ACOUSTICS ADVISOR ENDORSEMENT
SYDNEY METRO WEST (SSI 10038)

Review of	**Central Tunnelling Package:** Bi-Annual Construction Monitoring Report July – December 2024	**Reviewed document reference:**	AFJV Bi-Annual Construction Monitoring Report – July 2024 – December 2024 SMWSTCTP-AFJ-1NL-EN-RPT-000028 Revision 01 dated 12 February 2025.
Prepared by:	[redacted], Alternate Acoustics Advisor		
Date of issue:	21 February 2025		

As approved Alternate Acoustics Advisor (AA) for the Sydney Metro West project, I reviewed the noise and vibration components of a previous revision of this monitoring report.

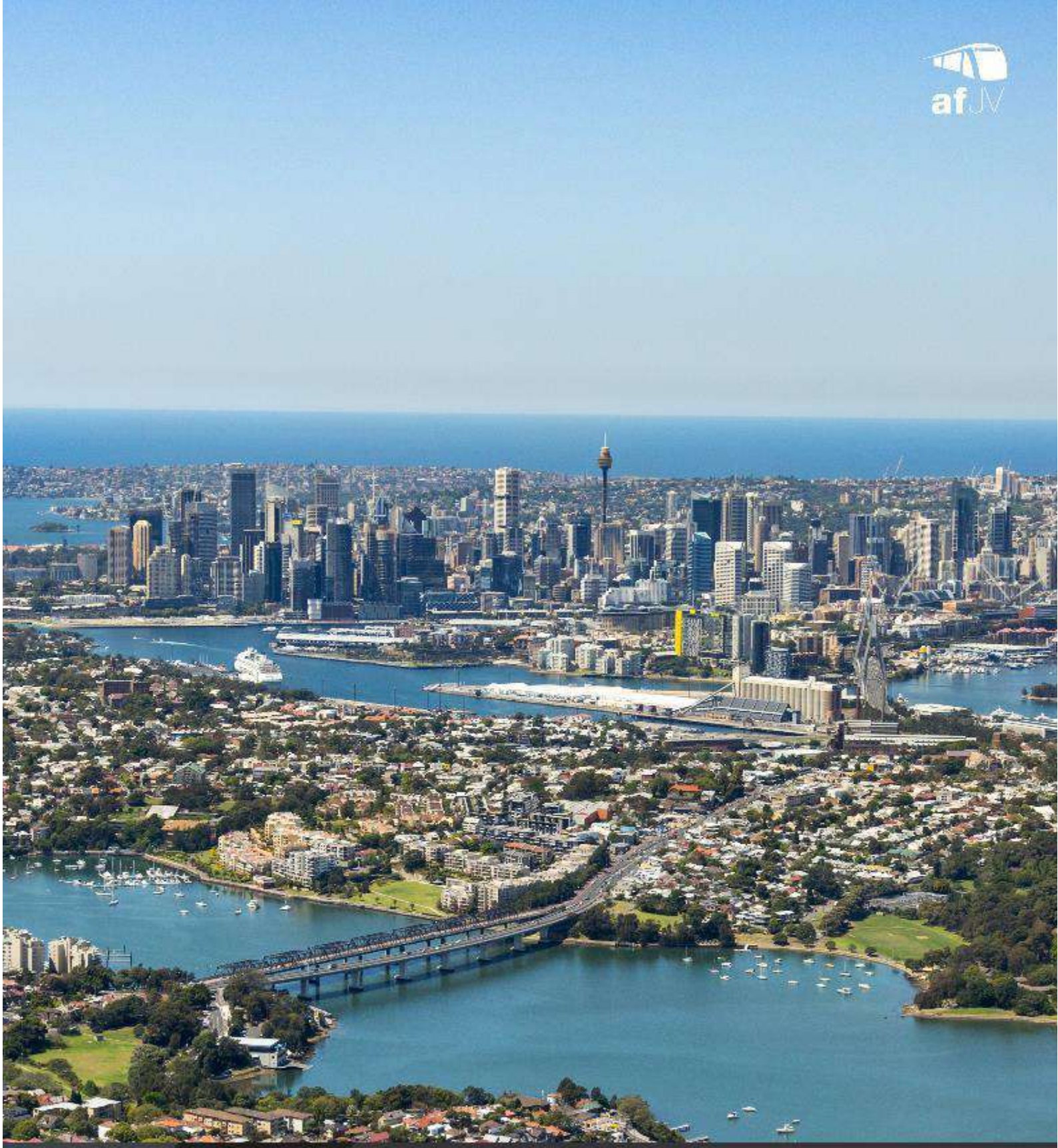
Throughout the period of this report, I attended joint monitoring, and I also reviewed and commented on the results of noise and vibration monitoring done by AFJV as it took place.

From my observations during joint monitoring and the satisfactory responses to my comments on monitoring as it took place, I have a high level of confidence in the noise and vibration results presented in this report, and I endorse it.

[redacted]

[redacted]

Metro West Alternate Acoustics Advisor



Bi-Annual Construction Monitoring Report - 6 July 2024 - December 2024

SMWSTCTP-AFJ-1NL-EN-RPT-000028 Revision 01

Sydney Metro West – Central Tunnelling Package

DOCUMENT APPROVAL

	Prepared By	Reviewed By	Approved By
Name:	[redacted]	[redacted]	[redacted]
Position:	Senior Environmental Coordinator	Project Environmental Manager	Operational Services Director
Date:	29/01/2025	29/01/2025	29/01/2025

Revision History

Rev:	Date:	Pages:	By:	Description:
00	29/01/2025	All	Various	Preparation of Bi-annual monitoring report
01	12/02/2025	Table 4B	[redacted]	Updated in response to ER and Metro Comments

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COMPLIANCE MATRIX

Condition Reference	Condition Requirement	Reference
C14	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**: (a) Noise and vibration Monitoring program; consult with EPA, SOPA (in respect of Sydney Olympic Park), Place Management NSW (in respect of The Bays) and Relevant Council(s) (b) Blasting Monitoring program; consult with SOPA (in respect of Sydney Olympic Park), Place Management NSW (in respect of The Bays) and Relevant Council(s) (c) Surface water quality Monitoring program; consult with DPE Water, Relevant Council(s) and Sydney Water (if any Sydney Water assets are impacted) (d) Groundwater Monitoring program; consult with DPE Water and SOPA (in respect of Sydney Olympic Park) Note: The Blasting Construction Monitoring Program is only required to be prepared if blasting is proposed to be conducted during construction.	Section 3 of the Surface Water Monitoring Program (SMWSTCTP-AFJ-1NL-PE-PRG-000001) Section 3 of the Groundwater Monitoring Program (SMWSTCTP-AFJ-1NL-PE-PLN-000006)
C15	Each **Construction Monitoring Program** must provide: (a) details of baseline data available including the period of baseline monitoring; (b) details of baseline data to be obtained and when; (c) details of all monitoring of the project to be undertaken; (d) the parameters of the project to be monitored; (e) the frequency of monitoring to be undertaken; (f) the location of monitoring; (g) the reporting of monitoring results and analysis results against relevant criteria; (h) details of the methods that will be used to analyse the monitoring data; (i) procedures to identify and implement additional mitigation measures where the results of the monitoring indicated unacceptable project impacts; (j) a consideration of SMART principles; and (k) any consultation to be undertaken in relation to the monitoring programs; and (l) any specific requirements as required by Conditions C16 to C17 of this schedule.	Section 3 of the Noise and Vibration Monitoring Program (SMWSTCTP-AFJ-1NL-NV-PLN-000001) Section 3 of the Surface Water Monitoring Program (SMWSTCTP-AFJ-1NL-PE-PRG-000001) Section 3 of the Groundwater Monitoring Program (SMWSTCTP-AFJ-1NL-PE-PLN-000006)
C16	The **Noise and Vibration Construction Monitoring Program** and **Blasting Construction Monitoring Program** must include: (a) noise and vibration monitoring determined in consultation with the AA to confirm the best-achievable construction noise and vibration levels with consideration of all reasonable and feasible mitigation and management measures that will be implemented; (b) for the purposes of (a), noise monitoring must be undertaken during the day, evening and night-time periods and within the first month of work as well as throughout the construction period and cover the range of activities being undertaken at the sites; and (c) a process to undertake real time noise and vibration monitoring. The results of the monitoring must be readily available to the construction team, the Proponent, ER and AA. The Planning Secretary and EPA must be provided with access to the results on request.	Section 3 of the Noise and Vibration Monitoring Program (SMWSTCTP-AFJ-1NL-NV-PLN-000001)

C17	**Groundwater Construction Monitoring Program** must include: (a) groundwater monitoring networks at each construction excavation site; (b) detail of the location of all monitoring bores with nested sites to monitor both shallow and deep groundwater levels and quality; (c) define the location of saltwater interception monitoring where sentinel groundwater monitoring bores will be installed between the saline sources of the estuary or river and that of the stations or shafts; (d) results from existing monitoring bores; (e) monitoring and gauging of groundwater inflow to the excavations, appropriate trigger action response plan for all predicted groundwater impacts upon each noted neighbouring groundwater system component for each excavation construction site; (f) trigger levels for groundwater quality, salinity and groundwater drawdown in monitoring bores and / or other groundwater users; (g) daily measurement of the amount of water discharged from the water treatment plants; (h) water quality testing of the water discharged from treatment plants; (i) management and mitigation measures and criteria; (j) groundwater inflow to the excavations to enable a full accounting of the groundwater take from the Sydney Basin Central Groundwater Source; and (k) reporting of groundwater gauging at excavations, groundwater monitoring, groundwater trigger events and action responses; and (l) methods for providing the data collected to Sydney Water where discharges are directed to their assets.	Section 3 of the Groundwater Monitoring Program (SMWSTCTP-AFJ-1NL-PE-PLN-000006)
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**. Note: Where a relevant CEMP Sub-plan exists, the relevant Construction Monitoring Program may be incorporated into that CEMP Sub-plan.	This Report

1. INTRODUCTION

This bi-annual monitoring report (B-ACMR) has been prepared to address the Condition of Approval (CoA) C23 of the planning approval for Sydney Metro West – Concept and Stage 1. The B-ACMR presents monitoring data for the reporting period for all works undertaken on the Sydney Metro West Central Tunnelling Package (CTP) from **01st of July 2024 to 31st December 2024.** This is the sixth B-ACMR prepared for the CTP.

This report presents results from the construction phase of the monitoring programs and compares the results against established baseline data where available. There is a large amount of noise and vibration data from the unattended monitors, therefore, examples of data have been provided to demonstrate the monitoring which occurred during the period. Groundwater and surface water data will be provided in full. This report primarily highlights and discusses exceedances of the required criteria and shows other results demonstrating compliance.

In accordance with each Construction Monitoring Program, the is made available to relevant authorities within 40 business days of the ending of the monitoring period.

During the reporting period the CTP has seen significant progression, achieving several milestones including the completion of TBM tunnelling in October 2024 marking the projects transition into the demobilisation phase as it approaches completion. This milestone also signifies the resolution of a number of the project's critical environmental risks, including ground-borne noise and vibration impacts on the community, as well as the potential for groundwater drawdown. As the project approaches the completion of works associated with Stage 1 of the CSSI, as outlined in the documents specified in Condition A1 of Schedule 3, monitoring activities will be gradually scaled back to align with current site works. This process follows a risk-based approach. Each monitoring program now includes a rationale that establishes an end date for its specific monitoring requirements. These rationales have been reviewed and approved by Sydney Metro, the project's Environmental Representative, and the Acoustic Advisor. Consequently, they will be incorporated into all future B-ACMRs.

2. NOISE AND VIBRATION

The Noise and Vibration Management Plan (NVMP) aims to identify the potential impacts of CTP works on noise and vibration within the local environments surrounding the construction sites. The data presented in the B-ACMR has been prepared in accordance with CoA 16 and 23 of the Project Planning Approval, which requires reporting the results of CTP works to the Planning Secretary, the Environmental Representative (ER) and relevant regulatory agencies.

The report details the results of the construction phase of the NVMP. This report compares the noise and vibration criteria against monitoring data recorded during the reporting period.

All noise and vibration monitoring conducted by AFJV throughout the reporting period was executed in strict compliance with the methodology, calibration requirements and standard stipulated in the Noise and Vibration Monitoring Program (NVMoP).

It is noted that the metric of 'Compliance' identified in the Appendix A Noise Register is a fluid term which refers to a noise monitoring events determination based on several monitoring caveats when assessed against the project approvals, requirements, and licences. However generally, a noise monitoring events 'compliance' is assessed by comparing the following inputs:

- Was NML exceeded during monitoring period?
- Was DNVIS prediction exceeded during monitoring period?
- Was exceedance/s the result of AFJV works?
- Are all reasonable and feasible mitigation measures implemented?
    - (if 'No' potential NCR to be raised, discuss with Environment Manager)

Implementation of any works specific mitigation measures is also considered when determining a monitoring events compliance.

2.1 MONITORING LOCATIONS

2.1.1 ATTENDED MONITORING

Attended noise monitoring was completed using a handheld sound level meter fixed to a tripod. Noise monitoring was completed as required, generally for verification purposes for noise impacts associated with Out of Hours Works (OOHW), Detailed noise and vibration impact statement (DNVIS) verification and to confirm the A-weighted sound power level (SWL) for plant being used during daytime hours. Attended monitoring results are provided in Appendix A. The LAeq noise levels captured by these monitors include both constructions related activities and extraneous noise sources.

It should be noted that the duration of each monitoring event is 15 minutes unless stated otherwise. On occasion shorter durations of noise monitoring was conducted at source point locations.

No attended vibration monitoring was completed during this reporting period. This has been due to the stage of work at each site noting there was minimal surface works and no vibration intensive surface works in the reporting period and unattended monitors (for ground borne vibration) being placed in residents' homes.

2.1.2 UNATTENDED MONITORING

Unattended noise and vibration monitoring throughout this report was undertaken in accordance with CTP's Noise and Vibration Management Plan (NVMP), Noise and Vibration Monitoring Program (NVMoP) and Detailed Noise and Vibration Impact Statement (DNVIS). Monitoring occurs on a 24-hour basis throughout the reporting period using noise and vibration loggers deployed at each of the CTP construction sites to obtain real time data as per CoA C16c.

Examples of unattended noise monitoring data for Five Dock, Burwood North, North Strathfield, Sydney Olympic Park and The Bays are provided in Appendix A. The locations of and several examples of real time monitoring set-ups for unattended noise are also provided in Appendix A.

2.2 NOISE AND VIBRATION MONITORING RESULTS

2.2.1 ATTENDED NOISE AND VIBRATION MONITORING

During this reporting period, 119 attended noise monitoring events were conducted at various locations near the project's construction sites. Of these events, several readings above NML and/or predicted noise levels were identified. In most cases, non-construction-related activities were observed to be responsible for the elevated noise results. During this reporting period, attendant monitoring for OOHW and DNVIS verification largely resulted in levels below the relevant NML or in line with predicted values.

One example of noise levels potentially exceeding the predicted level was observed during the monitoring of a tower crane operating at TBY outside of standard hours. AFJV conducted a series of noise monitoring sessions during the evening and night-time periods to determine the noise levels of the tower crane. However, due to the presence of ship movements and urban hum, the noise level of the tower crane was determined to have in impact similar to that of the background levels of the area.

The project Acoutic Advisor (AA) and Sydney Metro (SM) conducted joint noise monitoring on 21 November 2024 while the ship was present, and the recorded noise level was attributed to both the ship and the tower crane. The joint monitoring also confirmed that the noise level of the tower crane was inaudible when the crane's engine was facing away from the monitoring location. However, the noise level of the tower crane was audible when the engine was facing the monitoring location. The project AA and SM recommended implementing additional mitigation measures to minimise the noise level of the tower crane. AFJV pursued the

implementation of additional mitigation measures around the tower crane which required a temporary works design. However, due to the short duration of tower crane works, the long lead time of the materials to implement the temporary design, the mitigation installations could not be feasibly achieved prior to completion of the use of the tower crane. The tower crane works were completed on 16 December 2024 (with demobilisation planned for mid January 2025).

2.2.2 UNATTENDED NOISE AND VIBRATION MONITORING

Unattended noise monitor locations and data can be found in Appendix A. Weekly meetings with the environmental team are held to review the data for any anomalies. Despite the meeting, it is difficult to identify the source of all elevated data points considering the significant volume of data collected throughout the 6 months (ie over 970,000 data points). As unattended monitoring is ongoing, the data is only assessed in weekly meetings and on a case-by-case basis such as in response to complaints or to ensure compliance with OOHW models. Appendix A provides examples of unattended monitoring data, the data is presented in weekly periods extracted from each month for each site.

Unattended vibration monitoring was conducted continuously at a number of sites across CTP including; Burwood ([redacted], Sydney Olympic Park ([redacted]), Five Dock (1[redacted] and North Strathfield ([redacted]. Throughout the reporting period, 3 vibration spikes were recorded and investigated as outlined below.

- A spike of 18.1mm/s was recorded on 18 July 2024 on the SOP vibration unit located in [redacted] SOP. The spike was caused by the AFJV Environmental Advisor whilst checking monitors at 15:56 and was not a result of AFJV works. No further action was required.

- Monitoring of the 110 Great North Rd property adjacent to Five Dock site recorded a spike of 281mm/s on the 16 September 2024 at 16:26. The spike was determined to be the AFJV Environmental Advisor swapping vibration monitor batteries and was not a result of AFJV works. No further action was required.

- Monitoring of the unit at 10 Herb Elliot Drive, Sydney Olympic Park recorded a spike of 28.6mm/s on the 2 October 2024 at 16:12. The spike occurred when the AFJV Environmental Advisor swapped the vibration monitor batteries and was not a result of AFJV works. No further action was required.

All other unattended vibration monitoring was recorded below site criteria and was compliant. Several examples of real time unattended vibration monitoring data are provided in Appendix B.

2.2.3 GROUND-BORNE NOISE AND VIBRATION MONITORING

Ground-borne noise and vibration (GBN) monitoring was conducted throughout this reporting period in accordance with ICNG section 4.2, CTP's Noise and Vibration Management Plan (NVMP), Noise and Vibration Monitoring Program (NVMoP), and Detailed Noise and Vibration Impact Statement (DNVIS). GBN monitoring requires installation of the monitors within affected properties. Based on the TBM's progression and GBN modelling, the AFJV community team approached potentially affected properties to offer alternative accommodation and monitoring prior to the impact occurring.

All monitoring was conducted using Svan958AG monitoring devices, equipped with a microphone for noise and a tri-axial geophone for vibration. During the reporting period, two ground-borne noise and vibration monitoring events were conducted along the tunnel/cross passage alignment between North Strathfield and Olympic Park station boxes.

One monitoring event was related to cross passage works, and the other was conducted for TBM excavation. A summarised table of monitoring events can be found in Table 2-A. Only nighttime results were considered because this is an unattended monitor. During the daytime, it is challenging to distinguish between activities within the monitored premises and construction activities. In order to maintain privacy of the residents, AFJV

does not record real time audio of ground borne noise data collected.

Table 2-A Ground Borne Noise and Vibration Monitoring locations and results.

Location	TBM/XP	Date	Noise Results (dB)	Predicted Noise (dB)	Vibration Results (mm/s)	Predicted Vibration (mm/s)	Comments
[redacted], North Strathfield	TBM	01-July-24	29.7-30.3	40	0.058	0.3	**Context of Monitoring:** Works included TBM 3 & 4 cutting. Specifically: - TBM3 was at [redacted], North Strathfield on 02/07/2024. - TBM4 was at 3[redacted], North Strathfield on 02/07/2024. - [redacted], North Strathfield is approx. 57 off TBM alignment. **Results:** Vibration Dose value (VDV) below prediction and Vibration Management Level (VML). Peak Particle Velocity (PPV) below criteria for unreinforced or light framed structures. The recorded levels during TBM operation were below the noise prediction.
[redacted] North Strathfield	XP 44	5-August-24	40-42.1	39	0.011	0.13	**Context of Monitoring:** Monitoring occurred concurrently with XP44 excavation, hammering and bolting. **Results:** Vibration peaks did not align with the detected noise levels. Given that the monitor is positioned next to a window, the elevated readings could be associated with either road activities or events within the residence. While the values recorded were higher than predicted, they remained below trigger for Alternative Accommodation offering. The recorded levels during XP excavating were higher than the noise prediction by approximately 1-3 dBA, which was attributed to non-construction-related activities.

Each monitoring event was analysed upon completion and a report developed. The reports were then provided to Sydney Metro, the AA and the ER to assess. Additionally, a summary report was provided to the property owner.

Over the reporting period, no impacts were observed. All recorded values fell below the trigger levels for unreinforced or light framed structures as specified in the NVMP, posing no risk of damage to surrounding buildings. This aligns with the construction vibration values set out in BS 7385 Part 2-1993, 'Evaluation and Measurement for Vibration in Buildings Part 2'.

The results of ground-borne noise and vibration during the reporting period for AFJV works were below the predicted values from the modelling as shown in Table 2-A above. However, the noise data for the monitor located at 1/84 Concord Ln, North Strathfield, exceeded the predicted value due to non-construction related activity as detailed in the table.

2.2.4 JOINT NOISE MONITORING

During the reporting period, five joint noise monitoring sessions were conducted around the CTP sites during the evening and night-time periods. No major actions were recorded; however, minor issues were identified by AA and SM. AFJV responded to all issues and resolved them within an appropriate timeframe, as shown in the table 2-B below.

Table 2-B Summary of joint monitoring events.

Date	Location	Names	DNVIS/ OOHW	Action	AFJV response
10/07/2024	BWD	AFJV, AA, SM	OOHW	Tonal movement alarm on excavator to be replaced with non-tonal alarm (squawker), or excavator replaced for one with a squawker prior to next shift	AFJV contacted the subcontractor to replace the excavator for the next shift, which was confirmed. Photos were sent to AA and SM to confirm that the excavator had been replaced.
20/08/2024	BWD, TBY	AA, SM, AFJV	OOHW	No action, AFJV's work complied with the predicted values	N/A
19/09/2024	BWD, NST	AA, SM, AFJV	OOHW	AFJV to have the breakdown of the roller door onto Burton St at Burwood North fixed as soon as practicable or implement a protocol for manually closing and opening the door.	AFJV took action and fixed the roller door, informing the AA on 23/09/2024.
29/10/2024	SOP	AA, SM, AFJV	DNVIS	No action, AFJV's work complied with the predicted values	N/A
21/11/2024	TBY	AA, SM, AFJV	DNVIS	Investigate the implementation of additional mitigation to the tower crane (including acoustic shield around the muffler and engine block)	AFJV investigated the potential for installing additional mitigation around the muffler and engine. AFJV commenced the temporary works design around the tower crane engine (not implemented due to time frame for design and procurement). Tower crane completed works on site 16 December 2024.
05/12/2024	TBY, NST	AA, ER, SM, AFJV	DNVIS	Investigate the implementation of additional mitigation to the crane (including acoustic shield around the muffler and engine block)	AFJV investigated the potential for installing additional mitigation around the muffler and engine. AFJV commenced the temporary works design around the tower crane engine (not implemented due to time frame for design and procurement lead times). Tower crane completed works on site 16 December 2024.

2.2.5 PLANT SOUND POWER LEVELS

In accordance with the NVMP, DNVIS and CNVS, AFJV conducted a number of sound power measurement checks to ensure all the plant and equipment operating on CTP maintained a sound power level (SWL) within acceptable limits, as defined in Table 13 of the CNVS. In accordance with Section 4 of the CNVS, special attention was given to items of plant with predicted loudness of 105dB(A) or more. Regular noise checks, of all high-risk plant were conducted upon arrival at the site.

Measurements were conducted in line with Australian and ISO standards AS2012–1990, ISO 9614-2 1996, and AS2012–1977, ensuring all plant on site were within allowable sound powers. A full range of results for the period can be found in Appendix A.

The measurements were taken under regular operating conditions, ensuring a realistic representation of noise emissions during day-to-day project activities. In cases where normal operating conditions were impractical, stationary tests at high idle were used, offering a thorough evaluation of sound power levels.

The monitoring period saw limited changes in construction activities, resulting in a reduction of SPL monitoring.

2.2.6 MITIGATION MEASURE IMPLEMENTATION

AFJV acknowledges the requirement to implement reasonable and feasible corrective actions to mitigate elevated Sound Pressure Levels (SPLs). This proactive approach has been implemented throughout the duration of the project to ensure compliance with NML's and predictions, as well as minimise potential impacts on the surrounding community. During this reporting period, examples of implemented mitigations included:

A. Tower Crane at Sydney Olympic Park

Prior to mobilisation to Sydney Olympic Park, AFJV implemented additional mitigation measures to reduce noise emissions from a tower crane. These measures included:

- Installation of engineered acoustic shielding on the radiator.
- Modification of the muffler system.

Extensive attended noise monitoring trials were conducted in collaboration with the crane provider to ensure that the mitigation measures achieved compliant noise levels.

B. Drop Pipe Activity at NST (Queen Street)

To minimise noise impacts during drop pipe activities at NST, AFJV implemented the following:

- Installation of noise mats on the hoarding along Queen Street.
- Provision of hoses for washing the mixer to avoid using the pump attached to the agitator (Agi).
- Posting of signs in the drop pipe area to remind drivers to discharge at minimal speed.
- Ensuring quality testing was conducted inside the hoarding area and not on the street prior to coming into site.

These measures were followed by a series of noise monitoring sessions to confirm that compliant noise levels were achieved.

By implementing these mitigation measures and conducting regular noise monitoring, AFJV ensured all works operated in compliance with the conditions of approval, effectively completing the monitoring period with no noise or vibrations related NCR's.

2.2.7 TRAFFIC NOISE REVIEW

No traffic noise reviews were conducted during this reporting period. The process was concluded in Bi-Annual Report 4 and will not be reported in any future reports.

2.3 NOISE AND VIBRATION COMPLAINTS

There were several complaints received from the community regarding noise at each site. Complaints were addressed by the AFJV community team and preventive actions were taken. Reasonable and feasible mitigation measures were provided to minimise the impacts on the affected community members. A number of mitigation strategies were recommended by the environmental team were implemented and facilitated in consultation with the community team.

