	W									X						X				
6	TS04	—	W																	X		
7	TB04	—	W																	X		
8	Rinsate04	—	W																		X	X
			TOTALS									0	0	0	0	0	0	0	0	0	0	0

Relinquished By:	Joy XIE			Received By:	Lucas		12/10/23 1508
NAME	SIGNATURE	DATE		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 : **ES2335083**

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	: SC210108.03 Gamuda WTP GMP	Page	: 1 of 4
Order number	: -	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: 58623	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WTP GME Oct 23 - Day 4		
Sampler	: Joy Xie		

Dates

Date Samples Received	: 12-Oct-2023 15:08	Issue Date	: 12-Oct-2023
Client Requested Due Date	: 19-Oct-2023	Scheduled Reporting Date	: **19-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.9, 9.6, 9.1'C - Ice present
Receipt Detail	:	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 QC04 has been forwarded 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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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
ES2335083-001	11-Oct-2023 06:54	SMW_BH004_s	✓	✓	✓	✓	✓	✓	✓
ES2335083-002	11-Oct-2023 10:34	SMW_WTP_BH02	✓	✓	✓	✓	✓	✓	✓
ES2335083-003	11-Oct-2023 10:32	SMW_WTP_BH03A	✓	✓	✓	✓	✓	✓	✓
ES2335083-004	11-Oct-2023 15:48	Rinsate 04					✓		
ES2335083-007	11-Oct-2023 06:59	QC03	✓	✓	✓	✓	✓	✓	✓

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 +
ES2335083-001	11-Oct-2023 06:54	SMW_BH004_s	✓	✓	✓	✓	✓	✓	✓
ES2335083-002	11-Oct-2023 10:34	SMW_WTP_BH02	✓	✓	✓	✓	✓	✓	✓
ES2335083-003	11-Oct-2023 10:32	SMW_WTP_BH03A	✓	✓	✓	✓	✓	✓	✓
ES2335083-007	11-Oct-2023 06:59	QC03	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - TPH TRH (C6-C40)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2335083-004	11-Oct-2023 15:48	Rinsate 04		✓	
ES2335083-005	03-Oct-2023 00:00	TS04	✓		
ES2335083-006	03-Oct-2023 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							
QC03	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_BH004_s	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_WTP_BH02	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_WTP_BH03A	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
EA075: Redox Potential							
QC03	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_BH004_s	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_WTP_BH02	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_WTP_BH03A	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
EP025: Oxygen - Dissolved							
QC03	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_BH004_s	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_WTP_BH02	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----
SMW_WTP_BH03A	Clear Plastic Bottle - Natural	----	11-Oct-2023	12-Oct-2023	×	----	----

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
- A4 - AU Tax Invoice (INV)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

Joy Xie

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2335083**	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	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 12-Oct-2023 15:08
Order number	: -	Date Analysis Commenced	: 12-Oct-2023
C-O-C number	: 58623	Issue Date	: 19-Oct-2023 18:36
Sampler	: Joy Xie		
Site	: WTP GME Oct 23 - Day 4		
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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 QSM5.3 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.55	9.00	6.87	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	462	1270	102	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	318	809	64	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	61	74	14	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	128	19.5	66.7	----	----
pH Redox	----	0.01	pH Unit	6.38	9.12	7.63	----	----
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	60	<1	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	65	395	19	----	----
Total Alkalinity as CaCO3	----	1	mg/L	65	454	19	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	51	6	5	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	48	166	16	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	8	10	4	----	----
Magnesium	7439-95-4	1	mg/L	10	12	1	----	----
Sodium	7440-23-5	1	mg/L	69	264	13	----	----
Potassium	7440-09-7	1	mg/L	3	19	<1	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	0.36	0.03	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.002	<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	0.003	0.002	<0.001	----
Copper	7440-50-8	0.001	mg/L	0.049	0.033	0.010	<0.001	----
Nickel	7440-02-0	0.001	mg/L	0.004	0.004	<0.001	<0.001	----
Lead	7439-92-1	0.001	mg/L	<0.001	0.002	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	0.027	0.014	0.027	<0.005	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**0.075**	**0.008**	**0.003**	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	**0.14**	<0.05	----	----
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	**0.02**	**0.05**	<0.01	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.15**	<0.01	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**7.40**	**0.02**	**0.13**	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**7.55**	**0.02**	**0.13**	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.7**	**0.8**	**0.5**	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**8.2**	**0.8**	**0.6**	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.10**	**0.14**	**0.07**	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.01**	**0.07**	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**4.24**	----	----	----	----
ø Total Anions	----	0.01	meq/L	----	**13.9**	**0.94**	----	----
ø Total Cations	----	0.01	meq/L	**4.30**	**13.4**	**0.85**	----	----
ø Ionic Balance	----	0.01	%	**0.71**	----	----	----	----
ø Ionic Balance	----	0.01	%	----	**1.55**	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**5.4**	**6.7**	**8.0**	----	----

QUALITY CONTROL REPORT

Work Order	: **ES2335083**	Page	: 1 of 18
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	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 12-Oct-2023
Order number	: -	Date Analysis Commenced	: 12-Oct-2023
C-O-C number	: 58623	Issue Date	: 19-Oct-2023
Sampler	: Joy Xie		
Site	: WTP GME Oct 23 - Day 4		
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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5362654)									
ES2335042-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.54	7.62	1.1	0% - 20%
ES2335083-007	QC03	EA005-P: pH Value	----	0.01	pH Unit	6.75	6.71	0.6	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5362653)									
ES2335229-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	158	158	0.0	0% - 20%
ES2334538-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	362	372	2.6	0% - 20%
ES2335042-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	569	558	1.8	0% - 20%
ES2335083-007	QC03	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	460	443	3.9	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5363914)									
ES2335023-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	9280	8940	3.7	0% - 20%
ES2335083-003	SMW_WTP_BH03A	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	64	57	10.8	No Limit
ES2335203-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	92	95	3.2	No Limit
ES2335481-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	648	702	8.1	0% - 20%
EA075: Redox Potential (QC Lot: 5358524)									
ES2334751-001	Anonymous	EA075: Redox Potential	----	0.1	mV	222	253	13.2	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	5.87	5.85	0.3	0% - 20%
ES2335012-004	Anonymous	EA075: Redox Potential	----	0.1	mV	1.5	1.8	18.2	0% - 50%
		EA075: pH Redox	----	0.01	pH Unit	6.20	6.22	0.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5362652)									
ES2334538-001	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	160	160	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	160	160	0.0	0% - 20%
ES2335042-001	Anonymous	ED037-P: Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	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 (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5362652) - continued									
ES2335042-001	Anonymous	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	57	56	2.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	57	56	2.0	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5362655)									
WN2312184-014	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	92	93	1.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	92	93	1.3	0% - 20%
ES2335083-007	QC03	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	65	65	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	65	65	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5357335)									
ES2335085-013	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	43	44	0.0	0% - 20%
ES2335064-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3270	3250	0.4	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5357336)									
ES2335098-006	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	11	11	0.0	0% - 50%
ES2335064-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	794	804	1.3	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5363867)									
ES2335083-007	QC03	ED093F: Calcium	7440-70-2	1	mg/L	8	8	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	10	10	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	70	71	2.3	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	3	3	0.0	No Limit
ES2335175-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	146	143	1.7	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	80	79	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	202	200	1.4	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	55	53	2.4	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5363866)									
ES2335083-007	QC03	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	0.042	0.042	2.4	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	0.076	0.078	2.5	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.004	0.004	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.025	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
ES2335175-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0006	0.0006	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: 5363866) - continued									
ES2335175-001	Anonymous	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	0.008	0.008	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.030	0.030	0.0	0% - 20%
		EG020A-F: Lead	7439-92-1	0.001	mg/L	0.007	0.006	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	13.5	13.3	1.2	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.952	0.938	1.5	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	1.47	1.43	2.4	0% - 20%
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	2.55	2.50	1.7	0% - 20%
		EG020A-F: Iron	7439-89-6	0.05	mg/L	1.19	1.19	0.0	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5365528)									
ES2334307-031	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	0.001	<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
EP2314224-003	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	0.930	0.984	5.6	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	1.65	1.70	3.1	0% - 20%
EG035F: Dissolved Mercury by FIMS (QC Lot: 5363868)									
ES2335083-003	SMW_WTP_BH03A	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2335175-004	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: 5365529)									
ES2334307-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5359948)									
ES2335023-002	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<1.00	<1.00	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5359748)									
ES2335083-001	SMW_BH004_s	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.02	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					
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5359748) - continued									
ES2335419-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.70	0.75	6.7	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5357337)									
ES2335085-013	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2335064-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.02	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5359749)									
ES2335083-001	SMW_BH004_s	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	7.55	6.70	12.0	0% - 20%
ES2335419-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.27	0.25	7.1	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5359751)									
ES2335083-001	SMW_BH004_s	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.7	0.0	No Limit
ES2335419-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.6	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5359752)									
ES2335083-001	SMW_BH004_s	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.10	0.07	42.1	0% - 50%
ES2335419-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.01	0.02	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5357339)									
ES2335083-001	SMW_BH004_s	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.01	0.01	0.0	No Limit
ES2335099-002	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: 5362774)									
ES2335083-001	SMW_BH004_s	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: 5362774)									
ES2335083-001	SMW_BH004_s	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: 5362774)									
ES2335083-001	SMW_BH004_s	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5362774)									
ES2335083-001	SMW_BH004_s	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

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					
EP074D: Fumigants (QC Lot: 5362774) - continued									
ES2335083-001	SMW_BH004_s	EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	<5	0.0	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 5362774)									
ES2335083-001	SMW_BH004_s	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
		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: 5362774)									
ES2335083-001	SMW_BH004_s	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

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					
EP074G: Trihalomethanes (QC Lot: 5362774)									
ES2335083-001	SMW_BH004_s	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: 5362773)									
ES2335415-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2335083-001	SMW_BH004_s	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5362773)									
ES2335415-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2335083-001	SMW_BH004_s	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5362773)									
ES2335415-004	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
ES2335083-001	SMW_BH004_s	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: 5357389)									
ES2335023-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.58	0.61	5.3	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.75	0.96	23.8	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	14.0	13.7	2.2	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5357389)									
ES2335023-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	2.22	2.41	8.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.96	1.88	4.6	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	7.10	7.52	5.7	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.70	0.83	17.5	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5357389)									
ES2335023-001	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

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: 5357389) - continued									
ES2335023-001	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.05	µg/L	0.94	1.10	16.3	0% - 20%
		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: 5362654)								
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: 5362653)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	97.1	89.9	110
				<1	2100 µS/cm	95.7	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5363914)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.2	87.0	109
				<10	293 mg/L	103	75.2	126
				<10	2470 mg/L	98.8	83.0	124
EA075: Redox Potential (QCLot: 5358524)								
EA075: Redox Potential	----	----	mV	----	234 mV	101	96.0	106
				----	300 mV	101	97.0	105
				----	86 mV	111	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5362652)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	100	81.0	115
				----	50 mg/L	109	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 5362655)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	96.6	81.0	115
				----	50 mg/L	107	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5357335)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	90.6	82.0	122
				<1	500 mg/L	103	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5357336)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	97.5	80.9	127
				<1	1000 mg/L	98.0	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5363867)								
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	101	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	100	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	110	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363866)								

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: 5363866) - continued								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	106	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.3	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.3	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	93.8	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.8	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.6	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.6	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	98.4	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	96.6	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5365528)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	104	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	101	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.2	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.3	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.6	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.6	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.7	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.0	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	95.1	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5363868)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	100	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5365529)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	98.9	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 5359948)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	101	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5359748)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5357337)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	95.4	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5359749)								
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: 5359751)								

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
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5359751) - continued								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	78.7	69.0	101
				<0.1	1 mg/L	92.1	70.0	118
				<0.1	5 mg/L	95.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5359752)								
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	93.4	71.3	126
				<0.01	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5357339)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	98.9	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5358096)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	90.3	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5358097)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	85.8	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	92.9	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	82.5	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	107	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	96.8	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	90.6	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	92.2	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	99.2	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	94.2	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	97.3	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	99.0	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	99.6	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	99.0	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	92.1	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	101	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	104	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	95.6	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	103	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	90.5	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	90.5	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	91.4	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5358097)								

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: 5358097) - continued								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	95.9	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	94.1	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	24.4	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	103	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	101	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	102	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	96.7	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	107	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	96.6	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	97.4	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	92.9	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	99.2	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	105	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	99.8	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	106	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	99.8	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	106	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	92.5	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	100	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5362774)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	97.3	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	98.5	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	97.8	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	97.9	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	98.1	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	97.8	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.5	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	97.5	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5362774)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	99.5	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	92.7	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	94.7	65.0	137

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
EP074C: Sulfonated Compounds (QCLot: 5362774)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	90.9	72.8	127
EP074D: Fumigants (QCLot: 5362774)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	99.0	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	100	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	98.4	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	98.9	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	100	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5362774)								
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	101	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	99.9	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	101	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	99.7	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	98.2	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	99.2	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	95.9	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	99.7	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	99.7	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	99.4	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	99.0	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	96.6	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	99.3	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	99.6	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	100	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	99.4	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	97.6	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	98.4	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	99.4	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	104	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.6	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: 5362774) - continued								
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	96.3	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	108	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5362774)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.2	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	100	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	99.9	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	99.0	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.0	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	102	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	104	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: 5362774)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	101	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	95.6	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	94.4	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5358095)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	76.5	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	70.8	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	70.7	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	66.7	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	75.5	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	76.8	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	78.8	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	79.0	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	76.9	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	77.0	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	67.1	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	74.2	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	75.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	70.7	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	71.9	61.2	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5358095) - continued								
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	71.7	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5358094)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	71.4	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	82.5	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	78.6	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5362773)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	94.1	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5358094)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	62.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	71.7	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	76.9	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5362773)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	104	75.0	127
EP080: BTEXN (QCLot: 5362773)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	88.1	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	95.2	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	96.0	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	96.5	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	93.8	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	87.5	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5357389)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	117	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	99.9	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	94.3	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5357389)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	123	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	118	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	96.5	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5357389)								
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	122	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	Acceptable Limits (%) High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5357389) - continued								
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	102	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	90.8	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	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5357335)							
ES2335064-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5357336)							
ES2335064-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363866)							
ES2335083-002	SMW_WTP_BH02	EG020A-F: Arsenic	7440-38-2	1 mg/L	101	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	99.1	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	95.1	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	98.5	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	99.2	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	94.9	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	97.7	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	98.3	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5365528)							
EP2314224-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	113	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	102	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	107	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	108	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	105	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	104	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	105	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	103	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5363868)							
ES2335083-001	SMW_BH004_s	EG035F: Mercury	7439-97-6	0.01 mg/L	88.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5365529)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG035F: Dissolved Mercury by FIMS (QCLot: 5365529) - continued							
EP2314224-004	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	78.1	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5359948)							
ES2335023-002	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	5 mg/L	81.4	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5359748)							
ES2335083-001	SMW_BH004_s	EK055G: Ammonia as N	7664-41-7	1 mg/L	111	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5357337)							
ES2335064-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	109	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5359749)							
ES2335083-001	SMW_BH004_s	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5359751)							
ES2335083-002	SMW_WTP_BH02	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	96.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5359752)							
ES2335083-002	SMW_WTP_BH02	EK067G: Total Phosphorus as P	----	1 mg/L	107	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5357339)							
ES2335083-001	SMW_BH004_s	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	101	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5362774)							
ES2335083-001	SMW_BH004_s	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	103	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	106	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5362774)							
ES2335083-001	SMW_BH004_s	EP074: Chlorobenzene	108-90-7	25 µg/L	113	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5362773)							
ES2335083-001	SMW_BH004_s	EP080: C6 - C9 Fraction	----	325 µg/L	73.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5362773)							
ES2335083-001	SMW_BH004_s	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	77.5	70.0	130
EP080: BTEXN (QCLot: 5362773)							
ES2335083-001	SMW_BH004_s	EP080: Benzene	71-43-2	25 µg/L	95.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	79.8	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	84.1	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	81.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	80.1	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	88.0	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5357389)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5357389) - continued							
ES2335023-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	# Not Determined	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	100	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	99.0	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5357389)							
ES2335023-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	111	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	80.7	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	94.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	109	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.8	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5357389)							
ES2335023-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	99.5	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	110	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	114	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	: **ES2335083**	Page	: 1 of 14
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 12-Oct-2023
Site	: WTP GME Oct 23 - Day 4	Issue Date	: 19-Oct-2023
Sampler	: Joy Xie	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, 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	ES2335064--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.**
ED045G: Chloride by Discrete Analyser	ES2335064--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2335083--001	SMW_BH004_s	**Nitrite + Nitrate as N**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES2335023--002	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation: Date extracted	Extraction / Preparation: Due for extraction	Extraction / Preparation: Days overdue	Analysis: Date analysed	Analysis: Due for analysis	Analysis: Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	----	----	----	17-Oct-2023	11-Oct-2023	**6**
EA075: Redox Potential							
Clear Plastic Bottle - Natural							
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	----	----	----	13-Oct-2023	11-Oct-2023	**2**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	----	----	----	12-Oct-2023	11-Oct-2023	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count: QC	Count: Regular	Rate (%): Actual	Rate (%): Expected	Quality Control Specification
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	13	7.69	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	4	0.00	10.00	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

Quality Control Sample Type / Method	Count QC	Count Regular	Rate (%) Actual	Rate (%) Expected	Quality Control Specification
	0				
Laboratory Duplicates (DUP) - Continued					
TRH - Semivolatile Fraction	0	5	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	4	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	5	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)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**----**	----	----	**17-Oct-2023**	11-Oct-2023	✗
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**----**	----	----	**17-Oct-2023**	08-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**----**	----	----	**17-Oct-2023**	18-Oct-2023	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**----**	----	----	**17-Oct-2023**	08-Nov-2023	✓
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**----**	----	----	**13-Oct-2023**	11-Oct-2023	✗

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
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**17-Oct-2023**	25-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**13-Oct-2023**	08-Nov-2023	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**13-Oct-2023**	08-Nov-2023	✓
ED093F: Dissolved Major Cations								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**17-Oct-2023**	08-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**17-Oct-2023**	08-Apr-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F)								
Rinsate 04		**11-Oct-2023**	----	----	----	**18-Oct-2023**	08-Apr-2024	✓
EG035F: Dissolved Mercury by FIMS								
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F)								
SMW_BH004_s, SMW_WTP_BH03A, QC03	SMW_WTP_BH02, Rinsate 04,	**11-Oct-2023**	----	----	----	**19-Oct-2023**	08-Nov-2023	✓
EG050F: Dissolved Hexavalent Chromium								
Clear Plastic Bottle - NaOH Filtered (EG050G-F)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**13-Oct-2023**	08-Nov-2023	✓
EK055G: Ammonia as N by Discrete Analyser								
Clear Plastic Bottle - Sulfuric Acid (EK055G)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**13-Oct-2023**	08-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser								
Clear Plastic Bottle - Natural (EK057G)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	----	----	----	**13-Oct-2023**	13-Oct-2023	✓

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
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**----**	----	----	**13-Oct-2023**	08-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**13-Oct-2023**	08-Nov-2023	✓	**13-Oct-2023**	08-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**13-Oct-2023**	08-Nov-2023	✓	**13-Oct-2023**	08-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**----**	----	----	**13-Oct-2023**	13-Oct-2023	✓
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**----**	----	----	**12-Oct-2023**	11-Oct-2023	✗
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**19-Oct-2023**	25-Nov-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**19-Oct-2023**	25-Nov-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**19-Oct-2023**	25-Nov-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons							
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓

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
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s		**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, QC03	SMW_WTP_BH03A,	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s		**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, QC03	SMW_WTP_BH03A,	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s		**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, QC03	SMW_WTP_BH03A,	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s		**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, QC03	SMW_WTP_BH03A,	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s		**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, QC03	SMW_WTP_BH03A,	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) SMW_BH004_s		**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP074) SMW_WTP_BH02, QC03	SMW_WTP_BH03A,	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) SMW_BH004_s,	SMW_WTP_BH02	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**18-Oct-2023**	25-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP075(SIM)) SMW_WTP_BH03A,	QC03	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**19-Oct-2023**	25-Nov-2023	✓

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_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, Rinsate 04, QC03	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**19-Oct-2023**	25-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB04	**03-Oct-2023**	**17-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_s	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_WTP_BH02, SMW_WTP_BH03A, Rinsate 04, QC03	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, Rinsate 04, QC03	**11-Oct-2023**	**16-Oct-2023**	18-Oct-2023	✓	**19-Oct-2023**	25-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB04	**03-Oct-2023**	**17-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_s	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_WTP_BH02, SMW_WTP_BH03A, Rinsate 04, QC03	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TS04, TB04	**03-Oct-2023**	**17-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_BH004_s	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**17-Oct-2023**	25-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_WTP_BH02, SMW_WTP_BH03A, Rinsate 04, QC03	**11-Oct-2023**	**17-Oct-2023**	25-Oct-2023	✓	**18-Oct-2023**	25-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**16-Oct-2023**	08-Apr-2024	✓	**17-Oct-2023**	08-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) SMW_BH004_s, SMW_WTP_BH02, SMW_WTP_BH03A, QC03	**11-Oct-2023**	**16-Oct-2023**	08-Apr-2024	✓	**17-Oct-2023**	08-Apr-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
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**16-Oct-2023**	08-Apr-2024	✓	**17-Oct-2023**	08-Apr-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
SMW_BH004_s, SMW_WTP_BH03A,	SMW_WTP_BH02, QC03	**11-Oct-2023**	**16-Oct-2023**	08-Apr-2024	✓	**17-Oct-2023**	08-Apr-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	32	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	28	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	27	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	20.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	18	11.11	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	4	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	4	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	11.11	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	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total 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	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	18	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	4	32	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	28	10.71	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	20.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	5.56	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	4	25.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Laboratory Control Samples (LCS) - Continued							
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	4	**25.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	18	**11.11**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	**10.00**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total 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	19	**15.79**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	3	18	**16.67**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**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	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**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	4	**25.00**	**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	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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total 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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**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	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**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	5	**20.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**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	4	**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	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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	5	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	18	**5.56**	**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.
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 5.3, 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.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
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	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	----	----
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	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
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	----	----
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	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
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	----	----
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	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
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	----	----
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	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EP080/071: Total Petroleum Hydrocarbons - Continued								
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	**15**
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	**16**
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	**15**
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	**15**
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	**15**
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	**30**
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	**76**
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	**17**
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: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				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	**0.06**	<0.01	<0.01	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**110**	**112**	**101**	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**96.6**	**104**	**81.2**	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**103**	**117**	**84.6**	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**102**	**100**	**100**	----	----
Toluene-D8	2037-26-5	5	%	**107**	**106**	**107**	----	----
4-Bromofluorobenzene	460-00-4	5	%	**101**	**102**	**101**	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**24.2**	**25.0**	**23.1**	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**51.2**	**40.6**	**48.5**	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**40.7**	**33.6**	**39.2**	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**64.6**	**74.4**	**61.9**	----	----
Anthracene-d10	1719-06-8	1.0	%	**92.1**	**86.8**	**67.3**	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**69.1**	**75.7**	**59.3**	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**97.0**	**95.5**	**95.6**	**92.4**	**94.0**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_BH004_s	SMW_WTP_BH02	SMW_WTP_BH03A	Rinsate 04	TS04
			Sampling date / time	11-Oct-2023 06:54	11-Oct-2023 10:34	11-Oct-2023 10:32	11-Oct-2023 15:48	03-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2335083-001	ES2335083-002	ES2335083-003	ES2335083-004	ES2335083-005
				Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates - Continued								
Toluene-D8	2037-26-5	2	%	**115**	**114**	**115**	**110**	**112**
4-Bromofluorobenzene	460-00-4	2	%	**104**	**104**	**104**	**105**	**103**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**101**	**105**	**95.8**	**----**	**----**
13C8-PFOA	----	0.02	%	**97.2**	**97.0**	**97.7**	**----**	**----**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	**6.75**	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	**460**	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	**292**	----	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	**61**	----	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	**146**	----	----	----	----
pH Redox	----	0.01	pH Unit	**6.44**	----	----	----	----
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	**65**	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	**65**	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	**50**	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	**48**	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	**8**	----	----	----	----
Magnesium	7439-95-4	1	mg/L	**10**	----	----	----	----
Sodium	7440-23-5	1	mg/L	**70**	----	----	----	----
Potassium	7440-09-7	1	mg/L	**3**	----	----	----	----
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	----	----	----	----
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	**0.042**	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	**0.004**	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	**0.025**	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**0.076**	----	----	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	----	----	----	----
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	**0.04**	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.14**	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**6.44**	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**6.58**	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.8**	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**7.4**	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.08**	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	**0.02**	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**4.16**	----	----	----	----
ø Total Cations	----	0.01	meq/L	**4.34**	----	----	----	----
ø Ionic Balance	----	0.01	%	**2.12**	----	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**6.1**	----	----	----	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
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	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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
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	----	----	----	----
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								

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EP074E: Halogenated Aliphatic Compounds - Continued								
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	----	----	----	----
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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EP074F: Halogenated Aromatic Compounds - Continued								
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	----	----	----	----
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	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
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	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<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	<0.01	----	----	----	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	**0.02**	----	----	----	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	----	----	----	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	----	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.02**	----	----	----	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	----	----	----	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	**0.02**	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
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	**0.02**	----	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.06**	----	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**111**	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**98.6**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**102**	----	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**99.4**	----	----	----	----
Toluene-D8	2037-26-5	5	%	**108**	----	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	**98.7**	----	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**24.9**	----	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**51.2**	----	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**46.0**	----	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**66.2**	----	----	----	----
Anthracene-d10	1719-06-8	1.0	%	**75.0**	----	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	**65.8**	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**94.4**	----	----	----	----
Toluene-D8	2037-26-5	2	%	**116**	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	**102**	----	----	----	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**98.3**	----	----	----	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	QC03	----	----	----	----
			Sampling date / time	11-Oct-2023 06:59	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-007	--------	--------	--------	--------
				Result	----	----	----	----
EP231S: PFAS Surrogate - Continued								
13C8-PFOA	----	0.02	%	**97.7**	----	----	----	----

Analytical Results

Sub-Matrix: SWIMMING POOL WATER (Matrix: WATER)			Sample ID	TB04	----	----	----	----
			Sampling date / time	03-Oct-2023 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2335083-006	--------	--------	--------	--------
				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	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	96.6	----	----	----	----
Toluene-D8	2037-26-5	2	%	116	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	105	----	----	----	----

Surrogate Control Limits

Sub-Matrix: GROUNDWATER		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

Sub-Matrix: SWIMMING POOL WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
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

UPDATED COC

CHAIN OF CUSTODY

ALS COC#: 58546 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	ZRN DATE TIME: 11/10/23 1800	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 3

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

LABORATORY USE ONLY (Circle)

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

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	SMW_ENV042_w		10/10/2023 12:49 PM	WATER	ALS: 10 Non ALS: 0	No		X		
002	GALC-MW18		10/10/2023 09:12 AM	WATER	ALS: 10 Non ALS: 0	No		X		
003	GALC-MW16-b		10/10/2023 11:48 AM	WATER	ALS: 10 Non ALS: 0	No		X		
004	GALC-MW12		10/10/2023 03:21 PM	WATER	ALS: 9 Non ALS: 0	No		X		
005	Rinsate 03		10/10/2023 03:44 PM	WATER	ALS: 4 Non ALS: 0	No		Partial 1/14	TRH C6-C40	
006	TS03		10/10/2023 03:50 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	
007	TB03		10/10/2023 03:50 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	

HT

Environmental Division Sydney

Work Order Reference

ES2335012

Telephone : + 61-2-8784 8555

CHAIN OF CUSTODY

(ALS) COC#: **58546** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 11/10/23 1500	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 3

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
005	Rinsate 03	Quarterly Groundwater GROUNDWATER	WATER	- W-02 8 Metals

CHAIN OF CUSTODY

ALS COC#: 58546 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 11/10/23 1500	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 3

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	SMW_ENV042_w	Clear Plastic Bottle - Natural	500 mL	00071122237989	Green	No	
001	SMW_ENV042_w	Amber Glass Bottle - Unpreserved	100 mL	00400423034879	Orange	No	
001	SMW_ENV042_w	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222040646	Blue	Yes	
001	SMW_ENV042_w	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011244	White	No	
001	SMW_ENV042_w	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051872	Red	Yes	
001	SMW_ENV042_w	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059420	Purple	No	
001	SMW_ENV042_w	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059417	Purple	No	
001	SMW_ENV042_w	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037508	Purple	No	
001	SMW_ENV042_w	HDPE (no PTFE)	20 mL	00351221000118	Grey	No	
001	SMW_ENV042_w	HDPE (no PTFE)	20 mL	00351221000063	Grey	No	
002	GALC-MW18	Clear Plastic Bottle - Natural	500 mL	00071122237910	Green	No	
002	GALC-MW18	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222040645	Blue	Yes	
002	GALC-MW18	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037592	Purple	No	
002	GALC-MW18	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011256	White	No	
002	GALC-MW18	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059415	Purple	No	
002	GALC-MW18	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059440	Purple	No	
002	GALC-MW18	HDPE (no PTFE)	20 mL	00351221000075	Grey	No	
002	GALC-MW18	HDPE (no PTFE)	20 mL	00351221000193	Grey	No	
002	GALC-MW18	Amber Glass Bottle - Unpreserved	100 mL	00400423034417	Orange	No	
002	GALC-MW18	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051831	Red	Yes	
003	GALC-MW16-b	Amber Glass Bottle - Unpreserved	100 mL	00400423034884	Orange	No	
003	GALC-MW16-b	Clear Plastic Bottle - Natural	500 mL	00071122237875	Green	No	
003	GALC-MW16-b	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011225	White	No	
003	GALC-MW16-b	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037516	Purple	No	
003	GALC-MW16-b	HDPE (no PTFE)	20 mL	00351221000016	Grey	No	
003	GALC-MW16-b	HDPE (no PTFE)	20 mL	00351221000094	Grey	No	

CHAIN OF CUSTODY

(ALS) COC#: **58546** *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 11/10/23 1500	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 3