Examples of mitigation measures associated complaints:

- A noise complaint was received on 26 July 2024, from a resident adjacent to the Five Dock station box. The complaint pertained to noise generated by the hydra wash during daytime hours on weekdays. In response, AFJV investigated and found that the hydra wash was in operation for a short time as part of dust mitigation during spoilt load out. The hydra wash vehicle ceased operation shortly thereafter, and the community team contacted the stakeholder to inform them that the hydra wash vehicle is used as part of dust mitigation when necessary to control dust.

- A noise complaint was received on 20 November 2024, from a resident adjacent to the North Strathfield station box. The complaint pertained to concrete testing not being conducted behind the hoarding. AFJV investigated and found that the concrete testing was indeed done behind the hoarding, but the Ute belonging to the tester was parked outside the hoarding. AFJV instructed the tester to park his vehicle inside the designated parking area for the North Strathfield site. A toolbox was conducted with the driver and gate operator to explain the noise impact on receivers caused by vehicles parked outside the hoarding. Moreover, AFJV installed noise mats on the hoarding along Queen St to reduce the noise level impact of drop pipe activity on receivers living on Queen St. This was followed by a series of noise monitoring to ensure the noise level of the activity is NML-compliant including joint monitoring with the AA and ER.

2.4 CONCLUSION

Attended and unattended monitoring has occurred throughout the reporting period at each CTP site. Monitoring was completed for various purposes including DNVIS compliance, sound power level checks, verification of out of hours work impacts, and NML compliance monitoring.

Majority of observations obtained in the reporting period identified auditory contributors that were not related to AFJV construction activities. Although some elevated levels were observed, reasonable and feasible mitigation measures were implemented.

Elevated events observed during vibration monitoring at the Sydney Olympic Park and Five Dock sites were not related to AFJV works. These spikes were attributed to AFJV swapping vibration monitor batteries and performing maintenance, rather than a result of AFJV vibratory works.

Ground-borne noise and vibration monitoring was conducted along the tunnel/cross passage alignment between Burwood and North Strathfield. The purpose of this monitoring was to ensure compliance with the Noise and Vibration Management Plan and associated documents. During the reporting period, data was systematically recorded and analysed to assess the impact of construction activities on the surrounding environment. The results confirmed that ground-borne noise and vibration levels were in line with or below the modelled predicted values. This demonstrates the effectiveness of the implemented mitigation measures and AFJV's commitment to minimising the impact and proactively communicating with the surrounding affected receivers.

AFJV will continue to implement noise and vibration mitigation strategies where reasonable and feasible.

Where applicable these mitigation measures are included in the relevant DNVIS. AFJV is committed to minimising their impact on surrounding receivers with the implementation of a dedicated noise specialist aimed specifically at identifying and mitigating noise and vibrational impacts. AFJV had an environmental resource allocated for night shift during this reporting period.

3. SURFACE WATER

The purpose of the Surface Water Monitoring Program (SWMP) is to identify the potential impacts of the CTP works on water quality within local receiving waters. The data presented in the B-ACMR was prepared in accordance with Condition C23 of the Project Planning Approval which requires reporting the results of the CTP works to the Planning Secretary, ER and relevant regulatory agencies.

The report is to provide monitoring data and analysis of results as required within the SWMP. This report details the results during the construction phase of the Project. This report compares the ANSECC guideline and baseline water quality against water quality monitoring data undertaken during the reporting period.

3.1 MONITORING SITES

During the reporting period, surface water quality monitoring was undertaken for dry and wet weather conditions in accordance with SWMP monitoring program. Table 3-A Surface water quality monitoring locations provide a summary of the monitoring locations, and the monitoring location map is included in Appendix D.

Surface water quality was measured at eight locations during the reporting period. DC-U/S location has not been monitored in this reporting period due to water levels being too low to sample. Monitoring locations were identified as being representative of the surrounding receiving waters and sufficient to identify potential project impacts should there be any quality exceedances.

Table 3-A SURFACE WATER MONITORING LOCATIONS

Name	Waterway	Nearest Project Site	Location	Distance From Site to Creek
WB-D/S	White Bay	The Bays	-33.866245°S, 151.180450° E	Immediately adjacent to the site
DC-U/S	Dobroyd Canal / Iron Cove Creek	Five Dock	-33.873828 ° S, 151.128243° E	600m
DC-D/S	Dobroyd Canal / Iron Cove Creek	Five Dock	-33.870604° S, 151.141474° E	600m
SLP-D/S	St Lukes Park Canal	Burwood North	-33.861571°S , 151.113347° E	230m
PC-U/S	Powells Creek	North Strathfield	-33.862145°S, 151.086294° E	350m
PC-D/S	Powells Creek	North Strathfield	-33.852589°S, 151.082359° E	350m
SC-D/S	Saleyards Creek	Sydney Olympic Park	-33.852282°S, 151.081934° E	1km
HC-D/S	Haslams Creek	Sydney Olympic Park	-33.834564°S, 151.075772° E	1km

3.2 SURFACE WATER QUALITY CRITERIA

Chapter 19 (Table 19-6) of the Project EIS identified the following existing water quality conditions relevant to ANSECC indicators in the watercourses near the tunnel alignment and station boxes:

- Haslams Creek: Elevated nutrient concentrations and elevated concentrations of faecal coliforms.
- Saleyards Creek, Powells Creek, St Lukes Park Canal, and Dobroyd Canal/Iron Cove Creek: Low dissolved oxygen levels, elevated nutrient concentrations, elevated heavy metal concentrations, and high turbidity.
- White Bay: Elevated nutrient concentrations, elevated heavy metal concentrations, and high turbidity.

The surface water monitoring results for this reporting period have been compared to the ANSECC guideline for slightly to moderate disturbed aquatic ecosystems and the pre-existing water quality in Table 3-B. The data provides an indication of general waterway health and is utilised in lieu of baseline surface water monitoring data was collected as part of the EIS.

Table 3-B- PRE-EXISTING WATER QUALITY DATA

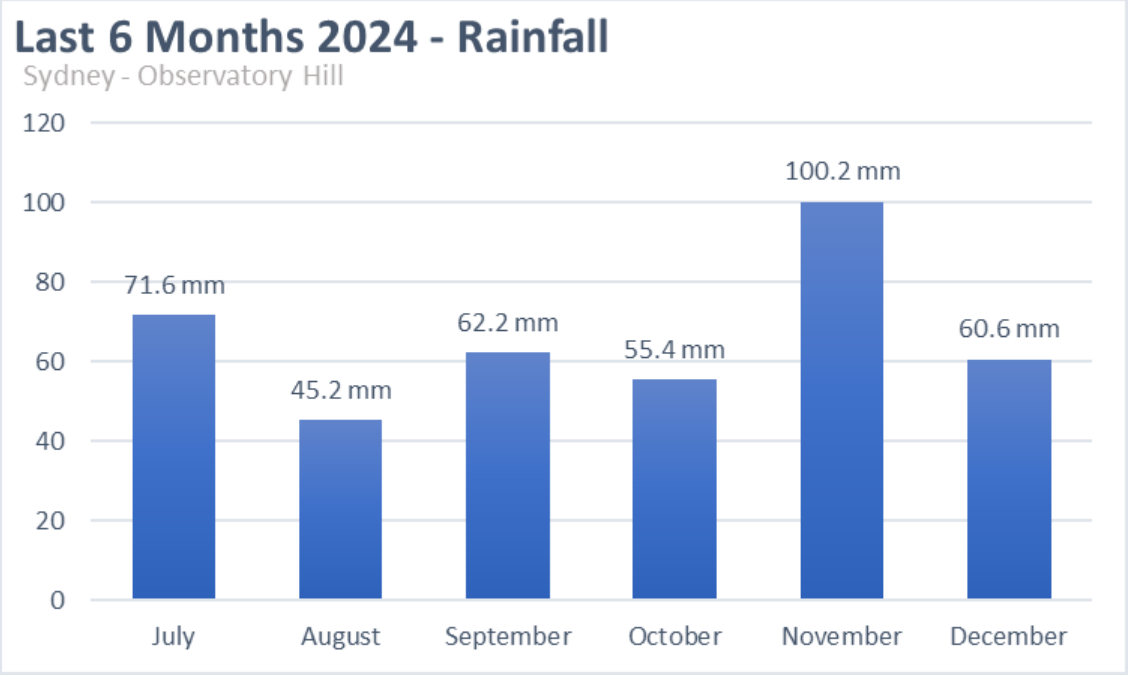
Parameter	ANZECC Guideline [1]	Sal1 (U/S)[3] – Salesyard creek	Sal2 (D/S)[3]- Salesyard creek	Pow1 (U/S)[3] - Powells Creek	Pow2 (D/S)[3] - Powells Creek	SLP2 (D/S)[3] -St Lukes Park Canal	Bar2 (D/S)[3] - Barnwell Park Canal	Dob1 (U/S)[3] - Dobroyd Canal	Dob2 (D/S)[3] - Dobroyd Canal	SW09 Dobroyd Canal[4]	SW01 Rozelle Bay[5]
pH	7.0 – 8.5 [2]	7.8-9.4	7.5-9.1	7.6-9.5	7.7-9.9	7.8-9.7	7.1-8.2	8.1-9.1	7.0-9.1	7.0 – 8.5	5.6-8.0
Conductivity (uS/cm)	Lowland rivers: 125–2200 µS/cm	126-3744	203-40,823	99-2977	101-36,323	165-4,535	258-30,752	230-1718	260-52,630	42 average	403-541,180
DO (mg/L)	N/a	8.8-15	5.4-14	6.9-13	6.8-16	8.2-14	4.7-10.8	9.0-13	4.4-15	n/a	-0.16-558
DO (%sat)	85-110	107-151	67-151	89-130	75-168	96-161	56-110	106-132	58-159	n/a	n/a
Turbidity (ntu)	0.5 – 10 [2]	0-138	5-101	4-501	2-444	0-364	6-48	11-549	2.5-187	n/a	0-52
Oil and grease	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes: 1 – ANZECC (2000) – slightly to moderately disturbed aquatic ecosystems, 2 – Guideline value for SE Australian estuaries 3 - Appendix R of the M4 East project EIS 4- WestConnex M4-M5 Link Mainline Tunnels Soil and Surface Water Management Sub-Plan 5- WestConnex Rozelle Interchange Project Soil and Surface Water Management Plan

3.3 RAINFALL DATA

During the reporting period 395.2 mm of rainfall was received at Observatory Hill with the highest rainfall received in November 2024 with 100.2 mm and lowest in August 2024 with 45.2 mm as presented in Figure 3-A.

Figure 3-A- Rainfall statistics



3.4 SURFACE WATER QUALITY RESULTS

A review of the water quality data gathered as part of the Project EIS revealed that the watercourses associated

with the CTP Project were in poor condition before project commencement, indicative of a highly urbanised system. Surface water data collected during the monitoring period showed exceedances in Dissolved Oxygen, Electrical Conductivity, Turbidity and pH compared to ANSECC 2000 guidelines for slightly to moderately disturbed aquatic ecosystems. These exceedances were compared with preconstruction values from Table 3-B and the EIS. The comparison found that results were consistent with observations in Chapter 19 of the EIS, particularly section 19.5.2 and Table 19-6, and fell within ranges observed in previous projects. Therefore, it can be concluded that the observed deviations in surface water quality are likely due to pre-existing conditions in the densely populated urban setting, rather than direct impacts from project activities.

Additionally, a comparison of surface water monitoring results (Appendix C) with discharge data from the Water Treatment Plants showed no correlation in the fluctuations of watercourse characteristics. Moreover, during this monitoring period, both the Five Dock and Burwood Water Treatment Plants were not operational, further supporting the conclusion that the recorded exceedances are not linked to AFJV's construction activities.

3.5 FIELD OBSERVATIONS

No abnormal odours, visible turbidity/contamination attributable to AFJV works were identified throughout the reporting period. Appendix C provides a detailed summary of pH, EC (Electrical Conductivity), dissolved oxygen, and turbidity results collected from each water quality sampling location.

Throughout the monitoring events no significant variance in water quality or obvious sediment plumes were observed during sampling.

3.6 CONCLUSION

As outlined in section 3.3, a review of the pre-existing surface water quality data collected from Sydney Metro, Local Councils, University of Western Sydney, and WestConnex M4 East project undertaken as part of the EIS revealed that some of the background levels exceeded the ANSECC (2000) water quality trigger values for slightly to moderately disturbed aquatic ecosystems. When compared with pre-existing data, elevated water quality results obtained by AFJV across the monitoring period fall within expected ranges, with no identifiable analyte trends observed throughout the periods data (see appendix C). Given the significant sprawl of urban development and substantial distance between the project boundary and the surface monitoring points it can be concluded that elevated water quality analyte levels observed across the surface water monitoring data for the period cannot be attributable to the CTP project.

4. GROUNDWATER

The purpose of the Groundwater Monitoring Program (GWMP) is to identify the potential impacts of the CTP works on the groundwater quality of the local environments. The data presented in the B-ACMR is prepared in accordance with condition C17 and C23 of the Project Planning Approval, which requires reporting the results of the CTP works to the Planning Secretary, ER and other relevant regulatory agencies.

This report details the results during the construction phase of the GWMP for The Bays, Five Dock, Burwood North, North Strathfield and Sydney Olympic Park. All locations are currently being monitored on a quarterly basis as per the Groundwater Monitoring Program.

Groundwater encountered in excavations for the Project has been treated by water treatment plants (WTP) at The Bays site during this monitoring period. Since the surface water and ground water is treated through a single water treatment plant, the numerous variables, including sprinkler systems utilised for dust suppression, wash down equipment and cleaning in the tunnel, makes calculating the specific amount of groundwater ingress for each site an estimation.

4.1 GROUNDWATER MONITORING LOCATIONS

In accordance with the GWMP, there are 33 boreholes identified throughout the project to monitor and sample. Section 7.1 of the CEMP specifies monitoring monthly for the first three months of construction and quarterly thereafter. Borehole locations utilised during the reporting period are summarised in Appendix D.

Refer to Table 4-A for a summary of monitoring completed within the reporting period.

Table 4-A- GROUNDWATER MONITORING PERIOD

Site	Ground Disturbance Trigger Date	Construction Monitoring (first 3 months of construction)	Quarterly Monitoring
The Bays	05/04/2022	Round 1: 05/05/2022 Round 2: 25/5/2022 Round 3: 21/06/2022	Round 1: 19/09/2022 Round 2: 12/12/2022 Round 3: 21/03/2023 Round 4: 26/06/2023 Round 5: 20/09/2023 Round 6: 11/12/2023 Round 7: 19/03/2024 Round 8: 11/06/2024 Round 9: 10/09/2024 Round 10: 12/11/2024
Five Dock	23/05/2022	Round 1:21/06/2022 Round 2:18/07/2022 Round 3: 29/08/2022	Round 1: 21/11/2022 Round 2: 21/02/2023 Round 3: 27/06/2023 Round 4: 23/08/2023 Round 5: 21/11/2023 Round 6: 21/02/2024 Round 7: 13/05/2024 Round 8: 12/08/2024 Round 9: 12/11/2024
Burwood North	1/06/2022	Round 1: 21/06/2022 Round 2: 18/07/2022 Round 3: 29/08/2022	Round 1: 21/11/2022 Round 2: 20/03/2023 Round 3: 19/06/2023 Round 4: 23/08/2023 Round 5: 21/11/2023

			Round 6: 21/02/2024 Round 7: 13/05/2024 Round 8: 12/08/2024 Round 9: 12/11/2024
North Strathfield	09/11/2022	Round 1: 21/03/2023 Round 2: 27/04/2023 Round 3: 30/05/2023 Refer to section 4.2.3	Round 1- 28/08/2023 Round 2: 22/11/2023 Round 3: 21/02/2024 Round 4: 13/05/2024 Round 5: 12/08/2024 Round 6: 12/11/2024
Sydney Olympic Park	21/06/2022	Round 1: 18/07/2022 Round 2: 29/08/2022 Round 3: 19/09/2022	Round 1: 12/12/2022 Round 2: 21/03/2023 Round 3: 27/06/2023 Round 4: 20/09/2023 Round 5: 12/12/2023 Round 6: 19/03/2024 Round 7: 11/06/2024 Round 8: 10/09/2024 Round 9: 12/11/2024

4.2 FIELD INVESTIGATION

4.2.1 GROUNDWATER MONITORING METHODOLOGY

To ensure accurate results, the methodology outlined in the Groundwater Monitoring Program for gauging and collecting samples during the monitoring rounds was followed. In cases where it was not possible to pump water from the boreholes due to lack of water or space restrictions on site (for example, physically unable to place equipment), a bailer was used to collect samples. Detailed monitoring methodology is available in Appendix D.

4.2.2 GROUNDWATER SAMPLING AND GAUGING

Groundwater sampling and gauging was conducted at accessible groundwater monitoring wells. Table 4-B outlines the boreholes where sampling attempts were made during the monitoring period. Further explanation on why some boreholes were not sampled is included in table 4-C.

Table 4-B Groundwater Wells Monitored

Site	Borehole number	Quarterly Monitoring 9	Quarterly Monitoring 10
The Bays	S02d	Sampled	Sampled
	S02s	Not monitored (Refer to table 4-C)	Sampled
	S06	Sampled	Sampled
	AF_CGW1	Not monitored (Refer to table 4-C)	Not monitored (Refer to table 4-C)
	S54	Not Monitored (Refer to table 4-C)	Not Monitored (Refer to table 4-C)

Site	Borehole number	Quarterly Monitoring 8	Quarterly Monitoring 9
Sydney Olympic Park	SMW_BH019	Sampled	Sampled
	SMW_BH120	Sampled	Sampled
	SMW_BH126	Sampled	Sampled
	BH715B	Sampled	Sampled
	AF_BH36	Sampled	Sampled

Site	Borehole number	Quarterly Monitoring 8	Quarterly Monitoring 9
Burwood	BH046R	Sampled	Sampled
	BH044	Sampled	Sampled

Site	Borehole number	Quarterly Monitoring 8	Quarterly Monitoring 9
Five Dock	BH051	Sampled	Sampled
	BH051s	Not monitored (Refer to table 4-C)	Not monitored (Refer to table 4-C)
	BH050s	Not monitored (Refer to table 4-C)	Sampled
	BH050	Not monitored (Refer to table 4-C)	Not monitored (Refer to table 4-C)

Site	Borehole number	Quarterly Monitoring 5	Quarterly Monitoring 6
North Strathfield	SMW-BH035s	Sampled	Sampled
	SMW_BH009	Not monitored (Refer to table 4-C)	Not monitored (Refer to table 4-C)
	SMW_BH009s	Sampled	Sampled
	SMW_BH035	Sampled	Not monitored (Refer to table 4-C)
	SMW_BH038	Sampled	Sampled

Refer to Appendix D for detailed description of the monitoring conducted. Sampling dates are specified in table 4-A. Due to the staging of stations boxes and therefore disturbance of ground, the “reporting quarter” for each site will vary from site to site based on staging of works.

4.2.3 GROUNDWATER MONITORING WELL STATUS

As detailed in Table 4-B, there were several groundwater monitoring wells that could not be accessed,

replaced, or sampled during this monitoring period. The explanation of why these wells were not monitored is listed in Table 4-C below.

Table 4-C Explanation of groundwater wells not monitored

Month (2024)	Site	Borehole number	Comments
Round 8: 12/08/2024 Round 9: 12/11/2024	Five Dock	SMW_BH051s	The monitoring well had no water to sample.
Round 8: 12/08/2024	Five Dock	SMW_BH050s	The monitoring well had no water to sample.
Round 8: 12/08/2024 Round 9: 12/11/2024	Five Dock	SMW_BH050	The monitoring well had no water to sample.
Round 5: 12/08/2024 Round 6: 12/11/2024	North Strathfield	SMW_BH009	During the sampling operation conducted in the month of August 2023, an incident occurred wherein the bailer became lodged within the well, which possesses a depth of approximately 40m. Despite efforts, the bailer proved unretrievable, leading to the decision to sever the rope from the surface. As a consequence of this unforeseen circumstance, the monitoring well remains inaccessible for sampling.
Round 6: 12/11/2024	North Strathfield	SMW_BH035	The monitoring well had no water to sample.
Round 9: 10/09/2024 Round 10: 12/11/2024	The Bays	S54	The borehole couldn't be monitored as the casing is bent making it impossible to feed the pump/bailer through the casing.
Round 9: 10/09/2024	The Bays	S02_s	The monitoring well had no water to sample.
Round 9: 10/09/2024 Round 10: 12/11/2024	The Bays	AF_CGW1	The monitoring well had no water to sample.

4.2.4 FIELD OBSERVATIONS

During sampling and gauging, no odours were noted. Additionally, no visual sign of contamination (such as a sheen) was observed during sampling. Refer to Appendix D for a detailed summary of pH and EC (Electrical Conductivity), DO (dissolved oxygen), redox, turbidity, each borehole sampled during the monitoring period.

4.3 GROUNDWATER WATER QUAILITY

In accordance with the GWMP and GWMoP, an analysis of groundwater quality monitoring results has been undertaken for the reporting period, this section will a focus on assessing fluctuations in water chemistry against the established trigger values outlined in the Groundwater Monitoring Plan.

The investigation evaluates localised water quality trends in boreholes across the project footprint, assessing the influence of CTP construction works on the surrounding Groundwater environment as anticipated by the project EIS. The findings are contextualised with historical data to assess mid to long-term trends and to ensure effective management of water quality impacts.

4.3.1 TRIGGER VALUES

A set of trigger values was developed on a site-by-site basis following the below steps:

- If result below LOR (Limit of reporting), the trigger value is set at:
  - LOR x 10 (if LOR is more than 10x > screening levels);
  - LOR (if LOR is less than 10x screening levels)
- For result with detects:
  - If data does not support statistics applied maximum plus 20%, also note where the maximum already exceeds screening levels (The 20% represents the standard field/lab error we apply in normal QA/QC (Quality Assurance/Quality Control)).

If there is an exceedance of a Trigger Value, the following next steps may be considered:

- Review Site data for the well with the exceedance.
- Data for that well should be tracked for long-term trends after the next sampling period;
- If the next sampling round also exceeds, increased frequency of sampling is warranted to evaluate the longer-term trend; and
- If increasing trends are identified, further site-specific assessment should be conducted that can include review of hydrogeologic information, trends and as well as assessment of risks to quality of water.

4.3.2 LABORATORY RESULTS ANALYSIS

Throughout this monitoring period all groundwater laboratory results were assessed against the determined trigger values, which can be found in appendix D. A summary of exceedances identified across CTP are outlined in table 4-D.

Table 4-D Identified exceedances of Groundwater trigger values in this reporting period.

Site	Borehole	Month	Analyte
The Bays	S_02d	September	Chloroform, TRH C10 - C1–, TRH C15 - C28, Total +ve TRH (C10-C36), TRH >C16 - C34. Total +ve TRH (>C10-C40)
		November	Ammonia (as N in water), Total Nitrogen in water, TRH C10 - C1–, TRH C15 - C28, TRH C29-C36, Total +ve TRH (C10-C36), TRH >C16 - C34. TRH >C34-C40
	S06	September and November	No exceedances
	S_02s	November	No exceedances
Five Dock	SMW_BH051	August	Nitrate as N in wáter, Total Nitrogen in water, Copper-Dissolved
		November	TRH C15 - C28, Total +ve TRH (C10-C36), TRH >C16 - C34, Total +ve TRH (>C10-C40)
	SMW_BH050s	November	TRH C15 - C28, Total +ve TRH (C10-C36), TRH >C16 - C34, Total +ve TRH (>C10-C40), Boron-Dissolved, Barium-Dissolved, Boron-Total, Barium-Total
Burwood	SMW_BH046R	August	Bicarbonate Alkalinity as CaCO3, Nitrate as N in water, Copper-Dissolved, Cobalt-Dissolved, Molybdenum-Dissolved, Nickel-Dissolved, Copper-Total, Cobalt-Total, Molybdenum-Total, Nickel-Total, Lead-Total, Sinc-Total, Iron-Total
		November	Bicarbonate Alkalinity as CaCO3, Nitrate as N in water, Copper-Dissolved, Cobalt-Dissolved, Nickel-Dissolved, Arsenic-Total, Beryllium-Total, Cadmium-Total, Cobalt-Total, Nickel-Total
	SMW_BH044	August	TRH >C16 - C34, Total +ve PAH's,
		November	TRH C15 - C28, TRH C29 - C36, Total +ve TRH (C10-C36), TRH >C16 - C34, Total +ve TRH (>C10-C40), Pyrene, Chrysene, Benso(b,j+k)fluoranthene, Indeno(1,2,3-c,d)pyrene, Benso(g,h,i)perylene, Total +ve PAH's,
North Strathfield	SMW_BH035s	August	Perfluorohexanesulfonic acid – PFHxS

		November	Manganese-Dissolved
	SMW_BH009S	August	Perfluorooctanoic acid PFOA,
		November	Perfluorooctanoic acid PFOA
	SMW_BH035	August	Hardness, Nitrate as N in water, Total Nitrogen in water
	SMW_B H038	August and November	No Exceedance
Olympic Park	SMW_BH120	September	Cobalt-Dissolved, Manganese-Dissolved
		November	Cobalt-Dissolved
	SMW_BH126	September	Bensene, TRH C29 - C36, Phenanthrene, Perfluorobutanesulfonic acid,
		November	No exceedance
	AF_BH36	September	Cobalt-Dissolved, Manganese-Dissolved, Beryllium-Total, Copper-Total, Manganese-Total
		November	Cadmium-Dissolved, Copper-Dissolved, Cobalt-Dissolved, Manganese-Dissolved, Beryllium-Total, Copper-Total, Cobalt-Total, Manganese-Total
	SMW_BH019	September	No Exceedance
		November	No Exceedance
Tunnel Alignment	BH_715B	September	Calcium – Dissolved, Perfluorohexanoic acid
		November	Magnesium – Dissolved, Hardness, Sulphate, SO4, Chloride, Cl, Cadmium-Dissolved, Copper-Dissolved, Cobalt-Dissolved, Sinc-Dissolved, Cadmium-Total, Cobalt-Total, Tin-Total, Sinc-Total

Fluctuations in water chemistry were observed throughout this reporting period but after a thorough analysis, no meaningful trends in analyte concentrations were observed. Analysis included dissolved sodium and chloride which is used as an indicator of saltwater ingress due to groundwater.