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

003	GALC-MW16-b	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222040470	Blue	Yes	
003	GALC-MW16-b	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051817	Red	Yes	
003	GALC-MW16-b	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059421	Purple	No	
003	GALC-MW16-b	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059395	Purple	No	
004	GALC-MW12	Clear Plastic Bottle - Natural	500 mL	00071122237893	Green	No	
004	GALC-MW12	Amber Glass Bottle - Unpreserved	100 mL	00400423034939	Orange	No	
004	GALC-MW12	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037525	Purple	No	
004	GALC-MW12	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059443	Purple	No	
004	GALC-MW12	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059400	Purple	No	
004	GALC-MW12	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041311	Blue	Yes	
004	GALC-MW12	HDPE (no PTFE)	20 mL	00351221000090	Grey	No	
004	GALC-MW12	HDPE (no PTFE)	20 mL	00351221000041	Grey	No	
004	GALC-MW12	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052337	Red	Yes	
005	Rinsate 03	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052260	Red	No	Rinsate
005	Rinsate 03	Amber Glass Bottle - Unpreserved	100 mL	00400423034411	Orange	No	
005	Rinsate 03	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080425	Purple	No	
005	Rinsate 03	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080366	Purple	No	
006	TS03	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062564	Purple	No	
007	TB03	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080408	Purple	No	

Total Bottle Count: ALS: 45, Non ALS: 0

HT

Chain of Custody Record

epic ENVIRONMENTAL

Project No:	SC210108.03 - GWMP	Lab:	ALS Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:		Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	water/liquid									TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness	Trivalent Chromium - dissolved; Hexavalent Chromium - dissolved		Trip	Rinsate	
				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)										TRH C6-C10/BTEXN	TRH C6-C40	8 metals
1	BALC-MW18	10/10	W										X						X					
2	BALC-MW16-b	"	"										X						X					
3	BALC-MW12	"	"										X						X					
4	SMW_ENV042	"	"										X						X					
		"																						
5	Rinsate 03	–	–																			X	X	
6	TS03	–	–																		X			
7	TB03	–	–																		X			
			TOTALS										0	0	0	0	0	0	0	0	0	0	0	

Relinquished By:			Received By: WCAS		1440
NAME	SIGNATURE	DATE	NAME	SIGNATURE	DATE 11/10/23

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 : **ES2335012**

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	: SC210108.03 Gamuda WTP GMP	Page	: 1 of 3
Order number	: -	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: 58546	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WTP GME Oct 23 - Day 3		
Sampler	: Joy Xie		

Dates

Date Samples Received	: 11-Oct-2023 15:00	Issue Date	: 11-Oct-2023
Client Requested Due Date	: 18-Oct-2023	Scheduled Reporting Date	: **18-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.1, 11.4, 10.2'C - Ice present
Receipt Detail	:	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
- **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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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
ES2335012-001	10-Oct-2023 12:49	SMW_ENV042_w	✓	✓	✓	✓	✓	✓	✓
ES2335012-002	10-Oct-2023 09:12	GALC-MW18	✓	✓	✓	✓	✓	✓	✓
ES2335012-003	10-Oct-2023 11:48	GALC-MW16-b	✓	✓	✓	✓	✓	✓	✓
ES2335012-004	10-Oct-2023 15:21	GALC-MW12	✓	✓	✓	✓	✓	✓	✓
ES2335012-005	10-Oct-2023 15:44	Rinsate 03					✓		

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 +
ES2335012-001	10-Oct-2023 12:49	SMW_ENV042_w	✓	✓	✓	✓	✓	✓	✓
ES2335012-002	10-Oct-2023 09:12	GALC-MW18	✓	✓	✓	✓	✓	✓	✓
ES2335012-003	10-Oct-2023 11:48	GALC-MW16-b	✓	✓	✓	✓	✓	✓	✓
ES2335012-004	10-Oct-2023 15:21	GALC-MW12	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - TPH TRH (C6-C40)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2335012-005	10-Oct-2023 15:44	Rinsate 03		✓	
ES2335012-006	03-Sep-2023 00:00	TS03	✓		
ES2335012-007	03-Sep-2023 00:00	TB03			✓

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-MW12	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW16-b	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
SMW_ENV042_w	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
EA075: Redox Potential							
GALC-MW12	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW16-b	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
SMW_ENV042_w	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
EP025: Oxygen - Dissolved							
GALC-MW12	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW16-b	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
SMW_ENV042_w	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
EP080: TRH Volatiles/BTEX							
TB03	Amber VOC Vial - Sulfuric Acid	17-Sep-2023	17-Sep-2023	11-Oct-2023	×	----	----
TS03	Amber VOC Vial - Sulfuric Acid	17-Sep-2023	17-Sep-2023	11-Oct-2023	×	----	----

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
- A4 - AU Tax Invoice (INV)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

Joy Xie

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

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2335012**

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	: SC210108.03 Gamuda WTP GMP	Page	: 1 of 3
Order number	: -	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: 58546	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WTP GME Oct 23 - Day 3		
Sampler	: Joy Xie		

Dates

Date Samples Received	: 11-Oct-2023 15:00	Issue Date	: 13-Oct-2023
Client Requested Due Date	: 18-Oct-2023	Scheduled Reporting Date	: **18-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 10.1, 11.4, 10.2'C - Ice present
Receipt Detail	:	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
- This is an updated SRN with corrected sample dates for samples 6 and 7.
- **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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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
ES2335012-001	10-Oct-2023 12:49	SMW_ENV042_w	✓	✓	✓	✓	✓	✓	✓
ES2335012-002	10-Oct-2023 09:12	GALC-MW18	✓	✓	✓	✓	✓	✓	✓
ES2335012-003	10-Oct-2023 11:48	GALC-MW16-b	✓	✓	✓	✓	✓	✓	✓
ES2335012-004	10-Oct-2023 15:21	GALC-MW12	✓	✓	✓	✓	✓	✓	✓
ES2335012-005	10-Oct-2023 15:44	Rinsate 03					✓		

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 +
ES2335012-001	10-Oct-2023 12:49	SMW_ENV042_w	✓	✓	✓	✓	✓	✓	✓
ES2335012-002	10-Oct-2023 09:12	GALC-MW18	✓	✓	✓	✓	✓	✓	✓
ES2335012-003	10-Oct-2023 11:48	GALC-MW16-b	✓	✓	✓	✓	✓	✓	✓
ES2335012-004	10-Oct-2023 15:21	GALC-MW12	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - TPH TRH (C6-C40)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2335012-005	10-Oct-2023 15:44	Rinsate 03		✓	
ES2335012-006	03-Oct-2023 00:00	TS03	✓		
ES2335012-007	03-Oct-2023 00:00	TB03			✓

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
EA075: Redox Potential							
GALC-MW12	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW16-b	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
SMW_ENV042_w	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
EP025: Oxygen - Dissolved							
GALC-MW12	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW16-b	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
GALC-MW18	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----
SMW_ENV042_w	Clear Plastic Bottle - Natural	----	10-Oct-2023	11-Oct-2023	×	----	----

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
- A4 - AU Tax Invoice (INV)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

Joy Xie

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2335012**	Page	: 1 of 13
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	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 11-Oct-2023 15:00
Order number	: -	Date Analysis Commenced	: 11-Oct-2023
C-O-C number	: 58546	Issue Date	: 18-Oct-2023 18:35
Sampler	: Joy Xie		
Site	: WTP GME Oct 23 - Day 3		
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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 QSM5.3 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.
- 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 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.40	6.92	8.03	6.60	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	24000	9410	3240	10200	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	16000	5340	1830	6450	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	3290	546	176	937	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	53.8	30.1	31.8	1.5	----
pH Redox	----	0.01	pH Unit	5.74	6.32	7.37	6.20	----
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	69	194	480	191	----
Total Alkalinity as CaCO3	----	1	mg/L	69	194	480	191	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	1040	489	77	492	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	7810	2640	790	2920	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	193	34	26	108	----
Magnesium	7439-95-4	1	mg/L	682	112	27	162	----
Sodium	7440-23-5	1	mg/L	4020	1680	603	1660	----
Potassium	7440-09-7	1	mg/L	12	5	15	58	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	----
Arsenic	7440-38-2	0.001	mg/L	0.006	<0.001	<0.001	0.013	<0.001
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	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.009	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.006	<0.001	<0.001	0.002	<0.001
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	0.019	<0.005	<0.005	0.007	<0.005

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**0.230**	**0.735**	**0.423**	**0.316**	----
Iron	7439-89-6	0.05	mg/L	**83.9**	**10.2**	**0.12**	**82.2**	----
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	**0.26**	<0.01	**0.10**	**4.19**	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.05**	<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	**0.02**	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.01**	<0.01	**0.03**	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.4**	**0.3**	**1.8**	**6.1**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**1.4**	**0.3**	**1.8**	**6.1**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.02**	**0.02**	**0.09**	**0.10**	----
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	**243**	**88.5**	**33.5**	**96.4**	----
ø Total Cations	----	0.01	meq/L	**241**	**84.1**	**30.1**	**92.4**	----
ø Ionic Balance	----	0.01	%	**0.50**	**2.55**	**5.26**	**2.13**	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**4.0**	**3.6**	**4.2**	**2.7**	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				Result	Result	Result	Result	Result
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	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	----
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: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				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	----
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: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				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	----
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	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
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	----
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

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				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	<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	<0.02	<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	<0.01	<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	<0.02	----
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	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
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	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	93.2	86.7	103	84.6	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	53.9	59.9	56.0	53.7	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	51.1	66.2	67.3	59.7	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	106	107	108	114	----
Toluene-D8	2037-26-5	5	%	108	107	112	116	----
4-Bromofluorobenzene	460-00-4	5	%	111	112	112	118	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	17.7	19.8	18.1	17.9	----
2-Chlorophenol-D4	93951-73-6	1.0	%	38.0	48.9	38.0	46.0	----
2.4.6-Tribromophenol	118-79-6	1.0	%	40.0	53.5	44.4	50.8	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	53.3	69.1	56.3	68.5	----
Anthracene-d10	1719-06-8	1.0	%	61.3	68.1	61.4	64.4	----
4-Terphenyl-d14	1718-51-0	1.0	%	59.8	68.4	66.1	65.7	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	104	105	106	112	93.9
Toluene-D8	2037-26-5	2	%	104	104	110	113	97.5
4-Bromofluorobenzene	460-00-4	2	%	120	122	122	128	110
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	98.9	101	100	95.6	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	SMW_ENV042_w	GALC-MW18	GALC-MW16-b	GALC-MW12	Rinsate 03
			Sampling date / time	10-Oct-2023 12:49	10-Oct-2023 09:12	10-Oct-2023 11:48	10-Oct-2023 15:21	10-Oct-2023 15:44
Compound	CAS Number	LOR	Unit	ES2335012-001	ES2335012-002	ES2335012-003	ES2335012-004	ES2335012-005
				Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued								
13C8-PFOA	----	0.02	%	**96.7**	**96.4**	**94.3**	**96.9**	**----**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	TS03	TB03	----	----	----
			Sampling date / time	03-Oct-2023 00:00	03-Oct-2023 00:00	----	----	----
Compound	CAS Number	LOR	Unit	ES2335012-006	ES2335012-007	--------	--------	--------
				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	16	<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	18	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	20	<2	----	----	----
^ Total Xylenes	----	2	µg/L	38	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	88	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	18	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	101	96.0	----	----	----
Toluene-D8	2037-26-5	2	%	103	97.0	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	114	112	----	----	----

Surrogate Control Limits

Sub-Matrix: GROUNDWATER		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	: **ES2335012**	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	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 11-Oct-2023
Order number	: -	Date Analysis Commenced	: 11-Oct-2023
C-O-C number	: 58546	Issue Date	: 18-Oct-2023
Sampler	: Joy Xie		
Site	: WTP GME Oct 23 - Day 3		
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*
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5358970)									
ES2334970-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	9.08	9.08	0.0	0% - 20%
ES2335012-003	GALC-MW16-b	EA005-P: pH Value	----	0.01	pH Unit	8.03	8.09	0.7	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5358966)									
ES2334576-012	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	980	988	0.8	0% - 20%
ES2334897-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	14000	13900	0.8	0% - 20%
ES2334970-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1350	1340	0.3	0% - 20%
ES2335012-003	GALC-MW16-b	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	3240	3230	0.4	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5360519)									
ES2334841-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	109	105	3.3	0% - 50%
ES2334841-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	105	102	3.1	0% - 50%
ES2334841-021	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	102	101	0.0	0% - 50%
ES2334841-031	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	104	116	11.1	0% - 50%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5360711)									
ES2332304-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	54	54	0.0	No Limit
ES2334820-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	362	369	1.9	0% - 20%
ES2334972-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	320	310	3.3	0% - 20%
EW2304503-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	82	75	8.6	No Limit
EA075: Redox Potential (QC Lot: 5358524)									
ES2334751-001	Anonymous	EA075: Redox Potential	----	0.1	mV	222	253	13.2	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	5.87	5.85	0.3	0% - 20%
ES2335012-004	GALC-MW12	EA075: Redox Potential	----	0.1	mV	1.5	1.8	18.2	0% - 50%
		EA075: pH Redox	----	0.01	pH Unit	6.20	6.22	0.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5358967)									

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 (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5358967) - continued									
ES2334576-012	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	139	141	1.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	139	141	1.2	0% - 20%
ES2335012-003	GALC-MW16-b	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	480	482	0.3	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	480	482	0.3	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5354047)									
ES2334783-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	6	7	0.0	No Limit
ES2335012-003	GALC-MW16-b	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	77	77	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5354565)									
ES2334902-003	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	107	106	0.0	0% - 20%
ES2334815-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<50	<50	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5354048)									
ES2334783-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	18	19	0.0	0% - 50%
ES2335012-003	GALC-MW16-b	ED045G: Chloride	16887-00-6	1	mg/L	790	790	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5354564)									
ES2334902-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	24	25	0.0	0% - 20%
ES2334815-004	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	3090	3090	0.3	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5360918)									
ES2334986-003	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	1310	1320	1.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	22	22	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	5110	5080	0.7	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	163	162	0.0	0% - 20%
ES2335061-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	4	4	0.0	No Limit
		ED093F: Magnesium	7439-95-4	1	mg/L	2	2	0.0	No Limit
		ED093F: Sodium	7440-23-5	1	mg/L	22	22	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: 5360915)									
ES2334523-001	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	0.005	0.005	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	0.005	0.005	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	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: 5360915) - continued									
ES2334523-001	Anonymous	EG020A-F: Iron	7439-89-6	0.05	mg/L	0.13	0.12	9.5	No Limit
ES2335061-001	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	0.003	0.003	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	0.014	0.014	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.06	0.06	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: 5363312)									
ES2335048-001	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	0.002	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	0.031	0.034	10.0	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	0.03	0.03	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	1.26	1.32	4.6	0% - 20%
ES2334897-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	0.0080	0.0085	6.3	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.525	0.522	0.7	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.064	0.066	2.1	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.10	<0.10	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.10	<0.10	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5360916)									
ES2334904-006	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: 5363313)									
ES2334891-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ME2301875-002	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5354779)									
ES2334751-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	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					
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5354779) - continued									
ES2334764-004	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: 5357745)									
ES2334473-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.02	2.10	3.9	0% - 20%
ES2334985-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	228	231	1.2	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5357748)									
ES2335012-003	GALC-MW16-b	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.10	0.10	0.0	0% - 50%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5354051)									
ES2334825-014	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2335012-003	GALC-MW16-b	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.01	0.02	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5354566)									
ES2334845-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.02	0.0	No Limit
ES2334904-006	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	0.02	0.02	0.0	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5357747)									
ME2301875-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.08	0.08	0.0	No Limit
ES2335012-003	GALC-MW16-b	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.03	0.02	53.6	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5357752)									
ES2334987-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1380	1340	2.6	0% - 20%
ME2301875-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.7	0.7	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5357751)									
ES2334987-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	18.5	17.8	3.8	0% - 50%
ME2301875-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.03	0.04	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5354052)									
ES2334825-021	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.01	0.01	0.0	No Limit
ES2335012-003	GALC-MW16-b	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: 5354563)									
ES2334986-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.68	0.70	3.2	0% - 20%
ES2334815-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	2.56	2.61	1.8	0% - 20%
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 5356499)									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	Anonymous	EP074: Styrene	100-42-5	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: 5356499) - continued									
ES2334685-001	Anonymous	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: 5356499)									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	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: 5356499)									
ES2335012-003	GALC-MW16-b	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2334685-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5356499)									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	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: 5356499)									
ES2335012-003	GALC-MW16-b	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

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: 5356499) - continued									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	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

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: 5356499) - continued									
ES2334685-001	Anonymous	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: 5356499)									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	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: 5356499)									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	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
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5356498)									
ES2335012-003	GALC-MW16-b	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2334685-001	Anonymous	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	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5356498)									
ES2335012-003	GALC-MW16-b	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2334685-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5356498)									
ES2335012-003	GALC-MW16-b	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
ES2334685-001	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	3	3	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: 5357389)									
ES2335023-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.58	0.61	5.3	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.75	0.96	23.8	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	14.0	13.7	2.2	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5357389)									
ES2335023-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	2.22	2.41	8.1	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	1.96	1.88	4.6	0% - 20%
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	7.10	7.52	5.7	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.70	0.83	17.5	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5357389)									
ES2335023-001	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	0.94	1.10	16.3	0% - 20%
		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: 5358970)								
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: 5358966)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	100	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5360519)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	93.4	87.0	109
				<10	293 mg/L	99.0	75.2	126
				<10	2470 mg/L	100	83.0	124
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5360711)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	96.8	87.0	109
				<10	293 mg/L	103	75.2	126
				<10	2470 mg/L	101	83.0	124
EA075: Redox Potential (QCLot: 5358524)								
EA075: Redox Potential	----	----	mV	----	234 mV	101	96.0	106
				----	300 mV	101	97.0	105
				----	86 mV	111	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5358967)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	98.4	81.0	115
				----	50 mg/L	105	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5354047)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	107	82.0	122
				<1	500 mg/L	90.2	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5354565)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	82.0	122
				<1	500 mg/L	99.5	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5354048)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	92.8	80.9	127
				<1	1000 mg/L	102	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5354564)								

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: 5354564) - continued								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	94.3	80.9	127
				<1	1000 mg/L	94.1	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5360918)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	98.7	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	102	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: 5360915)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.9	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.3	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	95.7	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.7	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.9	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	94.4	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.6	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	94.6	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	92.7	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363312)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	101	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	97.0	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	99.5	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	96.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.7	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.1	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	97.6	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	88.6	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.3	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	96.8	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5360916)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.6	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5363313)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	95.6	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 5354779)								

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
EG050F: Dissolved Hexavalent Chromium (QCLot: 5354779) - continued								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	102	86.0	112
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5357745)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	90.0	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5357748)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	98.9	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5354051)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.6	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5354566)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	101	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5357747)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	108	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5357752)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	98.6	69.0	101
				<0.1	1 mg/L	85.0	70.0	118
				<0.1	5 mg/L	94.0	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5357751)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	97.0	71.3	126
				<0.01	0.442 mg/L	104	71.3	126
				<0.01	1 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5354052)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	102	85.0	117
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5354563)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	108	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5353709)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	83.3	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5353708)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	98.6	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	97.6	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	98.6	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	101	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	102	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	93.6	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	99.7	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	92.3	67.1	107

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: 5353708) - continued								
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	91.9	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	106	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	93.1	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	104	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	98.4	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	107	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	88.3	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	90.3	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	83.2	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	94.6	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	92.2	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	81.0	63.8	110
EP068: Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	100	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5353708)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	87.8	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	94.5	63.7	113
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	26.4	19.7	48.0
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	95.0	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	102	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	104	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	99.5	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	101	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	86.6	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	93.5	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	94.7	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	103	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	106	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	91.9	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	95.3	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	104	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	108	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	88.8	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	106	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5356499)								

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: 5356499) - continued								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	98.5	73.0	119
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	101	76.0	118
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	96.3	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	98.7	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	98.5	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	96.9	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	96.1	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	98.1	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	93.0	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5356499)								
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	93.2	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	107	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	95.0	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5356499)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	88.9	72.8	127
EP074D: Fumigants (QCLot: 5356499)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	98.1	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	103	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	97.2	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	97.1	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	104	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5356499)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	86.0	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	92.8	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	90.1	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	96.7	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	95.9	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	92.4	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	92.8	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	87.5	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	91.4	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	99.8	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	101	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: 5356499) - continued								
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	95.6	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	98.9	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	94.3	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	95.3	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	102	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	105	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	104	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	94.6	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	95.6	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	90.5	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	98.3	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	112	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	111	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	95.9	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	101	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	98.3	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5356499)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	99.2	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	98.3	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	96.1	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	94.2	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	98.3	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	97.1	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	99.6	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	96.3	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: 5356499)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	105	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	96.5	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	93.5	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	95.9	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5353706)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	73.8	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5353706) - continued								
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	77.4	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	82.0	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	81.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	78.8	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	78.0	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	89.5	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	93.2	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	90.0	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	89.6	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	89.9	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	85.4	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	94.2	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	81.6	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	87.8	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	91.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5353707)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	75.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	76.6	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	84.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5356498)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	87.6	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5353707)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	66.9	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	66.4	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	74.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5356498)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	87.2	75.0	127
EP080: BTEXN (QCLot: 5356498)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	96.7	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	117	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	107	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	121	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: 5356498) - continued								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.2	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5357389)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	117	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	99.9	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	94.3	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5357389)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	87.8	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	123	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	118	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	96.5	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5357389)								
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	122	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	102	67.0	138
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	<0.05	0.25 µg/L	90.8	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	Acceptable Limits (%) High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5354047)							
ES2334783-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	107	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5354565)							
ES2334815-004	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	500 mg/L	94.5	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5354048)							
ES2334783-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	93.8	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5354564)							
ES2334815-004	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5360915)							
ES2334523-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	102	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: 5360915) - continued							
ES2334523-002	Anonymous	EG020A-F: Cadmium	7440-43-9	0.25 mg/L	100	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	98.9	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	96.8	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	102	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	97.5	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	101	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	101	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5363312)							
ES2334897-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	114	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	112	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	108	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	109	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	75.6	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	107	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	103	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	108	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5360916)							
ES2334904-005	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	123	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5363313)							
ES2334581-012	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	83.2	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5354779)							
ES2334751-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	112	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5357745)							
ES2334473-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	79.6	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5357748)							
ES2335012-003	GALC-MW16-b	EK055G: Ammonia as N	7664-41-7	1 mg/L	111	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5354051)							
ES2334825-014	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	107	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5354566)							
ES2334845-003	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	113	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5357747)							
ES2335012-003	GALC-MW16-b	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	106	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5357752)							
ES2335012-001	SMW_ENV042_w	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	99.0	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5357751)							

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5357751) - continued							
ES2335012-001	SMW_ENV042_w	EK067G: Total Phosphorus as P	----	1 mg/L	104	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5354052)							
ES2334825-021	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	99.4	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5354563)							
ES2334815-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	# Not Determined	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5356499)							
ES2334685-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	93.9	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	86.2	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5356499)							
ES2334685-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	89.5	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5356498)							
ES2334685-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	73.3	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5356498)							
ES2334685-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	71.5	70.0	130
EP080: BTEXN (QCLot: 5356498)							
ES2334685-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	73.7	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	94.2	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	87.5	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	97.1	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	84.9	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5357389)							
ES2335023-002	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	# Not Determined	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	100	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	99.0	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5357389)							
ES2335023-002	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	111	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	80.7	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	94.3	72.0	129
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	109	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	95.8	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5357389)							
ES2335023-002	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	99.5	63.0	143

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5357389) - continued							
ES2335023-002	Anonymous	EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	110	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	114	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	: **ES2335012**	Page	: 1 of 14
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 11-Oct-2023
Site	: WTP GME Oct 23 - Day 3	Issue Date	: 18-Oct-2023
Sampler	: Joy Xie	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, 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							
ED045G: Chloride by Discrete Analyser	ES2334815--004	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK071G: Reactive Phosphorus as P by discrete analyse	ES2334815--004	Anonymous	**Reactive Phosphorus as P**	14265-44-2	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES2335023--002	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / **Container** / Client Sample ID(s)		*Extraction / Preparation*			*Analysis*		
		Date extracted	*Due for extraction*	***Days overdue***	*Date analysed*	*Due for analysis*	***Days overdue***
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
SMW_ENV042_w, GALC-MW16-b,	GALC-MW18, GALC-MW12	----	----	----	13-Oct-2023	10-Oct-2023	**3**
EA075: Redox Potential							
Clear Plastic Bottle - Natural							
SMW_ENV042_w, GALC-MW16-b,	GALC-MW18, GALC-MW12	----	----	----	13-Oct-2023	10-Oct-2023	**3**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
SMW_ENV042_w, GALC-MW16-b,	GALC-MW18, GALC-MW12	----	----	----	11-Oct-2023	10-Oct-2023	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type / Method	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
	0				
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	15	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	13	7.69	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	17	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Matrix Spikes (MS) - Continued					
PAH/Phenols (GC/MS - SIM)	0	15	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	17	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)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**----**	----	----	**13-Oct-2023**	10-Oct-2023	×
GALC-MW16-b,	GALC-MW12							
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**----**	----	----	**13-Oct-2023**	07-Nov-2023	✓
GALC-MW16-b,	GALC-MW12							
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
GALC-MW18,	GALC-MW16-b,	**10-Oct-2023**	**----**	----	----	**15-Oct-2023**	17-Oct-2023	✓
GALC-MW12								
Clear Plastic Bottle - Natural (EA015H)								
SMW_ENV042_w		**10-Oct-2023**	**----**	----	----	**16-Oct-2023**	17-Oct-2023	✓
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**----**	----	----	**17-Oct-2023**	07-Nov-2023	✓
GALC-MW16-b,	GALC-MW12							
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**----**	----	----	**13-Oct-2023**	10-Oct-2023	×
GALC-MW16-b,	GALC-MW12							

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
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	----	----	----	**13-Oct-2023**	24-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b	**10-Oct-2023**	----	----	----	**11-Oct-2023**	07-Nov-2023	✓
Clear Plastic Bottle - Natural (ED041G) GALC-MW12	**10-Oct-2023**	----	----	----	**12-Oct-2023**	07-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b	**10-Oct-2023**	----	----	----	**11-Oct-2023**	07-Nov-2023	✓
Clear Plastic Bottle - Natural (ED045G) GALC-MW12	**10-Oct-2023**	----	----	----	**12-Oct-2023**	07-Nov-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	----	----	----	**17-Oct-2023**	07-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	----	----	----	**17-Oct-2023**	07-Apr-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	----	----	----	**18-Oct-2023**	07-Nov-2023	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) SMW_ENV042_w	**10-Oct-2023**	----	----	----	**12-Oct-2023**	07-Nov-2023	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	----	----	----	**13-Oct-2023**	07-Nov-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	----	----	----	**13-Oct-2023**	07-Nov-2023	✓

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_ENV042_w, GALC-MW18, GALC-MW16-b	**10-Oct-2023**	**----**	----	----	**11-Oct-2023**	12-Oct-2023	✓
Clear Plastic Bottle - Natural (EK057G) GALC-MW12	**10-Oct-2023**	**----**	----	----	**12-Oct-2023**	12-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**----**	----	----	**13-Oct-2023**	07-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**13-Oct-2023**	07-Nov-2023	✓	**17-Oct-2023**	07-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**13-Oct-2023**	07-Nov-2023	✓	**17-Oct-2023**	07-Nov-2023	✓
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural (EK071G) SMW_ENV042_w, GALC-MW18, GALC-MW16-b	**10-Oct-2023**	**----**	----	----	**11-Oct-2023**	12-Oct-2023	✓
Clear Plastic Bottle - Natural (EK071G) GALC-MW12	**10-Oct-2023**	**----**	----	----	**12-Oct-2023**	12-Oct-2023	✓
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural (EP025) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**----**	----	----	**11-Oct-2023**	10-Oct-2023	✗
EP066: Polychlorinated Biphenyls (PCB)							
Amber Glass Bottle - Unpreserved (EP066) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**15-Oct-2023**	21-Nov-2023	✓
EP068A: Organochlorine Pesticides (OC)							
Amber Glass Bottle - Unpreserved (EP068) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**14-Oct-2023**	21-Nov-2023	✓
EP068B: Organophosphorus Pesticides (OP)							
Amber Glass Bottle - Unpreserved (EP068) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**14-Oct-2023**	21-Nov-2023	✓

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_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074)								
SMW_ENV042_w,	GALC-MW18,	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
GALC-MW16-b,	GALC-MW12							
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
GALC-MW16-b,	GALC-MW12	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**13-Oct-2023**	21-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP075(SIM))								
SMW_ENV042_w,	GALC-MW18	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**14-Oct-2023**	21-Nov-2023	✓

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_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**13-Oct-2023**	21-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB03	**03-Oct-2023**	**16-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Amber Glass Bottle - Unpreserved (EP071) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**13-Oct-2023**	21-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) TB03	**03-Oct-2023**	**16-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
EP080: BTEXN							
Amber VOC Vial - Sulfuric Acid (EP080) TS03, TB03	**03-Oct-2023**	**16-Oct-2023**	17-Oct-2023	✓	**17-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12, Rinsate 03	**10-Oct-2023**	**16-Oct-2023**	24-Oct-2023	✓	**17-Oct-2023**	24-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids							
HDPE (no PTFE) (EP231X) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**16-Oct-2023**	07-Apr-2024	✓	**17-Oct-2023**	07-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**16-Oct-2023**	07-Apr-2024	✓	**17-Oct-2023**	07-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**16-Oct-2023**	07-Apr-2024	✓	**17-Oct-2023**	07-Apr-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
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X)							
SMW_ENV042_w, GALC-MW18, GALC-MW16-b, GALC-MW12	**10-Oct-2023**	**16-Oct-2023**	07-Apr-2024	✓	**17-Oct-2023**	07-Apr-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		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	3	29	10.34	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	26	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	3	18	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	39	10.26	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	38	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	15	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	7	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	6	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	4	26	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	29	13.79	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	8	74	10.81	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 Phosphorus as P By Discrete Analyser	EK067G	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	17	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	12	16.67	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	2	29	6.90	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	26	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	40	10.00	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	18	11.11	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	5.13	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	12	8.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	38	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	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*	
Laboratory Control Samples (LCS) - Continued							
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	7	**14.29**	**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	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	16	**18.75**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	29	**13.79**	**10.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	10	74	**13.51**	**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 Phosphorus as P By Discrete Analyser	EK067G	3	12	**25.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**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	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	40	**7.50**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	1	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	15	**6.67**	**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	7	**14.29**	**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	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Dissolved Solids (High Level)	EA015H	4	74	**5.41**	**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 Phosphorus as P By Discrete Analyser	EK067G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	17	**5.88**	**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	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	18	**11.11**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	39	**5.13**	**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	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	38	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	15	**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	7	**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
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	26	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	29	**6.90**	**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 Phosphorus as P By Discrete Analyser	EK067G	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	17	**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	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 5.3, 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.