The groundwater monitoring program specifies that a management response will be initiated under the following conditions:

- The EC or water quality data continuously exceeds the trigger value over three consecutive monitoring periods, showing a rising trend.

- The EC or water quality data exceeds the trigger value by more than 100% at any time.

Below is the analysis of each case that triggered the management response detailed above (This includes results of this reporting period and previous ones to evaluate the mid-term trends). Refer to Appendix D for trend graphs. Note that the reference to “D” and “S” indicate deep and shallow boreholes respectively.

BH120 and BH126:
Located adjacent to SOP’s station box, BH120 and BH126 returned analyte levels of dissolved cobalt and perfluorobutanesulfonic acid (PFAS), respectively, between July and December 2024. BH120 exhibited dissolved cobalt concentrations above the trigger value of 13.2 µg/L during this period, with levels increased slightly from 14 µg/L in July to 19 µg/L in both September and November 2024. In BH126, PFAS concentrations exceeded the trigger value of 0.264 µg/L in September 2024, reaching 0.59 µg/L, before dropping below the trigger value in November 2024.

As mentioned in previous reports, Technical Papers 7 and 8 of the Project’s EIS indicate that groundwater in this area may be contaminated with nutrients, metals, hydrocarbons, volatile organic compounds, perfluorooctanesulfonic acid, asbestos, and landfill gas. The EIS also highlights that excavation activities act as a groundwater sink, drawing in groundwater and potentially mobilising contaminants. The analyte concentrations observed during this monitoring period align with the EIS findings, suggesting localised contamination and variability due to patches of impacted groundwater, drawn in by the passing of the TBM’s, and stabilising upon tunnelling completion in early October 2024.
AFBH36:

AFBH36 is located further away from SOP's station box and along the tunnel alignment. According to Technical Papers 7 and 8 of the EIS, the contaminants of concern in this area include PFAS, nutrients, heavy metals, hydrocarbons, and volatile organic compounds (VOCs).

During the monitoring period, AFBH36 observed exceedances in dissolved manganese, dissolved cobalt, total beryllium, total copper, and total manganese across three consecutive monitoring rounds. In most cases, analytes observed a single minor exceedance of the trigger value, however, in the case of Manganese and Cobalt an increasing tread was observed throughout the monitoring period. As per the performance criteria exceeded trigger value recommendations specified in section 4.3, the long-term water quality trends of AFBH36 were reviewed alongside a comprehensive assessment of the areas chemical hydrology as outlined in the EIS.

The review of historical data identified a notable outlining peak in contaminant concentrations across all analytes was observed in December 2023. Since this peak, contamination levels have generally decreased in subsequent monitoring rounds leading up to and following the completion of excavation in October 2024, which is consistent with localised variations in groundwater quality described in the EIS.

A review of the project literature found that analyte concentrations observed in borehole AFBH36's align with the EIS findings, which anticipated a large degree of volatility, characteristic of heterogeneous contamination within the groundwater system, mobilised by temporary excavation-induced drawdown can mobilise contaminants in localised areas.

These findings were cross analysed with available datalogger information in an attempt to assess whether a correlation could be identified. Some drawdown of approximately four meters was observed as the TBM passed in October 2024, however no further variation could be identified, nor could any correlation with the water quality variations be drawn.

BH035 and BH035S:
BH035 and BH035S are shallow boreholes situated near the North Strathfield station box. Monitoring at these locations identified exceedances in dissolved manganese, nitrate, and nitrogen levels. Once again, in accordance with the exceeded trigger value recommendations, a review of the water quality data collected since the project's inception was undertaken. The analysis revealed that, with the exception of dissolved manganese, the concentrations of identified analytes exhibited a stabilising trend. No variations were detected in the datalogger readings from this borehole.

S02_d:
Located at adjacent to White Bay Power Station, S02_d exhibited exceedances in Total Recoverable Hydrocarbons (TRH) (C10-C36, C15-C28, >C16-C34, and >C10-C40) throughout this monitoring period. In all cases, TRH levels were observed to fall below the trigger value in the June 2024 monitoring rounds. However, exceedances were detected again in September and November 2024 for TRH C10-C36, C15-C28 and >C16-C34 classification, but not in >C10-C40. In all cases concentrations were observed to fall in the November 2024 sampling round.

A review of the historical water quality data collected at borehole S02_D identified significant volatility in TRH concentrations with no clear trend or correlation with AFJV excavation, tunnelling or surface works program, suggesting that the exceedances were pre-existing and not caused by AFJV activities. Technical Paper 8 confirmed this position, identifying the potential for groundwater within, and around the construction footprint to be contaminated with an array of contaminants including hydrocarbons.

4.4 GROUNDWATER LEVELS

Apart from the data gathered during the field investigations, live dataloggers are installed in boreholes across the CTP station boxes and tunnel alignment. This data was monitored by engineers and survey teams to monitor observable drawdowns to ensure these are within the expected levels. This report was collated in consultation with respective engineering teams who provided input into the conclusions drawn from groundwater levels data.

During the reporting period, groundwater levels in the boreholes located along the project station boxes exhibited minimal variance. Data retrieved from water well loggers located along the tunnel alignment historically observed fluctuations during the immediate passing of TBMs or minimal changes from cross passage excavation. In the previous reporting period, considerable fluctuation in groundwater levels were observed in the boreholes immediately adjacent to XP34 (BH 26.15, Bh26.30 and BH26.42). These boreholes have since stabilised and have remained consistent for a six-month period. All other water wells have displayed either a stable trend or have recharged to pre-construction levels.

Refer to Appendix D for a summary of all groundwater level data compiled during the reporting period.

Table 4-E shows the boreholes that utilised dataloggers over the reporting period. Note that a majority of the 6 and 12 month post excavation monitoring requirements for the dataloggers concluded in December 2024.

Table 4-E Live datalogger boreholes

LIVE DATALOGGER BOREHOLES					
TBM Alignment Water Levels	**THE BAYS**	**FIVE DOCK**	**BURWOOD**	**NORTH STRATHFIELD**	**SYDNEY OLYMPIC PARK**
AF_BH26.15 AF_BH26.30 AF_BH26.42 AF_BH30.15 AF_BH30.30 AF_BH30.48 AF_BH36 AF_BH36s AF_BH37 AF_BH37s SMW_BH710_v SMW_ENV715B_w	No live dataloggers from July 2024 onwards.	SMW_BH050_s SMW_BH050_w SMW_BH051_s SMW_BH051_w R248_3103_BH141 R248_3103_BH141A	BH1326 SMW_BH044w SMW_BH046s BH1333 BH1336 BH714_s BH714_w SMW_BHCINT01 SMW_BHCINT03	SMW_BH009_s SMW_BH009_w SMW_BH035_s SMW_BH035_w SMW_BH038_w	SMW_BH019_w SMW_BH120_W SMW_ENV714_W

Technical paper 7 of the Project EIS identified that the tunnel alignment passes within 500 metres of groundwater-dependent ecosystems (terrestrial vegetation) in the suburbs of Westmead, Parramatta, Clyde, Silverwater, and Sydney Olympic Park. However, the temporary drawdown detected near Cross Passage 34, located between Burwood North and Five Dock Station Boxes, does not have a groundwater-dependent ecosystem in its vicinity so no impact is expected to GDEs due to tunnel excavation.

4.5 WATER TREATMENT PLANTS

Prior to 5 December 2024 , CTP Water Treatment Plant (WTP) monitoring has been undertaken in the form of Proof of performance (PoP) sampling as per condition E2.1 and condition M2.2 of the project's EPL (Notice number 1637016) which required a performance report to be submitted to the EPA within 10 business days of each sample being taken in accordance with the following schedule:

i) Daily on the first 3 days of discharges,
ii) Weekly for the first month of discharges,
iii) Fortnightly for the first 3 months,
iv) Monthly for the rest of the WTPs operation. (Condition M2.2 of the EPL)

An EPL variation (1643447) was issued on 5 December 2024 revising the projects water discharge criteria limits at both The Bays WTP and Burwood North WTP and removing the clause requiring PoP reporting. Monthly monitoring continues for compliance review and as required by the EPL and will be submitted as part of the final B-ACMR.

During the July to December 2024 reporting period, three Water Treatment Plants were in operation, one at The Bays, one at Burwood North, and one at Sydney Olympic Park. Sydney Olympic Park's water treatment plant was decommissioned on 12 July 2024. Offsite discharge from the Burwood North water treatment plant did not occur during the reporting period. This was due to an incident that involved discharges off site that were outside the pH criteria in April 2024. The incident was reported to the EPA, Sydney Metro and DPHI. The EPA concluded their investigation on 17 December 2024 issuing one penalty notice, one formal warning and two caution notices. AFJV now considers this matter is closed.

Additional sampling has occurred at the Burwood North WTP following filter media replacement in November 2024.

Any exceedances of EPL criteria identified sampling in accordance with the EPL has been supplied to the EPA and depicted in Table 4-F along with corrective actions taken to improve water quality. Refer to Appendix E for water quality sampling results.

Table 4-F corrective actions for WTP elevated concentrations

Site	Analyte	Corrective action for elevated concentration
The Bays	Nitrogen total	Ongoing maintenance includes backwashing the IEP65 filters every 2-3 days, weekly backwashing of the GAC filters, and fortnightly backwashing of the IX filters. Regular jar testing is conducted to adjust coagulant dosing, and weekly cleaning and calibration of probes is performed on the WTP. Following the EPL Variation, sample results received show full compliance with the new EPL discharge criteria.
	Phosphorus total	
Burwood North	Aluminium	No offsite discharge from the Burwood North WTP occurred during the reporting period. EP65, GAC, IX Resin filter medias were replaced in November 2024. Following the replacement of the above filter media, additional water samples were collected from the water treatment plant. Lab results showed exceedance in total Phosphorus only. Backwashing and water treatment is ongoing to get the water treatment plant compliant.
	Manganese	
	Zinc	
	Nitrogen total	
	Phosphorus total	
	Ammonia	
	Nitrate+Nitrite	
Sydney Olympic Park	Nitrogen total	Sydney Olympic Plant Water treatment plant was decommissioned in July 2024.
	Phosphorus total	

The performance of the WTP's is continually monitored and maintenance conducted to ensure the discharge concentrations are within the established limits in the EPL Condition L2.

Average daily discharge totals vary depending on production and groundwater ingress in the station boxes. The cumulative discharge from The Bays and Sydney Olympic Park plants is depicted below in Figures 4-A and 4-B. There was no discharge at Burwood North WTP during the reporting period. The cumulative discharge is only representative for the 6 month reporting period and is not representative of discharge prior to July 2024.

Figure 4-A - Six-month cumulative discharge for The Bays' WTP

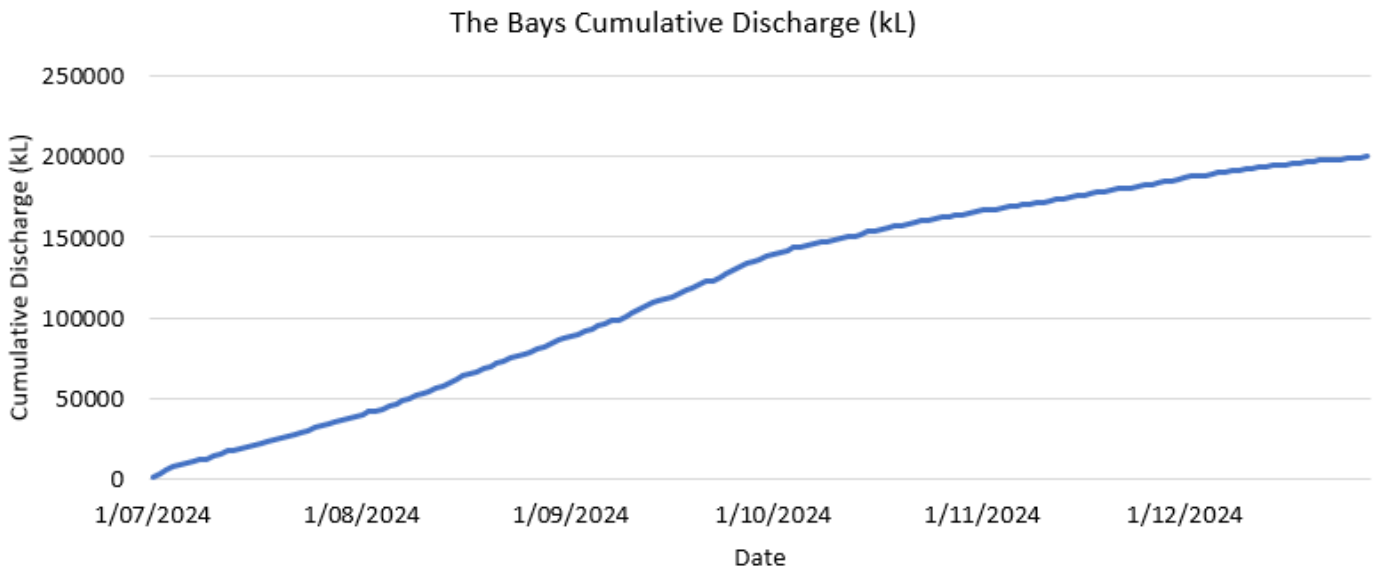
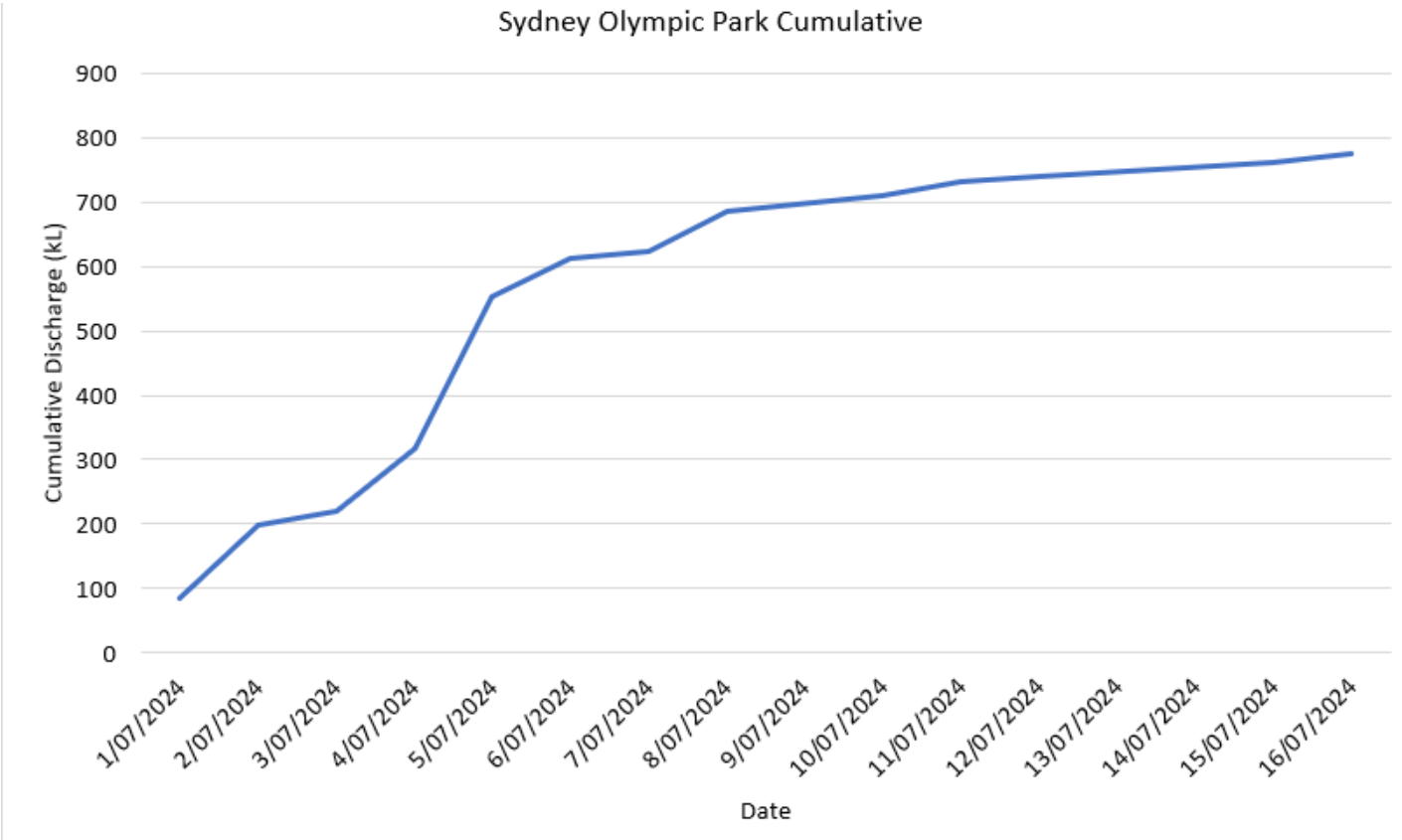


Figure 4-B - Six-month cumulative discharge Sydney Olympic Park's WTP



4.6 CONCLUSION

As discussed in section 4.3 of this report, analysis of water quality across multiple boreholes during the reporting period identified significant fluctuations and volatility in analyte concentrations. Although no meaningful overarching trends were observed, the variation of analyte levels coincided with the heterogeneous contamination patterns anticipated by the EIS.

Localised contamination was evident in several boreholes, with exceedances of trigger values detected. In BH120 and BH126, dissolved cobalt and PFAS levels exceeded trigger values, reflecting the temporary, non -

sustained influence of excavation-induced groundwater drawdown, which stabilised following the completion of tunnelling in late October to early September 2024. Similarly, AFBH36 recorded several contaminant exceedances, with manganese and cobalt during the reporting period. These findings corroborate the EIS prediction that excavation-induced drawdown can mobilise contaminants, with concentrations stabilising after tunnelling activities concluded. In BH035 and BH035S, exceedances of dissolved manganese, nitrate, and nitrogen were identified, though analyte levels, except for manganese, exhibited stabilising trends, indicating limited and temporary impacts from construction activities. For borehole S02_D, exceedances in Total Recoverable Hydrocarbons (TRH) were intermittently observed; however, historical data and the absence of a correlation with excavation or surface works suggest these exceedances were pre-existing.

Overall, the observed water quality impacts align with the EIS predictions and were primarily localised and temporary, driven by excavation and tunnelling activities. The project's primary mitigation, the Water Treatment Plant, effectively managed potentially contaminated water ingress, ensuring any elevation in analyte levels observed over the reporting period was mitigating from mobilising into the broader environment.

Special attention was given to analytes like sodium and chloride, which were identified to indicative of saltwater intrusion, a key indicator of significant and continued project-related drawdown. No identifiable trend was observed in the results or field observations collected by AFJV. Consequently, based on AFJV's extensive groundwater monitoring, it can be concluded that exceedances identified during the period reflect pre-existing conditions rather than sustained groundwater drawdown or other construction related impacts.

Data loggers analysed across the CTP station boxes and tunnel alignment confirmed that the groundwater levels remained consistent with estimated drawdown outlined in technical paper 7 – Hydrology. Throughout the reporting period, the groundwater levels in the boreholes situated along the project alignment and station boxes displayed minimal variance. An examination of data retrieved from water well loggers indicated no significant fluctuations in groundwater levels compared to pre-existing estimates and recharge occurring within the expected timeframe. Data logger values observed in Appendix D confirm all water wells have stabilised or recharged to pre-existing levels. Specific note was made of BH26.15, BH26.30 and BH26.45 which had seen significant fluctuations in the previous reporting period. Data collected from the current period identify these boreholes have now stabilised for a period of five months.

Monitoring of water treatment plants detected minor exceedances of organic compounds, nutrients, and metals. Exceedances were minor and unlikely to cause a measurable impact to the receiving environment and waterways. Corrective actions such as exchanging and renewing filter media and increasing backwashing frequency were implemented in response to the observed exceedances. All water treatment monitoring results were collated and submitted to the EPA in proof of performance reports in accordance with the EPL up until the variation on 5 December 2024.