Environmental Division
Sydney
Work Order Reference
ES2334751

Telephone : + 61-2-8784 8555

HT

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	ALS Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:		Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 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 (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	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	CZ4e_MW03	09.10 (Oct)	W	✓	✓	2	✓	✓	2	✓	✓	X						X				
2	CZ4e_MW02	09.10	–									X						X				
3	SMW_ENV039	09.10	–									X						X				
4	SMW_WTP_BH13	09.10	–	X							X	X						X				
5	CZ5_MW09	09. Oct		X							X	X						X				
6	Rinsate 02	–	–																		X	X
7	QC01	–	–									X						X				
PIS To Envirolab	QC02	–	–									X						X				
8	TB	–	–																	X		
9	TS	–	–																	X		
			TOTALS									0	0	0	0	0	0	0	0	0	0	0

Relinquished By: Joy XVE		Received By:			
NAME	SIGNATURE	DATE	NAME Lucas	SIGNATURE	DATE 10/10/23 1430

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.**

Environmental Division
Sydney
Work Order Reference
ES2334751

Telephone : + 61-2-8784 8555

epic ENVIRONMENTAL

HT

Subcon / Forward Lab / Split WO
Lab / Analysis: QC02 - Envirolab
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:
Attached By PO / Internal Sheet:

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	ALS Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:		Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 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 (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	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	C34e-MW03	09.10 (Oct)	W	✓	✓	2	✓	✓	2	✓	✓	X						X				
2	C34e-MW02	09.10	"									X						X				
3	SMW-ENV039	09.10	"									X						X				
4	SMW-WTP-BH13	09.10	"	X							X	X						X				
5	~~SM~~C35-MW09	09.Oct		X							X	X						X				
6	Rinsate 02	—	—																		X	X
7	QC01	—	—									X						X				
PIS To Envirolab	QC02	—	"									X						X				
8	TB	—	—																	X		
9	TS	—	—																	X		
			TOTALS									0	0	0	0	0	0	0	0	0	0	0

Relinquished By:	Joy XVE			Received By:			10/10/23 1430
NAME		SIGNATURE	DATE	NAME	Lucas	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 : **ES2334751**

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	: SC210108.03 - GWMP	Page	: 1 of 4
Order number	: ----	Quote number	: EB2017EPIENV0004 (EN/222)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 10-Oct-2023 14:30	Issue Date	: 10-Oct-2023
Client Requested Due Date	: 17-Oct-2023	Scheduled Reporting Date	: **17-Oct-2023**

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 4.0, 4.9, 7.3'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
- **Sample QC02 has been forwarded 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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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.

ES2334751-009 : [03-Oct-2023] : TS - Trip Spike Control 11

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 - EG020F Dissolved Metals by ICP/MS	WATER - EP025 Dissolved Oxygen (DO)	WATER - NT-01D & 02 Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4,	WATER - W-16 TRH/BTEXN/PAH/OC/OP/PCB/8 Metals
ES2334751-001	09-Oct-2023 00:00	CZ4C_MW03	✓	✓	✓	✓	✓	✓	✓
ES2334751-002	09-Oct-2023 00:00	CZ4C_MW02	✓	✓	✓	✓	✓	✓	✓
ES2334751-003	09-Oct-2023 00:00	SMW_ENV039	✓	✓	✓	✓	✓	✓	✓
ES2334751-004	09-Oct-2023 00:00	SMW_WTP_BH13	✓	✓	✓	✓	✓	✓	✓
ES2334751-005	09-Oct-2023 00:00	CZ5_MW09	✓	✓	✓	✓	✓	✓	✓
ES2334751-007	09-Oct-2023 00:00	QC01	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EA075 Redox Potential	WATER - EG049G-F Dissolved Trivalent Chromium by ICP & DA	WATER - EP074 (water) Volatile Organic Compounds	WATER - EP231 PFAS - Short Suite (12 analytes)	WATER - NT-08A Total Nitrogen + NO2 + NO3 + NH3 + Total P +	WATER - TPH TRH (C6-C40)	WATER - W-02T 8 metals (Total)
ES2334751-001	09-Oct-2023 00:00	CZ4C_MW03	✓	✓	✓	✓	✓		
ES2334751-002	09-Oct-2023 00:00	CZ4C_MW02	✓	✓	✓	✓	✓		
ES2334751-003	09-Oct-2023 00:00	SMW_ENV039	✓	✓	✓	✓	✓		
ES2334751-004	09-Oct-2023 00:00	SMW_WTP_BH13	✓	✓	✓	✓	✓		
ES2334751-005	09-Oct-2023 00:00	CZ5_MW09	✓	✓	✓	✓	✓		
ES2334751-006	09-Oct-2023 00:00	Rinsate 02						✓	✓
ES2334751-007	09-Oct-2023 00:00	QC01	✓	✓	✓	✓	✓		

Matrix: **WATER**

Laboratory sample ID	*Sampling date / time*	*Sample ID*	WATER - EP080 BTEXN	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2334751-008	03-Oct-2023 00:00	TB Trip Blank		✓
ES2334751-009	03-Oct-2023 00:00	TS Trip Spike Contr...	✓	

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							
CZ4C_MW02	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
CZ4C_MW03	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
QC01	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
SMW_ENV039	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
SMW_WTP_BH13	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
EA075: Redox Potential							
CZ4C_MW02	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
CZ4C_MW03	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
QC01	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
SMW_ENV039	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
SMW_WTP_BH13	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
EP025: Oxygen - Dissolved							
CZ4C_MW02	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
CZ4C_MW03	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
CZ5_MW09	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
QC01	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
SMW_ENV039	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----
SMW_WTP_BH13	Clear Plastic Bottle - Natural	----	09-Oct-2023	10-Oct-2023	×	----	----

Requested Deliverables

ESDAT REPORTS		
- EDI Format - ESDAT (ESDAT)	Email	epicenvironmental@esdat.com.au
INVOICES		
- A4 - AU Tax Invoice (INV)	Email	accounts@epicenvironmental.com.au
INVOICES & RESULTS		
- *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
- A4 - AU Tax Invoice (INV)	Email	labs@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	labs@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	labs@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	labs@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
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

CERTIFICATE OF ANALYSIS

Work Order	: **ES2334751**	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	: SC210108.03 - GWMP	Date Samples Received	: 10-Oct-2023 14:30
Order number	: ----	Date Analysis Commenced	: 10-Oct-2023
C-O-C number	: ----	Issue Date	: 18-Oct-2023 13:13
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
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

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 QSM5.3 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.50	5.99	7.26	6.66	6.50
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	6340	20300	28100	9530	11000
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	3780	12700	18800	5440	6610
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	456	2160	4110	721	933
EA075: Redox Potential								
Redox Potential	----	0.1	mV	222	236	280	64.6	112
pH Redox	----	0.01	pH Unit	5.87	5.18	6.20	6.12	6.08
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	73	26	391	106	157
Total Alkalinity as CaCO3	----	1	mg/L	73	26	391	106	157
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	718	1170	1880	427	546
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1540	6990	9560	3170	3750
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	41	81	343	33	72
Magnesium	7439-95-4	1	mg/L	86	476	790	155	183
Sodium	7440-23-5	1	mg/L	1110	3490	5140	1700	1970
Potassium	7440-09-7	1	mg/L	2	6	22	6	4
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.04	0.77	<0.01	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.002	0.003	<0.001	<0.001
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	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.004	<0.001	0.394	<0.001	0.001
Nickel	7440-02-0	0.001	mg/L	0.012	0.030	0.004	0.007	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	0.030	0.057	0.005	<0.005	0.010

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**0.977**	**0.478**	**1.11**	**0.105**	**0.129**
Iron	7439-89-6	0.05	mg/L	**1.35**	**1.26**	**8.62**	**12.9**	**1.27**
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	**0.02**	**0.08**	**0.70**	**0.08**	**0.06**
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**	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**0.07**	<0.01	<0.01	<0.01	**0.01**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**0.07**	<0.01	<0.01	**0.01**	**0.01**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**0.1**	**0.2**	**0.7**	**0.4**	<0.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**0.2**	**0.2**	**0.7**	**0.4**	<0.1
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.03**	**0.02**	**0.01**	**0.04**	<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	<0.01	<0.01
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	**59.8**	**222**	**317**	**100**	**120**
ø Total Cations	----	0.01	meq/L	**57.4**	**195**	**306**	**88.5**	**104**
ø Ionic Balance	----	0.01	%	**2.04**	**6.44**	**1.66**	**6.31**	**7.05**
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**4.8**	**4.9**	**4.3**	**2.8**	**3.6**
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	<1

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
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	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
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				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	<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
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								
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
Styrene	100-42-5	5	µg/L	<5	<5	<5	<5	<5
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
EP074D: Fumigants - Continued								
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								
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
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	<5
EP074F: Halogenated Aromatic Compounds								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	<5	<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	<5	<5	<5
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	<5	<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
EP074H: Naphthalene								
Naphthalene	91-20-3	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
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

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				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	<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
^ >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	<0.02	<0.02	**0.16**
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	**0.03**	<0.01	<0.01	<0.01	**0.23**
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EP231B: Perfluoroalkyl Carboxylic Acids								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
EP231B: Perfluoroalkyl Carboxylic Acids - Continued								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	**0.03**	<0.02	<0.02	<0.02	**0.11**
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
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	**0.03**	<0.01	<0.01	<0.01	**0.23**
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.06**	<0.01	<0.01	<0.01	**0.50**
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**101**	**105**	**105**	**87.8**	**87.3**
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**74.0**	**64.1**	**63.9**	**60.8**	**65.3**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**58.8**	**67.5**	**72.4**	**81.7**	**79.8**
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**101**	**104**	**82.4**	**101**	**106**
Toluene-D8	2037-26-5	5	%	**105**	**108**	**86.0**	**107**	**107**
4-Bromofluorobenzene	460-00-4	5	%	**106**	**110**	**86.8**	**108**	**110**
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**16.8**	**18.4**	**18.2**	**19.6**	**18.2**
2-Chlorophenol-D4	93951-73-6	1.0	%	**44.1**	**47.7**	**47.8**	**44.9**	**42.1**
2.4.6-Tribromophenol	118-79-6	1.0	%	**35.0**	**52.4**	**49.2**	**48.5**	**40.7**
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**65.7**	**67.3**	**69.8**	**62.6**	**58.9**

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CZ4C_MW03	CZ4C_MW02	SMW_ENV039	SMW_WTP_BH13	CZ5_MW09
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00	09-Oct-2023 00:00
Compound	CAS Number	LOR	Unit	ES2334751-001	ES2334751-002	ES2334751-003	ES2334751-004	ES2334751-005
				Result	Result	Result	Result	Result
EP075(SIM)T: PAH Surrogates - Continued								
Anthracene-d10	1719-06-8	1.0	%	61.2	69.5	70.4	67.5	61.0
4-Terphenyl-d14	1718-51-0	1.0	%	62.8	71.5	72.5	67.3	61.7
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	99.9	103	81.4	100	105
Toluene-D8	2037-26-5	2	%	104	107	85.9	106	106
4-Bromofluorobenzene	460-00-4	2	%	118	121	94.8	118	120
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	99.1	92.8	96.2	98.1	96.4
13C8-PFOA	----	0.02	%	91.3	90.4	92.2	91.8	88.6

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	6.58	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	6260	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	3760	----	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	480	----	----	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	----	186	----	----	----
pH Redox	----	0.01	pH Unit	----	5.85	----	----	----
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	----	83	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	83	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	708	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	1550	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	44	----	----	----
Magnesium	7439-95-4	1	mg/L	----	90	----	----	----
Sodium	7440-23-5	1	mg/L	----	1200	----	----	----
Potassium	7440-09-7	1	mg/L	----	2	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	0.04	----	----	----
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	----	0.013	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	0.030	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	----	**1.06**	----	----	----
Iron	7439-89-6	0.05	mg/L	----	**1.44**	----	----	----
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	----	----	----
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	----	----	----
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	----	<0.01	----	----	----
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	----	**0.08**	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	**0.08**	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	<0.1	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	<0.1	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	**0.03**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	<0.01	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	60.1	----	----	----
ø Total Cations	----	0.01	meq/L	----	61.8	----	----	----
ø Ionic Balance	----	0.01	%	----	1.42	----	----	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	----	5.5	----	----	----
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	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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC) - Continued								
^ 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								
Benzene	71-43-2	1	µg/L	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	----	----
Styrene	100-42-5	5	µg/L	----	<5	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EP074A: Monocyclic Aromatic Hydrocarbons - Continued								
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	----	----	----
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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EP074E: Halogenated Aliphatic Compounds - Continued								
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	----	----	----
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	----	----	----
EP074H: Naphthalene								
Naphthalene	91-20-3	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	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
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	----	----	----
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	<20	<20	----	----
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	<1	<1	17	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	18	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	17	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	20	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	21	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EP080: BTEXN - Continued								
^ Total Xylenes	----	2	µg/L	<2	<2	<2	**41**	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	**93**	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	**16**	----
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	----	**0.03**	----	----	----
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	----	<0.02	----	----	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	----	**0.03**	----	----	----
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	----	**0.03**	----	----	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	----	**0.08**	----	----	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	----	**94.3**	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	**75.5**	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	Rinsate 02	QC01	TB Trip Blank	TS Trip Spike Control 11	----
			Sampling date / time	09-Oct-2023 00:00	09-Oct-2023 00:00	03-Oct-2023 00:00	03-Oct-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2334751-006	ES2334751-007	ES2334751-008	ES2334751-009	--------
				Result	Result	Result	Result	----
EP068T: Organophosphorus Pesticide Surrogate - Continued								
DEF	78-48-8	0.5	%	----	110	----	----	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	----	98.9	----	----	----
Toluene-D8	2037-26-5	5	%	----	104	----	----	----
4-Bromofluorobenzene	460-00-4	5	%	----	102	----	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	19.9	----	----	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	55.3	----	----	----
2.4.6-Tribromophenol	118-79-6	1.0	%	----	48.7	----	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	77.6	----	----	----
Anthracene-d10	1719-06-8	1.0	%	----	76.2	----	----	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	77.1	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	95.7	97.4	94.4	90.0	----
Toluene-D8	2037-26-5	2	%	102	103	96.6	96.5	----
4-Bromofluorobenzene	460-00-4	2	%	113	111	109	112	----
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	----	102	----	----	----
13C8-PFOA	----	0.02	%	----	89.9	----	----	----

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	: **ES2334751**	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	: SC210108.03 - GWMP	Date Samples Received	: 10-Oct-2023
Order number	: ----	Date Analysis Commenced	: 10-Oct-2023
C-O-C number	: ----	Issue Date	: 18-Oct-2023
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
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

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 (%)
EA005P: pH by PC Titrator (QC Lot: 5353039)									
ES2334807-006	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	9.20	9.22	0.2	0% - 20%
ES2334751-005	CZ5_MW09	EA005-P: pH Value	----	0.01	pH Unit	6.50	6.51	0.2	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5353038)									
ES2334807-006	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	1760	1750	0.4	0% - 20%
ES2334751-005	CZ5_MW09	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	11000	11100	0.7	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5358385)									
ES2334645-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	5290	5420	2.5	0% - 20%
ES2334751-002	CZ4C_MW02	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	12700	12800	1.3	0% - 20%
ES2334807-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1850	1830	1.3	0% - 20%
EW2304455-006	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	93	76	20.2	No Limit
EA075: Redox Potential (QC Lot: 5358524)									
ES2334751-001	CZ4C_MW03	EA075: Redox Potential	----	0.1	mV	222	253	13.2	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	5.87	5.85	0.3	0% - 20%
ES2335012-004	Anonymous	EA075: Redox Potential	----	0.1	mV	1.5	1.8	18.2	0% - 50%
		EA075: pH Redox	----	0.01	pH Unit	6.20	6.22	0.3	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5353037)									
ES2334705-022	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	32	31	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	32	31	0.0	0% - 20%
ES2334751-005	CZ5_MW09	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	157	157	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: 5353037) - continued									
ES2334751-005	CZ5_MW09	ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	157	157	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5350942)									
ES2334701-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	186	184	1.1	0% - 20%
ES2334751-004	SMW_WTP_BH13	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	427	441	3.3	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5350943)									
ES2334701-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	3230	3290	1.9	0% - 20%
ES2334751-004	SMW_WTP_BH13	ED045G: Chloride	16887-00-6	1	mg/L	3170	3180	0.1	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5357075)									
ES2334308-005	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	15	15	0.0	0% - 50%
		ED093F: Magnesium	7439-95-4	1	mg/L	12	12	0.0	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	68	68	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	5	5	0.0	No Limit
ES2334513-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	38	38	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	24	24	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	74	75	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	15	15	0.0	0% - 50%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5357074)									
ES2334308-005	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	<0.001	<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	0.490	0.492	0.4	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	0.02	0.03	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.37	0.37	0.0	No Limit
ES2334513-001	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	0.122	0.116	5.4	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.009	0.009	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
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5357079)									
ES2334764-008	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: 5357079) - continued									
ES2334764-008	Anonymous	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.007	0.008	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	0.032	0.032	0.0	0% - 20%
		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	0.122	0.124	1.1	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.032	0.032	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.006	0.006	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.09	0.09	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	2.44	2.43	0.0	0% - 20%
ME2301859-011	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	3.82	3.94	3.1	0% - 20%
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	0.003	0.003	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	0.58	0.59	2.0	0% - 50%
EG020T: Total Metals by ICP-MS (QC Lot: 5357129)									
ES2334820-005	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	0.135	0.135	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	0.002	0.001	0.0	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.007	0.007	0.0	No Limit
ES2334694-001	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	0.002	0.002	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	0.020	0.020	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5357076)									
ES2334308-016	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2334308-051	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: 5357078)									
ES2334764-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2334854-002	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	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
				Laboratory Duplicate (DUP) Report					
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 5357153)									
EM2317852-004	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.1 µg/L	<0.0001	0.0	No Limit
ES2334661-001	Anonymous	EG035T: Mercury	7439-97-6	0.0001	mg/L	0.0004	0.0004	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5354779)									
ES2334751-001	CZ4C_MW03	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334764-004	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: 5351419)									
ES2334734-003	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2334825-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.05	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5350944)									
ES2334751-001	CZ4C_MW03	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334751-004	SMW_WTP_BH13	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: 5351420)									
ES2334734-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	3.58	3.53	1.6	0% - 20%
ES2334825-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.04	0.04	0.0	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5351424)									
ES2334734-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.8	0.8	0.0	No Limit
ES2334825-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.6	24.3	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5351423)									
ES2334734-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.27	0.28	5.3	0% - 20%
ES2334825-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.17	0.18	6.4	0% - 50%
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5350941)									
ES2334701-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334751-004	SMW_WTP_BH13	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: 5350731)									
CA2306088-001	Anonymous	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		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

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: 5350731) - continued									
CA2306088-001	Anonymous	EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	CZ4C_MW03	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.0	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.0	No Limit
		EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	0.0	No Limit
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		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: 5350731)									
CA2306088-001	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
ES2334751-001	CZ4C_MW03	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: 5350731)									
CA2306088-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	CZ4C_MW03	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
EP074D: Fumigants (QC Lot: 5350731)									
CA2306088-001	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
ES2334751-001	CZ4C_MW03	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

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: 5350731)									
CA2306088-001	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: 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
ES2334751-001	CZ4C_MW03	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

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: 5350731) - continued									
ES2334751-001	CZ4C_MW03	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
EP074F: Halogenated Aromatic Compounds (QC Lot: 5350731)									
CA2306088-001	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
ES2334751-001	CZ4C_MW03	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: 5350731)									
CA2306088-001	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

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					
EP074G: Trihalomethanes (QC Lot: 5350731) - continued									
ES2334751-001	CZ4C_MW03	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
EP074H: Naphthalene (QC Lot: 5350731)									
CA2306088-001	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2334751-001	CZ4C_MW03	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5350730)									
CA2306088-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2334751-001	CZ4C_MW03	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5350730)									
CA2306088-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2334751-001	CZ4C_MW03	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5350730)									
CA2306088-001	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
ES2334751-001	CZ4C_MW03	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: 5351329)									
ES2334747-001	Anonymous	EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	0.93	0.80	14.7	0% - 50%
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	0.95	0.98	3.3	0% - 50%
		EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	10.8	10.4	3.6	0% - 20%
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 5351329)									
ES2334747-001	Anonymous	EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	1.41	1.41	0.0	0% - 20%
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.05	<0.05	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	4.04	4.29	6.0	0% - 20%
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	0.53	0.54	0.0	0% - 50%
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 5351329)									

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: 5351329) - continued									
ES2334747-001	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	0.52	0.50	4.1	0% - 50%
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	0.09	0.08	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.05	µg/L	0.06	0.05	21.8	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: 5353039)								
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: 5353038)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	100	89.9	110
				<1	2100 µS/cm	98.1	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5358385)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	98.4	87.0	109
				<10	293 mg/L	101	75.2	126
				<10	2470 mg/L	97.2	83.0	124
EA075: Redox Potential (QCLot: 5358524)								
EA075: Redox Potential	----	----	mV	----	234 mV	101	96.0	106
				----	300 mV	101	97.0	105
				----	86 mV	111	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5353037)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	99.9	81.0	115
				----	50 mg/L	106	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5350942)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	100	82.0	122
				<1	500 mg/L	98.7	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5350943)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	101	80.9	127
				<1	1000 mg/L	103	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5357075)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.4	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	100	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: 5357074)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	94.8	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.1	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.3	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	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357074) - continued								
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	93.0	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.4	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	90.9	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.7	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	94.1	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	113	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	99.2	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357079)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	91.4	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	93.4	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	91.8	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	91.4	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	90.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	91.5	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	90.7	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	90.7	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.6	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: 5357129)								
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.7	82.0	114
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.7	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	95.8	83.0	118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	97.8	85.0	115
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	97.9	84.0	116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	96.0	79.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5357076)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	99.9	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5357078)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	92.9	83.0	105
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5357153)								
EG035T: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	103	77.0	111
EG050F: Dissolved Hexavalent Chromium (QCLot: 5354779)								
EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	<0.01	0.05 mg/L	102	86.0	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
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351419)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	100	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5350944)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	99.9	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5351420)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	104	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351424)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	90.2	69.0	101
				<0.1	1 mg/L	77.9	70.0	118
				<0.1	5 mg/L	91.4	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5351423)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	101	71.3	126
				<0.01	0.442 mg/L	93.9	71.3	126
				<0.01	1 mg/L	105	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5350941)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	103	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5350565)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	86.0	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5350563)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	82.5	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	80.5	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	77.9	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	85.9	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	83.4	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	77.7	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	82.3	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	79.4	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	79.9	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	88.6	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	79.2	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	86.3	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	98.3	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	80.9	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	74.6	72.0	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
EP068A: Organochlorine Pesticides (OC) (QCLot: 5350563) - continued								
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	90.2	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	85.0	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	90.0	65.2	112
EP068: Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	78.0	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: 5350563)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	81.2	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	79.4	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	75.8	69.5	110
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	83.8	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	86.3	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	82.0	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	84.4	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	74.3	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	76.1	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	79.6	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	86.2	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	94.9	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	86.8	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	77.3	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	84.4	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	88.8	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	81.4	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	91.2	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5350731)								
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	86.4	77.0	119
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L	90.0	69.0	129
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	89.1	76.0	118
EP074: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	20 µg/L	90.6	77.0	119
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	90.1	73.0	119
EP074: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	92.8	79.0	117
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	89.4	76.0	118

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
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5350731) - continued								
EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	10 µg/L	85.7	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	89.2	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	88.5	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	89.7	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	86.3	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	88.8	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	86.0	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5350731)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	96.1	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	90.8	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	98.0	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	91.2	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5350731)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	73.7	72.8	127
EP074D: Fumigants (QCLot: 5350731)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	83.5	68.0	122
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	87.7	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	84.8	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	91.2	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	97.9	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5350731)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	67.4	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	75.0	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	74.6	69.4	129
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	78.7	56.0	140
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	79.0	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	78.6	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	76.7	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	70.2	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	79.9	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	91.7	74.0	120
EP074: cis-1.2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	86.6	77.0	119
EP074: 1.1.1-Trichloroethane	71-55-6	5	µg/L	<5	10 µg/L	81.1	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	84.0	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	Acceptable Limits (%): High
EP074E: Halogenated Aliphatic Compounds (QCLot: 5350731) - continued								
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	77.7	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	94.5	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	83.2	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	91.5	73.0	119
EP074: 1.1.2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	95.2	72.0	126
EP074: 1.3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	97.3	71.0	129
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	85.5	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	86.8	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	88.0	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	95.5	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	83.8	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	93.4	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	90.3	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5350731)								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	90.6	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	88.1	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	90.5	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	90.7	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	92.2	75.0	117
EP074: 1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	93.4	74.0	118
EP074: 1.2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	93.7	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	91.9	61.0	125
EP074: 1.2.3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	97.4	67.0	123
EP074G: Trihalomethanes (QCLot: 5350731)								
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	89.3	72.0	120
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	86.0	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	87.6	73.5	126
EP074H: Naphthalene (QCLot: 5350731)								
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	99.2	72.0	122
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5350564)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	69.3	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
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5350564) - continued								
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	69.7	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	75.1	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	70.7	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	67.2	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	74.2	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	85.3	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	72.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	72.0	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.1	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	97.6	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	75.4	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	74.8	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	67.1	61.2	117
EP075(SIM): Benzo(g.h.i)perylene	191-24-2	1	µg/L	<1.0	5 µg/L	69.6	59.1	118
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5350562)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	82.0	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	77.4	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	93.6	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5350730)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	79.2	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5350562)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	67.4	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	71.5	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: 5350730)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.4	75.0	127
EP080: BTEXN (QCLot: 5350730)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	97.6	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	101	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	109	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	107	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: 5350730) - continued								
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	95.8	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5351329)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	86.6	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	106	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	95.1	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5351329)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	81.2	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	103	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	125	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	102	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	99.6	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5351329)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	85.1	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	80.3	64.0	140
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.05	µg/L	<0.05	0.25 µg/L	85.7	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	72.9	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**

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: 5350942)							
ES2334701-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5350943)							
ES2334701-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357074)							
ES2334308-014	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	93.8	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	93.7	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	93.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	92.5	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	95.3	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: 5357074) - continued							
ES2334308-014	Anonymous	EG020A-F: Manganese	7439-96-5	1 mg/L	93.8	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	93.0	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	93.4	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5357079)							
ES2334751-005	CZ5_MW09	EG020A-F: Arsenic	7440-38-2	1 mg/L	99.6	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	92.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	89.6	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	92.3	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	93.3	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	88.6	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	92.9	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	92.0	70.0	130
EG020T: Total Metals by ICP-MS (QCLot: 5357129)							
ES2334694-002	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	96.8	70.0	130
		EG020A-T: Cadmium	7440-43-9	0.25 mg/L	97.4	70.0	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	96.4	70.0	130
		EG020A-T: Copper	7440-50-8	1 mg/L	95.6	70.0	130
		EG020A-T: Lead	7439-92-1	1 mg/L	97.5	70.0	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	97.0	70.0	130
		EG020A-T: Zinc	7440-66-6	1 mg/L	94.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5357076)							
ES2334308-015	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	85.9	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5357078)							
ES2334751-007	QC01	EG035F: Mercury	7439-97-6	0.01 mg/L	76.6	70.0	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 5357153)							
EM2317852-008	Anonymous	EG035T: Mercury	7439-97-6	0.01 mg/L	90.5	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5354779)							
ES2334751-001	CZ4C_MW03	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	112	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5351419)							
ES2334734-003	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	110	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5350944)							
ES2334751-001	CZ4C_MW03	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	94.1	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5351420)							
ES2334734-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351424)							

Sub-Matrix: **WATER**

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report: Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%) Low	High
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5351424) - continued							
ES2334746-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	# Not Determined	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5351423)							
ES2334746-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	# Not Determined	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5350941)							
ES2334701-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	101	70.0	130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5350731)							
CA2306088-001	Anonymous	EP074: Benzene	71-43-2	25 µg/L	93.1	70.0	130
		EP074: Toluene	108-88-3	25 µg/L	96.1	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5350731)							
CA2306088-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	76.5	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	87.0	70.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5350731)							
CA2306088-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	96.9	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5350730)							
CA2306088-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	104	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5350730)							
CA2306088-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	102	70.0	130
EP080: BTEXN (QCLot: 5350730)							
CA2306088-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	97.6	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	110	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	130	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	123	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	94.1	70.0	130
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5351329)							
ES2334747-001	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.25 µg/L	# Not Determined	72.0	130
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.25 µg/L	88.0	68.0	131
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.25 µg/L	106	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5351329)							
ES2334747-001	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	1.25 µg/L	121	73.0	129
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.25 µg/L	80.2	72.0	129
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.25 µg/L	93.9	72.0	129

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: 5351329) - continued							
ES2334747-001	Anonymous	EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.25 µg/L	92.9	72.0	130
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.25 µg/L	102	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5351329)							
ES2334747-001	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.25 µg/L	93.5	63.0	143
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.25 µg/L	85.6	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.25 µg/L	76.7	67.0	138
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.25 µg/L	118	71.4	144

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334751**	Page	: 1 of 16
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SC210108.03 - GWMP	Date Samples Received	: 10-Oct-2023
Site	: ----	Issue Date	: 18-Oct-2023
Sampler	: ----	No. of samples received	: 9
Order number	: ----	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, 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	ES2334701--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.**
ED045G: Chloride by Discrete Analyser	ES2334701--001	Anonymous	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2334734--003	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	ES2334746--001	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	ES2334746--001	Anonymous	**Total Phosphorus as P**	----	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EP231A: Perfluoroalkyl Sulfonic Acids	ES2334747--001	Anonymous	**Perfluorobutane sulfonic acid (PFBS)**	375-73-5	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Outliers : Analysis Holding Time Compliance

Matrix: **WATER**

Method / Container / Client Sample ID(s)		Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	----	----	----	11-Oct-2023	09-Oct-2023	**2**
EA075: Redox Potential							
Clear Plastic Bottle - Natural							
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	----	----	----	13-Oct-2023	09-Oct-2023	**4**
EP025: Oxygen - Dissolved (DO)							
Clear Plastic Bottle - Natural							
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	----	----	----	10-Oct-2023	09-Oct-2023	**1**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	1	14	7.14	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	7	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	7	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	6	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	7	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)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	09-Oct-2023	×
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	06-Nov-2023	✓
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**----**	----	----	**13-Oct-2023**	16-Oct-2023	✓

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) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**16-Oct-2023**	06-Nov-2023	✓
EA075: Redox Potential							
Clear Plastic Bottle - Natural (EA075) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**13-Oct-2023**	09-Oct-2023	✗
ED037P: Alkalinity by PC Titrator							
Clear Plastic Bottle - Natural (ED037-P) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	23-Oct-2023	✓
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA							
Clear Plastic Bottle - Natural (ED041G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	06-Nov-2023	✓
ED045G: Chloride by Discrete Analyser							
Clear Plastic Bottle - Natural (ED045G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	06-Nov-2023	✓
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**16-Oct-2023**	06-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**16-Oct-2023**	06-Apr-2024	✓
EG020T: Total Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) Rinsate 02	**09-Oct-2023**	**13-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-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
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**17-Oct-2023**	06-Nov-2023	✓
EG035T: Total Recoverable Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Unfiltered (EG035T) Rinsate 02	**09-Oct-2023**	**----**	----	----	**14-Oct-2023**	06-Nov-2023	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ4C_MW02, CZ5_MW09	**09-Oct-2023**	**----**	----	----	**12-Oct-2023**	06-Nov-2023	✓
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ4C_MW03, SMW_ENV039, SMW_WTP_BH13, QC01	**09-Oct-2023**	**----**	----	----	**13-Oct-2023**	06-Nov-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	06-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	11-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**----**	----	----	**11-Oct-2023**	06-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**11-Oct-2023**	06-Nov-2023	✓	**13-Oct-2023**	06-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ4C_MW03, CZ4C_MW02, SMW_ENV039, SMW_WTP_BH13, CZ5_MW09, QC01	**09-Oct-2023**	**11-Oct-2023**	06-Nov-2023	✓	**13-Oct-2023**	06-Nov-2023	✓

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)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	11-Oct-2023	✓
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**----**	----	----	**10-Oct-2023**	09-Oct-2023	✗
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**14-Oct-2023**	20-Nov-2023	✓
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**13-Oct-2023**	20-Nov-2023	✓
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**13-Oct-2023**	20-Nov-2023	✓
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓

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
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP074F: Halogenated Aromatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP074H: Naphthalene								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM))								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**14-Oct-2023**	20-Nov-2023	✓

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)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09, QC01	CZ4C_MW02, SMW_WTP_BH13, Rinsate 02,	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**13-Oct-2023**	20-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
TB - Trip Blank		**03-Oct-2023**	**13-Oct-2023**	17-Oct-2023	✓	**14-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09, QC01	CZ4C_MW02, SMW_WTP_BH13, Rinsate 02,	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09, QC01	CZ4C_MW02, SMW_WTP_BH13, Rinsate 02,	**09-Oct-2023**	**11-Oct-2023**	16-Oct-2023	✓	**13-Oct-2023**	20-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
TB - Trip Blank		**03-Oct-2023**	**13-Oct-2023**	17-Oct-2023	✓	**14-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09, QC01	CZ4C_MW02, SMW_WTP_BH13, Rinsate 02,	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080)								
TB - Trip Blank,	TS - Trip Spike Control 11	**03-Oct-2023**	**13-Oct-2023**	17-Oct-2023	✓	**14-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09, QC01	CZ4C_MW02, SMW_WTP_BH13, Rinsate 02,	**09-Oct-2023**	**13-Oct-2023**	23-Oct-2023	✓	**14-Oct-2023**	23-Oct-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-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
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE (no PTFE) (EP231X)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE (no PTFE) (EP231X)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓
EP231P: PFAS Sums								
HDPE (no PTFE) (EP231X)								
CZ4C_MW03, SMW_ENV039, CZ5_MW09,	CZ4C_MW02, SMW_WTP_BH13, QC01	**09-Oct-2023**	**11-Oct-2023**	06-Apr-2024	✓	**13-Oct-2023**	06-Apr-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		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	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	12	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	19	10.53	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	18	11.11	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	7	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	14	7.14	10.00	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	7	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	6	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	16	12.50	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	4	40	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	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	2	17	11.76	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	7	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	17	11.76	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	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	12	16.67	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	19	5.26	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	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 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	7	**14.29**	**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	7	**14.29**	**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	6	**16.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	16	**18.75**	**15.00**	✓	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	40	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**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	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	1	12	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	19	**5.26**	**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	18	**5.56**	**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	7	**14.29**	**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	7	**14.29**	**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	20	**5.00**	**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 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	20	**5.00**	**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	17	**5.88**	**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	7	**14.29**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**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	17	**5.88**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**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	7	**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	7	**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
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	19	**5.26**	**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	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-MS - Suite A	EG020A-T	1	17	**5.88**	**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	7	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	13	**7.69**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	17	**5.88**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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 5.3, 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.

CHAIN OF CUSTODY

ALS COC#: 58359 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Jack DATE TIME: 06/10/23 1630	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
001	CZ1_BH13		06/10/2023 08:20 AM	WATER	ALS: 10 Non ALS: 0	No		X		
002	SMW_ENV227_w		06/10/2023 11:42 AM	WATER	ALS: 10 Non ALS: 0	No		X		
003	SMW_WTP_BH25_s		06/10/2023 10:41 AM	WATER	ALS: 10 Non ALS: 0	No		X		
004	CZ5_MW16		06/10/2023 12:45 PM	WATER	ALS: 10 Non ALS: 0	No		X		
005	Rinsate 01		06/10/2023 01:08 PM	WATER	ALS: 4 Non ALS: 0	No		Partial 1/14	TRH C6-C40	
006	Trip Blank		06/10/2023 01:15 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	
007	Trip Spike		06/10/2023 01:16 PM	WATER	ALS: 1 Non ALS: 0	No	-		TRH C6-C10/BTEXN	

HT

Environmental Division Sydney
Work Order Reference
ES2334366

Telephone : +61-2-8784 8555

CHAIN OF CUSTODY

ALS COC#: 58359 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Jack DATE TIME: 06/10/23 1630	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE	SAMPLE NAME	PARTIAL ANALYSIS GROUP NAME	MATRIX	SELECTED ANALYSIS NAME
005	Rinsate 01	Quarterly Groundwater GROUNDWATER	WATER	- W-02 8 Metals

CHAIN OF CUSTODY

ALS COC#: 58359 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	Jack DATE TIME: 06/10/23 1630	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE	SAMPLE NAME	BOTTLE NAME	VOLUME	BARCODE	TYPE	FILTERED	REASON
001	CZ1_BH13	Clear Plastic Bottle - Natural	500 mL	00071122237880	Green	No	
001	CZ1_BH13	HDPE (no PTFE)	20 mL	00351221009767	Grey	No	
001	CZ1_BH13	HDPE (no PTFE)	20 mL	00351221009804	Grey	No	
001	CZ1_BH13	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051836	Red	Yes	
001	CZ1_BH13	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038590	Purple	No	
001	CZ1_BH13	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041310	Blue	Yes	
001	CZ1_BH13	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011245	White	No	
001	CZ1_BH13	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062591	Purple	No	
001	CZ1_BH13	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062521	Purple	No	
001	CZ1_BH13	Amber Glass Bottle - Unpreserved	100 mL	00400423034991	Orange	No	
002	SMW_ENV227_w	Clear Plastic Bottle - Natural	500 mL	00071122237878	Green	No	
002	SMW_ENV227_w	Amber Glass Bottle - Unpreserved	100 mL	00400423034378	Orange	No	
002	SMW_ENV227_w	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011232	White	No	
002	SMW_ENV227_w	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051814	Red	Yes	
002	SMW_ENV227_w	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037555	Purple	No	
002	SMW_ENV227_w	HDPE (no PTFE)	20 mL	00351221000184	Grey	No	
002	SMW_ENV227_w	HDPE (no PTFE)	20 mL	00351221009752	Grey	No	
002	SMW_ENV227_w	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059373	Purple	No	
002	SMW_ENV227_w	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059381	Purple	No	
002	SMW_ENV227_w	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222040668	Blue	Yes	
003	SMW_WTP_BH25_s	Clear Plastic Bottle - Natural	500 mL	00071122237899	Green	No	
003	SMW_WTP_BH25_s	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523037540	Purple	No	
003	SMW_WTP_BH25_s	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222040650	Blue	Yes	
003	SMW_WTP_BH25_s	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051827	Red	Yes	
003	SMW_WTP_BH25_s	HDPE (no PTFE)	20 mL	00351221009754	Grey	No	
003	SMW_WTP_BH25_s	HDPE (no PTFE)	20 mL	00351221009757	Grey	No	

CHAIN OF CUSTODY

ALS COC#: 58359 ALS Laboratory: ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 06/10/23 1630	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

Custody Seal intact? Yes No N/A

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

Random Sample Temperature on Receipt: °C

Other comments:

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jpickerden@epicenvironmental.com.au, jxie@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

003	SMW_WTP_BH25_s	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011243	White	No	
003	SMW_WTP_BH25_s	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059651	Purple	No	
003	SMW_WTP_BH25_s	Amber VOC Vial - Sulfuric Acid	40 mL	00160623059605	Purple	No	
003	SMW_WTP_BH25_s	Amber Glass Bottle - Unpreserved	100 mL	00400423034999	Orange	No	
004	CZ5_MW16	Clear Plastic Bottle - Natural	500 mL	00071122237988	Green	No	
004	CZ5_MW16	Amber Glass Bottle - Unpreserved	100 mL	00400423034996	Orange	No	
004	CZ5_MW16	Clear Plastic Bottle - Sulfuric Acid	60 mL	00100523038591	Purple	No	
004	CZ5_MW16	Clear Plastic Bottle - NaOH Filtered	60 mL	00141222041277	Blue	Yes	
004	CZ5_MW16	Opaque Plastic Bottle - HCl Preserved (Speciation)	60 mL	00190719011220	White	No	
004	CZ5_MW16	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522051857	Red	Yes	
004	CZ5_MW16	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080385	Purple	No	
004	CZ5_MW16	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080373	Purple	No	
004	CZ5_MW16	HDPE (no PTFE)	20 mL	00351221000129	Grey	No	
004	CZ5_MW16	HDPE (no PTFE)	20 mL	00351221009809	Grey	No	
005	Rinsate 01	Clear Plastic Bottle - Nitric Acid; Filtered	60 mL	00120522052305	Red	No	rinsate
005	Rinsate 01	Amber Glass Bottle - Unpreserved	100 mL	00400423034288	Orange	No	
005	Rinsate 01	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080396	Purple	No	
005	Rinsate 01	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080424	Purple	No	
006	Trip Blank	Amber VOC Vial - Sulfuric Acid	40 mL	00160423080443	Purple	No	
007	Trip Spike	Amber VOC Vial - Sulfuric Acid	40 mL	00160623062573	Purple	No	

Total Bottle Count: ALS: 46, Non ALS: 0

SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **ES2334366**

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	: SC210108.03 Gamuda WTP GMP	Page	: 1 of 3
Order number	: -	Quote number	: ES2023EPIENV0004_V2 (ES23EPIENV0004_V2)
C-O-C number	: 58359	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: WTP GME Oct 23		
Sampler	: Joy Xie		

Dates

Date Samples Received	: 06-Oct-2023 16:30	Issue Date	: 06-Oct-2023
Client Requested Due Date	: 13-Oct-2023	Scheduled Reporting Date	: **13-Oct-2023**

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Not Available
No. of coolers/boxes	: 1	Temperature	: 9.8'C, 13.4 & 10.7'C
Receipt Detail	:	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
- **The sampling date listed on the COC is 06/10/23, however the bottles were all dated 03/10/23.**
- **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.
- Analytical work for this work order will be conducted at ALS Sydney.
- 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
ES2334366-001	06-Oct-2023 08:20	CZ1_BH13	✓	✓	✓	✓	✓	✓	✓
ES2334366-002	06-Oct-2023 11:42	SMW_ENV227_w	✓	✓	✓	✓	✓	✓	✓
ES2334366-003	06-Oct-2023 10:41	SMW_WTP_BH25_s	✓	✓	✓	✓	✓	✓	✓
ES2334366-004	06-Oct-2023 12:45	CZ5_MW16	✓	✓	✓	✓	✓	✓	✓
ES2334366-005	06-Oct-2023 13:08	Rinsate 01					✓		

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 +
ES2334366-001	06-Oct-2023 08:20	CZ1_BH13	✓	✓	✓	✓	✓	✓	✓
ES2334366-002	06-Oct-2023 11:42	SMW_ENV227_w	✓	✓	✓	✓	✓	✓	✓
ES2334366-003	06-Oct-2023 10:41	SMW_WTP_BH25_s	✓	✓	✓	✓	✓	✓	✓
ES2334366-004	06-Oct-2023 12:45	CZ5_MW16	✓	✓	✓	✓	✓	✓	✓

Matrix: **WATER**

Laboratory sample ID	Sampling date / time	Sample ID	WATER - EP080 BTEXN	WATER - TPH TRH (C6-C40)	WATER - W-18 TRH(C6 - C9)/BTEXN
ES2334366-005	06-Oct-2023 13:08	Rinsate 01		✓	
ES2334366-006	03-Oct-2023 13:15	Trip Blank			✓
ES2334366-007	03-Oct-2023 13:16	Trip Spike	✓		

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
- A4 - AU Tax Invoice (INV)	Email	JPickerden@epicenvironmental.com.au
- Chain of Custody (CoC) (COC)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - ESDAT (ESDAT)	Email	JPickerden@epicenvironmental.com.au
- EDI Format - XTab (XTAB)	Email	JPickerden@epicenvironmental.com.au

Joy Xie

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

CERTIFICATE OF ANALYSIS

Work Order	: **ES2334366**	Page	: 1 of 13
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	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 06-Oct-2023 16:30
Order number	: -	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: 58359	Issue Date	: 13-Oct-2023 21:59
Sampler	: Joy Xie		
Site	: WTP GME Oct 23		
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.

- EK067G: LOR raised for Total P on sample 3 & 4 due to sample matrix.
- 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 QSM5.3 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.
- EP231X: Surrogate recovery bias low due to sample matrix interferences, confirmed by re-extraction and re-analysis.
- EK057/EK059G: Sample 4 for NOx/Nitrite are confirmed by re-analyses
- 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: Sample TRIP SPIKE contains volatile compounds spiked into the sample containers prior to dispatch from the laboratory. BTEXN compounds spiked at 20 ug/L.
- EP231X: Particular samples required dilution due to sample matrix . LOR values have been adjusted accordingly.
- 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. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.18	6.74	7.46	6.43	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	4720	3050	2550	6250	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	3310	1780	1600	3960	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	790	564	784	411	----
EA075: Redox Potential								
Redox Potential	----	0.1	mV	153	64.2	58.0	14.5	----
pH Redox	----	0.01	pH Unit	7.60	6.85	7.95	6.62	----
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	73	430	869	145	----
Total Alkalinity as CaCO3	----	1	mg/L	73	430	869	145	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	735	144	156	521	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1080	666	257	1660	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	224	94	200	36	----
Magnesium	7439-95-4	1	mg/L	56	80	69	78	----
Sodium	7440-23-5	1	mg/L	776	381	284	1120	----
Potassium	7440-09-7	1	mg/L	28	16	16	29	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	<0.01	0.04	----
Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.004	0.008	<0.001
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	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	0.008	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	<0.001	<0.001	0.006	<0.001
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	0.029	<0.005	<0.005	0.014	<0.005

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Manganese	7439-96-5	0.001	mg/L	**0.115**	**0.351**	**0.244**	**0.100**	----
Iron	7439-89-6	0.05	mg/L	<0.05	**47.8**	**2.76**	**37.3**	----
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	**0.06**	**9.53**	**12.3**	**1.29**	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	**0.39**	<0.01	<0.01	**0.14**	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	**1.60**	<0.01	**0.01**	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	**1.99**	<0.01	**0.01**	**0.10**	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	**1.5**	**13.0**	**16.1**	**2.4**	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	**3.5**	**13.0**	**16.1**	**2.5**	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	**0.14**	**0.07**	<0.10	<0.05	----
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	**47.2**	**30.4**	**27.9**	**60.6**	----
ø Total Cations	----	0.01	meq/L	**50.2**	**28.2**	**28.4**	**57.7**	----
ø Ionic Balance	----	0.01	%	**3.11**	**3.62**	**1.00**	**2.45**	----
EP025: Oxygen - Dissolved (DO)								
Dissolved Oxygen	----	0.1	mg/L	**5.2**	**1.9**	**3.6**	**6.0**	----
EP066: Polychlorinated Biphenyls (PCB)								
^ Total Polychlorinated biphenyls	----	1	µg/L	<1	<1	<1	<1	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
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	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	----
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: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				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	**2460**	<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: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				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	----
Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	<5	<5	----
EP074F: Halogenated Aromatic Compounds								
Chlorobenzene	108-90-7	5	µg/L	<5	<5	**911**	<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	**17**	<5	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
EP074F: Halogenated Aromatic Compounds - Continued								
1.4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	**44**	<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	----
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	**150**	<20	**700**	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	**1380**	**260**	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	**1380**	**260**	<50	<50

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	**150**	<20	**680**	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	**130**	<20	**680**	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	**120**	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	**1130**	**200**	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	**1250**	**200**	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	**120**	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	**6**	<1	**2**	<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
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	**3**	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	**5**	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	**8**	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	**20**	<1	**2**	<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	**0.06**	<0.05	<0.05	<0.02	----
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.05	<0.05	<0.05	<0.01	----
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.05	<0.05	<0.05	<0.01	----
EP231B: Perfluoroalkyl Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.2	<0.2	<0.2	<0.1	----
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.05	<0.05	<0.05	<0.02	----
Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.05	<0.05	<0.05	<0.02	----
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.05	<0.05	<0.05	<0.02	----
Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.05	<0.05	<0.05	<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	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
EP231D: (n:2) Fluorotelomer Sulfonic Acids - Continued								
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	<0.05	<0.05	<0.05	<0.01	----
Sum of PFAS (WA DER List)	----	0.01	µg/L	**0.06**	<0.05	<0.05	<0.01	----
EP066S: PCB Surrogate								
Decachlorobiphenyl	2051-24-3	1	%	**117**	**106**	**106**	**111**	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	**86.0**	**100**	**92.3**	**82.6**	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	**84.2**	**101**	**99.6**	**70.7**	----
EP074S: VOC Surrogates								
1.2-Dichloroethane-D4	17060-07-0	5	%	**116**	**115**	**120**	**102**	----
Toluene-D8	2037-26-5	5	%	**111**	**111**	**115**	**108**	----
4-Bromofluorobenzene	460-00-4	5	%	**101**	**99.3**	**102**	**104**	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	**26.1**	**30.1**	**27.2**	**24.3**	----
2-Chlorophenol-D4	93951-73-6	1.0	%	**50.2**	**57.4**	**54.3**	**48.3**	----
2.4.6-Tribromophenol	118-79-6	1.0	%	**57.5**	**90.8**	**68.9**	**52.1**	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	**64.6**	**72.8**	**69.6**	**63.9**	----
Anthracene-d10	1719-06-8	1.0	%	**82.8**	**98.9**	**91.2**	**78.3**	----
4-Terphenyl-d14	1718-51-0	1.0	%	**68.0**	**77.6**	**73.8**	**64.5**	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	**119**	**117**	**123**	**101**	**107**
Toluene-D8	2037-26-5	2	%	**117**	**116**	**120**	**119**	**100**
4-Bromofluorobenzene	460-00-4	2	%	**120**	**119**	**120**	**106**	**108**
EP231S: PFAS Surrogate								
13C4-PFOS	----	0.02	%	**40.2**	**19.8**	**17.5**	**108**	----

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	CZ1_BH13	SMW_ENV227_w	SMW_WTP_BH25_s	CZ5_MW16	Rinsate 01
			Sampling date / time	06-Oct-2023 08:20	06-Oct-2023 11:42	06-Oct-2023 10:41	06-Oct-2023 12:45	06-Oct-2023 13:08
Compound	CAS Number	LOR	Unit	ES2334366-001	ES2334366-002	ES2334366-003	ES2334366-004	ES2334366-005
				Result	Result	Result	Result	Result
EP231S: PFAS Surrogate - Continued								
13C8-PFOA	----	0.02	%	**24.4**	**13.6**	**7.7**	**95.6**	**----**

Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)			Sample ID	Trip Blank	Trip Spike	----	----	----
			Sampling date / time	03-Oct-2023 13:15	03-Oct-2023 13:16	----	----	----
Compound	CAS Number	LOR	Unit	ES2334366-006	ES2334366-007	--------	--------	--------
				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	<1	16	----	----	----
Toluene	108-88-3	2	µg/L	<2	15	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	15	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	15	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	17	----	----	----
^ Total Xylenes	----	2	µg/L	<2	32	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	78	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	18	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	104	103	----	----	----
Toluene-D8	2037-26-5	2	%	106	104	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	110	106	----	----	----

Surrogate Control Limits

Sub-Matrix: GROUNDWATER		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	: **ES2334366**	Page	: 1 of 19
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	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 06-Oct-2023
Order number	: -	Date Analysis Commenced	: 06-Oct-2023
C-O-C number	: 58359	Issue Date	: 13-Oct-2023
Sampler	: Joy Xie		
Site	: WTP GME Oct 23		
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

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: 5344776)									
ES2334366-001	CZ1_BH13	EA005-P: pH Value	----	0.01	pH Unit	7.18	7.28	1.4	0% - 20%
ES2334231-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	6.19	6.51	5.0	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5344773)									
ES2334366-001	CZ1_BH13	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	4720	4740	0.4	0% - 20%
EW2304438-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	79	80	2.1	0% - 20%
ES2334231-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	76	79	3.3	0% - 20%
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QC Lot: 5354397)									
ES2334063-002	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	61	62	0.0	No Limit
ES2334366-003	SMW_WTP_BH25_s	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	1600	1600	0.1	0% - 20%
ES2334410-001	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	193	164	16.5	0% - 50%
ES2334410-011	Anonymous	EA015H: Total Dissolved Solids @180°C	----	10	mg/L	208	224	7.2	0% - 20%
EA075: Redox Potential (QC Lot: 5344873)									
ES2334281-001	Anonymous	EA075: Redox Potential	----	0.1	mV	134	134	0.0	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	7.09	7.08	0.1	0% - 20%
EW2304438-003	Anonymous	EA075: Redox Potential	----	0.1	mV	106	110	4.1	0% - 20%
		EA075: pH Redox	----	0.01	pH Unit	6.58	6.57	0.2	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5344775)									
ES2334357-004	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	3	2	0.0	No Limit
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	3	2	0.0	No Limit
ES2334231-001	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	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
ED037P: Alkalinity by PC Titrator (QC Lot: 5344775) - continued									
ES2334231-001	Anonymous	ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	27	27	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	27	27	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5345086)									
ES2334406-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	268	259	3.4	0% - 20%
ES2334231-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	3	3	0.0	No Limit
ED045G: Chloride by Discrete Analyser (QC Lot: 5345085)									
ES2334406-002	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	1920	1920	0.1	0% - 20%
ES2334231-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	4	3	0.0	No Limit
ED093F: Dissolved Major Cations (QC Lot: 5351107)									
ES2334193-001	Anonymous	ED093F: Calcium	7440-70-2	1	mg/L	121	120	1.5	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	456	451	1.2	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	4400	4270	3.1	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	184	180	2.7	0% - 20%
ES2334366-002	SMW_ENV227_w	ED093F: Calcium	7440-70-2	1	mg/L	94	93	0.0	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	80	80	0.0	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	381	380	0.0	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	16	16	0.0	0% - 50%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5351105)									
ES2334193-001	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	0.004	0.003	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	0.009	0.011	13.2	0% - 50%
		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	0.018	112	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	0.01	0.07	135	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	0.09	0.14	42.3	No Limit
ES2334366-002	SMW_ENV227_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	0.351	0.347	1.3	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	47.8	48.0	0.4	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5351125)									

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: 5351125) - continued									
ES2334326-001	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	0.030	0.030	0.0	0% - 20%
		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	0.023	0.022	6.3	0% - 20%
		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	0.013	0.013	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	3.57	3.53	1.1	0% - 20%
ES2334120-001	Anonymous	EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0010	<0.0010	0.0	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.010	<0.010	0.0	No Limit
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.050	<0.050	0.0	No Limit
		EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.10	<0.10	0.0	No Limit
		EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.10	<0.10	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5351106)									
ES2334193-004	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2334366-001	CZ1_BH13	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5351126)									
ES2333596-019	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2334254-006	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EG050F: Dissolved Hexavalent Chromium (QC Lot: 5350600)									
ES2333600-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.01	mg/L	5.06	5.09	0.6	0% - 20%
ES2333600-013	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: 5348745)									
ES2334246-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.03	0.03	0.0	No Limit
ES2334366-001	CZ1_BH13	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	0.06	0.06	0.0	No Limit
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5345083)									
ES2334400-004	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2334231-001	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: 5348746)									
ES2334246-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	0.47	0.47	0.0	0% - 20%
ES2334366-001	CZ1_BH13	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	1.99	1.99	0.0	0% - 20%
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5348742)									

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: 5348742) - continued									
ES2334246-002	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.1	<0.1	0.0	No Limit
ES2334366-001	CZ1_BH13	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.5	1.5	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5348741)									
ES2334246-002	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.23	0.22	0.0	0% - 20%
ES2334366-001	CZ1_BH13	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.14	0.16	10.6	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5345084)									
ES2334409-004	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	3.68	3.53	4.3	0% - 20%
ES2334231-001	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: 5347719)									
ES2333600-001	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
ES2334366-001	CZ1_BH13	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: 5347719)									
ES2333600-001	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
ES2334366-001	CZ1_BH13	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	2460	2580	4.6	0% - 20%
		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: 5347719)									
ES2333600-001	Anonymous	EP074: Carbon disulfide	75-15-0	5	µg/L	<5	<5	0.0	No Limit
ES2334366-001	CZ1_BH13	EP074: Carbon disulfide	75-15-0	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 (%)
EP074D: Fumigants (QC Lot: 5347719)									
ES2333600-001	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
ES2334366-001	CZ1_BH13	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: 5347719)									
ES2333600-001	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	13	13	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	110	110	0.0	No Limit
ES2334366-001	CZ1_BH13	EP074: 1.1-Dichloroethene	75-35-4	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: 5347719) - continued									
ES2334366-001	CZ1_BH13	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
		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: 5347719)									
ES2333600-001	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
ES2334366-001	CZ1_BH13	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

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 (%)
EP074F: Halogenated Aromatic Compounds (QC Lot: 5347719) - continued									
ES2334366-001	CZ1_BH13	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: 5347719)									
ES2333600-001	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	120	118	2.0	0% - 20%
		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
ES2334366-001	CZ1_BH13	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: 5347720)									
ES2334366-001	CZ1_BH13	EP080: C6 - C9 Fraction	----	20	µg/L	150	150	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 5347731)									
ES2333895-001	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
ES2334254-004	Anonymous	EP080: C6 - C9 Fraction	----	20	µg/L	<20	<20	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5347720)									
ES2334366-001	CZ1_BH13	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	150	150	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 5347731)									
ES2333895-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
ES2334254-004	Anonymous	EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	0.0	No Limit
EP080: BTEXN (QC Lot: 5347720)									
ES2334366-001	CZ1_BH13	EP080: Benzene	71-43-2	1	µg/L	6	6	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	3	3	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	2	µg/L	5	5	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
EP080: BTEXN (QC Lot: 5347731)									
ES2333895-001	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

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: 5347731) - continued									
ES2333895-001	Anonymous	EP080: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.0	No Limit
		EP080: Naphthalene	91-20-3	5	µg/L	<5	<5	0.0	No Limit
ES2334254-004	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

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: 5344776)								
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: 5344773)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	104	89.9	110
				<1	2100 µS/cm	99.7	90.2	111
EA015: Total Dissolved Solids dried at 180 ± 5 °C (QCLot: 5354397)								
EA015H: Total Dissolved Solids @180°C	----	10	mg/L	<10	2000 mg/L	94.4	87.0	109
				<10	293 mg/L	104	75.2	126
				<10	2470 mg/L	96.0	83.0	124
EA075: Redox Potential (QCLot: 5344873)								
EA075: Redox Potential	----	----	mV	----	234 mV	101	96.0	106
				----	300 mV	101	97.0	105
				----	86 mV	107	97.0	115
ED037P: Alkalinity by PC Titrator (QCLot: 5344775)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	106	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5345086)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	110	82.0	122
				<1	500 mg/L	104	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5345085)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	95.1	80.9	127
				<1	1000 mg/L	94.1	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5351107)								
ED093F: Calcium	7440-70-2	1	mg/L	<1	50 mg/L	99.9	80.0	114
ED093F: Magnesium	7439-95-4	1	mg/L	<1	50 mg/L	99.8	90.0	116
ED093F: Sodium	7440-23-5	1	mg/L	<1	50 mg/L	99.4	82.0	120
ED093F: Potassium	7440-09-7	1	mg/L	<1	50 mg/L	111	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351105)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.0	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	94.9	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	92.6	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	Acceptable Limits (%) High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351105) - continued								
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.8	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	92.9	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.5	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	93.4	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.0	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	92.0	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	96.4	82.0	112
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351125)								
EG020A-F: Aluminium	7429-90-5	0.01	mg/L	<0.01	0.5 mg/L	93.5	80.0	116
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.1	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	93.0	84.0	110
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	92.6	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	94.4	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	94.2	83.0	111
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	92.3	82.0	110
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	92.4	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	93.8	81.0	117
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	94.9	82.0	112
EG035F: Dissolved Mercury by FIMS (QCLot: 5351106)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	104	83.0	105
EG035F: Dissolved Mercury by FIMS (QCLot: 5351126)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	104	83.0	105
EG050F: Dissolved Hexavalent Chromium (QCLot: 5350600)								
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: 5348745)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	97.5	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5345083)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	98.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5348746)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	110	91.0	113
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5348742)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	97.8	69.0	101
				<0.1	1 mg/L	99.6	70.0	118
				<0.1	5 mg/L	102	70.0	130