APPENDIX A - NOISE MONITORING

APPENDIX A (i) – ATTENDED NOISE MONITORING REGISTER & FIELD SHEET EXAMPLES

Date	Time	Attended/Unattended	Site	Purpose	OOHW#	Source location	Monitoring location	Works	NCA	Period	NML Level dB	Model Prediction (LAeq) dB	LAeq dB	LA90 dB	LAmax dB	NML exceeded?	Exceed model prediction?	Compliant with ICNG	Mitigation measures implemented?	LAeq After MM implementation	Prediction Exceedance AFJV related?	Works Compliant?	Notes
9/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	67	47.1	90.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
9/07/2024	09:16pm-09:30pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	64.9	50	86.1	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
9/07/2024	09:33pm-09:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	57.5	56.3	77.1	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
9/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	58.8	46.9	78	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
9/07/2024	11:18pm-11:32pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	61.6	48.7	85	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
9/07/2024	11:37pm-11:51pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	54	56.5	74.7	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
9/07/2024	12:00am-12:14am	Attended	Burwood	OOHW Verification	308	Parramatta Rd, BWD	8 Burwood Rd, BWD	6T Excavator, Wacker Backer, Hand Tools, Concrete Saw	NCA12	Night	47	71	69.3	65.4	83.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were the primary sources of noise. As expected, the noise level exceeded the NML during the monitoring period. Surprisingly, the predicted level was also surpassed due to AFJV works. However, AFJV has provided alternative accommodation for the receivers and implemented additional mitigation measures, as mentioned above.
10/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	60.7	49.1	72.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
10/07/2024	09:18pm-09:32pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	63.2	51.2	76.8	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
10/07/2024	09:33pm-09:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	81 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	59.1	51.2	77	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
10/07/2024	11:33pm-11:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	55.3	53.3	76	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
10/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	60.4	49	83.4	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
10/07/2024	11:15pm-11:29pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	57.5	47.7	75.2	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
11/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	64.5	46.5	78.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
11/07/2024	09:23pm-09:37pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	65.4	48.7	85.2	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
11/07/2024	09:40pm-09:54pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	81 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	59.5	47	76.2	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
11/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	58.7	44.8	75.2	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
11/07/2024	11:18pm-11:32pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	61.8	45.8	62.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
11/07/2024	11:33pm-11:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	53.5	43.5	74.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	61.7	50.1	78.5	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	09:16pm-09:30pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	63.5	50.7	80.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	09:33pm-09:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	81 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	59.1	49.6	75	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	61.6	50.9	77.6	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	11:15pm-11:29pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	59	50.8	79.4	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	11:31pm-11:45pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	56.1	50.1	71.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
12/07/2024	10:00pm-10:14pm	Attended	Five Dock	DNVIS Verification	N/A	Station box	9 East St, FDK	Booster, Conveyor Belt	NCA14	Night	38	38	53.9	51.8	68.2	Yes	Yes	Yes	Yes	N/A	No	Yes	The construction activities were audible, and the noise level of the construction works (Hum) was 47 dBA.
18/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	56.5	46.5	77.5	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
18/07/2024	11:16pm-11:30pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	58.6	48.4	77.4	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
18/07/2024	11:32pm-11:46pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	58.6	48.4	77.4	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
22/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	64.2	49.8	86.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
22/07/2024	09:17pm-09:31pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	64.8	52.8	82.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
22/07/2024	09:34pm-09:48pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	81 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	60.5	51	82.8	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
23/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	62.3	48	80.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
23/07/2024	09:18pm-09:32pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	66.9	51.8	95.7	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
23/07/2024	09:33pm-09:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	81 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	58.4	49	76.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
23/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	57.7	48.8	75.7	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
23/07/2024	11:17pm-11:31pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	64.3	51.7	92.6	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
23/07/2024	11:33pm-11:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	53.7	47.6	72.7	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
24/07/2024	09:27pm-09:41pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	63.2	51.8	77.2	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
24/07/2024	10:00pm-10:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	60.8	50.7	75.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
24/07/2024	10:19pm-10:33pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	64.1	50.8	81.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
24/07/2024	10:35pm-10:49pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	56.8	48.9	71.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
24/07/2024	08:41am-08:55am	Attended	Burwood	OOHW Verification	421	Station box	16 Burton St, Concord	one Agi in operation, three agis idle	NCA12	Evening	47	47	58.9	48.5	79.4	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were the primary sources of noise. As expected, the noise level exceeded the NML during the
24/07/2024	08:57pm-09:11pm	Attended	Burwood	OOHW Verification	421	Station box	16 Burton St, Concord	one Agi in operation, three agis idle	NCA12	Evening	47	47	61.7	46.2	79.6	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were the primary sources of noise. As expected, the noise level exceeded the NML during the
25/07/2024	10:14pm-10:28pm	Attended	North Strathfield	OOHW Verification	429	Station box	25 Beronga St, NST	60t Crane, Flatbed	NCA11	Night	44	62	59.2	48.7	78	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were audible, but traffic on Queen St and Beronga St was more noticeable. However, AFJV has provided alternative accommodation (AA). The noise level of the construction works was around 54-55 dBA.
26/07/2024	09:00pm-09:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	67	48.7	88.8	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
26/07/2024	09:17pm-09:31pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Evening	48	45	66.4	49.7	88.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
26/07/2024	09:33pm-09:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	81 Queen St, NST	TBM Traverse	NCA11	Evening	48	40	58.9	50.1	74	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
26/07/2024	11:00pm-11:14pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	125 Queen St, NST	TBM Traverse	NCA11	Night	44	40	61.5	47.2	81.6	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
26/07/2024	11:18pm-11:32pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	93 Queen St, NST	TBM Traverse	NCA11	Night	44	45	61.8	45.8	62.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
26/07/2024	11:33pm-11:47pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	83 Queen St, NST	TBM Traverse	NCA11	Night	44	40	55.8	48.6	71.2	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but the dominant noise sources were cars on Queen St.
1/08/2024	08:53am-10:07am	Attended	Burwood	OOHW Verification	322 & 308	Corner of BWD RD and Parra RD	8 Burwood Rd, BWD	Saw Cutter, Truck, Excavator 6T, Hand Tools	NCA13	Night	49	80.5	68.7	58	94.5	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were audible, but traffic on Parramatta Rd was the dominant noise source. However, AFJV has provided AA. Construction noise level was around 66-69dbA.
7/08/2024	09:54pm-10:08pm	Attended	North Strathfield	OOHW Verification	427	Queen Street	129 Queen St, NST	Road Profiler, Truck, Bobcat	NCA11	Night	44	88	77	69.9	93.9	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were audible and dominant noise source. However, AFJV has provided AA. Construction noise level was around 69-71dbA.
8/08/2024	10:29pm-10:43pm	Attended	Burwood	OOHW Verification	322	Burwood Rd	8 Burwood Rd, BWD	6T excavator, Truck, Concrete saw	NCA12	Night	49	77	67.7	63.5	83.1	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were audible, but traffic on Parramatta Rd was the dominant noise source. However, AFJV has provided AA. Construction noise level was around 66-69dbA.
15/08/2024	09:30pm-09:44pm	Attended	North Strathfield	OOHW Verification	427	Queen Street	129 Queen St, NST	Line Marking plant	NCA11	Night	44	62	66.2	61.5	79.7	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were audible, but so were cars, airplanes, and pedestrians. Construction noise level was around 59-61dbA
15/08/2024	09:58pm-10:13pm	Attended	Burwood	OOHW Verification	421	Station box	12 Burton St, Concord	one Agi in operation, three agis idle	NCA12	Evening	47	47	51.7	46.5	72.3	Yes	No	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but traffic on Burton Street and Parramatta Road was more noticeable
19/09/2024	9:45pm-10:00pm	Attended	Burwood	OOHW Verification	322 and 308	Burwood road	8 Burwood road	Saw Cutter, Truck, Excavator 6T, Hand Tools	NCA12	Night	49	80.9	66.7	60.7	80.2	Yes	No	yes	yes	N/A	No	Yes	Construction activities were audible, but the dominant noise source was traffic on Burwood road and Parramatta road.
19/09/2024	11:06pm- 11:21pm	Attended	North Strathfield	OOHW Verification	417	Concord road	155 Concord Rd	Operators installing car detection cables in asphalt. No noisy activity was recorded during the monitoring.	NCA11	Night	44	88	61.7	52.2	85.4	Yes	No	yes	yes	n/a	No	Yes	No construction noises were audible as works were concluding when monitoring started. Finishing touches were being made to the asphalt. The dominant noise source was traffic on Concord road.
1/10/2024	10:07pm-10:21pm	Attended	Burwood	OOHW Verification	419	Burwood Rd	8 Burwood Rd, BWD	Concrete Saw, Bobcat, Road profiler, hand tools	NCA13	Night	49	81	77.1	66.9	93	Yes	No	Yes	Yes	N/A	No	Yes	Construction work was the main source of noise. As expected, the noise level exceeded the NML during the monitoring period, but it did not surpass the predicted level. Even so, AFJV provided alternative accommodation for the affected residents.
1/10/2024	09:15pm-09:29pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station Box	2c Figtree Dr. BWD	6T Excavator, Hand tools	NCA08	Evening	51	51	56.3	45.7	74.4	Yes	Yes	Yes	Yes	N/A	No	Yes	Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.
2/10/2024	10:24pm-10:38pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	6T Excavator, Hand tools	NCA15	Night	43	90	70.5	66.5	87	Yes	No	Yes	Yes	N/A	No	Yes	The construction activities were audible, and the noise level of the construction works was 68 dBA.
4/10/2024	10:35pm-10:49pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	6T Excavator, Hand tools	NCA15	Night	43	90	68.6	65.9	81.2	Yes	No	Yes	Yes	N/A	No	Yes	The construction activities were audible, and the noise level of the construction works was 66 dBA.
3/10/2024	10:54pm-11:08pm	Attended	Five Dock	OOHW Verification	419	Burwood Rd	8 Burwood Rd, BWD	Concrete Saw, Bobcat, Road profiler, hand tools	NCA13	Night	49	81	66.8	59.7	89.5	Yes	No	Yes	Yes	N/A	No	Yes	Construction work was the main source of noise. As expected, the noise level exceeded the NML during the monitoring period, but it did not surpass the predicted level. Even so, AFJV provided alternative accommodation for the affected residents.
8/10/2024	10:23pm-10:37pm	Attended	Burwood	OOHW Verification	419, 405	Burwood Rd	4 Burwood Rd, Concord	2 of 6T Excavator, Hand tools, Truck	NCA13	Night	47	73	67.4	61.2	90.2	Yes	No	Yes	Yes	N/A	No	Yes	The construction activities were audible, and the noise level of the construction works was 62 dBA.
9/10/2024	10:52pm-11:06pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	6T Excavator, Hand tools, generator	NCA15	Night	43	90	71	65.3	94.1	Yes	No	Yes	Yes	N/A	No	Yes	The construction activities were audible, and the noise level of the construction works was 65 dBA.
10/10/2024	10:00pm-10:14pm	Attended	The Bays	DNVIS Verification	N/A	Station Box	11 Mansfield St, Rozelle	EWP, Hand tools	NCA21	Night	40	35	49.2	45.4	67.7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.
11/10/2024	11:02pm-11:16pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	6T Excavator, Hand tools, generator	NCA15	Night	43	90	70.1	65.4	88.9	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.
15/10/2024	09:01pm- 09:15pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2c Figtree Dr. SOP	Tower crane, hand tools, EWP	NCA08	Evening	51	50	53.9	47.5	73.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were audible, but cars and pedestrians were the dominant sources of noise. The noise level of the tower crane when not lifting was 52 dBA, and the noise level during lifting was 58 dBA. Each lift took around 30 seconds, during which the noise level reached 58 dBA. The time between the first and second lift was around 4–5 minutes. The noise level from other equipment was inaudible.
15/10/2024	09:38pm- 09:52pm	Attended	The Bays	DNVIS Verification	N/A	Station box	11 Mansfield St, Rozelle	EWP, Hand tools	NCA21	Evening	40	35	51.3	47.5	67.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.
15/10/2024	11:04pm-11:18pm	Attended	Burwood	OOHW Verification	420	Loftus St, BWD	1A Loftus St, BWD	Truck, hand tools, 6T excavator	NCA13	Night	47	75	56.6	49.4	73.3	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but traffic on Parramatta Rd was the dominant noise source. However, AFJV has provided AA. Construction noise level was around 55 dBA.
16/10/2024	09:29pm- 09:43pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2c Figtree Dr, SOP	Tower crane, hand tools, EWP	NCA08	Evening	51	50	57.5	50.3	72.7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were audible, but cars and pedestrians were the dominant sources of noise. The noise level of the tower crane when not lifting was 51 dBA, and the noise level during lifting was 54 dBA. Each lift took around 30 seconds, during which the noise level reached 54 dBA. The time between the first and second lift was around 4–5 minutes. The noise level from other equipment was inaudible.
16/10/2024	10:52pm-11:04pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	6T Excavator, Hand tools, generator, 2X trucks	NCA15	Night	43	90	70.9	61.9	87.8	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were audible, and the noise level of the construction works was 61 dBA.
17/10/2024	09:48pm- 10:02pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2c Figtree Dr. SOP	Tower crane, hand tools, EWP	NCA08	Evening	51	50	59.5	45.5	79	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were audible, but cars and pedestrians were the dominant sources of noise. The noise level of the tower crane when not lifting was 51.2 dBA, and the noise level during lifting was 53.4 dBA. Each lift took around 30 seconds, during which the noise level reached 53.4 dBA. The time between the first and second lift was around 4–5 minutes. The noise level from other equipment was inaudible.
18/10/2024	08:58pm- 09:12pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2c Figtree Dr, SOP	Hand tools, EWP	NCA08	Evening	51	50	58.4	48.1	76.2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars and pedestrians were the dominant sources of noise.
18/10/2024	10:32pm-10:46pm	Attended	North Strathfield	OOHW Verification	442	Station box	121 Queen st, NST	AGi Truck	NCA11	Night	44	44	65.2	52.3	82.9	Yes	Yes	Yes	Yes	N/A	No	Yes	Construction activities were audible, as were cars, airplanes, and pedestrians. The construction noise level was around 61 dBA. AFJV will implement additional mitigation measures to minimize the noise level. Currently, the activity is on hold until the noise mitigation is implemented.
18/10/2024	11:08pm- 11:22pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools	NCA21	Night	40	35	49.2	46.9	60.7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.
21/10/2024	08:17pm- 08:31pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2c Figtree Dr, SOP	Hand tools, EWP	NCA08	Evening	51	50	56.2	48.3	77.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars and pedestrians were the dominant sources of noise. When the tower crane began operating, the noise level was 52.3 dBA for around 3-4 minutes, after which the activities became inaudible again
21/10/2024	09:27pm- 09:41pm	Attended	The Bays	OOHW Verification	437	Robert St, Rozelle	49 Crescent St, Rozelle	Concrete Saw, 6T excavator, truck, hand tools	NCA21	Evening	40	66	56.7	48.6	78	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were audible, but cars, and pedestrians were the dominant source of noise. The noise level of the concentration activities was 54-57dBA.
22/10/2024	09:33pm- 09:47pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2c Figtree Dr, SOP	Hand tools, EWP	NCA08	Evening	51	50	67.9	48.8	96	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.
22/10/2024	10:16pm- 10:30pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools	NCA21	Night	40	35	55	53	68.8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible, but shipment loading, and pedestrians were the dominant source of noise.
22/10/2024	11:10pm-11:24pm	Attended	Five Dock	OOHW Verification	433	Great North Rd, FDK	110 Great North Rd, FDK	300T Mobile crane, 3 Trucks	NCA15	Night	43	71	66.8	62.5	84.3	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were audible, and the noise level of the construction works was 65 dBA.
25/10/2024	07:00pm-07:14pm	Attended	North Strathfield	OOHW Verification	442	Station box	121 Queen st, NST	2 AGIs Truck	NCA11	Evening	44	52	61.6	51.6	81.2	Yes	Yes	Yes	Yes	N/A	No	Yes	The discharging Agi was inaudible, while the idle Agi was slightly audible because its location was not covered by the noise mats installed on the wall. The dominant noise sources were cars and pedestrians. It's important to note that during the first 9 minutes, the idle Agi was on. I asked the supervisor to turn it off to ensure the discharging Agi was not audible. When the idle Agi was off, the recorded noise level was 49.7 dBA, which was due to pedestrians nearby.
25/10/2024	09:26pm- 09:40pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2C Figtree Dr, SOP	Hand tools, EWP, tower crane	NCA08	Evening	51	50	56.8	51.4	74.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible; however, cars and pedestrians were the dominant sources of noise. The tower crane operated for approximately 6 minutes, with a noise level of 53.2 dBA.
25/10/2024	10:21pm- 10:35pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools	NCA21	Night	40	35	54.7	51.9	68.2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were audible, but cars, and pedestrians were the dominant source of noise.

25/10/2024	10:55pm-11:09pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	Bobcat, Profiler, 2 Trucks, hand tools	NCA15	Night	43	90	74.3	69.8	82.2	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were the dominant source of noise, and the noise level of the construction works was 68- 77 dBA.
28/10/2024	09:14pm- 09:28pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2C Figtree Dr, SOP	Hand tools, EWP, tower crane	NCA08	Evening	51	50	60.9	48.7	81.8	Yes	Yes	Yes		Yes	Yes	Yes	Construction activities were inaudible; however, cars and pedestrians were the dominant sources of noise. The tower crane operated for approximately 4 minutes, with a noise level of 52.1 dBA.
30/10/2024	09:41pm- 09:55pm	Attended	Sydney Olympic Park	DNVIS Verification	N/A	Station box	2C Figtree Dr, SOP	Hand tools, EWP, tower crane	NCA08	Evening	51	50	63.7	49.9	93.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were audible; however, cars and pedestrians were the dominant sources of noise. The tower crane operated for approximately 7 minutes, with a noise level of 52.1 dBA.
30/10/2024	10:22pm- 10:36pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools, tower crane	NCA21	Night	40	35	54.4	48.9	78.9	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The tower crane was operating during the noise monitoring period, and its noise level was recorded both when idle and while lifting. The noise level of the idle tower crane was 48.9 dBA, which increased to 54-57 dBA when lifting. The crane's position while lifting materials significantly impacted the noise level, with the highest recorded level being 57 dBA when the crane engine faced the monitoring location. The tower crane was idle for most of the noise monitoring period, resulting in a low LA90 of 48.9 dBA.
30/10/2024	11:03pm-11:17pm	Attended	North Strathfield	OOHW Verification	444	Station box	93 Queen st, NST	Drill, hand tools	NCA11	Night	44	44	65.5	47.6	86	Yes	Yes	Yes	Yes	N/A	No	Yes	Construction work was audible, but cars and pedestrians were the dominant noise sources during the noise monitoring. The noise level for the construction work was 69.8 dBA
31/10/2024	11:06pm-11:20pm	Attended	North Strathfield	DNVIS Verification	N/A	Station box	123 Queen st, NST	Work inside the station box	NCA11	Night	44	44	58.4	46	73.6	Yes	Yes	Yes	Yes	N/A	No	Yes	The noise level of the AFJV work was inaudible during the monitoring period, with traffic and pedestrians as the dominant sources of noise.
31/10/2024	09:44pm- 09:58pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools, tower crane	NCA21	Night	40	35	52.8	49.7	66.2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The tower crane was operating during the noise monitoring period, and its noise level was recorded both when idle and while lifting. The noise level of the idle tower crane was 49.7 dBA, which increased to 54-57 dBA when lifting. The crane's position while lifting materials significantly impacted the noise level, with the highest recorded level being 57 dBA when the crane engine faced the monitoring location. The tower crane was idle for most of the noise monitoring period, resulting in a low LA90 of 49.7 dBA.
1/11/2024	10:39pm-10:53pm	Attended	North Strathfield	OOHW Verification	442	Station box	121 Queen st, NST	One Agi Truck	NCA11	Night	44	44	57.8	46.4	75.4	Yes	Yes	Yes	Yes	N/A	No	Yes	The Agi was idle for 9 minutes during the noise monitoring period, then commenced discharging for approximately 3-4 minutes. The noise level of the idle Agi was inaudible, while the noise level during discharge was around 52-54 dBA.
8/11/2024	09:06pm-09:20pm	Attended	North Strathfield	OOHW Verification	442	Station box	121 Queen st, NST	2 AGIs Truck	NCA11	Evening	52	52	58.8	48.9	78.8	Yes	Yes	Yes	Yes	N/A	No	Yes	During the noise monitoring period, one Agi was discharging, and one was idle; both Agis were inaudible, with traffic and pedestrians being the dominant noise sources. The discharging period lasted around 9–11 minutes, as normal speed was used.
8/11/2024	09:56pm- 10:10pm	Attended	The Bays	DNVIS Verification	N/A	Station box	37 Hornsey St, Rozelle	Tower crane	NCA21	Evening	50	35	48.1	42.4	65.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The dominant noise source was the traffic and pedestrians, while the tower crane was inaudible.
8/11/2024	10:30pm- 10:44pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Tower crane	NCA21	Night	40	35	55.6	51.6	65.2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The dominant noise source was the maintenance of shipments, while the tower crane was in use for around 6 minutes during the noise monitoring period. The noise level of the tower crane was barely audible due to the noise from the shipments.
12/11/2024	08:48pm-09:02pm	Attended	North Strathfield	OOHW Verification	442	Station box	121 Queen st, NST	2 AGIs Truck	NCA11	Evening	52	52	62.3	48.9	90.1	Yes	Yes	Yes	Yes	N/A	No	Yes	During the noise monitoring period, one Agi was discharging, and one was idle; both Agis were inaudible, with traffic and pedestrians being the dominant noise sources.
12/11/2024	10:25pm-10:39pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	2 Trucks, hand tools, Concrete saw	NCA15	Night	43	90	69.8	61.1	83.7	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were the dominant source of noise, and the noise level of the construction works was 74 dBA.
13/11/2024	10:01pm-10:15pm	Attended	North Strathfield	OOHW Verification	442	Station box	123 Queen st, NST	2 AGIs Truck	NCA11	Night	44	44	70.7	49.5	102.7	Yes	Yes	Yes	Yes	N/A	No	Yes	During the noise monitoring period, one Agi was discharging, and one was idle; both Agis were inaudible, with traffic and pedestrians being the dominant noise sources.
13/11/2024	10:54pm-11:08pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	2 Trucks, hand tools, Concrete saw	NCA15	Night	43	90	70.7	64.7	81.8	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were the dominant source of noise, and the noise level of the construction works was 74 dBA.
15/11/2024	09:35pm-09:48pm	Attended	North Strathfield	OOHW Verification	442	Station box	123 Queen st, NST	2 AGIs Truck	NCA11	Night	52	52	65.5	50.1	80.6	Yes	Yes	Yes	Yes	N/A	No	Yes	During the noise monitoring period, one Agi was discharging, and one was idle; both Agis were inaudible, with traffic and pedestrians being the dominant noise sources.
15/11/2024	10:20pm-10:34pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	2 Trucks, hand tools, Concrete saw	NCA15	Night	43	90	66	58.3	81.4	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were the dominant source of noise, and the noise level of the construction works was 58 dBA.
18/11/2024	09:10pm-09:24pm	Attended	Burwood	OOHW Verification	322 & 438	Burwood Rd	4 Burwood Rd, Concord	Saw concrete, hand tools, 6T excavator	NCA12	Evening	47	77.6	72.1	65.1	89.6	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction activities were dominant source of noise. However, AFJV has provided AA. Construction noise level was around 69 dBA.
19/11/2024	11:13pm-11:27pm	Attended	Five Dock	OOHW Verification	433	Great North Rd, FDK	110 Great North Rd, FDK	300T Mobile crane, 3 Trucks	NCA15	Night	43	71	66	69	84.4	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were audible, and the noise level of the construction works was 65 dBA.
20/11/2024	08:08pm- 08:22pm	Attended	Sydney Olympic Park	OOHW Verification	441	Station box	2C Figtree Dr, SOP	Truck, tower crane	NCA08	Evening	51	51	59.7	51.1	92.4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible; however, cars and pedestrians were the dominant sources of noise. The tower crane loaded the components onto truck during the noise monitoring period.
20/11/2024	09:38pm- 09:52pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools	NCA21	Night	48	35	51	49.8	62.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The dominant noise source was the maintenance of shipments, while the tower crane was not in use during the noise monitoring period.
21/11/2024	09:39pm- 09:53pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Forklift, Hand tools	NCA21	Evening	48	35	54.9	51.2	66.4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The dominant noise source was the ships loading, while the tower crane was not in use during the noise monitoring period.
21/11/2024	10:55pm- 11:09pm	Attended	The Bays	DNVIS Verification	N/A	Station box	1 Batty St, Rozelle	Tower crane	NCA21	Night	48	35	54.3	50.9	65.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	The tower crane was operating, and the noise level of the crane was 49–51 dBA, while the background noise was around 51–52 dBA. The noise generated by the crane was audible among other noise sources. The noise level from the ship loading was 54–60 dBA. This noise was similar to a vacuum sound, which increased briefly and then decreased, leading to a higher average noise level.
25/11/2024	09:20pm-09:34pm	Attended	Burwood	DNVIS Verification	N/A	Station Box	16 burton St, Concord	Pump	NCA12	Evening	48	48	60.1	45.7	80.6	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction works were inaudible, the dominant source of noise was traffic
26/11/2024	10:10pm-10:24pm	Attended	Five Dock	OOHW Verification	418	Great North Rd, FDK	110 Great North Rd, FDK	2 Trucks, hand tools, Concrete saw	NCA15	Night	43	90	77.9	53.1	89.9	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were the dominant source of noise, and the noise level of the construction works was 79-81 dBA.
28/11/2024	10:57pm-11:11pm	Attended	Five Dock	OOHW Verification	433	Great North Rd, FDK	110 Great North Rd, FDK	300T Mobile crane, 2 Trucks	NCA15	Night	43	71	65.3	54.1	83.2	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were audible, and the noise level of the construction works was 62 dBA.
2/12/2024	09:16pm-09:30pm	Attended	North Strathfield	OOHW Verification	409	Queen St	27 Beronga St	Hand Tools	NCA11	Evening	52	75	63.3	52.2	85.1	Yes	Yes	Yes	Yes	N/A	No	Yes	During the noise monitoring period, hand tools were used without generating any noise impact. The dominant noise source was traffic
3/12/2024	09:41pm-09:55pm	Attended	Burwood	DNVIS Verification	N/A	Station Box	23 Burton St, Concord	Tunnelling support equipment	NCA12	Evening	48	48	61.9	45.9	81.3	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction works were inaudible, the dominant source of noise was traffic
3/12/2024	10:51pm-11:05pm	Attended	Burwood	DNVIS Verification	N/A	Station Box	16 Burton St, Concord	Tunnelling support equipment	NCA12	Night	47	47	48.8	44	72.8	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction works were inaudible, the dominant source of noise was traffic
4/12/2024	10:49pm-11:03pm	Attended	Burwood	DNVIS Verification	N/A	Station Box	23 Burton St, Concord	Tunnelling support equipment	NCA12	Night	47	47	55.8	47.6	83.7	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction works were inaudible, the dominant source of noise was traffic
5/12/2024	09:35pm-09:48pm	Attended	North Strathfield	OOHW Verification	442	Station box	121 Queen st, NST	2 AGIs Truck	NCA11	Evening	52	52	62	47.3	80.1	Yes	Yes	Yes	Yes	N/A	No	Yes	During the noise monitoring period, one Agi was discharging, and one was idle; both Agis were inaudible, with traffic and pedestrians being the dominant noise sources.
6/12/2024	10:30pm-10:44pm	Attended	Burwood	DNVIS Verification	N/A	Station Box	23 Burton St, Concord	Tunnelling support equipment	NCA12	Night	47	47	57.8	45.8	73.2	Yes	No	Yes	Yes	Yes	Yes	Yes	Construction works were inaudible, the dominant source of noise was traffic
17/12/2024	09:05pm- 09:19pm	Attended	Sydney Olympic Park	OOHW Verification	N/A	Station box	2C Figtree Dr, SOP	Foklift, Bobcat	NCA08	Evening	53	53	59	51.4	79.9	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Construction activities were inaudible; however, cars, pedestrians, and windy weather were the dominant sources of noise.
17/12/2024	10:08pm-10:22pm	Attended	Five Dock	OOHW Verification	454	Station box	7 East St, FDK	Tunnelling support equipment	NCA14	Night	38	38	56.9	51.9	84.2	Yes	No	Yes	Yes	Yes	Yes	Yes	The construction activities were audible, and the noise level of the construction works (hum) was 47 dBA. The dominant noise sources were windy weather, cars, and pedestrians.

Noise Monitoring Report

Project:	Sydney Metro West – Central Tunnelling Package				**Report No.**	*20241126-FDK-01*	
Site:	**FDK**				**Monitoring type:**	Attended ☒ Unattended ☐	
Data collected by:	**Osamah Naji**				**Date:**	26/11/2024	
Purpose of monitoring:	**DNVIS Verification**		**OOHW#:**	418	**Time:**	**Start: 10:10pm End: 10:24pm**	
	OOHW Permit Verification	☒					
	Complaint Response						

Construction noise source and description of activity:	**Monitoring location/s:**	**NCA**	**NML (dB)**	**Prediction (dB)**
Truck, hand tools, concrete saw	**110 Great North Rd, FDK**	**15**	**43**	**90**

Meteorological conditions			
Temperature (°C):	23	**Cloud cover (%):**	10
Wind (km/hr and direction)	5	**Rainfall:**	**No**
Instrumentation details (include serial number):	Rion NL-42 C36211	**Calibration valid until:**	07/05/2025
		Field Calibrated?	**YES ☒ NO ☐**
Assessment of light spill:			

Instrumentation and method:

Tripod 1.5-meter Height, Rion NL-42

15 minutes

Attended OOHW verification, nearest residential receiver

Results summary:

(i)	**Was NML exceeded during monitoring period?**	**YES☒**	**NO ☐**
(ii)	**Was DNVIS prediction exceeded during monitoring period?**	**YES☐**	**NO☒**
(iii)	**Was exceedance/s the result of AFJV works?**	**YES☒**	**NO☐**
(iv)	**Are all reasonable and feasible mitigation measures implemented?**	**YES☒**	**NO☐**

(if 'No' potential NCR to be raised, discuss with Environment Manager)

If answered yes to (iii) please indicate what mitigation measures have been proactively implemented?

Also add examples of other mitigation measures observed during monitoring.

1. Works restricted to the work zone identified in the noise assessment.
2. Works and plant selection have been selected to reduce impact on residents as far as reasonably practicable.
3. All efforts are being made to schedule noisy works to the earliest part of the shift, with sawing and hammering being limited to 12am.
4. Specific sequencing of the construction activities drives the work program to priorities minimizing noise impacts on neighbouring residents and the local community.
5. Additional mitigation such as noise mats and enclosures will be employed around noisy equipment where practicable.
6. Noise monitoring at sensitive receptors will be used to confirm noise impacts predicted during modelling. Work will be undertaken to reduce impacts should thresholds look set to be exceeded.
7. Potentially affected receivers will be notified. Where necessary additional noise mitigation measures from the Sydney Metro Construction Noise and Vibration Standard (CNVS) have been specified in table 14 of the accompanying noise assessment reports and indicated for each receiver in Appendix B of the report.
8. The workforce induction will include particular emphasis on positive behavioural practices such as avoiding unnecessary shouting or loud radios on site.
9. Priority has been given to the use of quieter and less vibration-emitting construction methods and plant alternatives where feasible and reasonable.
10. The noise levels of the plant and equipment will meet the maximum noise requirements of the CNVS.
11. Noise-emitting plant to be directed away from sensitive receivers where possible and the stationary plant will be located behind a structure or enclosed if practicable.
12. All plant movement alarms are to be non-tonal as per project policy.
13. Plant & equipment to be switched off when not in use.