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: 5348741)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	95.9	71.3	126
				<0.01	0.442 mg/L	106	71.3	126
				<0.01	1 mg/L	100	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5345084)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	104	85.0	117
EP066: Polychlorinated Biphenyls (PCB) (QCLot: 5347672)								
EP066: Total Polychlorinated biphenyls	----	1	µg/L	<1	10 µg/L	88.8	68.9	113
EP068A: Organochlorine Pesticides (OC) (QCLot: 5347670)								
EP068: alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	87.4	64.9	107
EP068: Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	79.7	58.3	111
EP068: beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	84.9	69.0	117
EP068: gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	87.6	70.0	112
EP068: delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	87.0	68.9	110
EP068: Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	86.4	65.2	108
EP068: Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	85.9	65.8	109
EP068: Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	86.9	67.1	107
EP068: trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	87.4	64.1	110
EP068: alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	89.4	66.7	112
EP068: cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	93.1	63.2	111
EP068: Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	86.1	65.2	113
EP068: 4.4`-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	87.9	66.0	112
EP068: Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	96.5	65.2	113
EP068: beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	5 µg/L	94.5	67.3	114
EP068: 4.4`-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	91.2	72.0	122
EP068: Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	77.5	66.9	109
EP068: Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	91.9	65.2	112
EP068: 4.4`-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	95.4	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	95.5	61.1	114
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5347670)								
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	78.4	65.6	114
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	81.6	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	77.0	69.5	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	Acceptable Limits (%): High
EP068B: Organophosphorus Pesticides (OP) (QCLot: 5347670) - continued								
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	88.2	71.1	110
EP068: Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	84.8	77.0	119
EP068: Parathion-methyl	298-00-0	2	µg/L	<2.0	5 µg/L	74.6	70.0	124
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	88.6	68.4	116
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	84.2	68.6	112
EP068: Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	88.3	75.0	119
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	74.6	67.0	121
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	86.0	69.0	121
EP068: Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	92.3	71.8	110
EP068: Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	84.3	67.5	112
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	86.0	64.1	116
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	87.7	67.8	114
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	87.3	74.0	120
EP068: Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	86.3	66.2	114
EP068: Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	58.4	51.6	128
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 5347719)								
EP074: Styrene	100-42-5	5	µg/L	<5	10 µg/L	103	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	104	69.0	119
EP074: 1.3.5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	104	74.0	116
EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: 1.2.4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	74.0	116
EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	10 µg/L	104	72.0	116
EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	10 µg/L	103	71.0	119
EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	10 µg/L	103	65.0	123
EP074B: Oxygenated Compounds (QCLot: 5347719)								
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	103	61.4	134
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	93.4	73.6	130
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	104	66.0	132
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	95.9	65.0	137
EP074C: Sulfonated Compounds (QCLot: 5347719)								
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	95.8	72.8	127
EP074D: Fumigants (QCLot: 5347719)								
EP074: 2.2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	102	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: 5347719) - continued								
EP074: 1.2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	104	76.0	118
EP074: cis-1.3-Dichloropropylene	10061-01-5	5	µg/L	<5	10 µg/L	102	62.0	120
EP074: trans-1.3-Dichloropropylene	10061-02-6	5	µg/L	<5	10 µg/L	102	60.0	114
EP074: 1.2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	108	69.0	117
EP074E: Halogenated Aliphatic Compounds (QCLot: 5347719)								
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	97.9	60.6	138
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	102	67.4	130
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	97.1	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	101	61.0	139
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	101	69.0	131
EP074: 1.1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	102	70.0	124
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	85.7	70.2	128
EP074: trans-1.2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	104	74.0	118
EP074: 1.1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	104	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	102	67.0	119
EP074: 1.1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	101	73.0	119
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	98.7	62.0	120
EP074: 1.2-Dichloroethane	107-06-2	5	µg/L	<5	10 µg/L	106	73.0	123
EP074: Trichloroethene	79-01-6	5	µg/L	<5	10 µg/L	103	76.0	118
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	105	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	105	72.0	124
EP074: 1.1.1.2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	104	66.0	114
EP074: trans-1.4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	99.3	60.0	120
EP074: cis-1.4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	106	70.6	128
EP074: 1.1.2.2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	106	70.0	124
EP074: 1.2.3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	106	74.0	126
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	102	71.8	126
EP074: 1.2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	97.0	66.4	136
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	108	58.0	130
EP074F: Halogenated Aromatic Compounds (QCLot: 5347719)								

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: 5347719) - continued								
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	106	79.0	117
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	104	76.0	116
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	10 µg/L	104	73.0	119
EP074: 1.3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	105	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	105	75.0	117
EP074: 1.2.4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	105	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: 5347719)								
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	99.8	64.0	118
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	101	65.0	115
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	99.3	73.5	126
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 5347668)								
EP075(SIM): Naphthalene	91-20-3	1	µg/L	<1.0	5 µg/L	76.6	50.0	94.0
EP075(SIM): Acenaphthylene	208-96-8	1	µg/L	<1.0	5 µg/L	87.7	63.6	114
EP075(SIM): Acenaphthene	83-32-9	1	µg/L	<1.0	5 µg/L	80.1	62.2	113
EP075(SIM): Fluorene	86-73-7	1	µg/L	<1.0	5 µg/L	90.2	63.9	115
EP075(SIM): Phenanthrene	85-01-8	1	µg/L	<1.0	5 µg/L	92.7	62.6	116
EP075(SIM): Anthracene	120-12-7	1	µg/L	<1.0	5 µg/L	93.3	64.3	116
EP075(SIM): Fluoranthene	206-44-0	1	µg/L	<1.0	5 µg/L	80.9	63.6	118
EP075(SIM): Pyrene	129-00-0	1	µg/L	<1.0	5 µg/L	80.4	63.1	118
EP075(SIM): Benz(a)anthracene	56-55-3	1	µg/L	<1.0	5 µg/L	79.8	64.1	117
EP075(SIM): Chrysene	218-01-9	1	µg/L	<1.0	5 µg/L	76.4	62.5	116
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	1	µg/L	<1.0	5 µg/L	77.3	61.7	119
EP075(SIM): Benzo(k)fluoranthene	207-08-9	1	µg/L	<1.0	5 µg/L	78.0	63.0	115
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	µg/L	<0.5	5 µg/L	80.5	63.3	117
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	1	µg/L	<1.0	5 µg/L	66.8	59.9	118
EP075(SIM): Dibenz(a.h)anthracene	53-70-3	1	µg/L	<1.0	5 µg/L	70.0	61.2	117
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: 5346592)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	79.6	53.7	97.0

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
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5346592) - continued								
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	77.2	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	89.0	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347669)								
EP071: C10 - C14 Fraction	----	50	µg/L	<50	400 µg/L	80.5	53.7	97.0
EP071: C15 - C28 Fraction	----	100	µg/L	<100	600 µg/L	86.9	63.3	107
EP071: C29 - C36 Fraction	----	50	µg/L	<50	400 µg/L	90.7	58.3	120
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347720)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	85.7	75.0	127
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347731)								
EP080: C6 - C9 Fraction	----	20	µg/L	<20	260 µg/L	90.0	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5346592)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	78.1	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	73.8	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	86.7	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347669)								
EP071: >C10 - C16 Fraction	----	100	µg/L	<100	500 µg/L	79.2	53.9	95.5
EP071: >C16 - C34 Fraction	----	100	µg/L	<100	700 µg/L	80.6	57.8	110
EP071: >C34 - C40 Fraction	----	100	µg/L	<100	300 µg/L	80.2	50.5	115
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347720)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	85.4	75.0	127
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347731)								
EP080: C6 - C10 Fraction	C6_C10	20	µg/L	<20	310 µg/L	90.1	75.0	127
EP080: BTEXN (QCLot: 5347720)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	94.8	68.3	119
EP080: Toluene	108-88-3	2	µg/L	<2	10 µg/L	91.6	73.5	120
EP080: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	94.4	73.8	122
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	94.5	73.0	122
EP080: ortho-Xylene	95-47-6	2	µg/L	<2	10 µg/L	97.9	76.4	123
EP080: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	88.4	75.5	124
EP080: BTEXN (QCLot: 5347731)								
EP080: Benzene	71-43-2	1	µg/L	<1	10 µg/L	103	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	103	73.8	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
EP080: BTEXN (QCLot: 5347731) - continued								
EP080: meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	10 µg/L	110	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	102	75.5	124
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 5347597)								
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.02	µg/L	<0.02	0.25 µg/L	85.0	72.0	130
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.01	µg/L	<0.01	0.25 µg/L	85.0	68.0	131
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.01	µg/L	<0.01	0.25 µg/L	81.8	65.0	140
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 5347597)								
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.1	µg/L	<0.1	1.25 µg/L	80.7	73.0	129
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.02	µg/L	<0.02	0.25 µg/L	97.3	72.0	129
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.02	µg/L	<0.02	0.25 µg/L	84.1	72.0	129
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.02	µg/L	<0.02	0.25 µg/L	84.9	72.0	130
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.01	µg/L	<0.01	0.25 µg/L	95.0	71.0	133
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 5347597)								
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.05	µg/L	<0.05	0.25 µg/L	85.7	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	86.6	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	97.7	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	118	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: 5345086)							
ES2334231-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	91.0	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5345085)							
ES2334231-001	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	113	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351105)							
ES2334193-002	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	92.6	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	92.2	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	91.2	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: 5351105) - continued							
ES2334193-002	Anonymous	EG020A-F: Lead	7439-92-1	1 mg/L	86.0	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	92.4	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	89.3	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	90.4	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5351125)							
ES2334228-001	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	98.9	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	91.5	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	86.4	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	70.9	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	79.8	70.0	130
		EG020A-F: Manganese	7439-96-5	1 mg/L	111	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	98.5	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	86.9	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5351106)							
ES2334193-003	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	84.4	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5351126)							
EM2317717-005	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	80.5	70.0	130
EG050F: Dissolved Hexavalent Chromium (QCLot: 5350600)							
ES2333600-001	Anonymous	EG050G-F: Hexavalent Chromium	18540-29-9	0.05 mg/L	# Not Determined	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5348745)							
ES2334246-002	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	118	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5345083)							
ES2334231-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	97.9	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5348746)							
ES2334246-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	117	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5348742)							
ES2334246-007	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	107	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5348741)							
ES2334246-007	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5345084)							
ES2334231-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	77.4	70.0	130
EP074E: Halogenated Aliphatic Compounds (QCLot: 5347719)							
ES2333600-001	Anonymous	EP074: 1.1-Dichloroethene	75-35-4	25 µg/L	95.4	70.0	130
		EP074: Trichloroethene	79-01-6	25 µg/L	97.8	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
EP074F: Halogenated Aromatic Compounds (QCLot: 5347719)							
ES2333600-001	Anonymous	EP074: Chlorobenzene	108-90-7	25 µg/L	102	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347720)							
ES2334366-001	CZ1_BH13	EP080: C6 - C9 Fraction	----	325 µg/L	85.6	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 5347731)							
ES2333895-001	Anonymous	EP080: C6 - C9 Fraction	----	325 µg/L	90.8	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347720)							
ES2334366-001	CZ1_BH13	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	84.7	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 5347731)							
ES2333895-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	375 µg/L	90.8	70.0	130
EP080: BTEXN (QCLot: 5347720)							
ES2334366-001	CZ1_BH13	EP080: Benzene	71-43-2	25 µg/L	94.2	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	93.0	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	96.5	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	96.4	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	97.0	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	78.7	70.0	130
EP080: BTEXN (QCLot: 5347731)							
ES2333895-001	Anonymous	EP080: Benzene	71-43-2	25 µg/L	96.4	70.0	130
		EP080: Toluene	108-88-3	25 µg/L	99.4	70.0	130
		EP080: Ethylbenzene	100-41-4	25 µg/L	97.6	70.0	130
		EP080: meta- & para-Xylene	108-38-3 106-42-3	25 µg/L	101	70.0	130
		EP080: ortho-Xylene	95-47-6	25 µg/L	104	70.0	130
		EP080: Naphthalene	91-20-3	25 µg/L	103	70.0	130

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2334366**	Page	: 1 of 13
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SC210108.03 Gamuda WTP GMP	Date Samples Received	: 06-Oct-2023
Site	: WTP GME Oct 23	Issue Date	: 13-Oct-2023
Sampler	: Joy Xie	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.**
- **Surrogate recovery outliers exist for all regular sample matrices - please see following pages for full details.**

Outliers : Analysis Holding Time Compliance

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

Outliers : Frequency of Quality Control Samples

- **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							
EG050F: Dissolved Hexavalent Chromium	ES2333600--001	Anonymous	**Hexavalent Chromium**	18540-29-9	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**

Regular Sample Surrogates

Sub-Matrix: **GROUNDWATER**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Samples Submitted							
EP231S: PFAS Surrogate	ES2334366-001	CZ1_BH13	**13C4-PFOS**	----	40.2 %	60.0-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES2334366-002	SMW_ENV227_w	**13C4-PFOS**	----	19.8 %	60.0-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES2334366-003	SMW_WTP_BH25_s	**13C4-PFOS**	----	17.5 %	60.0-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES2334366-001	CZ1_BH13	**13C8-PFOA**	----	24.4 %	60.0-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES2334366-002	SMW_ENV227_w	**13C8-PFOA**	----	13.6 %	60.0-120 %	**Recovery less than lower data quality objective**
EP231S: PFAS Surrogate	ES2334366-003	SMW_WTP_BH25_s	**13C8-PFOA**	----	7.7 %	60.0-120 %	**Recovery less than lower data quality objective**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
Method	QC	Regular	Actual	Expected	
	0				
Laboratory Duplicates (DUP)					
PAH/Phenols (GC/MS - SIM)	0	14	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	20	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	10	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	9	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	33	0.00	10.00	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)					
PAH/Phenols (GC/MS - SIM)	0	14	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	0	20	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	0	10	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
Polychlorinated Biphenyls (PCB)	0	9	0.00	5.00	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	0	33	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)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**06-Oct-2023**	06-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**06-Oct-2023**	03-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Clear Plastic Bottle - Natural (EA015H)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**12-Oct-2023**	13-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**12-Oct-2023**	03-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EA075: Redox Potential								
Clear Plastic Bottle - Natural (EA075)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**06-Oct-2023**	06-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**06-Oct-2023**	20-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**07-Oct-2023**	03-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**07-Oct-2023**	03-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							

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
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Nitric Acid; Filtered (ED093F) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**----**	----	----	**12-Oct-2023**	03-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) Rinsate 01	**06-Oct-2023**	**----**	----	----	**11-Oct-2023**	03-Apr-2024	✓
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**----**	----	----	**12-Oct-2023**	03-Apr-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16, Rinsate 01	**06-Oct-2023**	**----**	----	----	**13-Oct-2023**	03-Nov-2023	✓
EG050F: Dissolved Hexavalent Chromium							
Clear Plastic Bottle - NaOH Filtered (EG050G-F) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**----**	----	----	**10-Oct-2023**	03-Nov-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK055G) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**----**	----	----	**10-Oct-2023**	03-Nov-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**----**	----	----	**07-Oct-2023**	08-Oct-2023	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK059G) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**----**	----	----	**10-Oct-2023**	03-Nov-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK061G) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**10-Oct-2023**	03-Nov-2023	✓	**10-Oct-2023**	03-Nov-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Sulfuric Acid (EK067G) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s, CZ5_MW16	**06-Oct-2023**	**10-Oct-2023**	03-Nov-2023	✓	**10-Oct-2023**	03-Nov-2023	✓

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)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**07-Oct-2023**	08-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP025: Oxygen - Dissolved (DO)								
Clear Plastic Bottle - Natural (EP025)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**----**	----	----	**06-Oct-2023**	06-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP066: Polychlorinated Biphenyls (PCB)								
Amber Glass Bottle - Unpreserved (EP066)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**09-Oct-2023**	13-Oct-2023	✓	**13-Oct-2023**	18-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP068A: Organochlorine Pesticides (OC)								
Amber Glass Bottle - Unpreserved (EP068)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**09-Oct-2023**	13-Oct-2023	✓	**13-Oct-2023**	18-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP068B: Organophosphorus Pesticides (OP)								
Amber Glass Bottle - Unpreserved (EP068)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**09-Oct-2023**	13-Oct-2023	✓	**13-Oct-2023**	18-Nov-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP074A: Monocyclic Aromatic Hydrocarbons								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP074B: Oxygenated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP074C: Sulfonated Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP074D: Fumigants								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							
EP074E: Halogenated Aliphatic Compounds								
Amber VOC Vial - Sulfuric Acid (EP074)								
CZ1_BH13,	SMW_ENV227_w,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
SMW_WTP_BH25_s,	CZ5_MW16							

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) CZ1_BH13, SMW_WTP_BH25_s,	SMW_ENV227_w, CZ5_MW16	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
EP074G: Trihalomethanes								
Amber VOC Vial - Sulfuric Acid (EP074) CZ1_BH13, SMW_WTP_BH25_s,	SMW_ENV227_w, CZ5_MW16	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP075(SIM)) CZ1_BH13, SMW_WTP_BH25_s,	SMW_ENV227_w, CZ5_MW16	**06-Oct-2023**	**09-Oct-2023**	13-Oct-2023	✓	**13-Oct-2023**	18-Nov-2023	✓
EP080/071: Total Petroleum Hydrocarbons								
Amber Glass Bottle - Unpreserved (EP071) CZ1_BH13, SMW_WTP_BH25_s,	SMW_ENV227_w, CZ5_MW16	**06-Oct-2023**	**09-Oct-2023**	13-Oct-2023	✓	**12-Oct-2023**	18-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP071) Rinsate 01		**06-Oct-2023**	**10-Oct-2023**	13-Oct-2023	✓	**12-Oct-2023**	19-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) Trip Blank		**03-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**12-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ1_BH13, SMW_WTP_BH25_s, Rinsate 01	SMW_ENV227_w, CZ5_MW16,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Amber Glass Bottle - Unpreserved (EP071) CZ1_BH13, SMW_WTP_BH25_s,	SMW_ENV227_w, CZ5_MW16	**06-Oct-2023**	**09-Oct-2023**	13-Oct-2023	✓	**12-Oct-2023**	18-Nov-2023	✓
Amber Glass Bottle - Unpreserved (EP071) Rinsate 01		**06-Oct-2023**	**10-Oct-2023**	13-Oct-2023	✓	**12-Oct-2023**	19-Nov-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) Trip Blank		**03-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**12-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ1_BH13, SMW_WTP_BH25_s, Rinsate 01	SMW_ENV227_w, CZ5_MW16,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓
EP080: BTEXN								
Amber VOC Vial - Sulfuric Acid (EP080) Trip Blank,	Trip Spike	**03-Oct-2023**	**12-Oct-2023**	17-Oct-2023	✓	**12-Oct-2023**	17-Oct-2023	✓
Amber VOC Vial - Sulfuric Acid (EP080) CZ1_BH13, SMW_WTP_BH25_s, Rinsate 01	SMW_ENV227_w, CZ5_MW16,	**06-Oct-2023**	**11-Oct-2023**	20-Oct-2023	✓	**11-Oct-2023**	20-Oct-2023	✓

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) CZ5_MW16	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**12-Oct-2023**	03-Apr-2024	✓
HDPE (no PTFE) (EP231X) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**13-Oct-2023**	03-Apr-2024	✓
EP231B: Perfluoroalkyl Carboxylic Acids							
HDPE (no PTFE) (EP231X) CZ5_MW16	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**12-Oct-2023**	03-Apr-2024	✓
HDPE (no PTFE) (EP231X) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**13-Oct-2023**	03-Apr-2024	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids							
HDPE (no PTFE) (EP231X) CZ5_MW16	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**12-Oct-2023**	03-Apr-2024	✓
HDPE (no PTFE) (EP231X) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**13-Oct-2023**	03-Apr-2024	✓
EP231P: PFAS Sums							
HDPE (no PTFE) (EP231X) CZ5_MW16	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**12-Oct-2023**	03-Apr-2024	✓
HDPE (no PTFE) (EP231X) CZ1_BH13, SMW_ENV227_w, SMW_WTP_BH25_s	**06-Oct-2023**	**10-Oct-2023**	03-Apr-2024	✓	**13-Oct-2023**	03-Apr-2024	✓

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	18	11.11	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	3	22	13.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	2	15	13.33	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	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	14	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	10	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	19	10.53	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	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	2	10	20.00	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	4	40	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	0	33	0.00	10.00	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	3	29	10.34	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	1	18	5.56	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	3	22	13.64	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	15	6.67	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	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	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							
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	10	**10.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
pH by Auto Titrator	EA005-P	2	19	**10.53**	**10.00**	✓	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	14	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Redox Potential	EA075	3	10	**30.00**	**15.00**	✓	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	40	**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 Phosphorus as P By Discrete Analyser	EK067G	3	20	**15.00**	**15.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	1	18	**5.56**	**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	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	15	**6.67**	**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	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	1	14	**7.14**	**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	10	**10.00**	**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	14	**7.14**	**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	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	33	**6.06**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	1	18	**5.56**	**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	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	40	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	*Method*	*QC*	*Regular*	***Actual***	***Expected***	*Evaluation*	
Matrix Spikes (MS) - Continued							
Hexavalent Chromium by Discrete Analyser - Dissolved	EG050G-F	1	15	**6.67**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	1	19	**5.26**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (GC/MS - SIM)	EP075(SIM)	0	14	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	0	20	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	0	10	**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
Reactive Phosphorus as P-By Discrete Analyser	EK071G	1	14	**7.14**	**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	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	33	**0.00**	**5.00**	×	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	29	**6.90**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Volatile Organic Compounds	EP074	1	18	**5.56**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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 5.3, 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.

CHAIN OF CUSTODY

(ALS) COC#: 58623 *ALS Laboratory:* ES Sydney Environmental

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
DATE TIME:	DATE TIME: 12/10/23 1508	DATE TIME:	DATE TIME:

CLIENT: EPIENV - EPIC ENVIRONMENTAL

PROJECT: SC210108.03 Gamuda WTP GMP

SITE: WTP GME Oct 23 - Day 4

ORDER NO:

TURNAROUND REQUIREMENTS : 5 Days

Biohazard info:

LABORATORY USE ONLY (Circle)

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

PROJECT MANAGER: Jonathan Pickerden CONTACT PH: SAMPLER MOBILE:

PRIMARY SAMPLER: Joy Xie QUOTE NO: ES23EPIENV0004 / ES2023EPIENV0004

EMAIL REPORTS TO: jxie@epicenvironmental.com.au, nchandra@epicenvironmnetal.com.au, jpickerden@epicenvironmental.com.au

EMAIL INVOICES TO: jpickerden@epicenvironmental.com.au

SAMPLE DETAILS							ANALYSIS REQUIRED			
SAMPLE	NAME	DESCRIPTION	DATE / TIME	MATRIX	TOTAL BOTTLES	ON HOLD	Analysis NOT REQUIRED	Quarterly Groundwater GROUNDWATER	ALTERNATIVE ANALYSIS	ADDITIONAL INFORMATION
008	1 - QC04	Please send QC04 to Envirolab	11/10/2023 07:05 AM	WATER	ALS: 10 Non ALS: 0	Yes	-	-	Arsenic speciation on hold	

335297
13/10/23
HB

HT

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SC210108.03 - GWMP	Lab:	ALS Sydney
Project/Site:	SC210108.03 - GWMP	Lab Quote No:	
Sampled By:	JX	Lab Batch No:	
Phone / Email:	0426205616	Date Results Required:	Standard TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 of		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	50 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, ORP, DO	8 Dissolved Metals; Additional Dissolved Metals (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	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-BH004-S	—	W									X						X				
2	SMW-WTP-BH02	—	W									X						X				
3	SMW-WTP-BH03A	—	W									X						X				
4	QC03	—	W									X						X				
5	QC04	—	W									X						X				
6	TS04	—	W																	X		
7	TB04	—	W																	X		
8	Rinsate04	—	W																		X	X
			TOTALS									0	0	0	0	0	0	0	0	0	0	0

Relinquished By:	Joy XIE		Received By:		12/10/23
NAME	SIGNATURE	DATE	NAME Lucas	SIGNATURE	DATE 1508

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

335297
13/10/23
HB

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	SC210108.03 - GWMP
Envirolab Reference	335297
Date Sample Received	13/10/2023
Date Instructions Received	20/10/2023
Date Results Expected to be Reported	20/10/2023

Sample Condition

Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	1 Water
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	5
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	HM in water - total	Metals in Waters -Acid extractable	pH	Electrical Conductivity	Dissolved Oxygen*	Redox Potential*	Total Dissolved Solids(grav)	Total Nitrogen in water	Nitrate as N in water	Nitrite as N in water	Ammonia as N in water	Trivalent Chromium, Cr3+	Hexavalent Chromium, Cr6+ (dissolved)	Phosphate as P in water	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	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 335297

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	**SC210108.03 - GWMP**
Number of Samples	1 Water
Date samples received	13/10/2023
Date completed instructions received	20/10/2023

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	20/10/2023
Date of Issue	20/10/2023

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

Results Approved By
Diana Korniewicz, Chemist
Dragana Tomas, Senior Chemist
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager
Priya Samarawickrama, Senior Chemist
Sean McAlary, Chemist

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date Extracted	-	18/10/2023
Date Analysed	-	19/10/2023
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	3
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1

VOCs in water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
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	%	102
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	101

vTRH(C6-C10)/BTEXN in Water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date extracted	-	18/10/2023
Date analysed	-	19/10/2023
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	%	102
Surrogate Toluene-d8	%	99
Surrogate 4-Bromofluorobenzene	%	101

svTRH (C10-C40) in Water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date extracted	-	18/10/2023
Date analysed	-	18/10/2023
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	%	86

PAHs in Water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date extracted	-	18/10/2023
Date analysed	-	19/10/2023
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	%	85

Organochlorine Pesticides in Water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date extracted	-	18/10/2023
Date analysed	-	19/10/2023
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 TCMX	%	94

OP Pesticides in Water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date extracted	-	18/10/2023
Date analysed	-	19/10/2023
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 TCMX	%	94

PCBs in Water		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date extracted	-	18/10/2023
Date analysed	-	19/10/2023
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 TCMX	%	94

HM in water - dissolved		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date prepared	-	17/10/2023
Date analysed	-	17/10/2023
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	<0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	41
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	4
Zinc-Dissolved	µg/L	30
Aluminium-Dissolved	µg/L	<10
Manganese-Dissolved	µg/L	80
Iron-Dissolved	µg/L	<10

Metals in Waters - Acid extractable		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date prepared	-	17/10/2023
Date analysed	-	17/10/2023
Phosphorus - Total	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date prepared	-	17/10/2023
Date analysed	-	17/10/2023
pH	pH Units	6.4
Electrical Conductivity	µS/cm	470
Dissolved Oxygen*	mg/L	8.7
Redox Potential*	mV	278
Total Dissolved Solids (grav)	mg/L	300
Total Nitrogen in water	mg/L	10
Nitrate as N in water	mg/L	10
Nitrite as N in water	mg/L	0.18
Ammonia as N in water	mg/L	0.050
Trivalent Chromium, Cr^{3+}	mg/L	<0.005
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Phosphate as P in water	mg/L	0.02

Ion Balance		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date prepared	-	18/10/2023
Date analysed	-	18/10/2023
Calcium - Dissolved	mg/L	6.6
Potassium - Dissolved	mg/L	3
Sodium - Dissolved	mg/L	63
Magnesium - Dissolved	mg/L	9.3
Hardness	mgCaCO 3 /L	55
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	66
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	66
Sulphate, SO4	mg/L	55
Chloride, Cl	mg/L	50
Ionic Balance	%	1.0

PFAS in Waters Short		
Our Reference		335297-1
Your Reference	UNITS	QC04
Date Sampled		11/10/2023
Type of sample		Water
Date prepared	-	18/10/2023
Date analysed	-	18/10/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.01
Perfluorooctanoic acid PFOA	µg/L	0.03
6:2 FTS	µg/L	<0.01
8:2 FTS	µg/L	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	80
Surrogate $^{13}C_2$ *PFOA*	%	97
Extracted ISTD $^{18}O_2$ *PFHxS*	%	85
Extracted ISTD $^{13}C_4$ *PFOS*	%	113
Extracted ISTD $^{13}C_4$ *PFOA*	%	92
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	99
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	102
Total Positive PFHxS & PFOS	µg/L	0.01
Total Positive PFOA & PFOS	µg/L	0.04
Total Positive PFAS	µg/L	0.04

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-035	Analysed using an electrode. Please note that the results for water analyses are indicative only, samples are ideally analysed on collection.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-112	Dissolved Oxygen using membrane electrode. Note this analysis should ideally be carried out immediately after sampling.

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 determinined 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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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-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	-			18/10/2023	1	18/10/2023	19/10/2023		18/10/2023	[NT]
Date Analysed	-			19/10/2023	1	19/10/2023	20/10/2023		19/10/2023	[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	86	[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	86	[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	87	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	85	[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	85	[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	80	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	82	[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	86	[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	82	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	3	3	0	84	[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	90	[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	81	[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-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	89	[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	102	102	0	100	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	98	1	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	1	101	103	2	96	[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	-			18/10/2023	1	18/10/2023	19/10/2023		18/10/2023	[NT]
Date analysed	-			19/10/2023	1	19/10/2023	20/10/2023		19/10/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	85	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	85	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	85	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	86	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	90	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	81	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	89	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	1	102	102	0	100	[NT]
Surrogate Toluene-d8	%		Org-023	99	1	99	98	1	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	1	101	103	2	96	[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	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	86	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	92	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	71	[NT]
Surrogate o-Terphenyl	%		Org-020	79	[NT]	[NT]	[NT]	[NT]	75	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			19/10/2023	[NT]	[NT]	[NT]	[NT]	19/10/2023	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[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]	89	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[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]	91	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	86	[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]	100	[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	87	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			19/10/2023	[NT]	[NT]	[NT]	[NT]	19/10/2023	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	94	[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]	94	[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]	90	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	91	[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]	96	[NT]
Dieldrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	96	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	84	[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]	93	[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]	108	[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 TCMX	%		Org-022/025	94	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			19/10/2023	[NT]	[NT]	[NT]	[NT]	19/10/2023	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	125	[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]	88	[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]	89	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	89	[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]	106	[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 TCMX	%		Org-022/025	94	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			19/10/2023	[NT]	[NT]	[NT]	[NT]	19/10/2023	[NT]
Aroclor 1016	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	82	[NT]
Aroclor 1260	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	94	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			17/10/2023	[NT]	[NT]	[NT]	[NT]	17/10/2023	[NT]
Date analysed	-			17/10/2023	[NT]	[NT]	[NT]	[NT]	17/10/2023	[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]	102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	91	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	91	[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	-			17/10/2023	[NT]	[NT]	[NT]	[NT]	17/10/2023	[NT]
Date analysed	-			17/10/2023	[NT]	[NT]	[NT]	[NT]	17/10/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			17/10/2023	[NT]	[NT]	[NT]	[NT]	17/10/2023	[NT]
Date analysed	-			17/10/2023	[NT]	[NT]	[NT]	[NT]	17/10/2023	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	100	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Redox Potential*	mV		Inorg-035	[NT]	[NT]	[NT]	[NT]	[NT]	86	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	97	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	105	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<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]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	104	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	[NT]	[NT]	[NT]	[NT]	103	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	107	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: PFAS in Waters Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Date analysed	-			18/10/2023	[NT]	[NT]	[NT]	[NT]	18/10/2023	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	112	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	119	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	107	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	113	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	88	[NT]	[NT]	[NT]	[NT]	90	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	95	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	90	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	97	[NT]	[NT]	[NT]	[NT]	87	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	94	[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.

Tests/Analytes PH/EC have exceeded the recommended technical holding times, Envirolab Group form 347 "Recommended Preservation and Holding Times" can be provided on request (available on the Envirolab website)

Environmental Division Sydney
Work Order Reference
ES2334751

Telephone : + 61-2-8784 8555

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 335085

Date Received: 11/10/23
Time Received: 15:30
Received By: HS
Temp: Cool/Ambient
Cooling: Ice/Icepack 4
Security: Intact/Broken/None

HT

Subcon / Split WO
Lab / Analyst: QC02 - Envirolab
Organised By / Date:
Relinquished By / Date:
Connote / Courier:
WO No:

Chain of Custody Record

Attached By PO / Internal Sheet:

Project No:	SC210108.03 - GWMP
Project/Site:	SC210108.03 - GWMP
Sampled By:	
Phone / Email:	
Results to:	jpickerden@epicenvironmental.com.au
Page 1 of	
Number of Eskies:	

Lab:	ALS Sydney
Lab Quote No:	
Lab Batch No:	
Date Results Required:	Standard TAT
Sample Disposal After:	

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix	water/liquid: 50 mL Clear Plastic Bottle - Nitric Acid; Filtered	50 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)	50 mL Clear Plastic Bottle - Sulfuric Acid	50 mL Opaque Plastic Bottle - HCl Preserved (Speciation)	TDS, pH, EC, OPR, DO	8 Dissolved Metals; Additional Dissolved Metals (Al, Mn, Fe)	TRH(C6-C40)/BTEX/VOC/PAH; OC/OP/PCB	PFAS (Short Suite - 12 analytes)	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	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	C34c_MW03	09.10 (Oct)	W	✓	✓	2	✓	✓	2	✓	✓	X						X				
2	C34c_MW02	09.10										X						X				
3	SMW_ENV039	09.10										X						X				
4	SMW_WTP_BH13	09.10		X							X	X						X				
5	C35_MW09	09.Oct		X							X	X						X				
6	Rinsate 02	—	—																		X	X
7	QC01	—	—									X						X				
1 - PLS To Envirolab	QC02	—	—									X						X				
8	TB	—	—																	X		
9	TS	—	—																	X		
			TOTALS									0	0	0	0	0	0	0	0	0	0	0

Relinquished By:			Received By:		
NAME: Joy XVE	SIGNATURE:	DATE:	NAME: Lucas	SIGNATURE:	DATE: 10/10/23 1430

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 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	SC210108.03 - GWMP
Envirolab Reference	335085
Date Sample Received	11/10/2023
Date Instructions Received	11/10/2023
Date Results Expected to be Reported	18/10/2023

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	HM in water - total	pH	Electrical Conductivity	Dissolved Oxygen*	Redox Potential*	Total Dissolved Solids(grav)	Total Nitrogen in water	Nitrate as N in water	Nitrite as N in water	Ammonia as N in water	Trivalent Chromium, Cr3+	Hexavalent Chromium, Cr6+ (dissolved)	Phosphate as P in water	Calcium - Dissolved	Potassium - Dissolved	Sodium - Dissolved	Magnesium - Dissolved	Hardness	Hydroxide Alkalinity (OH-) as CaCO3	Bicarbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	Total Alkalinity as CaCO3	Sulphate, SO4	Chloride, Cl	Ionic Balance	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 335085

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	**SC210108.03 - GWMP**
Number of Samples	1 Water
Date samples received	11/10/2023
Date completed instructions received	11/10/2023

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	18/10/2023
Date of Issue	18/10/2023

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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, Air Toxics Team Leader
Dragana Tomas, Senior Chemist
Liam Timmins, Organics Supervisor
Loren Bardwell, Development Chemist
Nick Sarlamis, Assistant Operation Manager

Authorised By
Nancy Zhang, Laboratory Manager

VOCs in water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date Extracted	-	13/10/2023
Date Analysed	-	16/10/2023
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		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
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	%	103

vTRH(C6-C10)/BTEXN in Water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date extracted	-	13/10/2023
Date analysed	-	16/10/2023
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	%	103

svTRH (C10-C40) in Water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date extracted	-	12/10/2023
Date analysed	-	13/10/2023
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	%	87

PAHs in Water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date extracted	-	12/10/2023
Date analysed	-	13/10/2023
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	%	117

Organochlorine Pesticides in Water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date extracted	-	12/10/2023
Date analysed	-	13/10/2023
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 TCMX	%	100

OP Pesticides in Water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date extracted	-	12/10/2023
Date analysed	-	13/10/2023
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 TCMX	%	100

PCBs in Water		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date extracted	-	12/10/2023
Date analysed	-	13/10/2023
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 TCMX	%	100

HM in water - dissolved		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date prepared	-	12/10/2023
Date analysed	-	12/10/2023
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.1
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	2
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	13
Zinc-Dissolved	µg/L	35
Aluminium-Dissolved	µg/L	40
Manganese-Dissolved	µg/L	1,200
Iron-Dissolved	µg/L	1,300

HM in water - total		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date prepared	-	12/10/2023
Date analysed	-	12/10/2023
Phosphorus - Total	mg/L	<0.05

Miscellaneous Inorganics		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date prepared	-	11/10/2023
Date analysed	-	11/10/2023
pH	pH Units	5.7
Electrical Conductivity	µS/cm	6,200
Dissolved Oxygen*	mg/L	8.9
Redox Potential*	mV	258
Total Dissolved Solids (grav)	mg/L	3,900
Total Nitrogen in water	mg/L	0.1
Nitrate as N in water	mg/L	0.03
Nitrite as N in water	mg/L	<0.005
Ammonia as N in water	mg/L	0.18
Trivalent Chromium, Cr^{3+}	mg/L	<0.005
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005
Phosphate as P in water	mg/L	<0.005

Ion Balance		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date prepared	-	11/10/2023
Date analysed	-	11/10/2023
Calcium - Dissolved	mg/L	34
Potassium - Dissolved	mg/L	2
Sodium - Dissolved	mg/L	940
Magnesium - Dissolved	mg/L	75
Hardness	mgCaCO 3 /L	390
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	78
Carbonate Alkalinity as $CaCO_3$	mg/L	<5
Total Alkalinity as $CaCO_3$	mg/L	78
Sulphate, SO4	mg/L	830
Chloride, Cl	mg/L	1,600
Ionic Balance	%	-14

PFAS in Waters Short		
Our Reference		335085-1
Your Reference	UNITS	QC02
Date Sampled		09/10/2023
Type of sample		Water
Date prepared	-	12/10/2023
Date analysed	-	12/10/2023
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.03
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*	%	97
Extracted ISTD $^{18}O_2$ *PFHxS*	%	93
Extracted ISTD $^{13}C_4$ *PFOS*	%	93
Extracted ISTD $^{13}C_4$ *PFOA*	%	105
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	101
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	113
Total Positive PFHxS & PFOS	µg/L	0.03
Total Positive PFOA & PFOS	µg/L	<0.01
Total Positive PFAS	µg/L	0.03

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. 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 at 25°C in accordance with APHA latest edition 2510 and Rayment & Lyons.
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
Inorg-018	Total Dissolved Solids - determined gravimetrically. The solids are dried at 180+/-10°C. NOTE: Where the EC of the sample is <100µS/cm, the TDS will typically be below 70mg/L (as the sample is very likely to be at least drinking water quality). Therefore to ensure data quality for TDS, the TDS is typically calculated as per the equation below:- TDS = EC * 0.6
Inorg-035	Analysed using an electrode. Please note that the results for water analyses are indicative only, samples are ideally analysed on collection.
Inorg-040	The concentrations of the major ions (mg/L) are converted to milliequivalents and summed. The ionic balance should be within +/- 15% ie total anions = total cations +/-15%.
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-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA latest edition, 4110-B. Waters samples are filtered on receipt prior to analysis. Alternatively determined by colourimetry/turbidity using Discrete Analyser.
Inorg-112	Dissolved Oxygen using membrane electrode. Note this analysis should ideally be carried out immediately after sampling.

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 determinined 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	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
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-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-W7	[NT]
Date Extracted	-			13/10/2023	1	13/10/2023	16/10/2023		13/10/2023	[NT]
Date Analysed	-			16/10/2023	1	16/10/2023	17/10/2023		16/10/2023	[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	83	[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	86	[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	83	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	84	[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	84	[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	83	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	85	[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	84	[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	84	[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	83	[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	85	[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	86	[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-W7	[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	101	102	1	104	[NT]
Surrogate Toluene-d8	%		Org-023	100	1	100	98	2	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	1	103	107	4	99	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W7	[NT]
Date extracted	-			13/10/2023	1	13/10/2023	16/10/2023		13/10/2023	[NT]
Date analysed	-			16/10/2023	1	16/10/2023	17/10/2023		16/10/2023	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	85	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	<10	<10	0	85	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	84	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	84	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	85	[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	84	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	103	1	101	102	1	104	[NT]
Surrogate Toluene-d8	%		Org-023	100	1	100	98	2	100	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	1	103	107	4	99	[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	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Date analysed	-			13/10/2023	[NT]	[NT]	[NT]	[NT]	13/10/2023	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	84	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	87	[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]	84	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	87	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate o-Terphenyl	%		Org-020	91	[NT]	[NT]	[NT]	[NT]	85	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Date analysed	-			13/10/2023	[NT]	[NT]	[NT]	[NT]	13/10/2023	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	74	[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]	78	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	79	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	81	[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]	86	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	95	[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]	84	[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]	98	[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	99	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: Organochlorine Pesticides in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Date analysed	-			13/10/2023	[NT]	[NT]	[NT]	[NT]	13/10/2023	[NT]
alpha-BHC	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	79	[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]	79	[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]	75	[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]	80	[NT]
Heptachlor Epoxide	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	74	[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]	91	[NT]
Endrin	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	71	[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]	90	[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]	81	[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 TCMX	%		Org-022/025	82	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: OP Pesticides in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			13/10/2023	[NT]	[NT]	[NT]	[NT]	13/10/2023	[NT]
Date analysed	-			13/10/2023	[NT]	[NT]	[NT]	[NT]	13/10/2023	[NT]
Dichlorvos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	109	[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]	89	[NT]
Fenitrothion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Malathion	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	111	[NT]
Chlorpyriphos	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	99	[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]	79	[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]	109	[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 TCMX	%		Org-022/025	82	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: PCBs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Date analysed	-			13/10/2023	[NT]	[NT]	[NT]	[NT]	13/10/2023	[NT]
Aroclor 1016	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	118	[NT]
Aroclor 1260	µg/L	2	Org-021	<2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-021	82	[NT]	[NT]	[NT]	[NT]	104	[NT]

QUALITY CONTROL: HM in water - dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Date analysed	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[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]	100	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	107	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	104	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: HM in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Date analysed	-			12/10/2023	[NT]	[NT]	[NT]	[NT]	12/10/2023	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			11/10/2023	[NT]	[NT]	[NT]	[NT]	11/10/2023	[NT]
Date analysed	-			11/10/2023	[NT]	[NT]	[NT]	[NT]	11/10/2023	[NT]
pH	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Dissolved Oxygen*	mg/L	0.1	Inorg-112	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Redox Potential*	mV		Inorg-035	[NT]	[NT]	[NT]	[NT]	[NT]	87	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	[NT]	[NT]	[NT]	[NT]	101	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	98	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	105	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	103	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	105	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	[NT]	[NT]	[NT]	[NT]	117	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			11/10/2023	[NT]	[NT]	[NT]	[NT]	11/10/2023	[NT]
Date analysed	-			11/10/2023	[NT]	[NT]	[NT]	[NT]	11/10/2023	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	90	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	90	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[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	-			12/10/2023	1	12/10/2023	12/10/2023		12/10/2023	[NT]
Date analysed	-			12/10/2023	1	12/10/2023	12/10/2023		12/10/2023	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	0.03	0.03	0	116	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	105	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	120	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	113	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	117	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	93	1	96	93	3	93	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	103	1	97	96	1	100	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	94	1	93	90	3	94	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	99	1	93	97	4	101	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	94	1	105	108	3	92	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	101	1	101	97	4	99	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	121	1	113	115	2	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

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.

November 2023 monitoring event

WHEN PRINTED THIS DOCUMENT IS AN UNCONTROLLED VERSION AND SHOULD BE CHECKED AGAINST THE ELECTRONIC VERSION FOR VALIDITY

epic ENVIRONMENTAL

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	nchandra@epicenvironmental.com.au	Lab Batch No:	
Phone / Email:		Date Results Required:	Standard TAT (5-day)
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 of 1		Sample Disposal After:	
Number of Eskies:	1 SMW911		

CONTAINER TYPE & PRESERVATIVE

LAB ID	Sample ID	Date/Time	Matrix		Red	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)	pH, EC	8 dissolved metals	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness
1	SMW-WTP-BH13	21/11/23	W							✓		✓		✓		✓	✓
2	SMW-BH057-S	21/11/23			✓										✓		
3	BS01				✓										✓		
4	QC01				✓										✓		
5	SMW-ADD-BH02	21/11/23 & 22/11/11								✓		✓		✓		✓	✓
6	PM-MW014	22/11/11			✓										✓		
7	SMW-WTP-BH02									✓		✓		✓		[illegible]	✓
8	SMW-WTP-BH03A													✓			✓
9	BS02				✓										✓		
			TOTALS											0	0	0	0

Environmental Division Sydney
Work Order Reference
ES2340447

Telephone : + 61-2-8784 8555

Relinquished By:
NAME Natalie Chandra SIGNATURE DATE 22/11

Received By:
NAME Astrid SIGNATURE DATE 22/11 1220

Custody Seals Intact Y N
Samples Received Chilled Y N
Method of Shipment

NOTES:

Chain of Custody Record

Project No:	SCL220037.10	Lab:	ALS Sydney
Project/Site:	SCL220037.10	Lab Quote No:	ES23EPIENV0004
Sampled By:	nchandra@epicenvironmental.com.au	Lab Batch No:	
Phone / Email:		Date Results Required:	ONE DAY TAT
Results to:	jpickerden@epicenvironmental.com.au		
Page 1 of		Sample Disposal After:	
Number of Eskies:			

LAB ID	Sample ID	Date/Time	Matrix			CONTAINER TYPE & PRESERVATIVE water/liquid								pH, EC	8 dissolved metals	Total Nitrogen, NO2, NO3, NH3, Total P, Reactive P	Major Cations & Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity) + Hardness						
						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)										
	SMW_WTP_BH03A_w	23/11/2023	W													X							
			TOTALS											0	0	1	0	0	0	0	0	0	0

Relinquished By: JX					Received By:			Custody Seals Intact	Y N
								Samples Received Chilled	Y N
NAME	SIGNATURE	JX	DATE	29/11/2023	NAME	SIGNATURE	DATE	Method of Shipment	

NOTES: ONE DAY turnaround time please

CERTIFICATE OF ANALYSIS

Work Order	: **ES2340447**	Page	: 1 of 6
Amendment	: **1**		
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	: SCL22037.10	Date Samples Received	: 22-Nov-2023 12:20
Order number	: SCL22037.10	Date Analysis Commenced	: 23-Nov-2023
C-O-C number	: ----	Issue Date	: 30-Nov-2023 17:57
Sampler	: NATALIE CHANDRA		
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

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

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.

- 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.
- Amendment (30/11/2023): This report has been amended and re-released to allow the reporting of additional analytical data, specifically method NT-08a for sample 007.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW-WTP-BH13	SMW-BH057-S	RS01	QC01	SMW-ADD-BH02
			Sampling date / time	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	ES2340447-001	ES2340447-002	ES2340447-003	ES2340447-004	ES2340447-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.25	----	----	----	6.99
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	11400	----	----	----	17400
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	1010	----	----	----	3340
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	130	----	----	----	834
Total Alkalinity as CaCO3	----	1	mg/L	130	----	----	----	834
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	486	----	----	----	2070
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	3440	----	----	----	4630
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	49	----	----	----	526
Magnesium	7439-95-4	1	mg/L	216	----	----	----	493
Sodium	7440-23-5	1	mg/L	2110	----	----	----	2950
Potassium	7440-09-7	1	mg/L	7	----	----	----	48
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	<0.001	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	0.004	<0.001	0.004	----
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	<0.005	<0.005	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	SMW-WTP-BH13	SMW-BH057-S	RS01	QC01	SMW-ADD-BH02
			Sampling date / time	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00
Compound	CAS Number	LOR	Unit	ES2340447-001	ES2340447-002	ES2340447-003	ES2340447-004	ES2340447-005
				Result	Result	Result	Result	Result
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	----	<0.0001	<0.0001	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.09	----	----	----	3.42
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	0.02
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	----	----	----	0.02
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	0.04
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.4	----	----	----	4.0
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.4	----	----	----	4.0
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	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
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	110	----	----	----	190
ø Total Cations	----	0.01	meq/L	112	----	----	----	196
ø Ionic Balance	----	0.01	%	1.09	----	----	----	1.55

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-MW014	SMW-WTP-BH02	SMW-WTP-BH03A	RS02	----
			Sampling date / time	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2340447-006	ES2340447-007	ES2340447-008	ES2340447-009	--------
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	7.28	7.14	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	12300	17800	----	----
EA065: Total Hardness as CaCO3								
Total Hardness as CaCO3	----	1	mg/L	----	2010	2400	----	----
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	----	1030	1040	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	1030	1040	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	222	319	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	3950	5560	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	----	176	218	----	----
Magnesium	7439-95-4	1	mg/L	----	382	451	----	----
Sodium	7440-23-5	1	mg/L	----	2020	3190	----	----
Potassium	7440-09-7	1	mg/L	----	46	55	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	<0.0001	----
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	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	PM-MW014	SMW-WTP-BH02	SMW-WTP-BH03A	RS02	----
			Sampling date / time	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	21-Nov-2023 00:00	----
Compound	CAS Number	LOR	Unit	ES2340447-006	ES2340447-007	ES2340447-008	ES2340447-009	--------
				Result	Result	Result	Result	----
EG035F: Dissolved Mercury by FIMS								
Mercury	7439-97-6	0.0001	mg/L	<0.0001	----	----	<0.0001	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	2.26	----	----
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	----	----	0.01	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	0.01	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	3.1	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	----	3.1	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	0.24	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	<0.01	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	137	184	----	----
ø Total Cations	----	0.01	meq/L	----	129	188	----	----
ø Ionic Balance	----	0.01	%	----	2.77	1.05	----	----

QUALITY CONTROL REPORT

Work Order	: **ES2340447**	Page	: 1 of 9
Amendment	: **1**		
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	: SCL22037.10	Date Samples Received	: 22-Nov-2023
Order number	: SCL22037.10	Date Analysis Commenced	: 23-Nov-2023
C-O-C number	: ----	Issue Date	: 30-Nov-2023
Sampler	: NATALIE CHANDRA		
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

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: 5448905)									
ES2340430-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	9.30	9.31	0.1	0% - 20%
ES2340043-001	Anonymous	EA005-P: pH Value	----	0.01	pH Unit	7.15	7.16	0.1	0% - 20%
EA010P: Conductivity by PC Titrator (QC Lot: 5448903)									
ES2340447-008	SMW-WTP-BH03A	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	17800	17400	2.3	0% - 20%
ES2340430-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	40000	40300	1.0	0% - 20%
ES2340043-001	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	26200	26700	1.8	0% - 20%
ES2340532-002	Anonymous	EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	196	198	0.8	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5448904)									
ES2340430-001	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	1560	1570	1.0	0% - 20%
		ED037-P: Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	1330	1330	0.2	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	2890	2900	0.4	0% - 20%
ES2340043-001	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	792	788	0.5	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	792	788	0.5	0% - 20%
ED037P: Alkalinity by PC Titrator (QC Lot: 5448907)									
ES2340447-008	SMW-WTP-BH03A	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	1040	1040	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: 5448907) - continued									
ES2340447-008	SMW-WTP-BH03A	ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	1040	1040	0.0	0% - 20%
ES2340532-002	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	30	31	0.0	0% - 20%
		ED037-P: Total Alkalinity as CaCO3	----	1	mg/L	30	31	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5443943)									
EW2305202-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	8	8	0.0	No Limit
ES2340343-028	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	24	24	0.0	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 5449690)									
ES2340447-007	SMW-WTP-BH02	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	222	221	0.6	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5443941)									
ES2340343-016	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	79	79	0.0	0% - 20%
EW2305201-003	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	32	32	0.0	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 5449691)									
ES2340447-007	SMW-WTP-BH02	ED045G: Chloride	16887-00-6	1	mg/L	3950	3930	0.5	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 5447644)									
ES2340251-001	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	1	1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	<1	<1	0.0	No Limit
ES2340218-001	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	<1	<1	0.0	No Limit
		ED093F: Potassium	7440-09-7	1	mg/L	1	1	0.0	No Limit
EG020F: Dissolved Metals by ICP-MS (QC Lot: 5450788)									
ES2340420-003	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: Nickel	7440-02-0	0.001	mg/L	0.023	0.023	0.0	0% - 20%
		EG020A-F: Zinc	7440-66-6	0.005	mg/L	0.025	0.023	8.9	No Limit
ES2340377-001	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	0.006	0.006	0.0	No Limit
		EG020A-F: Copper	7440-50-8	0.001	mg/L	0.002	<0.001	0.0	No Limit
		EG020A-F: Lead	7439-92-1	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: 5450788) - continued									
ES2340377-001	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	<0.005	<0.005	0.0	No Limit
EG035F: Dissolved Mercury by FIMS (QC Lot: 5450791)									
ES2340447-002	SMW-BH057-S	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
ES2340540-001	Anonymous	EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	<0.0001	0.0	No Limit
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5450802)									
ES2340438-001	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	1.76	1.76	0.0	0% - 20%
ES2340463-002	Anonymous	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	6.28	6.27	0.2	0% - 20%
EK055G: Ammonia as N by Discrete Analyser (QC Lot: 5458769)									
ES2340447-008	SMW-WTP-BH03A	EK055G: Ammonia as N	7664-41-7	0.01	mg/L	2.26	2.28	1.1	0% - 20%
EK057G: Nitrite as N by Discrete Analyser (QC Lot: 5443942)									
EW2305201-001	Anonymous	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2340343-028	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: 5458789)									
ES2340447-008	SMW-WTP-BH03A	EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2341023-003	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: 5450803)									
ES2340438-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01 (0.10)*	mg/L	103	101	2.1	0% - 20%
ES2340463-002	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	2.22	2.20	0.9	0% - 20%
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 5458770)									
ES2341383-003	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.0	No Limit
ES2340447-008	SMW-WTP-BH03A	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: 5450807)									
ES2340438-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	14.5	12.4	15.6	No Limit
ES2340463-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (2.0)*	mg/L	12.0	10.8	11.1	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 5458772)									
ES2340447-008	SMW-WTP-BH03A	EK061G: Total Kjeldahl Nitrogen as N	----	0.1 (0.2)*	mg/L	3.1	3.0	3.4	0% - 50%
ES2341383-003	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	0.8	0.0	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5450806)									
ES2340438-001	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.68	0.67	2.1	0% - 20%
ES2340463-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	34.8	34.1	1.9	0% - 20%
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 5458771)									
ES2340447-008	SMW-WTP-BH03A	EK067G: Total Phosphorus as P	----	0.01 (0.02)*	mg/L	0.24	0.19	21.1	0% - 50%
ES2341383-003	Anonymous	EK067G: Total Phosphorus as P	----	0.01	mg/L	0.09	0.08	0.0	No Limit
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5443938)									
ES2340250-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: **ES2340447**	Page	: 1 of 9
Amendment	: **1**		
Client	: **EPIC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: JONATHAN PICKERDEN	Telephone	: +61-2-8784 8555
Project	: SCL22037.10	Date Samples Received	: 22-Nov-2023
Site	: ----	Issue Date	: 30-Nov-2023
Sampler	: NATALIE CHANDRA	No. of samples received	: 9
Order number	: SCL22037.10	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, 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	ES2340447--007	SMW-WTP-BH02	**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	ES2340447--007	SMW-WTP-BH02	**Chloride**	16887-00-6	Not Determined	----	**MS recovery not determined, background level greater than or equal to 4x spike level.**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar	ES2340438--001	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 / **Container** / Client Sample ID(s)		Extraction / Preparation: *Date extracted*	*Due for extraction*	*Days overdue*	Analysis: *Date analysed*	*Due for analysis*	*Days overdue*
EA005P: pH by PC Titrator							
Clear Plastic Bottle - Natural							
SMW-WTP-BH13, SMW-WTP-BH02,	SMW-ADD-BH02, SMW-WTP-BH03A	----	----	----	24-Nov-2023	21-Nov-2023	**3**
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
SMW-WTP-BH03A		----	----	----	29-Nov-2023	22-Nov-2023	**7**
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural							
SMW-WTP-BH03A		----	----	----	29-Nov-2023	23-Nov-2023	**6**
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural							
SMW-WTP-BH03A		----	----	----	29-Nov-2023	23-Nov-2023	**6**
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Natural							
SMW-WTP-BH03A		29-Nov-2023	22-Nov-2023	**7**	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Natural							
SMW-WTP-BH03A		29-Nov-2023	23-Nov-2023	**6**	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser							
Clear Plastic Bottle - Natural							
SMW-WTP-BH03A		----	----	----	29-Nov-2023	23-Nov-2023	**6**

Outliers : Frequency of Quality Control Samples

Matrix: **WATER**

Matrix: **WATER**

Quality Control Sample Type		Count		Rate (%)		Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	
Method Blanks (MB)						
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	24	4.17	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)								
SMW-WTP-BH13,	SMW-ADD-BH02,	**21-Nov-2023**	**----**	----	----	**24-Nov-2023**	21-Nov-2023	×
SMW-WTP-BH02,	SMW-WTP-BH03A							
EA010P: Conductivity by PC Titrator								
Clear Plastic Bottle - Natural (EA010-P)								
SMW-WTP-BH13,	SMW-ADD-BH02,	**21-Nov-2023**	**----**	----	----	**24-Nov-2023**	19-Dec-2023	✓
SMW-WTP-BH02,	SMW-WTP-BH03A							
EA065: Total Hardness as CaCO3								
Clear Plastic Bottle - Natural (ED093F)								
SMW-WTP-BH13,	SMW-ADD-BH02,	**21-Nov-2023**	**----**	----	----	**24-Nov-2023**	28-Nov-2023	✓
SMW-WTP-BH02,	SMW-WTP-BH03A							
ED037P: Alkalinity by PC Titrator								
Clear Plastic Bottle - Natural (ED037-P)								
SMW-WTP-BH13,	SMW-ADD-BH02,	**21-Nov-2023**	**----**	----	----	**24-Nov-2023**	05-Dec-2023	✓
SMW-WTP-BH02,	SMW-WTP-BH03A							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Clear Plastic Bottle - Natural (ED041G)								
SMW-WTP-BH13,	SMW-ADD-BH02	**21-Nov-2023**	**----**	----	----	**23-Nov-2023**	19-Dec-2023	✓
Clear Plastic Bottle - Natural (ED041G)								
SMW-WTP-BH02,	SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**25-Nov-2023**	19-Dec-2023	✓
ED045G: Chloride by Discrete Analyser								
Clear Plastic Bottle - Natural (ED045G)								
SMW-WTP-BH13,	SMW-ADD-BH02	**21-Nov-2023**	**----**	----	----	**23-Nov-2023**	19-Dec-2023	✓
Clear Plastic Bottle - Natural (ED045G)								
SMW-WTP-BH02,	SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**25-Nov-2023**	19-Dec-2023	✓

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
ED093F: Dissolved Major Cations							
Clear Plastic Bottle - Natural (ED093F) SMW-WTP-BH13, SMW-ADD-BH02, SMW-WTP-BH02, SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**24-Nov-2023**	28-Nov-2023	✓
EG020F: Dissolved Metals by ICP-MS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) SMW-BH057-S, RS01, QC01, PM-MW014, RS02	**21-Nov-2023**	**----**	----	----	**27-Nov-2023**	19-May-2024	✓
EG035F: Dissolved Mercury by FIMS							
Clear Plastic Bottle - Nitric Acid; Filtered (EG035F) SMW-BH057-S, RS01, QC01, PM-MW014, RS02	**21-Nov-2023**	**----**	----	----	**28-Nov-2023**	19-Dec-2023	✓
EK055G: Ammonia as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK055G) SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**29-Nov-2023**	22-Nov-2023	✗
Clear Plastic Bottle - Sulfuric Acid (EK055G) SMW-WTP-BH13, SMW-ADD-BH02	**21-Nov-2023**	**----**	----	----	**27-Nov-2023**	19-Dec-2023	✓
EK057G: Nitrite as N by Discrete Analyser							
Clear Plastic Bottle - Natural (EK057G) SMW-WTP-BH13, SMW-ADD-BH02	**21-Nov-2023**	**----**	----	----	**23-Nov-2023**	23-Nov-2023	✓
Clear Plastic Bottle - Natural (EK057G) SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**29-Nov-2023**	23-Nov-2023	✗
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser							
Clear Plastic Bottle - Natural (EK059G) SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**29-Nov-2023**	23-Nov-2023	✗
Clear Plastic Bottle - Sulfuric Acid (EK059G) SMW-WTP-BH13, SMW-ADD-BH02	**21-Nov-2023**	**----**	----	----	**27-Nov-2023**	19-Dec-2023	✓
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser							
Clear Plastic Bottle - Natural (EK061G) SMW-WTP-BH03A	**21-Nov-2023**	**29-Nov-2023**	22-Nov-2023	✗	**29-Nov-2023**	27-Dec-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK061G) SMW-WTP-BH13, SMW-ADD-BH02	**21-Nov-2023**	**27-Nov-2023**	19-Dec-2023	✓	**27-Nov-2023**	19-Dec-2023	✓
EK067G: Total Phosphorus as P by Discrete Analyser							
Clear Plastic Bottle - Natural (EK067G) SMW-WTP-BH03A	**21-Nov-2023**	**29-Nov-2023**	23-Nov-2023	✗	**29-Nov-2023**	27-Dec-2023	✓
Clear Plastic Bottle - Sulfuric Acid (EK067G) SMW-WTP-BH13, SMW-ADD-BH02	**21-Nov-2023**	**27-Nov-2023**	19-Dec-2023	✓	**27-Nov-2023**	19-Dec-2023	✓