Results summary description: (ie, including dominant noise sources, contribution of project activities, non-construction related sources, highest noise source, etc.):

The construction activities were the dominant source of noise, and the noise level of the construction works was 79-81 dBA.

afJV

10:10 - 10:23

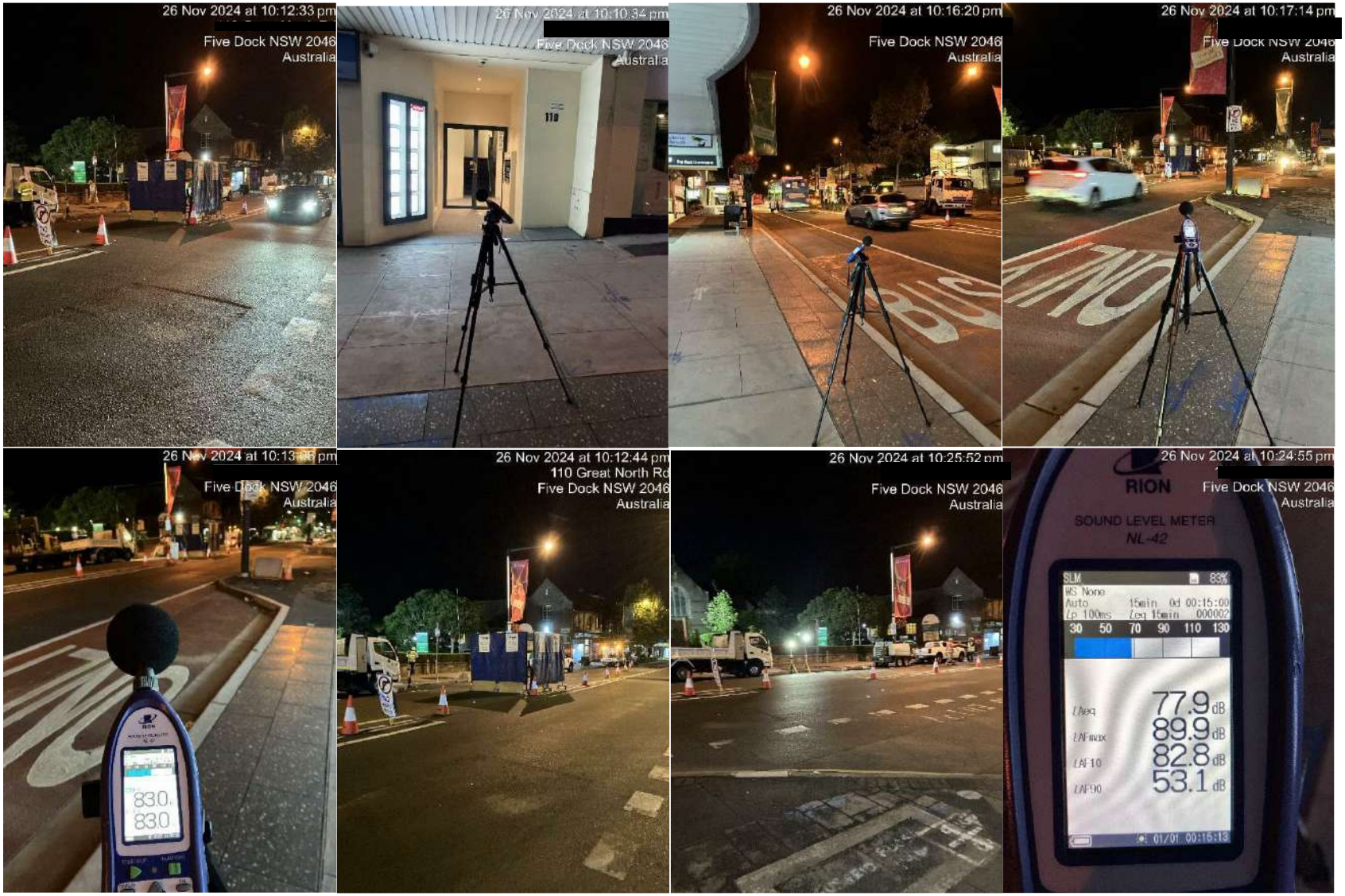
Permit 418

afJV

26/11/24

© samah

Location	Time	Observations	LAeq dBA	LA10 dBA	LA90 dBA	LAmax dBA
[redacted]	10:10	76-3 Concrete saw + Traffic				
	10:11	79.1 Concrete saw + Traffic				
FDK	10:12	82.2 " " "				
	10:13	79-3 Concrete saw				
	10:14	89.9 bike				
	10:15	78.7 ~~Concrete saw~~	77.9	82.8	53.1	89.9
	10:16	81.6 Concrete saw + Traffic				
	10:17	83.9 " " "				
	10:18	69.3 Traffic				
	10:19	58.4 Cars + Pedestrian				
	10:20	67-8 Traffic				
	10:21	51.9 Pedestrian				
	10:22	66-7 Traffic				
	10:23	59-8 Cars + Pedestrian				


26 Nov 2024 at 10:12:33 pm
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:10:34 pm
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:16:20 pm
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:17:14 pm
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:13:06 pm
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:12:44 pm
110 Great North Rd
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:25:52 pm
Five Dock NSW 2046
Australia
26 Nov 2024 at 10:24:55 pm
Five Dock NSW 2046
Australia
RION
SOUND LEVEL METER
NL-42
77.9 dB
89.9 dB
82.8 dB
53.1 dB

Attachment A: Monitoring, work locations & photos

Monitoring Location

Work Location

Work area.

Noise Monitoring Report

Project:	Sydney Metro West – Central Tunnelling Package				**Report No.**	*20241030-NST-01*	
Site:	**NST**				**Monitoring type:**	Attended ☒ Unattended ☐	
Data collected by:	[redacted]				**Date:**	30/10/2024	
Purpose of monitoring:	**DNVIS Verification**		**OOHW#:**	444	**Time:**	**Start: 11:03 pm** **End: 11:17pm**	
	OOHW Permit Verification	☒					
	Complaint Response						

Construction noise source and description of activity:	**Monitoring location/s:**	**NCA**	**NML (dB)**	**Prediction (dB)**
Drill, hand tools	[redacted]	**11**	**44**	**74**

Meteorological conditions			
Temperature (°C):	22	**Cloud cover (%):**	25
Wind (km/hr and direction)	5	**Rainfall:**	**No**
Instrumentation details (include serial number):	**Rion NL-42**	**Calibration valid until:**	07/05/2025
		Field Calibrated?	**YES** ☒ **NO** ☐
Assessment of light spill:			

Instrumentation and method:

Tripod 1.5-meter Height, Rion NL-42

15 minutes

Attended OOHW verification, nearest residential receiver

Results summary:

(i)	**Was NML exceeded during monitoring period?**	**YES** ☒	**NO** ☐
(ii)	**Was DNVIS prediction exceeded during monitoring period?**	**YES** ☒	**NO** ☐
(iii)	**Was exceedance/s the result of AFJV works?**	**YES** ☐	**NO** ☒
(iv)	**Are all reasonable and feasible mitigation measures implemented?** **(if 'No' potential NCR to be raised, discuss with Environment Manager)**	**YES** ☒	**NO** ☐

If answered yes to (iii) please indicate what mitigation measures have been proactively implemented?

Also add examples of other mitigation measures observed during monitoring.

1) **All plant movement alarms are to be non-tonal, as per project policy.**
2) **Noise-emitting plants should be directed away from sensitive receivers where possible.**
3) **Plant and equipment should be switched off when not in use.**
4) **The workforce induction will include a particular emphasis on positive behavioural practices, such as avoiding unnecessary shouting or loud radios on-site, and maintaining low voice communication.**
5) **Sequencing of construction activities should prioritize minimizing noise impacts on neighbouring residents and the local community, especially during late hours of the night.**

Results summary description: (ie, including dominant noise sources, contribution of project activities, non-construction related sources, highest noise source, etc.):

Construction work was audible, but cars and pedestrians were the dominant noise sources during the noise monitoring. The noise level for the construction work was 69.8 dBA

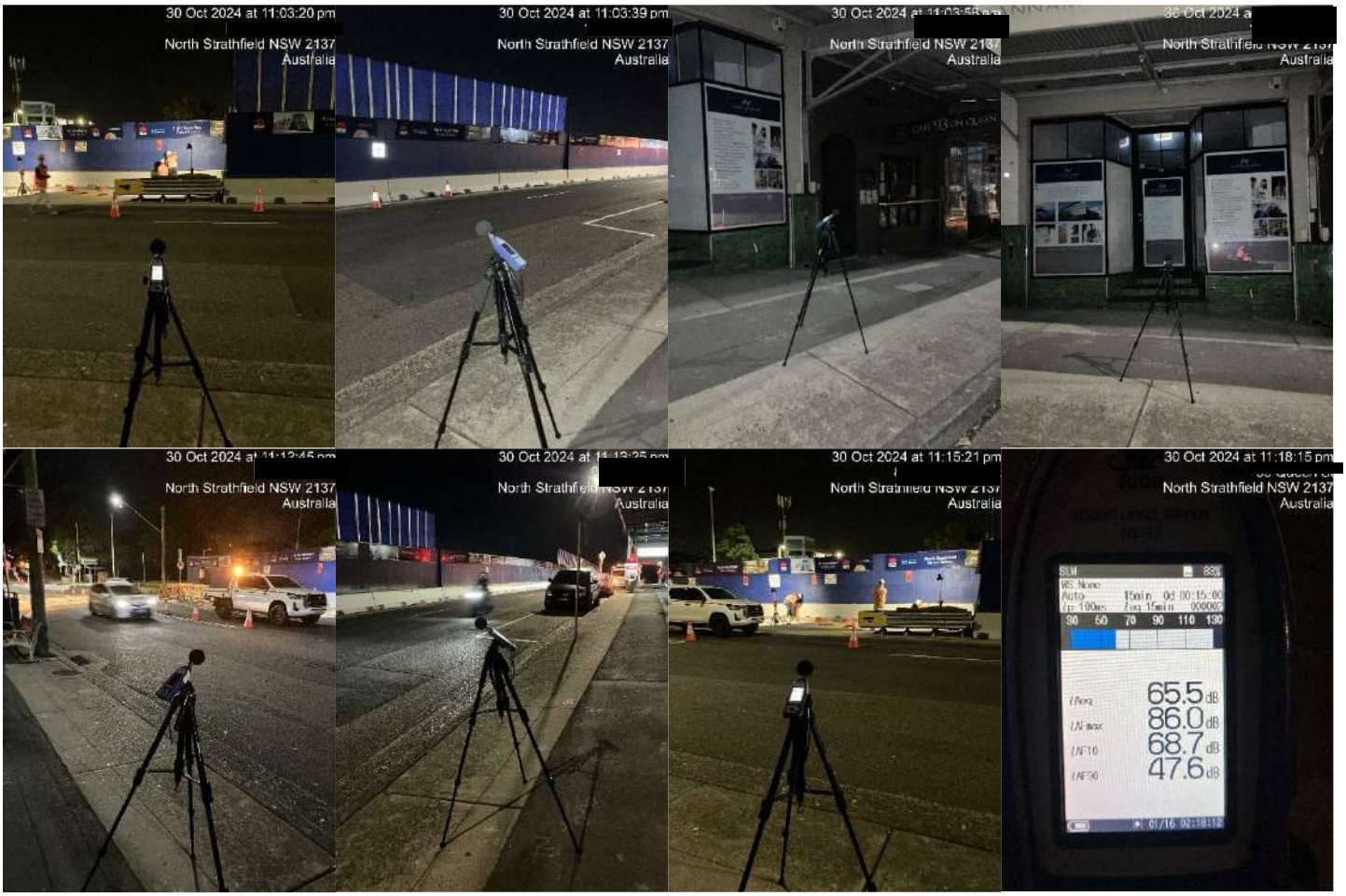
afJV

Permit 444 11:03 - 11:17pm

30/10/24 Osamela

Location	Time	Observations		LAeq dBA	LA10 dBA	LA90 dBA	LAmax dBA
[redacted]	11:03	69.8	Hand tools (Drill)				
	11:04	71.1	" " + Traffic				
	11:05	49.7	Pedestrian				
	11:06	60.4	Hand tools				
	11:07	76.9	Traffic				
	11:08	68.6	"	65.5	68.7	47.6	86
	11:09	47.7	Pedestrian				
	11:10	48.4	"				
	11:11	70.1	Hand tools				
	11:12	48.4	Pedestrian				
	11:13	57.4	Cars away				
	11:14	86	bike				
	11:15	55.3	Car				
	11:16	68.3	Cars				
	11:17	47.5	Pedestrian				

Attachment A: Monitoring, work locations & photos



Monitoring Location

Agi Location

Site location

Noise Monitoring Report

Project:	Sydney Metro West – Central Tunnelling Package				**Report No.**	*20241003-BWD-01*	
Site:	**BWD**				**Monitoring type:**	Attended ☒	Unattended ☐
Data collected by:	[redacted]				**Date:**	03/10/2024	
Purpose of monitoring:	**DNVIS Verification**		**OOHW#:**	419	**Time:**	**Start: 10:54pm**	**End: 11:08pm**
	OOHW Permit Verification	☒					
	Complaint Response						

Construction noise source and description of activity:	**Monitoring location/s:**	**NCA**	**NML (dB)**	**Prediction (dB)**
Concrete saw, hand tools, Agi, Bobcat, Road Profiler	[redacted]	**13**	**49**	**81**

Meteorological conditions			
Temperature (°C):	15	**Cloud cover (%):**	26
Wind (km/hr and direction)	4	**Rainfall:**	**No**
Instrumentation details (include serial number):	**Rion NL-42**	**Calibration valid until:**	07/05/2025
		Field Calibrated?	**YES ☒ NO ☐**
Assessment of light spill:			

Instrumentation and method:

Tripod 1.5-meter Height, Rion NL-42

15 minutes

Attended OOHW verification, nearest residential receiver

Results summary:

(i)	**Was NML exceeded during monitoring period?**	**YES☒**	**NO☐**
(ii)	**Was DNVIS prediction exceeded during monitoring period?**	**YES☐**	**NO☒**
(iii)	**Was exceedance/s the result of AFJV works?**	**YES☐**	**NO☒**
(iv)	**Are all reasonable and feasible mitigation measures implemented?** **(if 'No' potential NCR to be raised, discuss with Environment Manager)**	**YES☒**	**NO☐**

If answered yes to (iii) please indicate what mitigation measures have been proactively implemented?

Also add examples of other mitigation measures observed during monitoring.

1. Works restricted to the work zone identified in the noise assessment.
2. Works and plant selection have been selected to reduce impact on residents as far as reasonably practicable.
3. All efforts are being made to schedule noisy works to the earliest part of the shift, with sawing and hammering being limited to 12am.
4. Specific sequencing of the construction activities drives the work program to priorities minimizing noise impacts on neighbouring residents and the local community.
5. Additional mitigation such as noise mats and enclosures will be employed around noisy equipment where practicable.
6. Noise monitoring at sensitive receptors will be used to confirm noise impacts predicted during modelling. Work will be undertaken to reduce impacts should thresholds look set to be exceeded.
7. Potentially affected receivers will be notified. Where necessary additional noise mitigation measures from the Sydney Metro Construction Noise and Vibration Standard (CNVS) have been specified in table 14 of the accompanying noise assessment reports and indicated for each receiver in Appendix B of the report.
8. The workforce induction will include particular emphasis on positive behavioural practices such as avoiding unnecessary shouting or loud radios on site.
9. Priority has been given to the use of quieter and less vibration-emitting construction methods and plant alternatives where feasible and reasonable.
10. The noise levels of the plant and equipment will meet the maximum noise requirements of the CNVS.
11. Noise-emitting plant to be directed away from sensitive receivers where possible and the stationary plant will be located behind a structure or enclosed if practicable.
12. All plant movement alarms are to be non-tonal as per project policy.
13. Plant & equipment to be switched off when not in use.

Results summary description: (ie, including dominant noise sources, contribution of project activities, non-construction related sources, highest noise source, etc.):

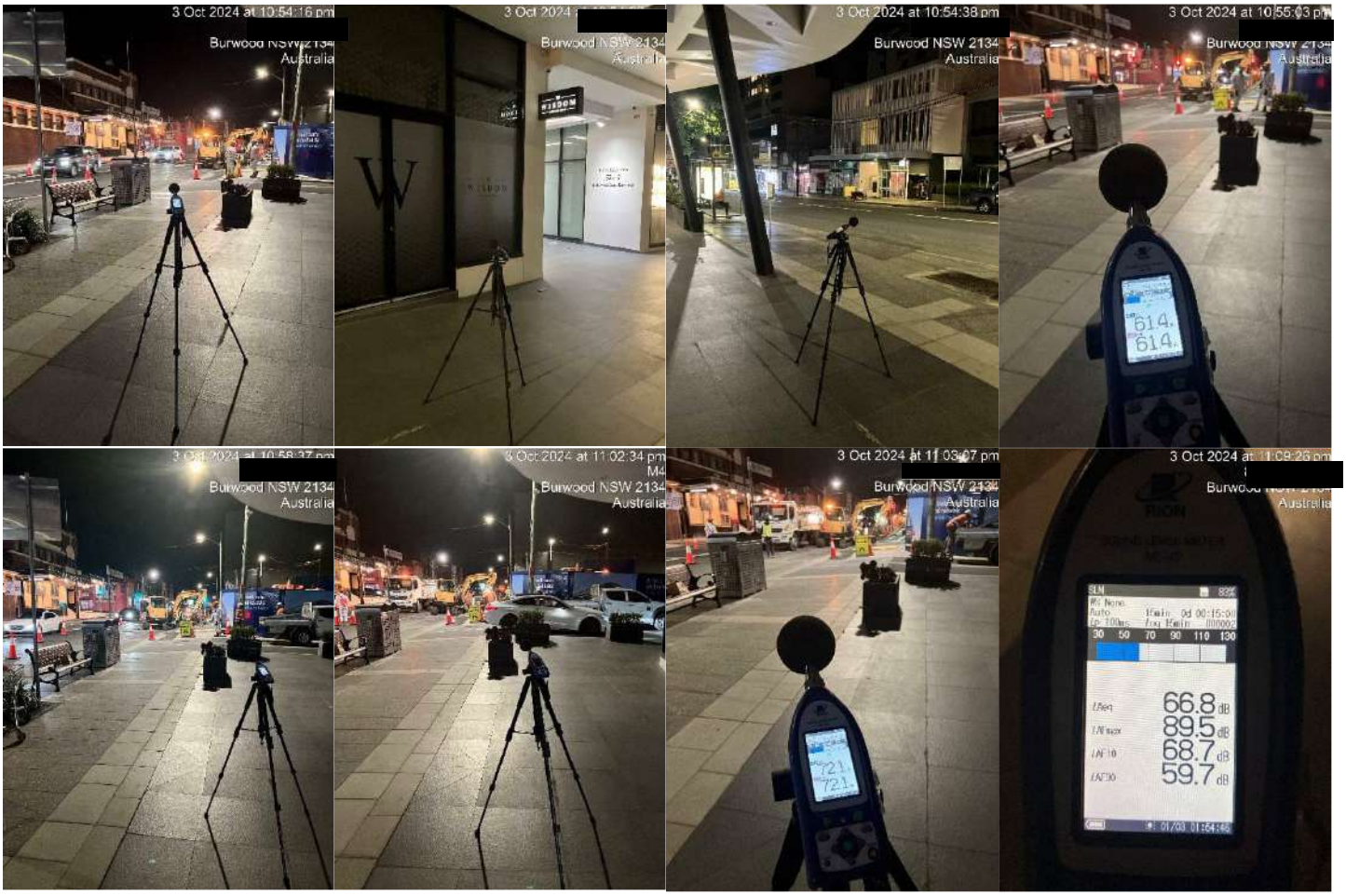
Construction work was the main source of noise. As expected, the noise level exceeded the NML during the monitoring period, but it did not surpass the predicted level. Even so, AFJV provided alternative accommodation for the affected residents.

afJV

afJV Permit: 419 3/10/24

10:54Pm - 11:08Pm Osama

Location	Time	Observations			LAeq dBA	LA10 dBA	LA90 dBA	LAmax dBA
[redacted]	10:54	62.3	excavator	+ Traffic				
	10:55	66.4	~	~				
(305)	10:56	60.9	~	~				
	10:57	69.7	~	~				
	10:58	64.5	~	~				
	10:59	63.1	~	~				
	11:00	66.8	~	~	66.8	68.7	59.7	89.5
	11:01	75.1	~	~				
	11:02	81.5	~	~				
	11:03	59.7	~	~				
	11:04	58.3	~	~				
	11:05	62.5	~	~				
	11:06	70.9	~	~				
	11:07	89.5	sport	car				
	11:08	63.4	excavator	+ Traffic				


3 Oct 2024 at 10:54:16 pm
Burwood NSW 2134
Australia
3 Oct 2024 at 10:54:38 pm
Burwood NSW 2134
Australia
3 Oct 2024 at 10:55:03 pm
Burwood NSW 2134
Australia
3 Oct 2024 at 11:02:34 pm
Burwood NSW 2134
Australia
3 Oct 2024 at 11:03:07 pm
Burwood NSW 2134
Australia
3 Oct 2024 at 11:09:26 pm
Burwood NSW 2134
Australia
66.8 dB
89.5 dB
68.7 dB
59.7 dB

Attachment A: Monitoring, work locations & photos

Monitoring Location

Working Area

Work Location

Noise Monitoring Report

Project:	Sydney Metro West – Central Tunnelling Package				**Report No.**	*20241010-TBY-01*	
Site:	**TBY**				**Monitoring type:**	Attended Unattended	
Data collected by:	[redacted]				**Date:**	10/10/2024	
Purpose of monitoring:	**DNVIS Verification**	☒	**OOHW#:**		**Time:**	**Start: 10:00pm**	**End: 10:14pm**
	OOHW Permit Verification						
	Complaint Response						

Construction noise source and description of activity:	**Monitoring location/s:**	**NCA**	**NML (dB)**	**Prediction (dB)**
EWP, Hand tools,	[redacted]	**21**	**40**	**35**

Meteorological conditions			
Temperature (°C):	19	**Cloud cover (%):**	15
Wind (km/hr and direction)	5	**Rainfall:**	**No**
Instrumentation details (include serial number):	**Rion NL-42**	**Calibration valid until:**	07/05/2025
		Field Calibrated?	**YES ☒ NO**
Assessment of light spill:	No Issue		

Instrumentation and method:

Tripod 1.5-meter Height, Rion NL-42

15 minutes

Attended DNVIS verification, nearest residential receiver

Results summary:

(i)	**Was NML exceeded during monitoring period?**	**YES☒**	**NO☐**
(ii)	**Was DNVIS prediction exceeded during monitoring period?**	**YES☒**	**NO☐**
(iii)	**Was exceedance/s the result of AFJV works?**	**YES☐**	**NO☒**
(iv)	**Are all reasonable and feasible mitigation measures implemented?** (if 'No' potential NCR to be raised, discuss with Environment Manager)	**YES☒**	**NO☐**

If answered yes to (iii) please indicate what mitigation measures have been proactively implemented?

Also add examples of other mitigation measures observed during monitoring.