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) SMW-WTP-BH13, SMW-ADD-BH02	**21-Nov-2023**	**----**	----	----	**23-Nov-2023**	23-Nov-2023	✓
Clear Plastic Bottle - Natural (EK071G) SMW-WTP-BH03A	**21-Nov-2023**	**----**	----	----	**29-Nov-2023**	23-Nov-2023	×

Quality Control Parameter Frequency Compliance

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

Matrix: **WATER**

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

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Alkalinity by Auto Titrator	ED037-P	4	34	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	3	22	13.64	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	3	19	15.79	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	4	28	14.29	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	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	4	27	14.81	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	4	39	10.26	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
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	13	15.38	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	3	24	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	4	28	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	4	35	11.43	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Alkalinity by Auto Titrator	ED037-P	4	34	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Ammonia as N by Discrete analyser	EK055G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	4	19	21.05	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	3	28	10.71	8.33	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
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	2	27	7.41	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	39	5.13	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
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	13	15.38	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	4	24	16.67	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	6	28	21.43	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	6	35	17.14	15.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Ammonia as N by Discrete analyser	EK055G	2	22	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	10.53	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Conductivity by Auto Titrator	EA010-P	2	28	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Major Cations - Dissolved	ED093F	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							
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	13	**15.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	24	**4.17**	**5.00**	✗	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Ammonia as N by Discrete analyser	EK055G	2	22	**9.09**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Chloride by Discrete Analyser	ED045G	2	19	**10.53**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Mercury by FIMS	EG035F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	20	**5.00**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	27	**7.41**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Nitrite as N by Discrete Analyser	EK057G	2	39	**5.13**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Reactive Phosphorus as P-By Discrete Analyser	EK071G	2	13	**15.38**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	24	**8.33**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	28	**7.14**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard
Total Phosphorus as P By Discrete Analyser	EK067G	2	35	**5.71**	**5.00**	✓	NEPM 2013 B3 & ALS QC Standard

Brief Method Summaries

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

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)
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).
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)

Analytical Methods	Method	Matrix	Method Descriptions
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)

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)

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 (%)*
EK071G: Reactive Phosphorus as P by discrete analyser (QC Lot: 5458788)									
ES2340447-008	SMW-WTP-BH03A	EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.0	No Limit

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

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

Sub-Matrix: **WATER**

				Method Blank (MB) 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: 5448905)								
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: 5448903)								
EA010-P: Electrical Conductivity @ 25°C	----	1	µS/cm	<1	220 µS/cm	98.9	89.9	110
				<1	2100 µS/cm	102	90.2	111
ED037P: Alkalinity by PC Titrator (QCLot: 5448904)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	101	81.0	115
				----	50 mg/L	106	80.0	120
ED037P: Alkalinity by PC Titrator (QCLot: 5448907)								
ED037-P: Total Alkalinity as CaCO3	----	----	mg/L	----	200 mg/L	97.7	81.0	115
				----	50 mg/L	104	80.0	120
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5443943)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	102	82.0	122
				<1	500 mg/L	98.4	82.0	122
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5449690)								
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	----	mg/L	----	25 mg/L	104	82.0	122
				----	500 mg/L	101	82.0	122
ED045G: Chloride by Discrete Analyser (QCLot: 5443941)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	102	80.9	127
				<1	1000 mg/L	97.2	80.9	127
ED045G: Chloride by Discrete Analyser (QCLot: 5449691)								
ED045G: Chloride	16887-00-6	1	mg/L	<1	50 mg/L	99.1	80.9	127
				<1	1000 mg/L	103	80.9	127
ED093F: Dissolved Major Cations (QCLot: 5447644)								
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	99.5	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	93.4	85.0	113
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450788)								
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	98.7	85.0	114
EG020A-F: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.0	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	Acceptable Limits (%): High
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450788) - continued								
EG020A-F: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	94.4	85.0	111
EG020A-F: Copper	7440-50-8	0.001	mg/L	<0.001	0.1 mg/L	96.5	81.0	111
EG020A-F: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	96.0	83.0	111
EG020A-F: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.8	82.0	112
EG020A-F: Zinc	7440-66-6	0.005	mg/L	<0.005	0.1 mg/L	97.3	81.0	117
EG035F: Dissolved Mercury by FIMS (QCLot: 5450791)								
EG035F: Mercury	7439-97-6	0.0001	mg/L	<0.0001	0.01 mg/L	96.7	83.0	105
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5450802)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	90.0	114
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5458769)								
EK055G: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	1 mg/L	102	90.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5443942)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	106	82.0	114
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5458789)								
EK057G: Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.5 mg/L	93.2	82.0	114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5450803)								
EK059G: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.5 mg/L	100	91.0	113
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5458770)								
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: 5450807)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	96.9	69.0	101
				<0.1	1 mg/L	74.1	70.0	118
				<0.1	5 mg/L	95.5	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5458772)								
EK061G: Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	10 mg/L	95.4	69.0	101
				<0.1	1 mg/L	99.2	70.0	118
				<0.1	5 mg/L	105	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5450806)								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	98.4	71.3	126
				<0.01	0.442 mg/L	80.5	71.3	126
				<0.01	1 mg/L	103	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5458771)								

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: 5458771) - continued								
EK067G: Total Phosphorus as P	----	0.01	mg/L	<0.01	4.42 mg/L	92.0	71.3	126
				<0.01	0.442 mg/L	89.7	71.3	126
				<0.01	1 mg/L	103	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5443938)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	97.6	85.0	117
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5458788)								
EK071G: Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.5 mg/L	103	85.0	117

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: 5443943)							
ES2340343-028	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	88.4	70.0	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 5449690)							
ES2340447-007	SMW-WTP-BH02	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	10 mg/L	# Not Determined	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5443941)							
ES2340343-016	Anonymous	ED045G: Chloride	16887-00-6	50 mg/L	125	70.0	130
ED045G: Chloride by Discrete Analyser (QCLot: 5449691)							
ES2340447-007	SMW-WTP-BH02	ED045G: Chloride	16887-00-6	50 mg/L	# Not Determined	70.0	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 5450788)							
EN2311638-002	Anonymous	EG020A-F: Arsenic	7440-38-2	1 mg/L	102	70.0	130
		EG020A-F: Cadmium	7440-43-9	0.25 mg/L	100	70.0	130
		EG020A-F: Chromium	7440-47-3	1 mg/L	102	70.0	130
		EG020A-F: Copper	7440-50-8	1 mg/L	128	70.0	130
		EG020A-F: Lead	7439-92-1	1 mg/L	103	70.0	130
		EG020A-F: Nickel	7440-02-0	1 mg/L	102	70.0	130
		EG020A-F: Zinc	7440-66-6	1 mg/L	101	70.0	130
EG035F: Dissolved Mercury by FIMS (QCLot: 5450791)							
ES2340404-001	Anonymous	EG035F: Mercury	7439-97-6	0.01 mg/L	80.8	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5450802)							

Sub-Matrix: **WATER**

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5450802) - continued							
ES2340438-001	Anonymous	EK055G: Ammonia as N	7664-41-7	1 mg/L	116	70.0	130
EK055G: Ammonia as N by Discrete Analyser (QCLot: 5458769)							
ES2340447-008	SMW-WTP-BH03A	EK055G: Ammonia as N	7664-41-7	1 mg/L	102	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5443942)							
ES2340343-028	Anonymous	EK057G: Nitrite as N	14797-65-0	0.5 mg/L	119	70.0	130
EK057G: Nitrite as N by Discrete Analyser (QCLot: 5458789)							
ES2340447-008	SMW-WTP-BH03A	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: 5450803)							
ES2340438-001	Anonymous	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	# Not Determined	70.0	130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 5458770)							
ES2340447-008	SMW-WTP-BH03A	EK059G: Nitrite + Nitrate as N	----	0.5 mg/L	110	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5450807)							
ES2340447-001	SMW-WTP-BH13	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	86.2	70.0	130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 5458772)							
ES2340900-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	----	5 mg/L	86.7	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5450806)							
ES2340447-001	SMW-WTP-BH13	EK067G: Total Phosphorus as P	----	1 mg/L	97.8	70.0	130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 5458771)							
ES2340900-001	Anonymous	EK067G: Total Phosphorus as P	----	1 mg/L	94.6	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5443938)							
ES2340250-001	Anonymous	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	106	70.0	130
EK071G: Reactive Phosphorus as P by discrete analyser (QCLot: 5458788)							
ES2340447-008	SMW-WTP-BH03A	EK071G: Reactive Phosphorus as P	14265-44-2	0.5 mg/L	112	70.0	130

APPENDIX F – CALIBRATION CERTIFICATES

July 2023 monitoring event

Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 23E103136

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
2. pH 7.00		pH 7.00		399304	pH 7.06
3. pH 4.00		pH 4.00		399527	pH 4.05
4. mV		232.3mV		A393379/B398193	230.9 mV
5. EC		2760 mS		401089	2760mS
6. D.O		0.0%		399958	-0.1%
7. Temp		23.5°C		MultiTherm	23.5°C

Calibrated by: **Guido Camera**

Calibration date: **12/07/2023**

Next calibration due: **12/08/2023**

Oil / Water Interface Meter

Instrument **Geotech Interface Meter (30M)**
Serial No. **4019**

Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: **Jesse Stenroos**

Calibration date: **30/06/2023**

Next calibration due: **30/07/2023**

October 2023 monitoring event

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Multi Parameter Water Meter

Instrument YSI Quatro Pro Plus
Serial No. 23E102258

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
2. pH 7.00		pH 7.00		399304	pH 7.01
3. pH 4.00		pH 4.00		399527	pH 3.97
4. mV		235.16 mV		A405006/B398193	235.3 mV
5. EC		2760 mS		401089	2760 mS
6. D.O		0.0%		399958	0.0%
7. Temp		22.1°C		MultiTherm	22.2°C

Calibrated by: **Guido Camera**

Calibration date: **29/09/2023**

Next calibration due: **29/10/2023**

Oil / Water Interface Meter

Instrument Geotech Interface Meter (60M)
Serial No. 5854

airmet
Air-Met Scientific Pty Ltd
1300 137 067

Item	Test	Pass	Comments
Battery	Compartment	✓	
	Capacity	✓	
Probe	Cleaned/Decon.	✓	
	Operation	✓	
Connectors	Condition	✓	
		✓	
Tape Check	Cleaned	✓	
Connectors	Checked for cuts	✓	
Instrument Test	At surface level	✓	

Certificate of Calibration

This is to certify that the above instrument has been cleaned and tested.

Calibrated by: Sara Angelini

Calibration date: 3/10/2023

Next calibration due: 2/12/2023

November 2023 monitoring event

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EQUIPMENT CERTIFICATION REPORT

KENNARDS HIRE

PGN9003871 WATER QUALITY METER – MULTIFUNCTION

Plant Number: 1082473

SENSOR	CONCENTRATION	SPAN 1	SPAN 2	TRACEABILITY	PASS
pH	pH 4.00	4.00 pH		#393113	☑
	pH 7.00	7.00 pH		#393112	☑
Conductivity	12.88 mS/cm @ 25°C	12.88 mS/cm		#12110	☑
Dissolved Oxygen	Sodium Sulphite / Air	0.0% in Sodium Sulphite	% Saturation in Air	#395556	☑
ORP	240mV @ 25°C	240mV	Zobell Part A	#395557	☑
			Zobell Part B	#395763	

Battery Status 100 %	Temperature 18.3 °C
	Electrodes Cleaned and Checked

Note: Calibration solution traceability information is available upon request.

Please clean/decontaminate instrument and accessories before returning. A minimum 'Cleaning Fee' $55.00 (Inc GST) may apply if instrument is returned contaminated.

Checked By: Jacob Arnott Date: 17 / 11 / 23 Signed:

Accessories List:

User's Manual & USB	pH Sensor	Conductivity Sensor
Dissolved Oxygen Sensor with Wetting Cap	Redox (ORP) Sensor with Wetting Cap	Flow Cell 500ml
Comm Cable	Testing Cap	Storage Cap

can be found in
the user guide
and operator's
manual.
Plant No: 235247
INTERFACE METER - 10MT
WATER & OIL
This unit has been cleaned,
serviced and safety checked.
Checked By: bradley
On: 21/05/2023
Hrs\Kms: 0
Electrical Item Inspected
& Tested To: AS/NZS 3760
Next Elec Test 24/03/2023
- Operation Manual
- Risk Assessment
- Service History and more
READY
FOR HIRE

APPENDIX G – NOVEMBER 2023 GROUNDWATER LEVEL TRIGGER MONITORING MEMO

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Epic Environmental Pty Ltd
ABN: 54 169 57 92 75
Suite 5, Level 9
189 Kent Street
Sydney NSW 2000
1800 779 363
www.epicenvironmental.com.au

technical memo

Date:	11 January 2024
To:	Tahlia Moore, Gamuda Laing O'Rourke Consortium
From:	Jonathan Pickerden, Epic Environmental
Client name:	Gamuda Laing O'Rourke Consortium
Project name:	WTP: Groundwater Monitoring Program
Project number:	SCL220037.10
Subject:	November 2023 Trigger Monitoring Results (Groundwater Level)

1 INTRODUCTION

Epic Environmental (Epic) has been engaged by Gamuda Laing O'Rourke consortium (GLC) to undertake the project-wide groundwater monitoring program (GMP) across the Sydney Metro West – Western Tunnelling Package (WTP). The GMP commenced in July 2022 (round zero, R0) and the following quarterly monitoring events comprise:

- R1: October 2023
- R2: January 2023
- R3: April 2023
- R4: July 2023
- R5: October 2023

Results from the July 2023 and October 2023 groundwater monitoring events (GMEs) identified exceedances against the groundwater performance criteria identified in the GMP (for both groundwater level and groundwater quality). Therefore, an additional GME was undertaken in November 2023 to identify whether these exceedances require further investigation and management responses. This memo detailed the results identified for groundwater level exceedances.

The following groundwater level exceedances for each groundwater monitoring well (GWMW) and associated additional monitoring undertaken in November 2023 is detailed in **Table 1.**

Table 1. Trigger exceedances identified in July/October 2023 GME and November 2023 sampling

Location	GWMW	Exceedance identified (October 2023 GME)	Monitoring undertaken in November 2023
Rosehill	SMW_WTP_BH25_w	Drawdown identified (5 m) greater than what was predicted (<1 m)	Purge the GWMW (three well volumes) and return in two weeks to see if groundwater has responded
	SMW_ENV042_w	Drawdown identified (4.5 m) greater than what was predicted (<1 m)	Purge the GWMW (three well volumes) and return in two weeks to see if groundwater has responded
	SMW_ENV145_w	Drawdown identified (7 m) greater than what was predicted (<1 m) (Gamuda, 2022b)	GWMW is too deep to purge through low flow methods, take manual dips in the vicinity to see if groundwater level is representative

Location	GWMW	Exceedance identified (October 2023 GME)	Monitoring undertaken in November 2023
	SMW_BH010_w	Drawdown identified (6.5 m) greater than what was predicted (<1 m) (Gamuda, 2022b)	GMWM is too deep to purge through low flow methods, take manual dips in the vicinity to see if groundwater level is representative
Clyde Dive	SMW_BH057_w	Drawdown identified (11.2 m) greater than what was predicted (2.5 m) (Gamuda, 2022a)	GWMW is too deep to purge through low flow methods, take manual dips in the vicinity to see if groundwater level is representative
	SMW_ADD_BH02_w	Drawdown identified (14.9 m) greater than what was predicted (3.5 m) (Gamuda, 2022a)	GWMW is too deep to purge through low flow methods, take manual dips in the vicinity to see if groundwater level is representative

1.1 Objective

The objective of this GME is to determine whether the six (6) GWMWs are representative of groundwater conditions in their respective area.

Where groundwater levels in the GWMWs are considered representative, the performance criteria exceedance (defined in section 7.6.4 of the GMP) will be confirmed and recommendations as to whether a management plan is required. If the groundwater levels in the GWMWs are not representative, then an alternative GWMW for monitoring must be identified and implemented into the following quarterly GME.

2 METHODOLOGY

The methodology adopted for the groundwater sampling event is presented in **Table 2**.

Table 2. Groundwater monitoring methodology

Action	Description/details
Gauging	Standing water level (SWL) and total depth (TD) were gauged manually prior to purging, using a cleaned/decontaminated interface probe (IP).
Purging methodology	Each GWMW was purged with steel bailer until the GWMW was dry.
Level logger data download	The data from the level logger was retrieved utilising a dedicated docking station. The logger type and software are summarised as follows: • SMW_WTP_BH25_w: Troll 400 level • SMW_ENV042_w: Solinst Levelogger • SMW_ENV145_w: Levellogger and CT2X logger • SMW_BH010_w: CT2X logger and Solinst Levelogger • SMW_BH057_w: CT2X Levelogger • SMW_ADD_BH02_w: Troll 400 level logger and Troll100 Baro Logger
Hydrographs	Hydrographs for all GWMWs are presented in **Appendix A.**

3 RESULTS

This section reviews each GWMW and provides an indication of whether these GWMWs can be considered representative.

3.1 SMW_WTP_BH25_w

The screen depth of SMW_WTP_BH25_w is between -0.6 and -4.9 m Australian Height Datum (m AHD), screened within the unconsolidated alluvial sediments. The GWMW is situated within 40 m of Duck Creek, and the following groundwater dependent ecosystems (GDE):

- Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion
- Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion,
- Saltmarsh in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion

However, these GDEs are unlikely to be affected by drawdown to be water from upstream Duck Creek supporting them.

The GWMW was gauged and purged on 21 November 2023. The GWMW was dry after purging 6 L. On 6 December 2023, the GWMW was gauged and level logger data downloaded. The hydrograph showing manual dip points and continuous water level data can be found in **Appendix A**. Groundwater level recharge after purging was identified.

Based on the results, Epic considers this well is representative of groundwater conditions in alluvial aquifer in Clyde Zone 1/Rosehill, with associated recommendations detailed in **Section 4**. Therefore, the groundwater level drawdown is greater than the predicted drawdown values from the Groundwater Modelling Report(s) (Gamuda, 2022b). However, the identified groundwater level drawdown is not considered to affect adjacent GDEs (including the local mangroves) as Duck Creek is the primary water source in this area. Groundwater drawdown observed in SMW_WTP_BH25_w is shown schematically in **Figure 1** (**Section 3.3**).

3.2 SMW_ENV042_w

The screen depth of SMW_ENV042_w is between -2.5 and -6.0 m AHD, screened within the unconsolidated alluvial sediments. The GWMW is situated within 40 meters of Duck Creek, and the following GDEs:

- Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion
- Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion
- Saltmarsh in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion

The GWMW was gauged and purged on 21st November 2023. The GWMW was dry after purging 1 L. On 6th December 2023, the GWMW was gauged and level logger data was downloaded. The hydrograph showing manual gauging points and continuous water level data can be found in **Appendix A**. The groundwater level did not recharge and the GWMW was nearly dry on 6th December 2023.

Based on the results, Epic considers that this GWMW is not representative of groundwater conditions in alluvial deposits in Clyde Zone 2b/Rosehill, with associated recommendations detailed in **Section 4**.

3.3 SMW_ENV145_w

The screen depth of SMW_ENV042_w is between -4.3 and -9.3 m AHD, screened within the unconsolidated alluvial sediments. No GDEs, waterways, or supply groundwater wells have been identified within 40 m of the GWMW.

The GWMW was not purged during the November – December 2023 monitoring event due to the depth of the GWMW. The groundwater levels for SMW_ENV145_w and surrounding GWMWs have been manually measured and summarised in **Table 3**, and shown schematically in **Figure 1**. The hydrograph showing manual dip points and continuous water level data can be found in **Appendix A**.

Table 3. Summary of manual groundwater level measurements

GWMW	Approximate distance*	Screen depth	Target unit	Apr 2023 GME	Jul 2023 GME	Oct 2023 GME	Nov 2023 GME (trigger)	Dec 2023 GME (trigger)
	m	m AHD	-	mAHD (mbtoc**)				
SMW_ENV145_w	0	-4.3 to -9.3	Alluvial (Clay)			-3.64 (8.25)	-6.23 (10.84)	-8.03 (12.64)
CZ4e_MW01	120 SE	-3.0 to -6.0 in mbtoc	Alluvial (Clay)	Not surveyed (0.66)	Not surveyed (1.345)			
CZ4e_MW02	125 SE	-3.0 to -6.0 in mbtoc	Alluvial (Clay)	No data	Not surveyed (3.73)	Not surveyed (3.892)		
CZ4e_MW03	40 SE	-1.5 to -4.5 in mbtoc	Alluvial (Clay)	Not surveyed (4.26)	Not surveyed (4.25)	Not surveyed (4.355)		
SMW_WTP_BH25_w	260 SE	-0.6 to -4.9	Alluvial (Clay)	0.87 (4.592)	-1.2 (6.66)	-1.91 (7.37)	-3.02 (8.48)	-2.7 (8.16)
SMW_WTP_BH25_s	260 SE	2.6 to -0.4	Alluvial (Clay)	3.25 (2.21)	2.61 (2.85)	2.39 (3.07)	No data	2.77 (2.69)

*Distance to GWMW SMW_ENV145_w
**mbtoc: m below top of casing; CZ4e wells have not been surveyed, data all in mbtoc unit

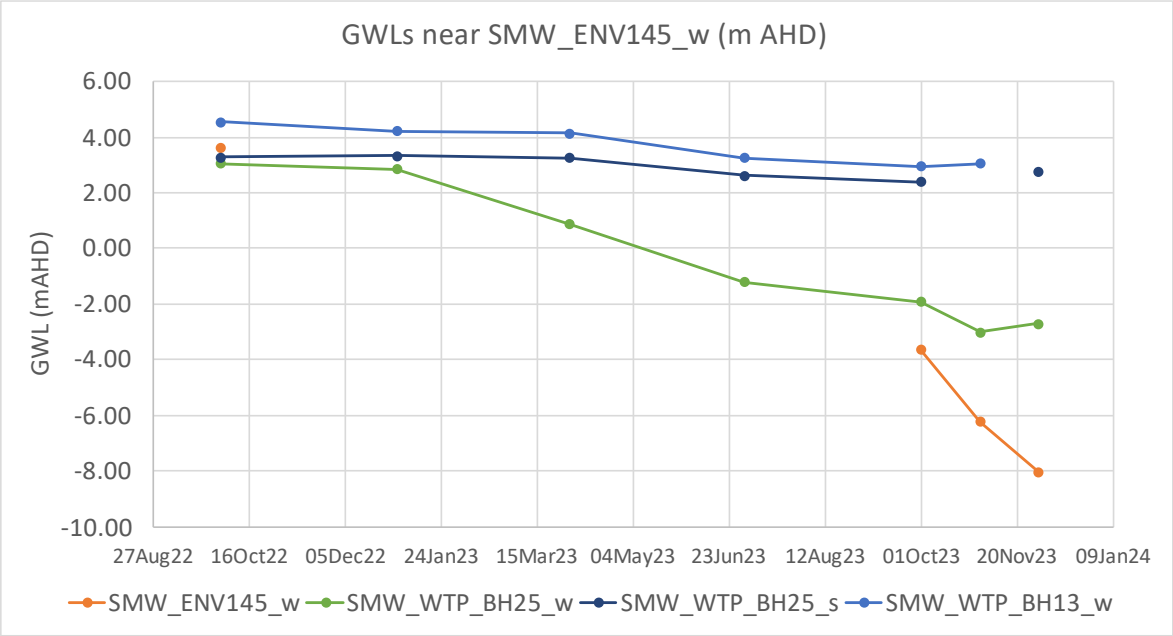


Figure 1. Manual gauging results within 250 m of SMW_ENV145_w (m AHD only)

A review of the existing groundwater level data suggests that a drawdown in the groundwater level has been identified within the alluvial aquifer surrounding SMW_ENV145_w. Therefore, the groundwater level in SMW_ENV145_w is considered representative of the target aquifer, with associated recommendations detailed in **Section 4**.

3.4 SMW_BH010_w

The screen depth of SMW_BH010_w is between -19.2 and -22.2 m AHD, screened within siltstone. The GWMW is situated within 40 m of Duck Creek, and the following GDEs:

- Mangrove Forests in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion
- Swamp Oak swamp forest fringing estuaries, Sydney Basin Bioregion and South East Corner Bioregion,
- Saltmarsh in estuaries of the Sydney Basin Bioregion and South East Corner Bioregion

However, these GDEs are unlikely to be affected by drawdown to be water from upstream Duck Creek supporting them. The GWMW was not purged during the November – December 2023 monitoring event due to the depth of the GWMW. Based on the existing GWMW network, no GWMWs were found to be screened within the bedrock layer, within a 250 m radius of SMW_BH010_w. The hydrograph showing manual dips points and continuous water level data can be found in **Appendix A**. From this, it can be identified that the shallow logger is now above the groundwater table (since the October 2023 GME), indicating further drawdown has occurred.

A review of the groundwater level data (Epic, 2023) indicates a the groundwater level drawdown has been identified in SMW_BH010_w, which is greater than the model prediction (Gamuda, 2022a). Based on the hydrograph, Epic considers that this GWMW is representative of groundwater conditions in the siltstone in the in Clyde Zone 2b/Rosehill, with associated recommendations detailed in **Section 4**.

3.5 SMW_BH057_w

The screen depth of SMW_BH057_w is between -17.5 and -23.5 mAHD, screened within the sandstone aquifer. No GDEs, waterways, or supply groundwater wells have been identified within 40 m of the GWMW.

The GWMW was not purged during the November – December 2023 monitoring event due to the depth of the GWMW. Based on the existing GWMW network, the nearest GWMW that is screened within the same aquifer is SMW_ADD_BH02_w approximately 300 m to the south of SMW_BH057_w (and also have groundwater level exceedances). The groundwater level data can be found in **Table 4** below. The hydrograph showing manual dip points and continuous water level data can be found in **Appendix A**.

The GWMW is considered representative of the groundwater conditions of the target aquifer and its surrounding area, with associated recommendations detailed in **Section 4**. Groundwater drawdown observed in SMW_BH057_w is shown schematically in **Figure 2** (**Section 3.6**).

3.6 SMW_ADD_BH02_w

The screen depth of SMW_ADD_BH02_w is between -8.4 and -16.4 m AHD, screened within the sandstone aquifer. No groundwater dependent ecosystems (GDEs), waterways, or supply groundwater wells have been identified within 40 m of the GWMW.

The GWMW was not purged during the November – December 2023 monitoring event, due to the depth of the GWMW. The groundwater levels for SMW_ADD_BH02_w and surrounding GWMWs have been manually measured and summarised in **Table 4** and shown in **Figure 2**. The hydrograph showing manual dip points and continuous water level data can be found in **Appendix A**.

Table 4. Summary of manual groundwater level measurements

GWMW	Approximate distance*	Screen depth	Target unit	Jan 2023 GME	Apr 2023 GME	Jul 2023 GME	Oct 2023 GME	Nov 2023 GME (trigger)	Dec 2023 GME (trigger)
	m	mAHD		mAHD (mbtoc)					
SMW_ADD_BH02_w	0	-8.4 to -16.4	Sandstone	1.92 (11.54)	-7.46 (20.92)	-13.48 (26.94)	-13.25 (26.71)	-13.63 (27.09)	-13.53 (26.99)

GWMW	Approximate distance*	Screen depth	Target unit	Jan 2023 GME	Apr 2023 GME	Jul 2023 GME	Oct 2023 GME	Nov 2023 GME (trigger)	Dec 2023 GME (trigger)
	m	mAHD		mAHD (mbtoc)					
GALC-MW16_w	190 S	-5.94 to -10.94	Siltstone/ Sandstone	-0.16 (10.12)	-3.44 (13.4)	0.76 (9.2)	-1.43 (11.39)	No data	No data
GALC-MW17	220 S	-1.33 to -9.33	Siltstone	-0.52 (14.34)	0.362 (13.458)	-0.83 (14.65)	-1.12 (14.94)	No data	No data
SMW_BH057_w	300 N	-17.5 to -23.5	Sandstone	1.64 (1.95)	-0.74 (4.33)	-7.93 (11.52)	-9.27 (12.86)	-9.2 (12.79)	-9.18 (12.77)

*Distance to GWMW SMW_ADD_BH02_w

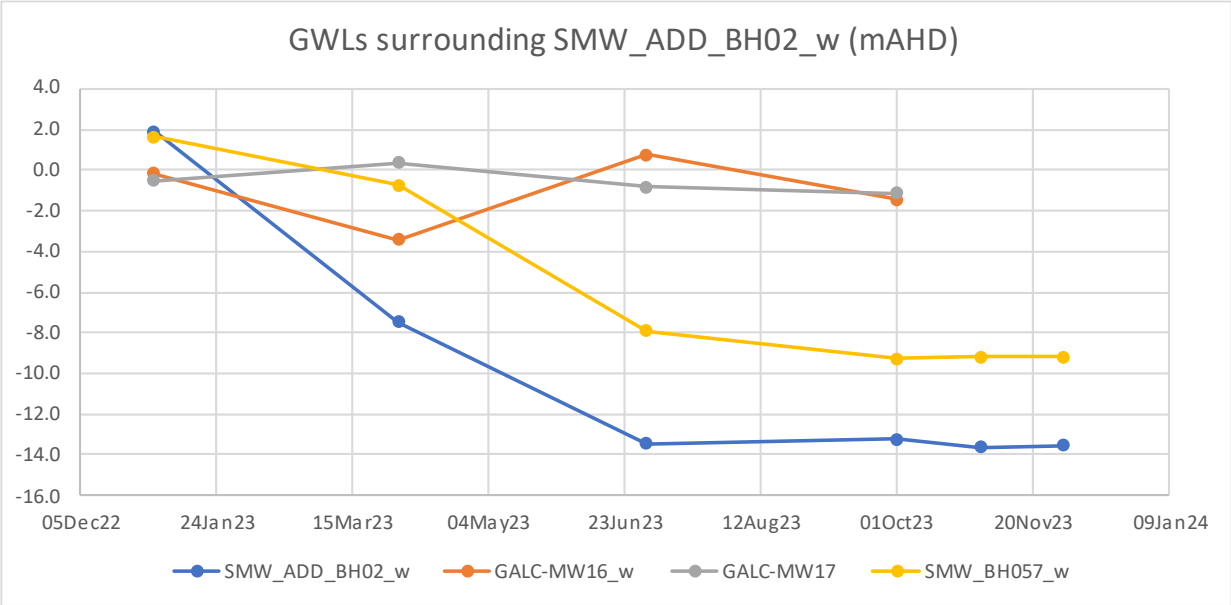


Figure 2. Manual gauging results within 250 m of SMW_ADD_BH02_w (m AHD only)

Groundwater level results indicate a level drawdown in SMW_ADD_BH02_w and SMW_BH057_w, but not in GALC-MW16_w and GALC-MW17. The water column within SMW_ADD_BH02_w is approximately 3 m and has had a consistent water column of 3 m since July 2023, as shown in **Appendix A**. Epic considers this well is not representative of groundwater conditions in the bedrock layer in Clyde Dive site, with associated recommendations detailed in **Section 4**.