1) **All plant movement alarms are to be non-tonal, as per project policy.**
2) **Noise-emitting plants should be directed away from sensitive receivers where possible.**
3) **Plant and equipment should be switched off when not in use.**
4) **The workforce induction will include a particular emphasis on positive behavioural practices, such as avoiding unnecessary shouting or loud radios on-site, and maintaining low voice communication.**
5) **Sequencing of construction activities should prioritize minimizing noise impacts on neighbouring residents and the local community, especially during late hours of the night.**

Results summary description: (ie, including dominant noise sources, contribution of project activities, non-construction related sources, highest noise source, etc.):

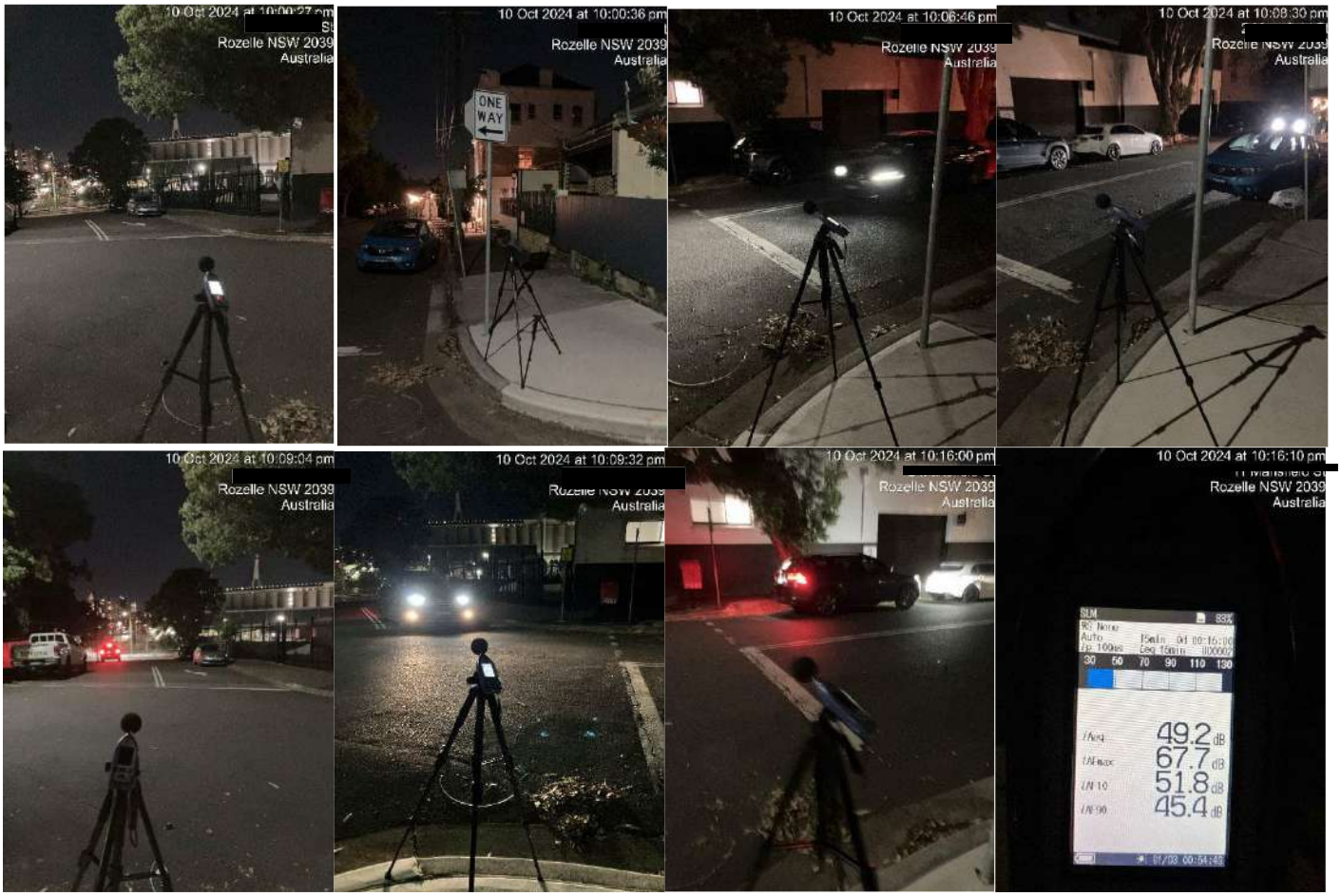
Construction activities were inaudible, but cars, and pedestrians were the dominant source of noise.

afJV DNVIS 10:00 Pm – 10:14 Pm 10/10/24

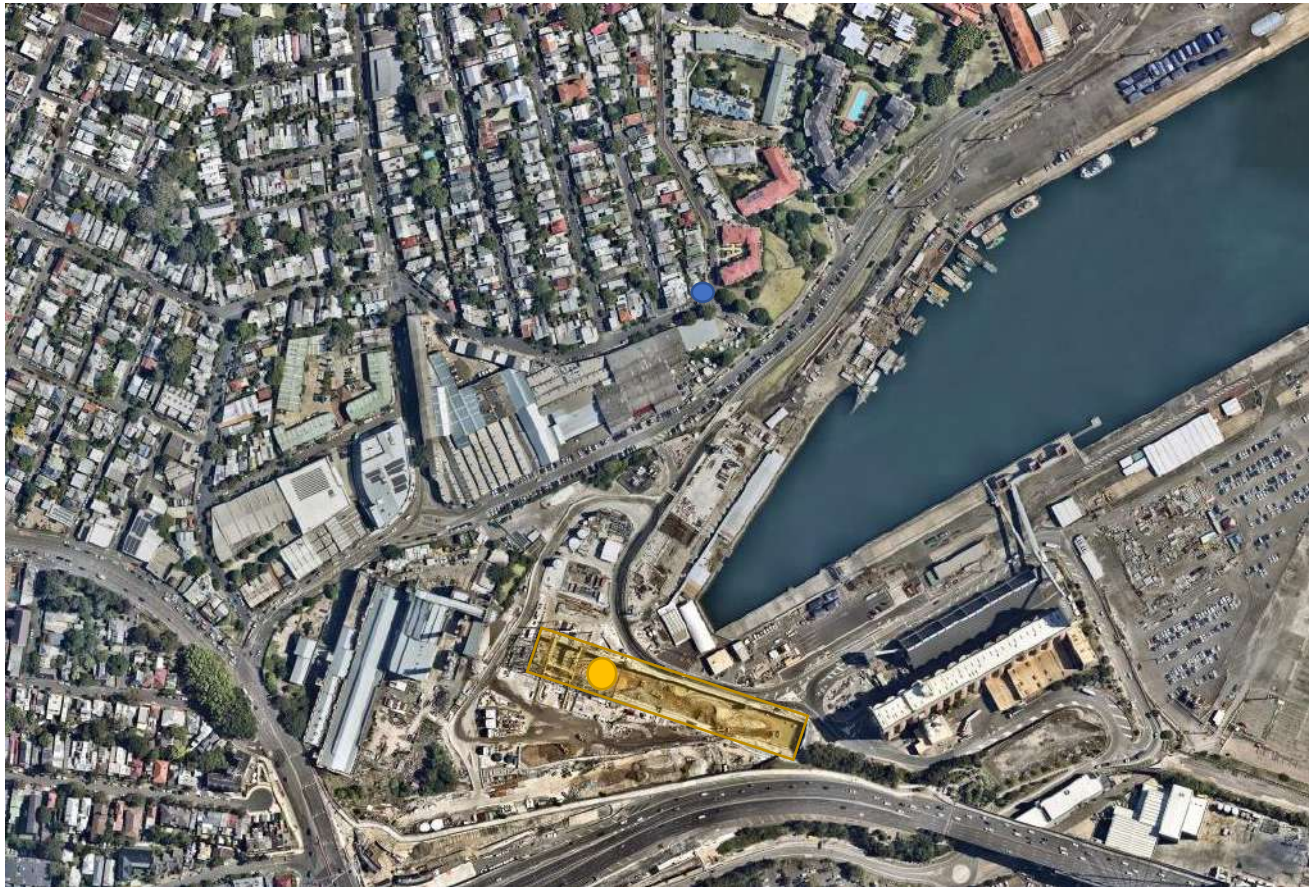
Location	Time	Observations	LAeq dBA	LA10 dBA	LA90 dBA	LAmax dBA
[redacted]	10:00	46-3 Pedestrian				
	10:01	45-2 " + Traffic away				
	10:02	49-4 Traffic away				
	10:03	60-3 airplane				
	10:04	52-9 Car				
	10:05	45-5 Traffic away				
	10:06	56-8 Pedestrian				
	10:07	44.8 "	49.2	51.8	45.4	67.7
	10:08	56-9 Pedestrian				
	10:09	47-8 Traffic away				
	10:10	58-1 Car				
	10:11	55-4 "				
	10:12	56-5 "				
	10:13	48-9 Traffic away				
	10:14	45-8 "				

3

AFJV | NOISE MONITORING REPORT | SMWSTCTP-AFJ-1NL-NV-FRM-000001 REV 01 06/03/24


10 Oct 2024 at 10:00:36 pm
Rozelle NSW 2039
Australia
ONE WAY
10 Oct 2024 at 10:06:46 pm
Rozelle NSW 2039
Australia
10 Oct 2024 at 10:08:30 pm
Australia
10 Oct 2024 at 10:09:04 pm
Rozelle NSW 2039
Australia
10 Oct 2024 at 10:09:32 pm
Australia
10 Oct 2024 at 10:16:00 pm
Rozelle NSW 2039
Australia
10 Oct 2024 at 10:16:10 pm
Rozelle NSW 2039
Australia
SLM
30 50 70 90 110 130
49.2 dB
67.7 dB
51.8 dB
45.4 dB

Attachment A: Monitoring, work locations & photos



Monitoring Location Crane Location Site location

Noise Monitoring Report

Project:	Sydney Metro West – Central Tunnelling Package				**Report No.**	*20241120-SOP-01*	
Site:	**SOP**				**Monitoring type:**	Attended ☒ Unattended	
Data collected by:	[redacted]				**Date:**	20/11/2024	
Purpose of monitoring:	**DNVIS Verification**		**OOHW#:**	441	**Time:**	**Start: 08:08pm End: 08:22pm**	
	OOHW Permit Verification	☒					
	Complaint Response						

Construction noise source and description of activity:	**Monitoring location/s:**	**NCA**	**NML (dB)**	**Prediction (dB)**
Truck, tower crane	[redacted]	**8**	**53**	**53**

Meteorological conditions			
Temperature (°C):	16	**Cloud cover (%):**	30
Wind (km/hr and direction)	11	**Rainfall:**	**No**
Instrumentation details (include serial number):	**Rion NL-42**	**Calibration valid until:**	07/05/2025
		Field Calibrated?	**YES** ☒ **NO**
Assessment of light spill:	No Issue		

Instrumentation and method:

Tripod 1.5-meter Height, Rion NL-42

15 minutes

Attended OOHW verification, nearest residential receiver

Results summary:

(i)	**Was NML exceeded during monitoring period?**	**YES☒**	**NO☐**
(ii)	**Was DNVIS prediction exceeded during monitoring period?**	**YES☒**	**NO☐**
(iii)	**Was exceedance/s the result of AFJV works?**	**YES☐**	**NO☒**
(iv)	**Are all reasonable and feasible mitigation measures implemented?** **(if 'No' potential NCR to be raised, discuss with Environment Manager)**	**YES☒**	**NO☐**

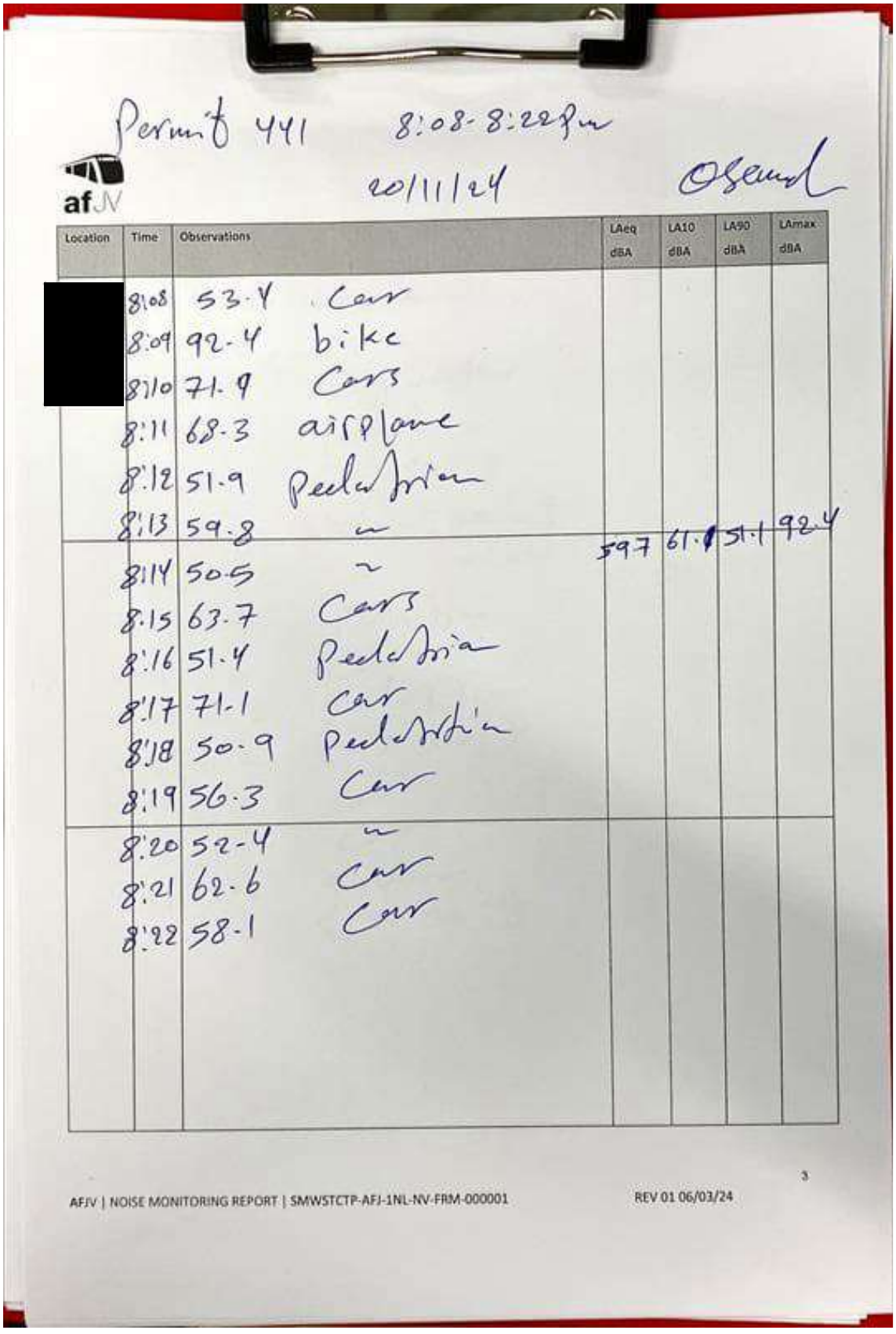
If answered yes to (iii) please indicate what mitigation measures have been proactively implemented?

Also add examples of other mitigation measures observed during monitoring.

1) **All plant movement alarms are to be non-tonal, as per project policy.**
2) **Noise-emitting plants should be directed away from sensitive receivers where possible.**
3) **Plant and equipment should be switched off when not in use.**
4) **The workforce induction will include a particular emphasis on positive behavioural practices, such as avoiding unnecessary shouting or loud radios on-site, and maintaining low voice communication.**
5) **Sequencing of construction activities should prioritize minimizing noise impacts on neighbouring residents and the local community, especially during late hours of the night.**

Results summary description: (ie, including dominant noise sources, contribution of project activities, non-construction related sources, highest noise source, etc.):

Construction activities were inaudible; however, cars and pedestrians were the dominant sources of noise. The tower crane loaded the components onto truck during the noise monitoring period.



Permit 441 8:08-8:22pm

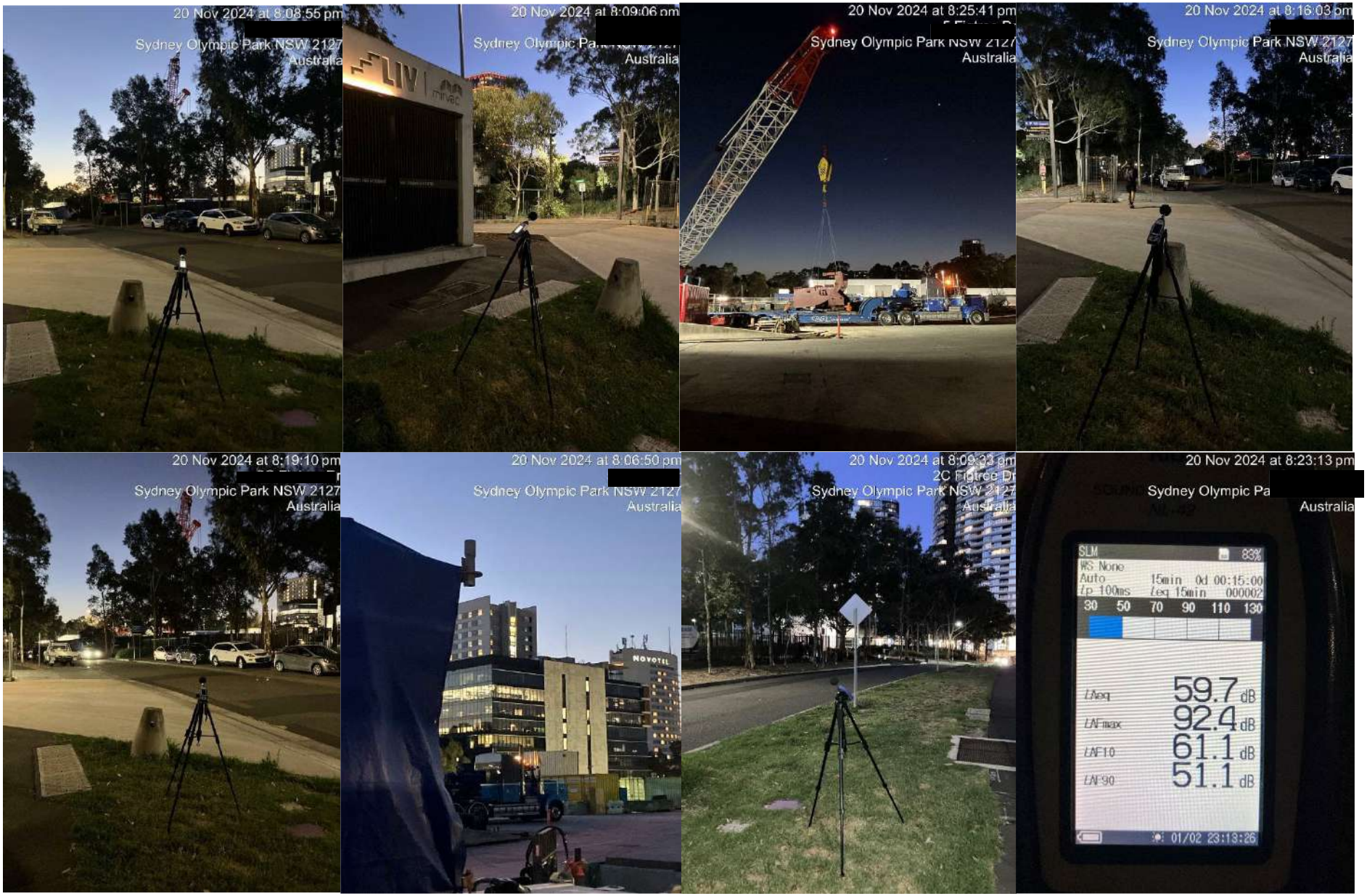
20/11/24 Osmund

afJV

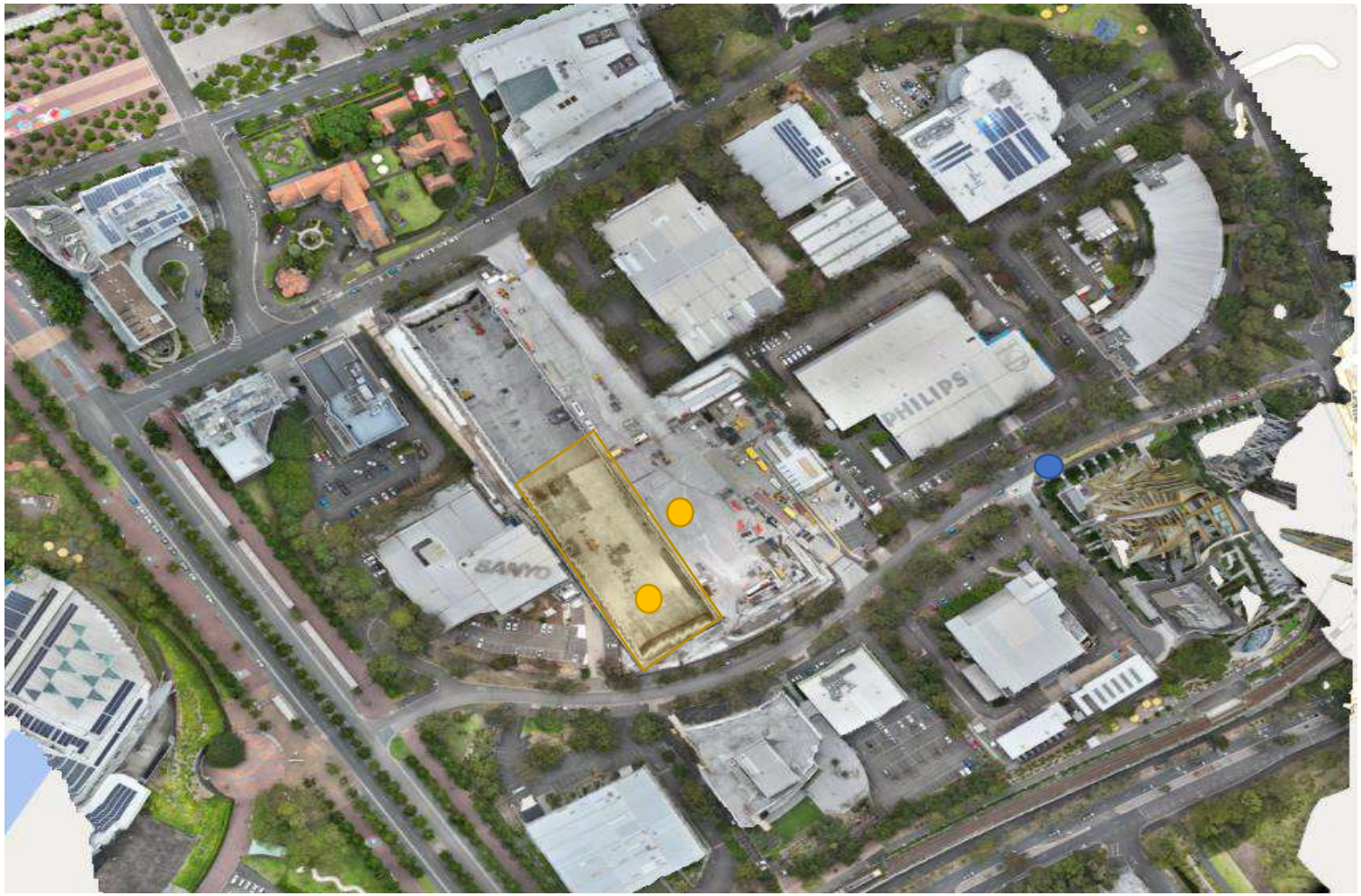
Location	Time	Observations	LAeq dBA	LA10 dBA	LA90 dBA	LAmax dBA
[redacted]	8:08	53.4 Car				
	8:09	92.4 bike				
	8:10	71.9 Cars				
	8:11	68.3 airplane				
	8:12	51.9 Pedestrian				
	8:13	59.8 "	59.7	61.1	51.1	92.4
	8:14	50.5 "				
	8:15	63.7 Cars				
	8:16	51.4 Pedestrian				
	8:17	71.1 Car				
	8:18	50.9 Pedestrian				
	8:19	56.3 Car				
	8:20	52.4 "				
	8:21	62.6 Car				
	8:22	58.1 Car				

3

AFJV | NOISE MONITORING REPORT | SMWSTCTP-AFJ-1NL-NV-FRM-000001 REV 01 06/03/24


20 Nov 2024 at 8:08:55 pm
Sydney Olympic Park NSW 2127
Australia
20 Nov 2024 at 8:09:06 pm
Australia
20 Nov 2024 at 8:25:41 pm
Australia
20 Nov 2024 at 8:16:03 pm
Sydney Olympic Park NSW 2127
Australia
20 Nov 2024 at 8:19:10 pm
Sydney Olympic Park NSW 2127
Australia
20 Nov 2024 at 8:06:50 pm
Australia
20 Nov 2024 at 8:09:33 pm
Sydney Olympic Park NSW 2127
Australia
20 Nov 2024 at 8:23:13 pm
Australia
SLM
WS: None
Auto
15min
59.7 dB
92.4 dB
61.1 dB
51.1 dB
01/02 23:13:26

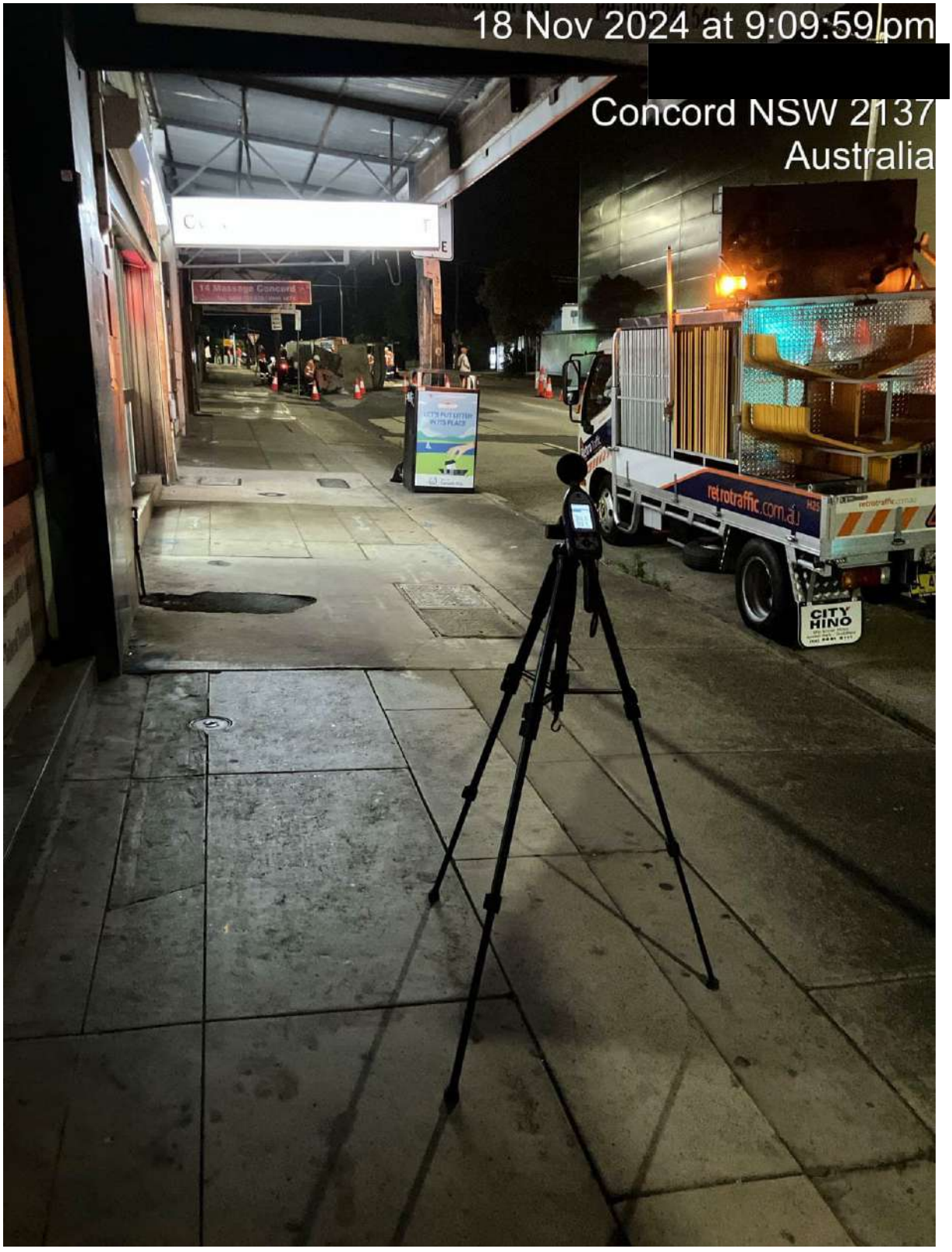
Attachment A: Monitoring, work locations & photos



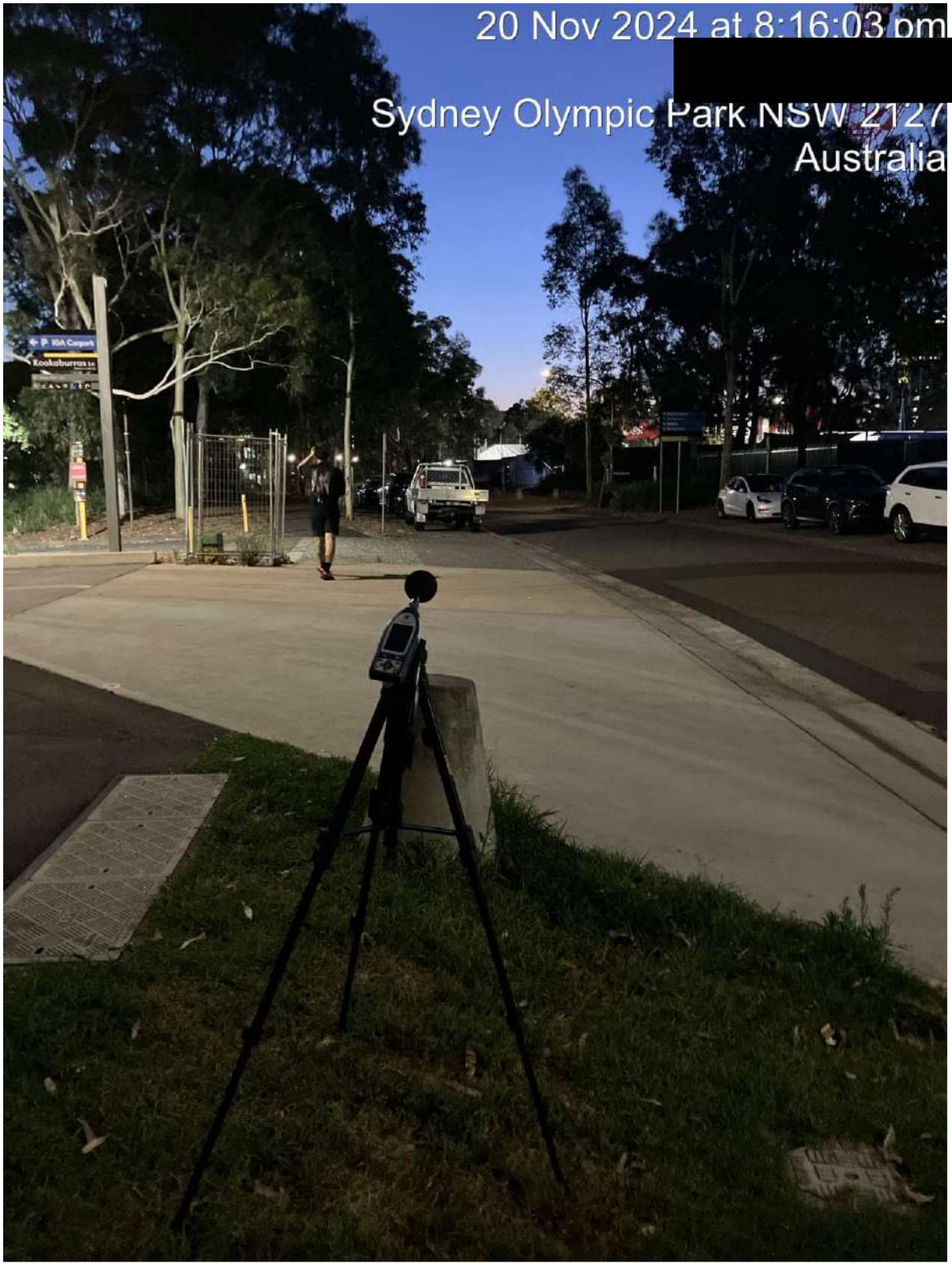
Monitoring Location Work Location Site location

Attended Noise Monitoring Rion-42- [redacted]

Attended Noise Monitoring Rion-42- [redacted]



Attended Noise Monitoring Rion-42-[redacted]



Attended Noise Monitoring Rion-42-[redacted]. SOP

Attended Noise Monitoring Rion-42- [redacted] Rozelle

APPENDIX A (ii) – SOUND POWER LEVELS

Location	Plant	Monitored SWL (dB(A))	Compliant with CNVS Table 13	Date
NST	**Agi (Drop pipe)**	91	Not listed	17/10/2024
SOP	**Tower Crane**	104	Not Listed	29/10/2024
SOP	**Crawler Crane**	97	Not Listed	29/10/2024

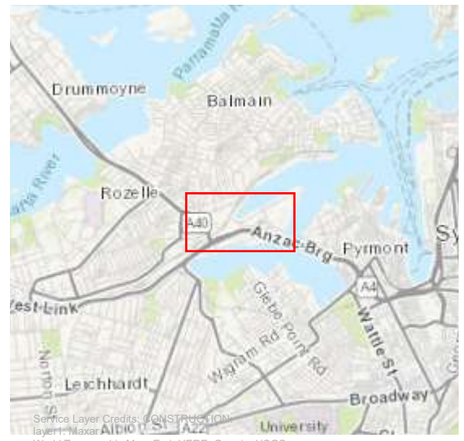
APPENDIX A (iii) – UNATTENDED NOISE MONITORING RESULTS

Sydney Metro West - CTP

- The Bays
- Shared access areas
- Ancillary facility location
- Indicative location of unattended noise monitor

N

0 0.05 0.1 0.2 km



Map Creation Date: 6/14/2023

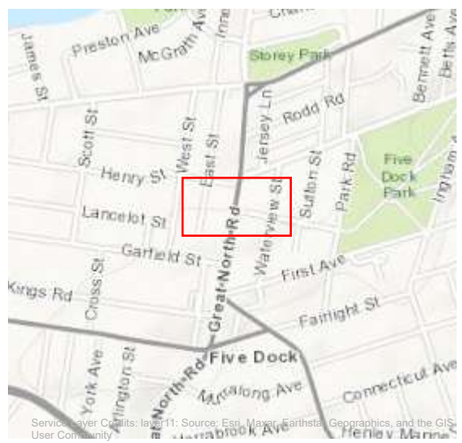
afJV

Sydney Metro West - CTP

- Five Dock
- Ancillary facility location
- Indicative location of unattended noise monitor
- Indicative location of unattended vibration monitor

N

0 0.01 0.03 0.06 km



Service Layer Credits: Esri, Maxar, Earthstar Geographics, and the GIS User Community

CONSTRUCTION:

Map Creation Date: 6/9/2023

afJV

Sydney Metro West - CTP

- Burwood North
- Indicative location of unattended noise monitor
- Indicative location of unattended vibration monitor

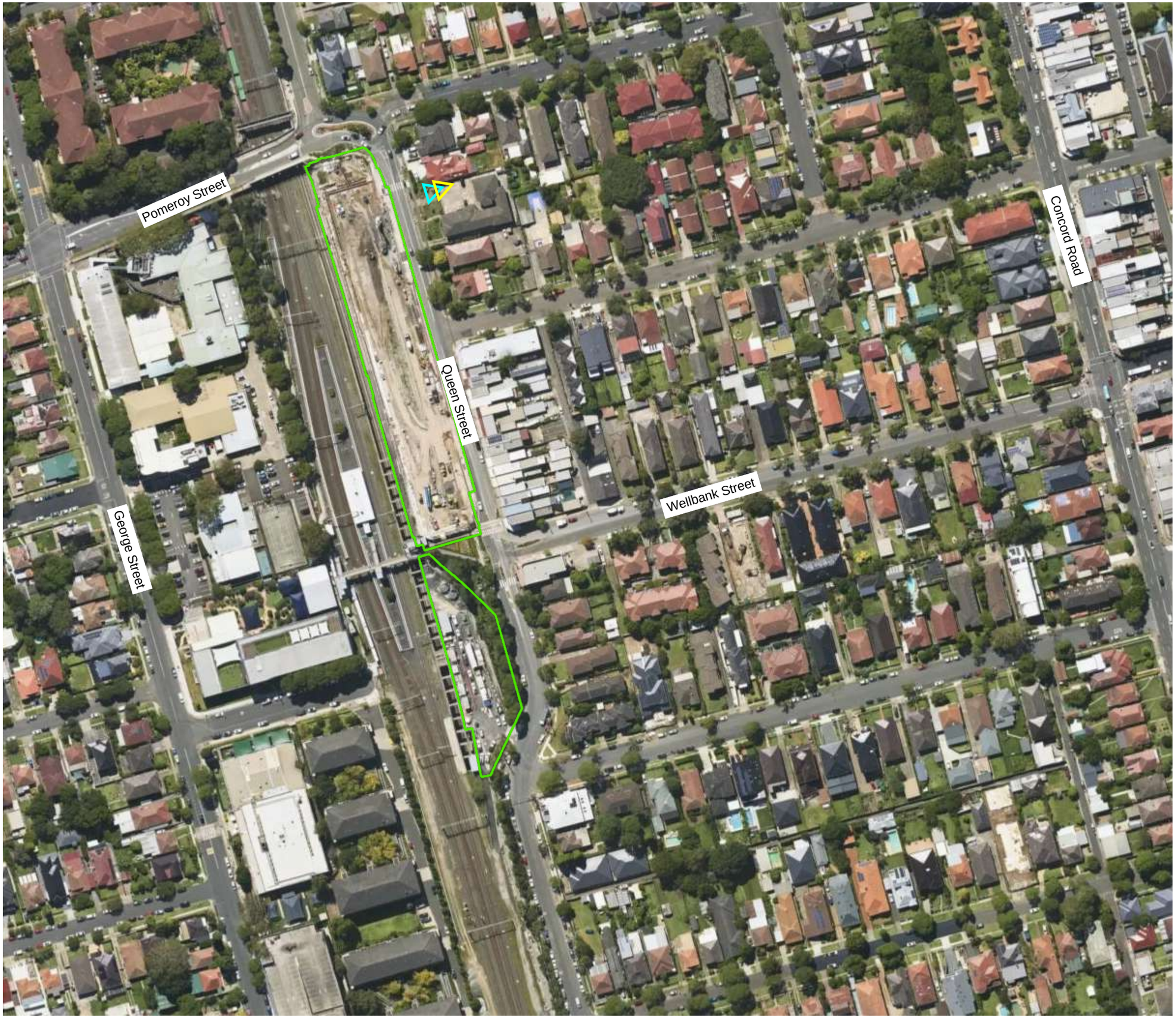
N

0 0.03 0.06 0.12 km

CONSTRUCTION:

Map Creation Date: 6/9/2023

afJV



ArcGIS Web Map

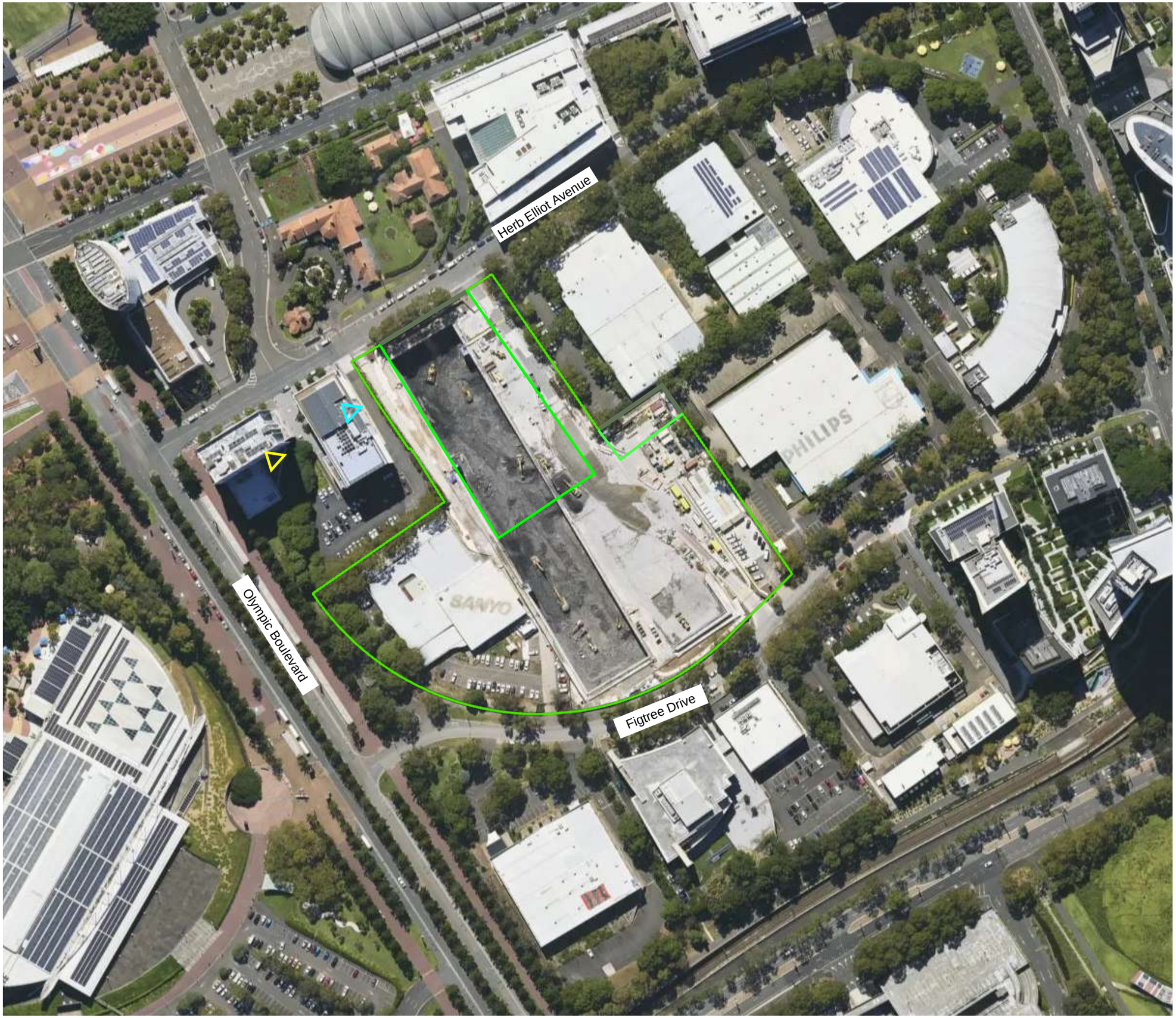
- North Strathfield
- Indicative location of unattended noise monitor
- Indicative location of unattended vibration monitor

N

0 0.03 0.06 0.12 km

Map Creation Date: 5/30/2023

afJV



Sydney Metro West - CTP

Olympic Park

Indicative location of unattended noise monitor

Indicative location of unattended vibration monitor

N

0 0.03 0.06 0.12 km

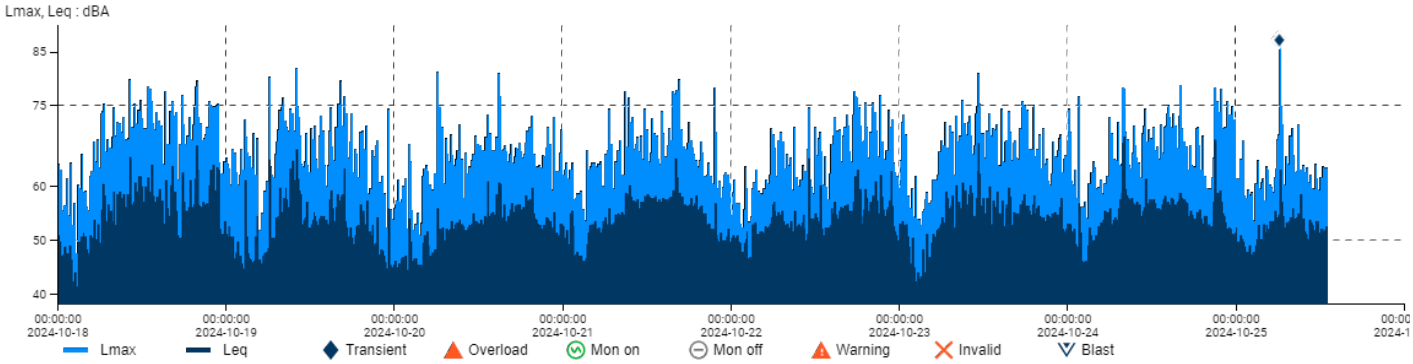
CONSTRUCTION:

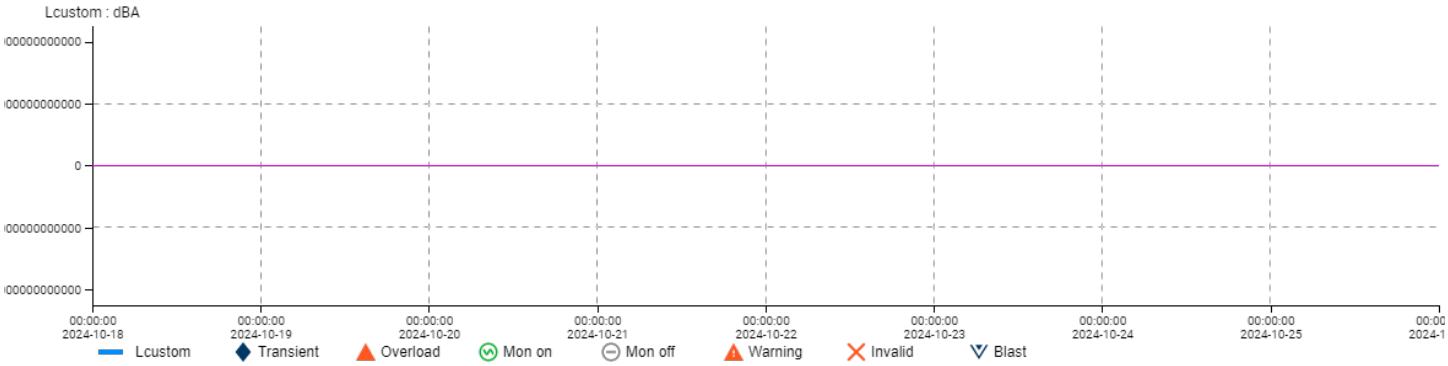
Map Creation Date: 6/9/2023

afJV

Interval report

Project	SOP
Project maintainer	-
Time frame	2024-10-18 00:00 - 2024-10-26 00:00 (Australia/Sydney)
Measuring point	N1 #14624
Description	[redacted]
Sensor type	S50
Sensor serial no.	14624
Master(s) serial no.	108060
Latest calibration	2024-08-14
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 87.6 dBA, Leq: 69.2 dBA, Lcustom: null



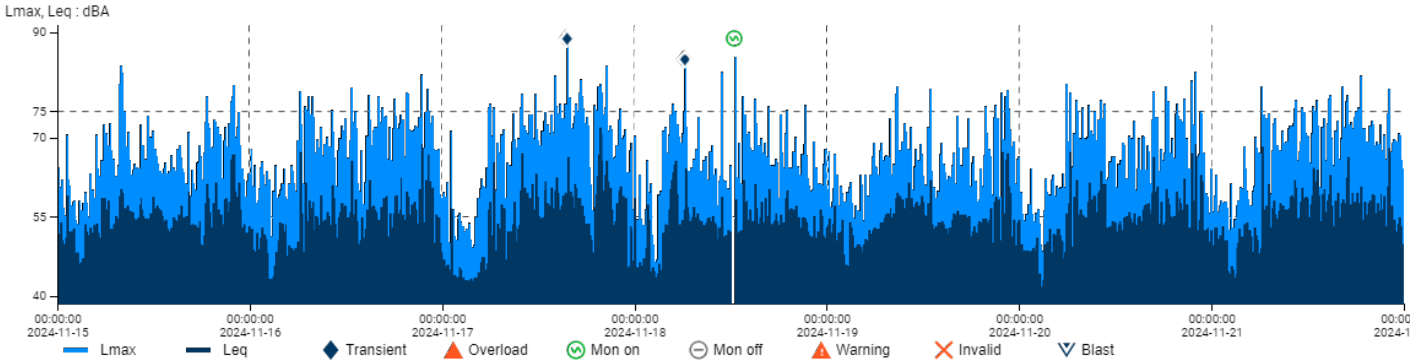


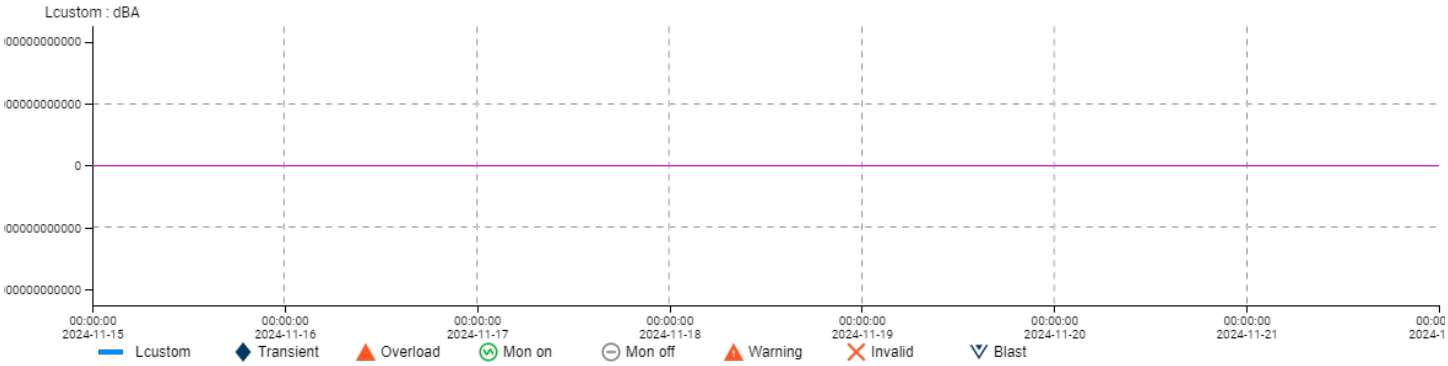
X-span	2024-10-18 00:00 - 2024-10-26 00:00
Y-span	Lmax, Leq : dBA: 38.23 - 89.91, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	87.6 dBA	69.2 dBA	
Date	2024-10-25	2024-10-24	-
Time	06:18:00	08:00:00	-

Interval report

Project	SOP
Project maintainer	-
Time frame	2024-11-15 00:00 - 2024-11-22 00:00 (Australia/Sydney)
Measuring point	N1 #14624
Description	[redacted]
Sensor type	S50
Sensor serial no.	14624
Master(s) serial no.	108060
Latest calibration	2024-08-14
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 89 dBA, Leq: 71.9 dBA, Lcustom: null



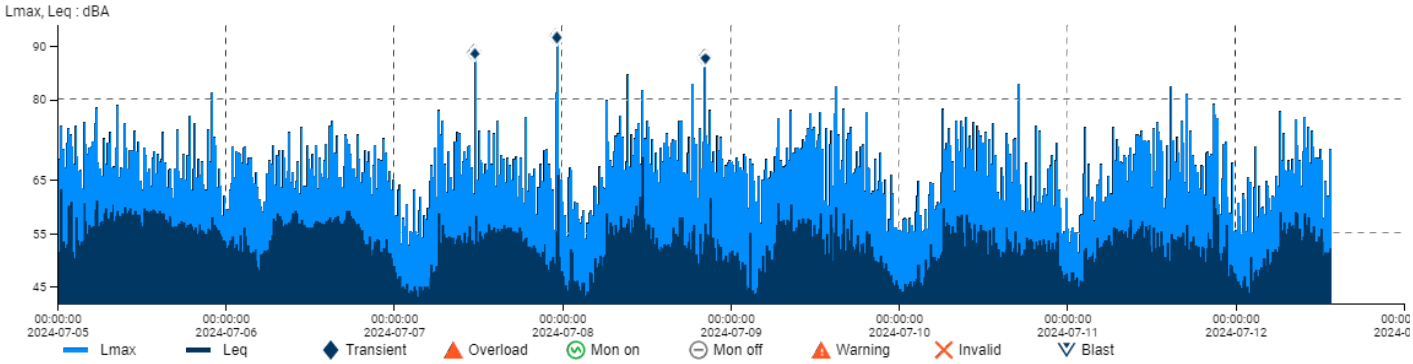


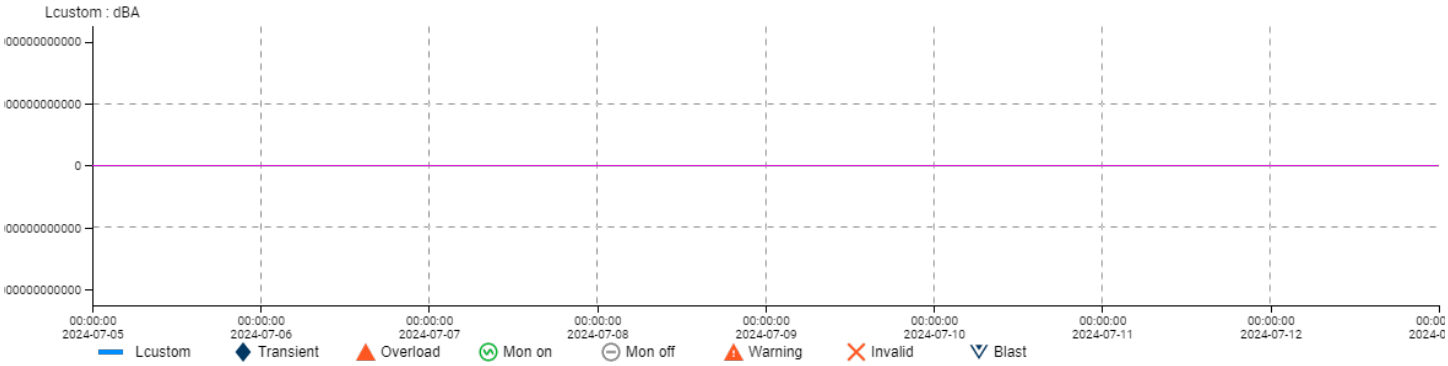
X-span	2024-11-15 00:00 - 2024-11-22 00:00
Y-span	Lmax, Leq : dBA: 38.51 - 91.31, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	89 dBA	71.9 dBA	
Date	2024-11-17	2024-11-17	-
Time	15:40:00	19:38:00	-