4 CONCLUSIONS AND RECOMMENDATIONS

Fieldwork for the November 2023 monitoring event (groundwater level) was completed between 21 November and 6 December 2023, with six (6) GWMWs gauged due to reportable changes in groundwater level being identified in the July and October 2023 quarterly monitoring events.

For the GWMWs where a management response may be required, the project GMP states:

"The groundwater level monitoring data will be compared to the trigger levels identified by the Revised Groundwater Modelling Report(s) to determine whether the observed decrease is attributable to the Project and, if so, whether it aligns with approved predictions. The Revised Groundwater Modelling Report(s) will be provided to relevant stakeholder where there is potential for interaction with existing groundwater management / monitoring programs.

Management actions outlined in the GWMP will be initiated If drawdown is identified outside of model predictions through the data analysis process, or if there is evidence of an unacceptable impact to or potential for unacceptable impact to groundwater resource under the [Aquifer Interference Policy] AIP.

Management actions may include further investigation including (but not limited to) a review of baseline groundwater levels in surrounding monitoring bores and comparison of results against model predictions, and assessment of potential impacts as a result of the observed drawdown.

If the observed groundwater levels indicate potential for unacceptable impacts to the environment, human health, or built infrastructure then appropriate management measures to remedy the effect will be implemented. Appropriate remedial actions may include measures such as additional grouting or alternative inflow management measures to limit inflows to excavations and reduce dewatering effects.

In accordance with the AIP minimal impact considerations, groundwater level and pore pressures will be assessed against the following criteria where appropriate:

- *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.*

If more than 10 % cumulative variation in the water table, allowing for typical climatic 'post-water sharing plan' variations, 40 metres from any:

- *high priority groundwater dependent ecosystem; or*
- *high priority culturally significant site listed in the schedule of the relevant water sharing plan.*

If registered groundwater users are impacted by a material decline in groundwater supply levels (i.e., >2m), quality or quantity, make good provisions will be provided to those groundwater users in accordance with the GWMP.

The predicted groundwater drawdowns are used for settlement analysis and predicted effects assessment. Where found to be governing, particularly near sensitive structures with thick alluvium, the groundwater monitoring plan will be updated and incorporated into the report in future revisions, as part of the adaptive management approach to monitoring."

Table 5 details whether the GWMW is considered representative, and the associated recommended action for each GWMW. Assessment of potential impacts to built infrastructure has not been undertaken, it is recommended that a geotechnical engineer reviews potential impacts based on these drawdowns within the alluvial deposits on sensitive structures.

Table 5. GWMW representativeness and recommended actions

Location	GWMW	Representative?	Recommended action
Rosehill	SMW_WTP_BH25_w	Y	• 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_ENV042_w	N	• It is recommended that replacement GWMW to be drilled in a similar location and within the same screened unit

Location	GWMW	Representative?	Recommended action
			• Confirm with GLC's groundwater modelling consultant that <1 m drawdown is correct for adoption as trigger value for this GWMW
	SMW_ENV145_w	Y	• 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	Y	• 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	Y	• 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 quarterly groundwater monitoring program
	SMW_ADD_BH02_w	N	• GALC-MW16_w is recommended as a suitable replacement for SMW_ADD_BH02_w • Confirm with GLC's groundwater modelling consultant that modelled drawdown is correct for adoption as trigger value for this GWMW

5 REFERENCES

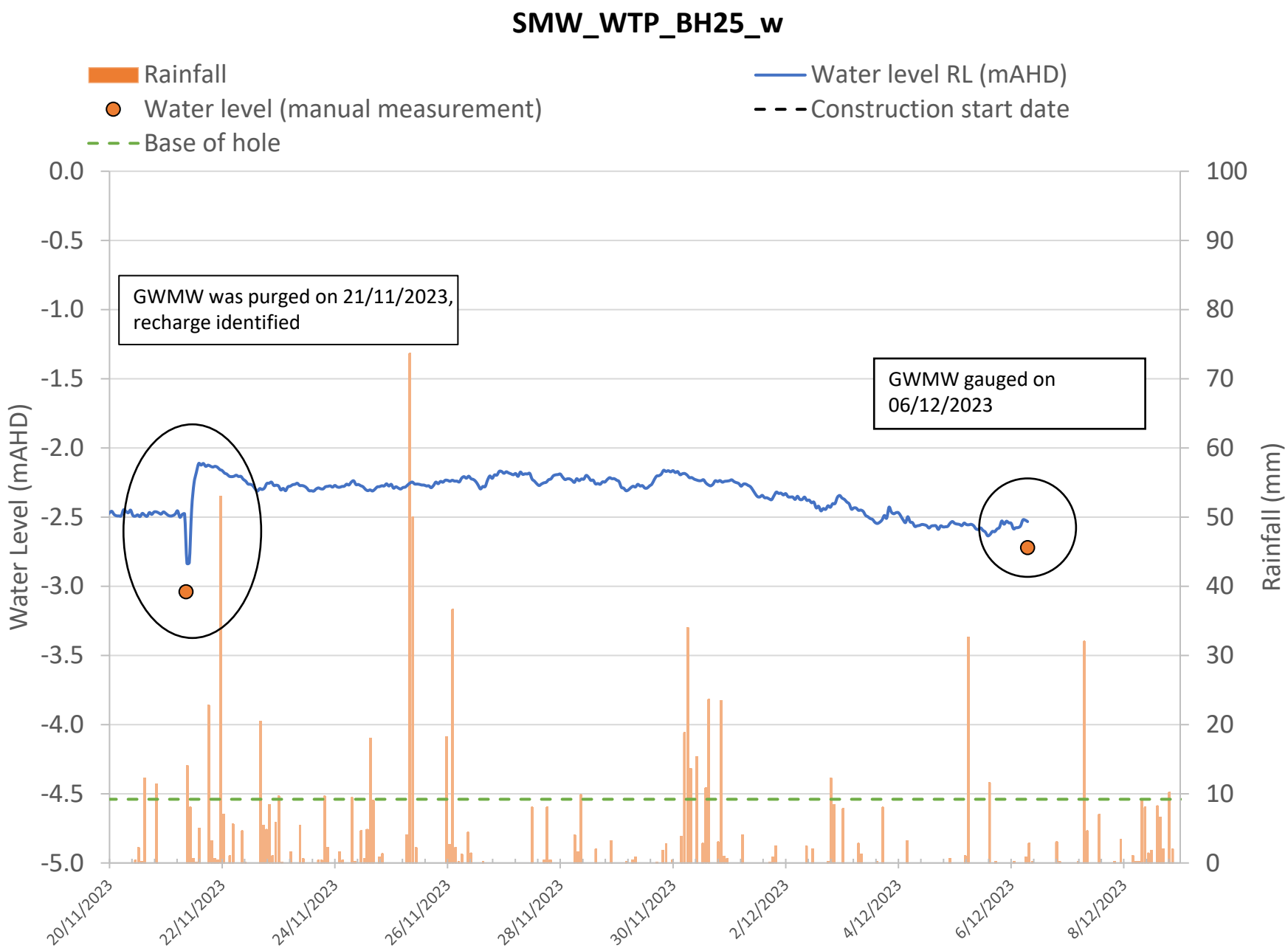
Epic. (2023). *Factual Groundwater Monitoring Report – Oct 2023. SC210108.03-RPT-GLC-WTP-Factual Groundwater Monitoring Report-R5-Rev1-24Nov23.* Sydney.

Gamuda. (2022a). *Hydrogeological Interpretive Report (including Groundwater Modelling) [SMWSTWTP-GLO-1NL-NL000-GE-RPT-000001].*

Gamuda. (2022b). *Groundwater Modelling Report – Rosehill Service Facility (SMWSTWTP-GLO-RSH-SF500-EN-RPT-000001).*

GLC. (2022). *Sydney Metro West - Western Tunnelling Package Hydrogeological Interpretive Report.* Sydney.

APPENDIX A HYDROGRAPHS


SMW_WTP_BH25_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Base of hole
GWMW was purged on 21/11/2023, recharge identified
GWMW gauged on 06/12/2023
Water Level (mAHD)
Rainfall (mm)
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
-5.0
100
90
80
70
60
50
40
30
20
10
0
20/11/2023
22/11/2023
24/11/2023
26/11/2023
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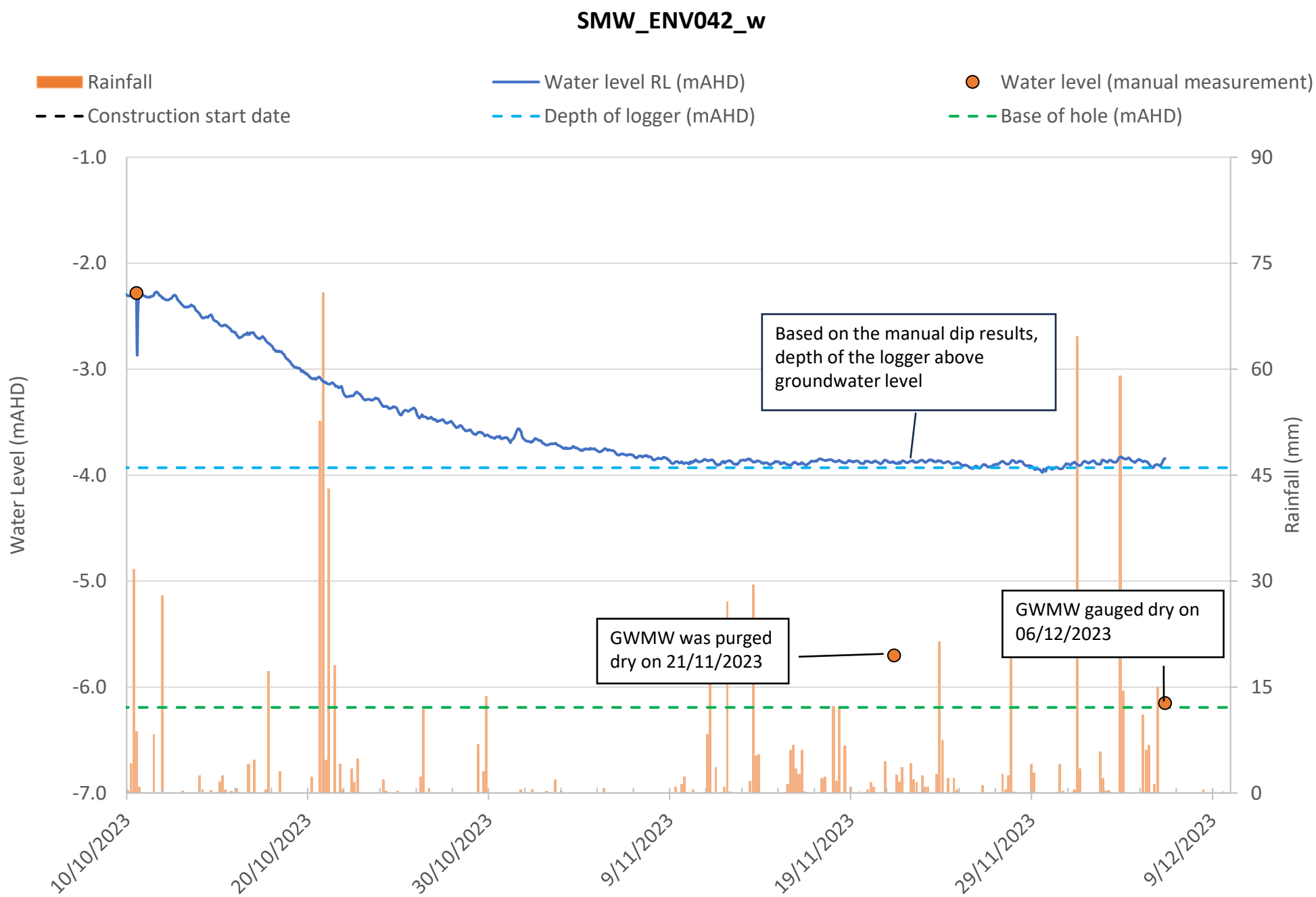
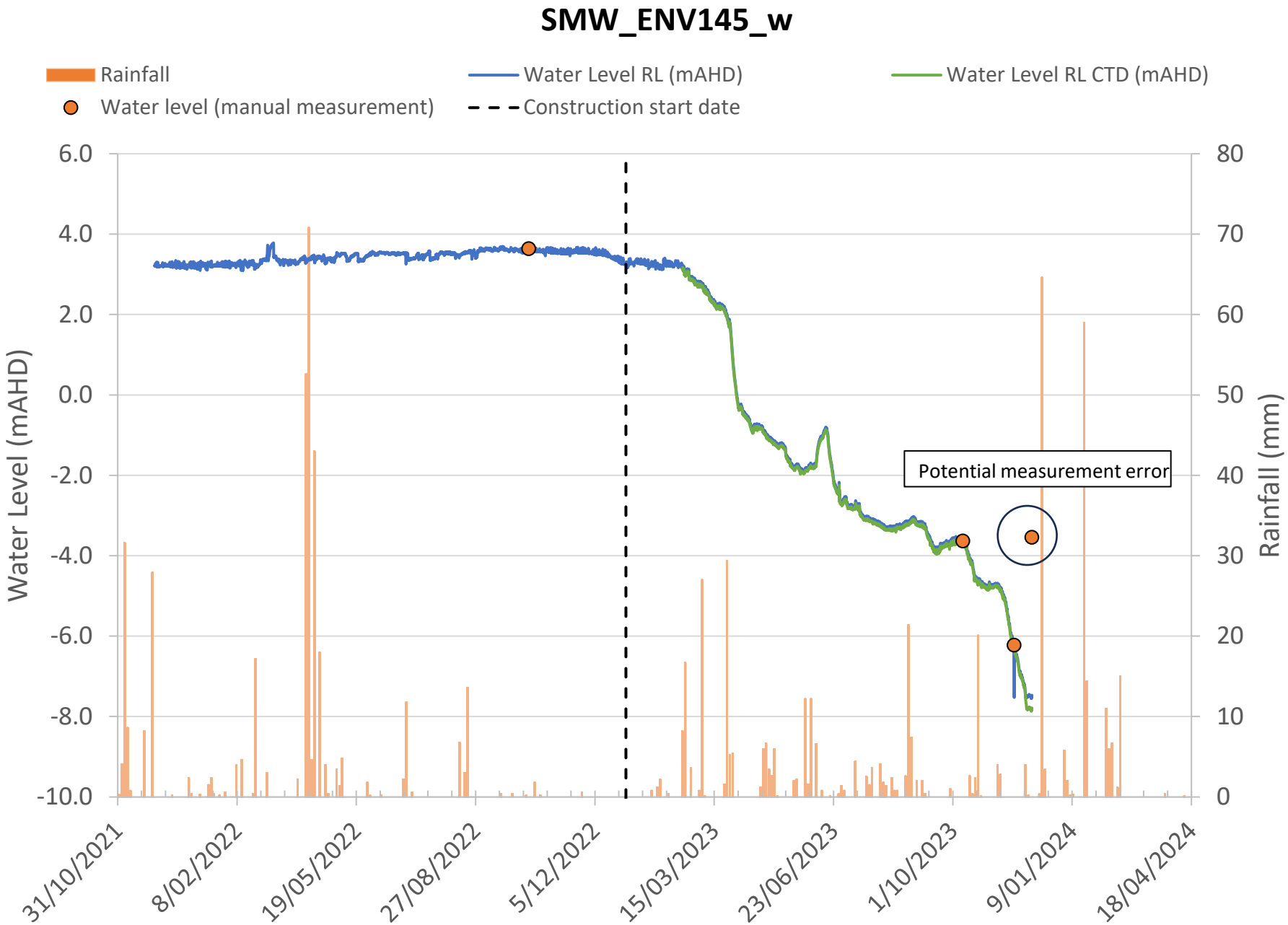
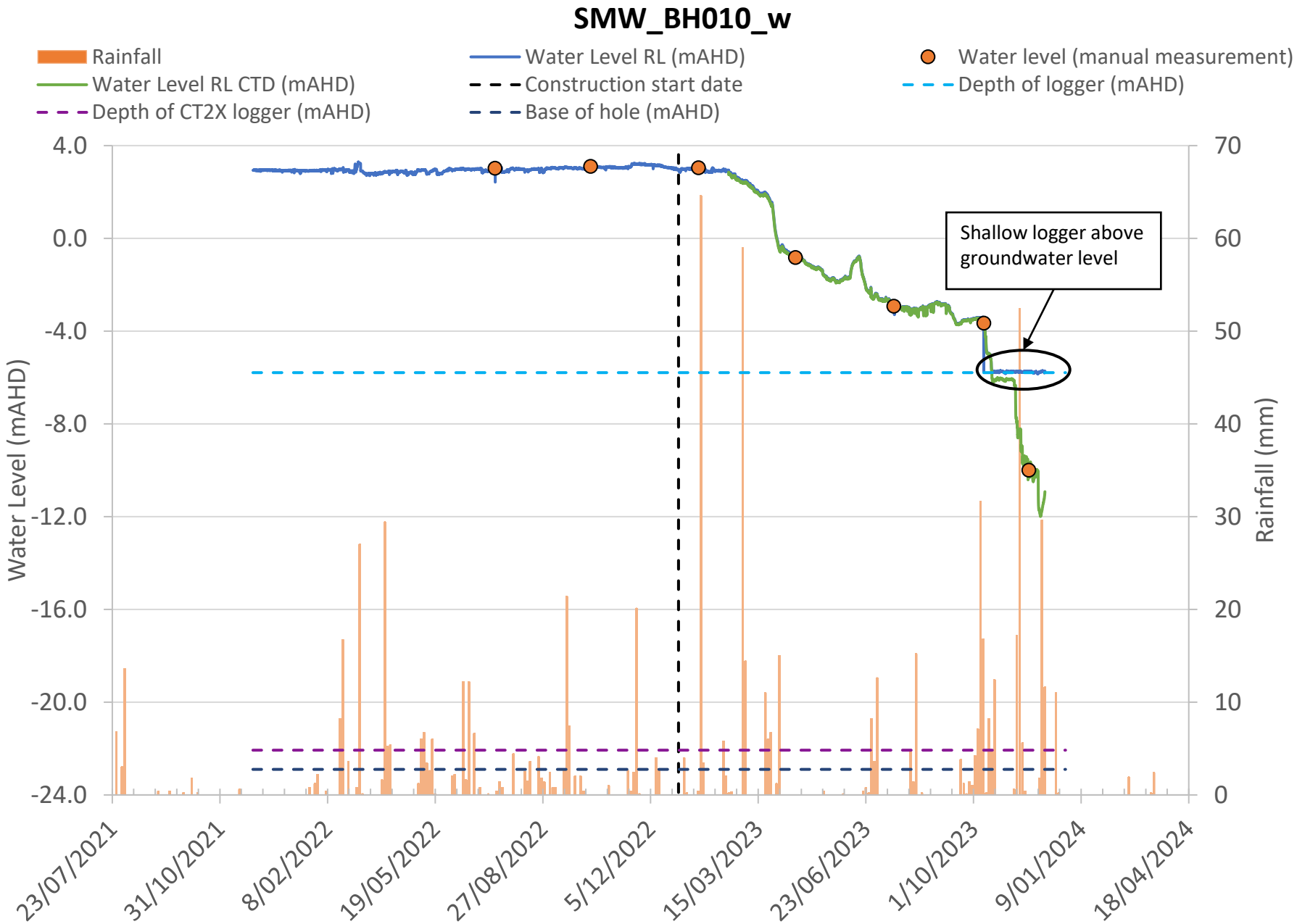
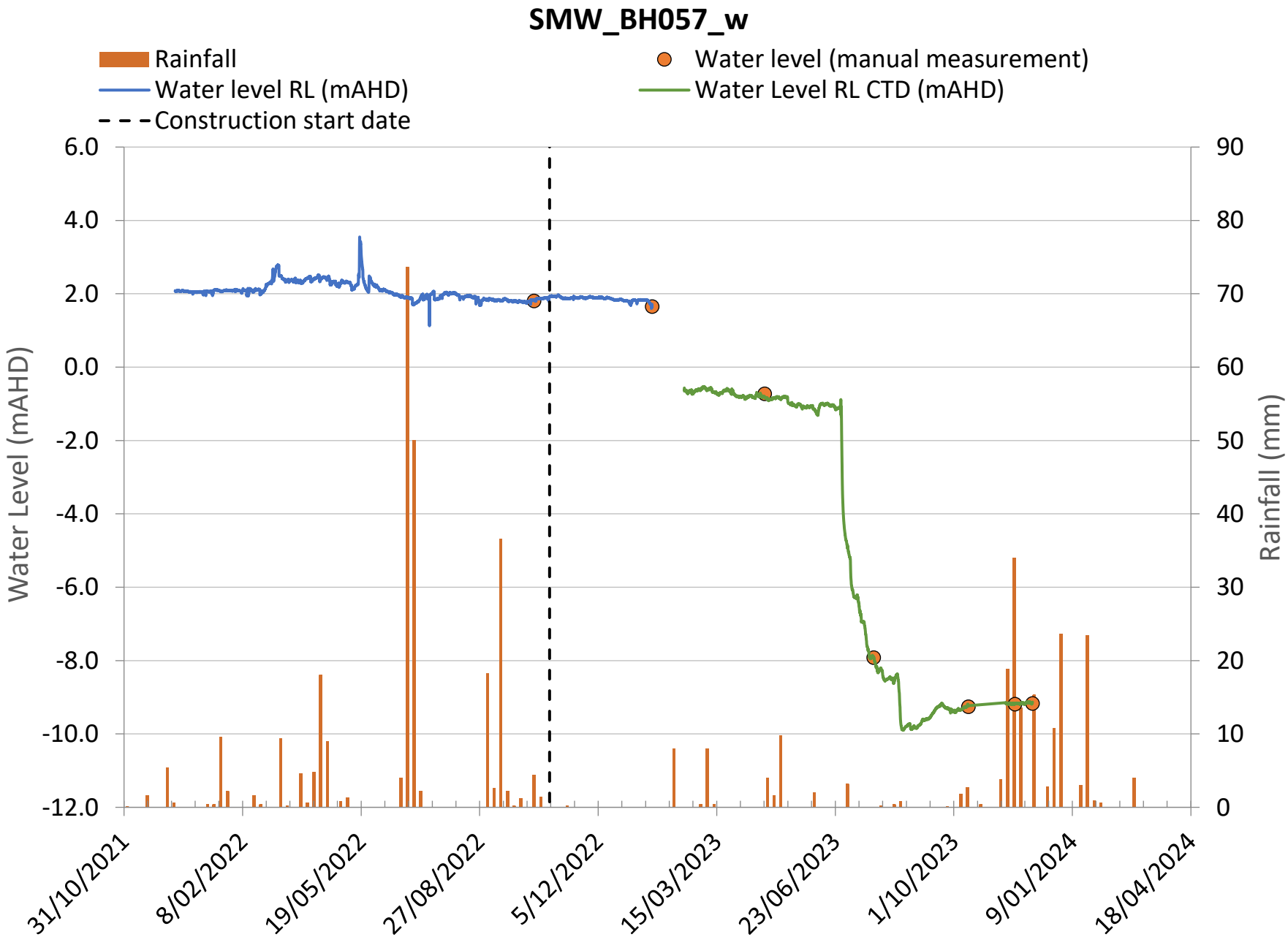
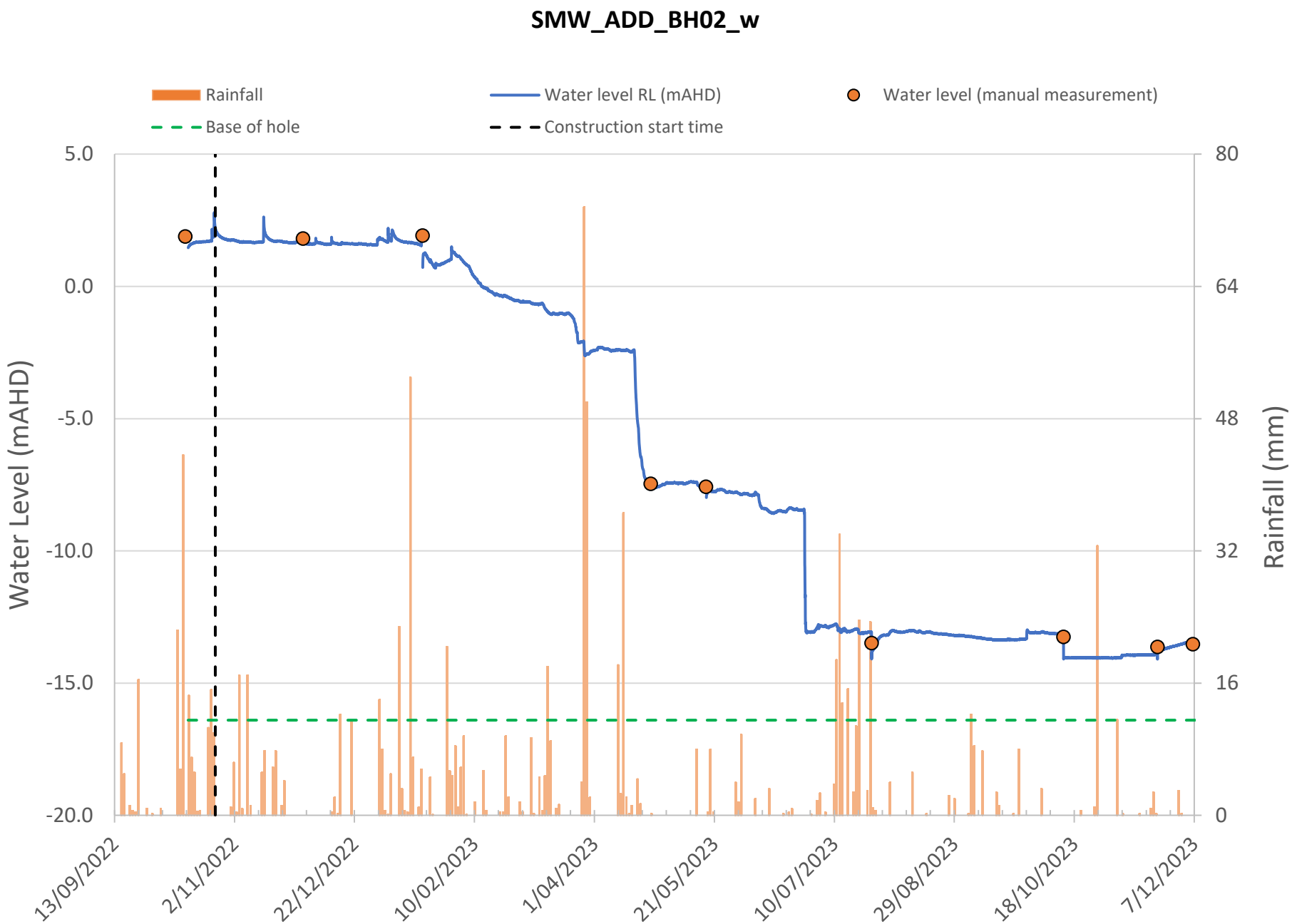
6/12/2023
8/12/2023


SMW_ENV042_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Construction start date
Depth of logger (mAHD)
Base of hole (mAHD)
Water Level (mAHD)
Rainfall (mm)
-1.0
-2.0
-3.0
-4.0
-5.0
-6.0
-7.0
90
75
60
45
30
15
0
10/10/2023
20/10/2023
30/10/2023
9/11/2023
19/11/2023
29/11/2023
9/12/2023
Based on the manual dip results, depth of the logger above groundwater level
GWMW was purged dry on 21/11/2023
GWMW gauged dry on 06/12/2023


SMW_ENV145_w
Rainfall
Water Level RL (mAHD)
Water Level RL CTD (mAHD)
Water level (manual measurement)
Construction start date
Potential measurement error
Water Level (mAHD)
Rainfall (mm)
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
80
70
60
50
40
30
20
10
0
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024


SMW_BH010_w
Rainfall
Water Level RL (mAHD)
Water level (manual measurement)
Water Level RL CTD (mAHD)
Construction start date
Depth of logger (mAHD)
Depth of CT2X logger (mAHD)
Base of hole (mAHD)
Shallow logger above groundwater level
Water Level (mAHD)
Rainfall (mm)
4.0
0.0
-4.0
-8.0
-12.0
-16.0
-20.0
-24.0
70
60
50
40
30
20
10
0
23/07/2021
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024


SMW_BH057_w
Rainfall
Water level (manual measurement)
Water level RL (mAHD)
Water Level RL CTD (mAHD)
Construction start date
Water Level (mAHD)
Rainfall (mm)
6.0
4.0
2.0
0.0
-2.0
-4.0
-6.0
-8.0
-10.0
-12.0
90
80
70
60
50
40
30
20
10
0
31/10/2021
8/02/2022
19/05/2022
27/08/2022
5/12/2022
15/03/2023
23/06/2023
1/10/2023
9/01/2024
18/04/2024


SMW_ADD_BH02_w
Rainfall
Water level RL (mAHD)
Water level (manual measurement)
Base of hole
Construction start time
Water Level (mAHD)
Rainfall (mm)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
80
64
48
32
16
0
13/09/2022
2/11/2022
22/12/2022
10/02/2023
1/04/2023
21/05/2023
10/07/2023
29/08/2023
18/10/2023
7/12/2023