Interval report

Project	SOP
Project maintainer	-
Time frame	2024-07-05 00:00 - 2024-07-13 00:00 (Australia/Sydney)
Measuring point	N1 #14624
Description	[redacted]
Sensor type	S50
Sensor serial no.	14624
Master(s) serial no.	108060
Latest calibration	2023-08-02
Standard	(02) Lmax + Leq 30-105 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 91.9 dBA, Leq: 69.2 dBA, Lcustom: null



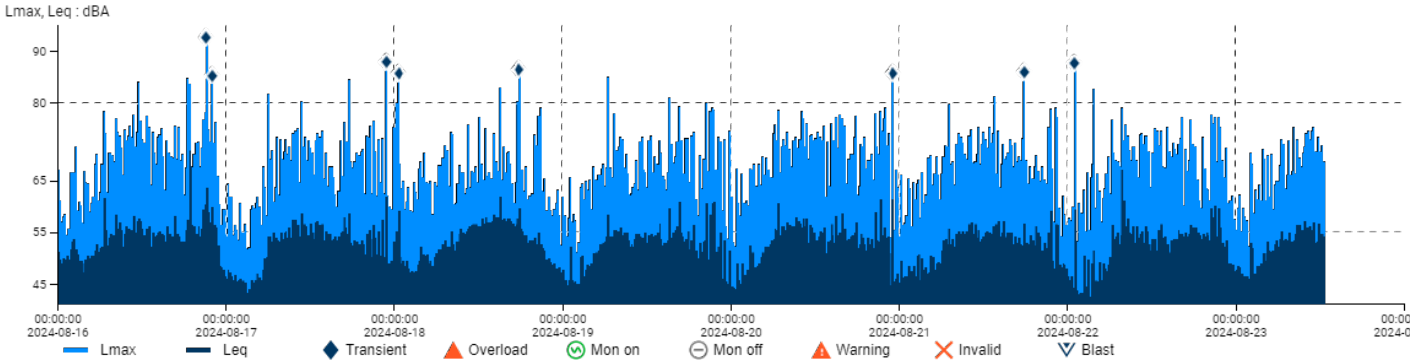


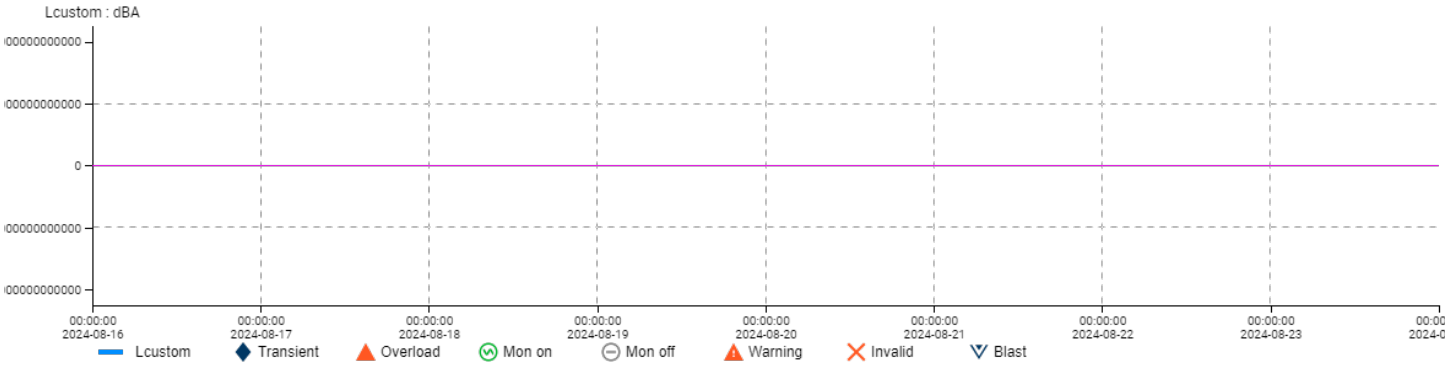
X-span	2024-07-05 00:00 - 2024-07-13 00:00
Y-span	Lmax, Leq : dBA: 41.9 - 93.93, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	91.9 dBA	69.2 dBA	
Date	2024-07-07	2024-07-08	-
Time	23:30:00	11:30:00	-

Interval report

Project	SOP
Project maintainer	-
Time frame	2024-08-16 00:00 - 2024-08-24 00:00 (Australia/Sydney)
Measuring point	N1 #14624
Description	[redacted]
Sensor type	S50
Sensor serial no.	10923
Master(s) serial no.	108060
Latest calibration	2024-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 92.9 dBA, Leq: 70.8 dBA, Lcustom: null



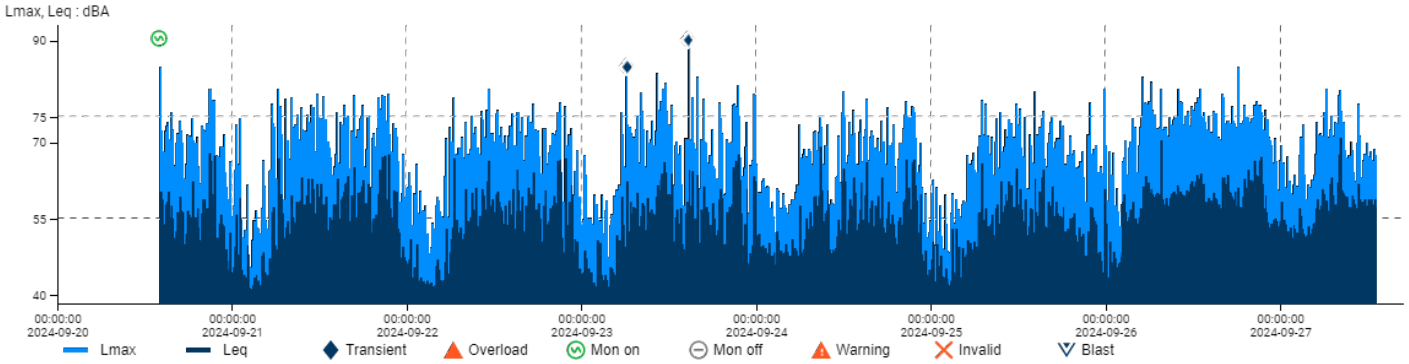


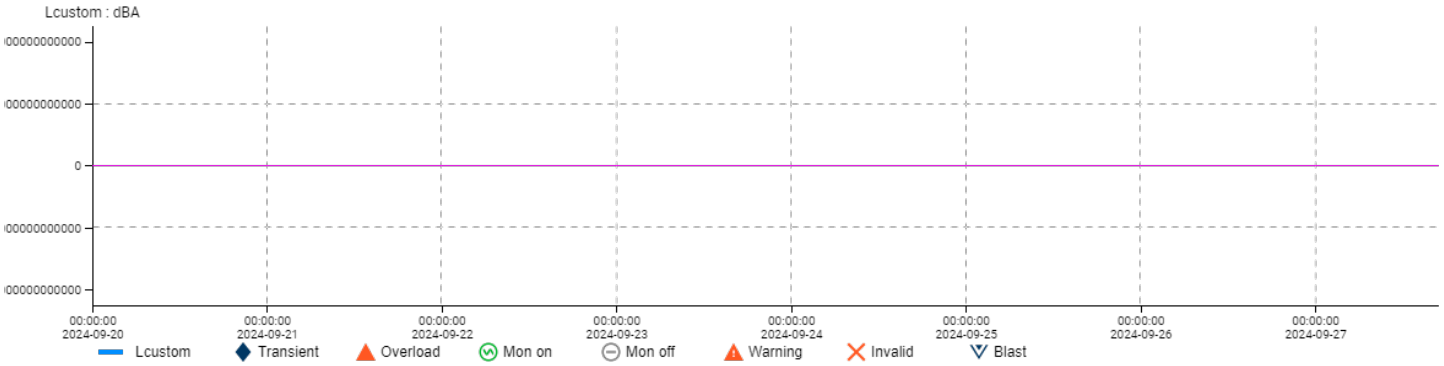
X-span	2024-08-16 00:00 - 2024-08-24 00:00
Y-span	Lmax, Leq : dBA: 41.19 - 95, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	92.9 dBA	70.8 dBA	
Date	2024-08-16	2024-08-16	-
Time	21:30:00	19:00:00	-

Interval report

Project	SOP
Project maintainer	-
Time frame	2024-09-20 00:00 - 2024-09-27 17:00 (Australia/Sydney)
Measuring point	N1 #14624
Description	[redacted]
Sensor type	S50
Sensor serial no.	14624
Master(s) serial no.	108060
Latest calibration	2024-08-14
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 90.6 dBA, Leq: 71.1 dBA, Lcustom: null



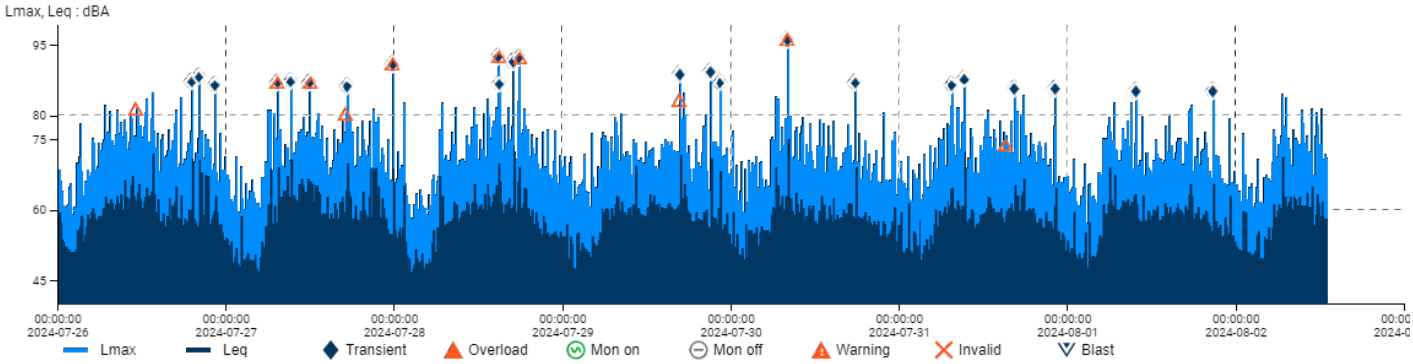


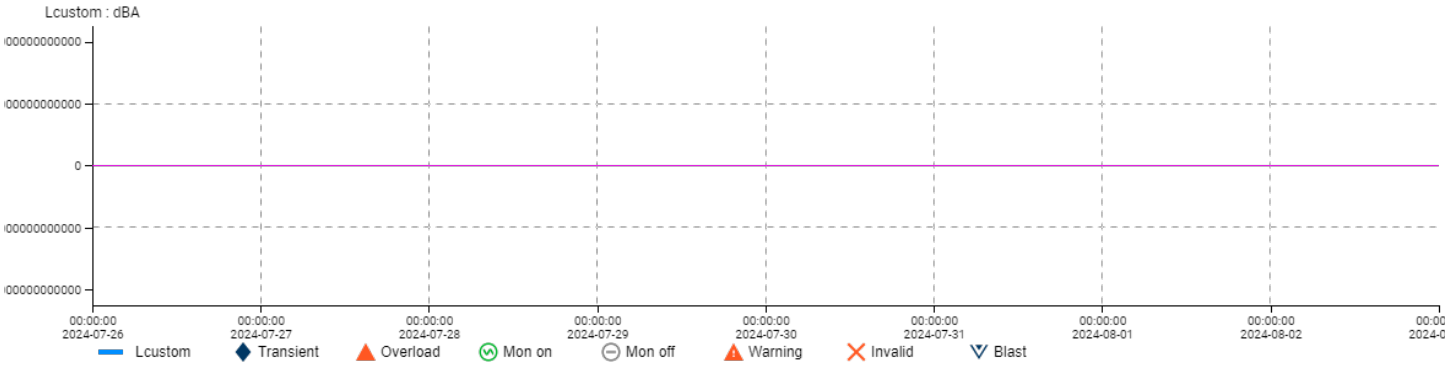
X-span	2024-09-20 00:00 - 2024-09-27 17:00
Y-span	Lmax, Leq : dBA: 38.34 - 93.04, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	90.6 dBA	71.1 dBA	
Date	2024-09-23	2024-09-27	-
Time	14:46:00	08:08:00	-

Interval report

Project	NST
Project maintainer	-
Time frame	2024-07-26 00:00 - 2024-08-03 00:00 (Australia/Sydney)
Measuring point	NST_1
Description	NST S50 #14084
Sensor type	S50
Sensor serial no.	10888
Master(s) serial no.	108061
Latest calibration	2024-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 96.5 dBA, Leq: 75 dBA, Lcustom: null



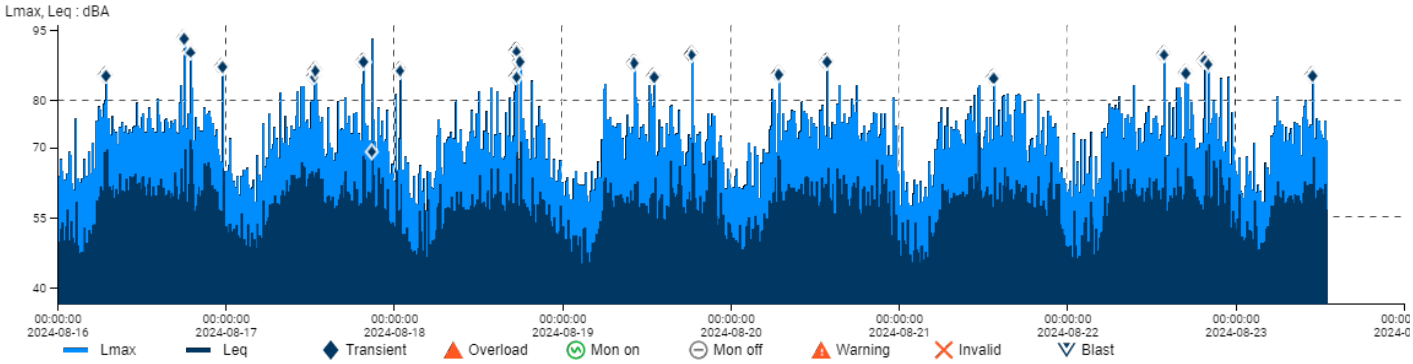


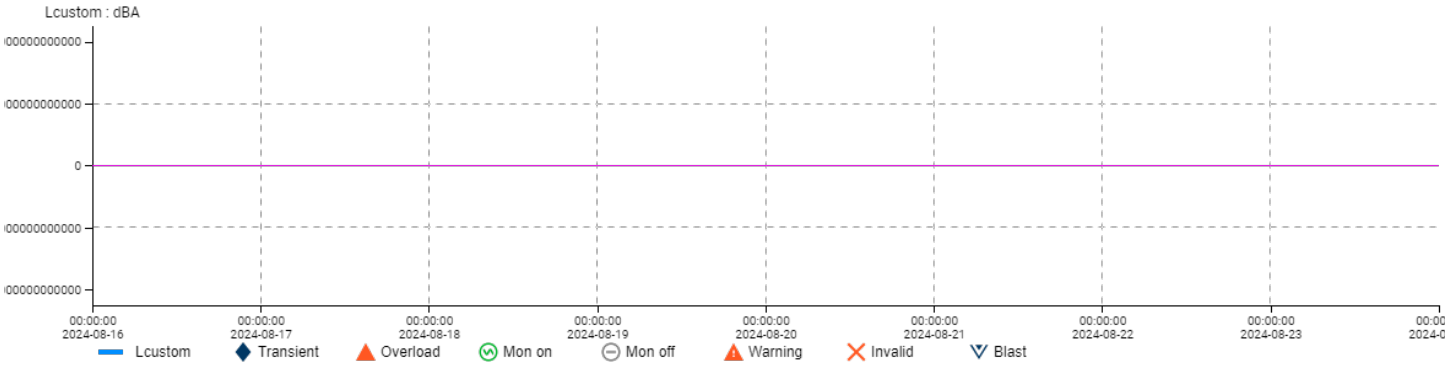
X-span	2024-07-26 00:00 - 2024-08-03 00:00
Y-span	Lmax, Leq : dBA: 40.14 - 99.12, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	96.5 dBA	75 dBA	
Date	2024-07-30	2024-07-30	-
Time	08:10:00	08:10:00	-

Interval report

Project	NST
Project maintainer	-
Time frame	2024-08-16 00:00 - 2024-08-24 00:00 (Australia/Sydney)
Measuring point	NST_1
Description	NST S50 #14084
Sensor type	S50
Sensor serial no.	10888
Master(s) serial no.	108061
Latest calibration	2024-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 93.5 dBA, Leq: 73.3 dBA, Lcustom: null



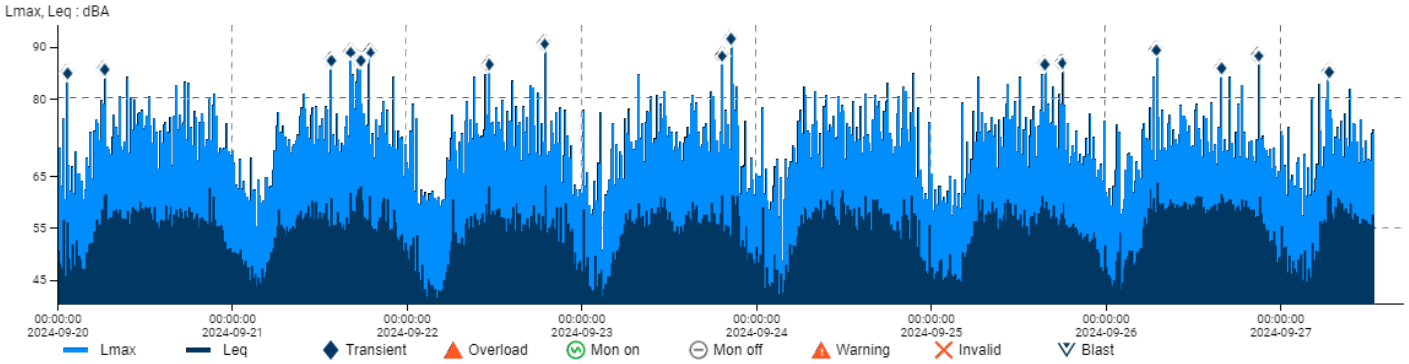


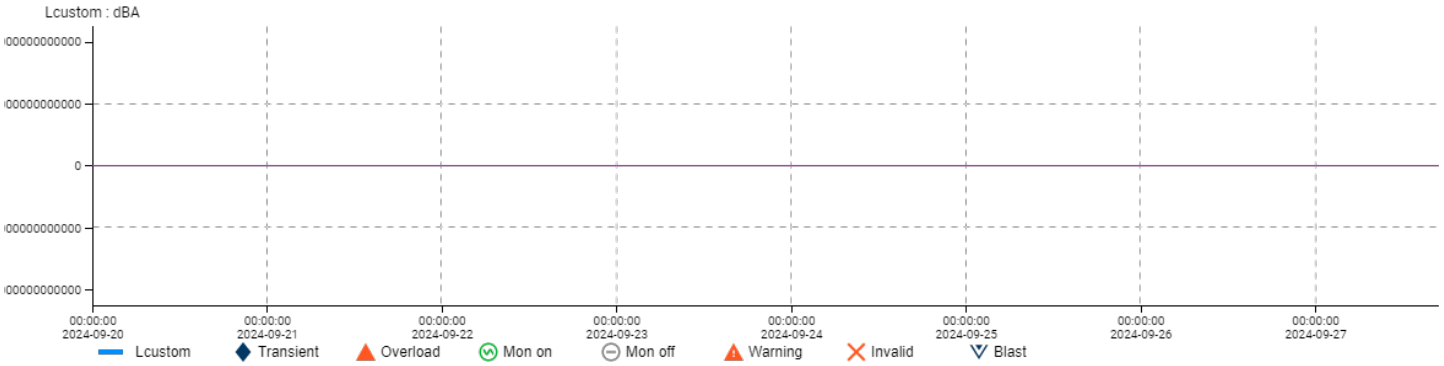
X-span	2024-08-16 00:00 - 2024-08-24 00:00
Y-span	Lmax, Leq : dBA: 36.66 - 96.09, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	93.5 dBA	73.3 dBA	
Date	2024-08-16	2024-08-21	-
Time	18:12:00	11:28:00	-

Interval report

Project	NST
Project maintainer	-
Time frame	2024-09-20 00:00 - 2024-09-27 17:00 (Australia/Sydney)
Measuring point	NST_1
Description	NST S50 #14084
Sensor type	S50
Sensor serial no.	10884
Master(s) serial no.	108061
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 92 dBA, Leq: 63.8 dBA, Lcustom: null



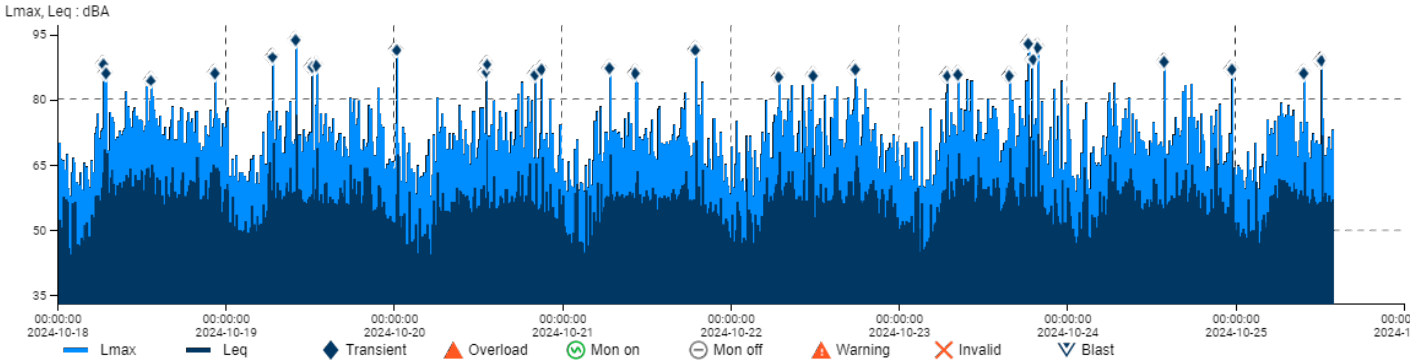


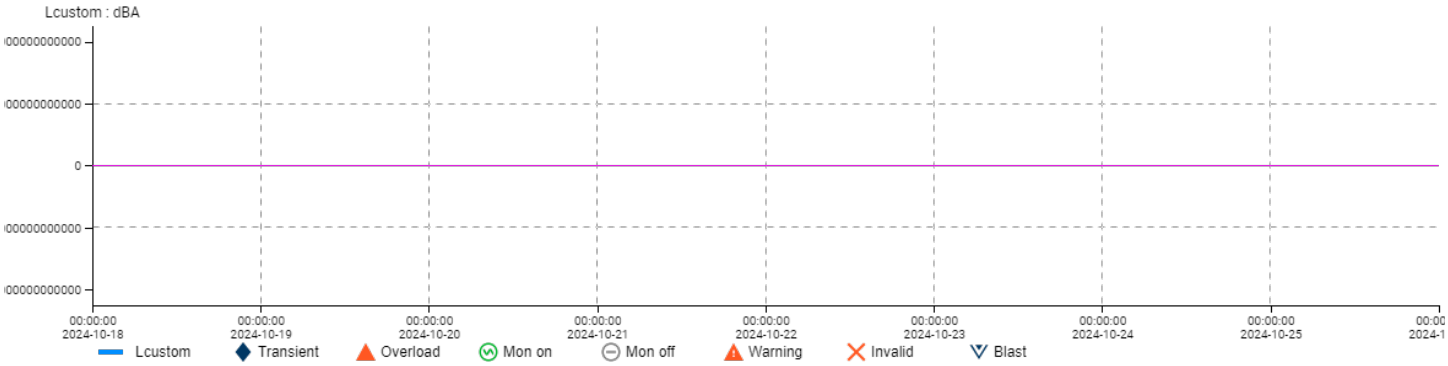
X-span	2024-09-20 00:00 - 2024-09-27 17:00
Y-span	Lmax, Leq : dBA: 40.39 - 94.17, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	92 dBA	63.8 dBA	
Date	2024-09-23	2024-09-26	-
Time	20:45:00	07:15:00	-

Interval report

Project	NST
Project maintainer	-
Time frame	2024-10-18 00:00 - 2024-10-26 00:00 (Australia/Sydney)
Measuring point	NST_1
Description	NST S50 #14084
Sensor type	S50
Sensor serial no.	14084
Master(s) serial no.	108061
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 94.3 dBA, Leq: 76.5 dBA, Lcustom: null



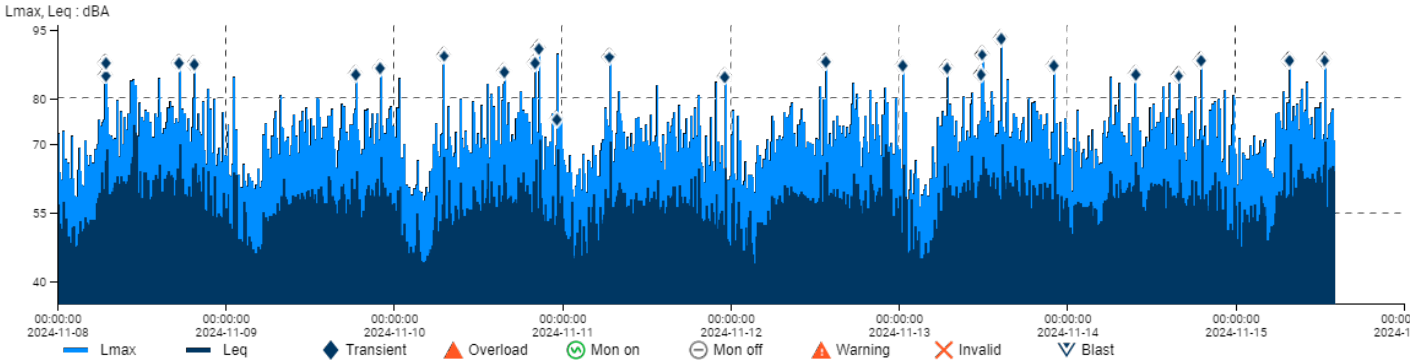


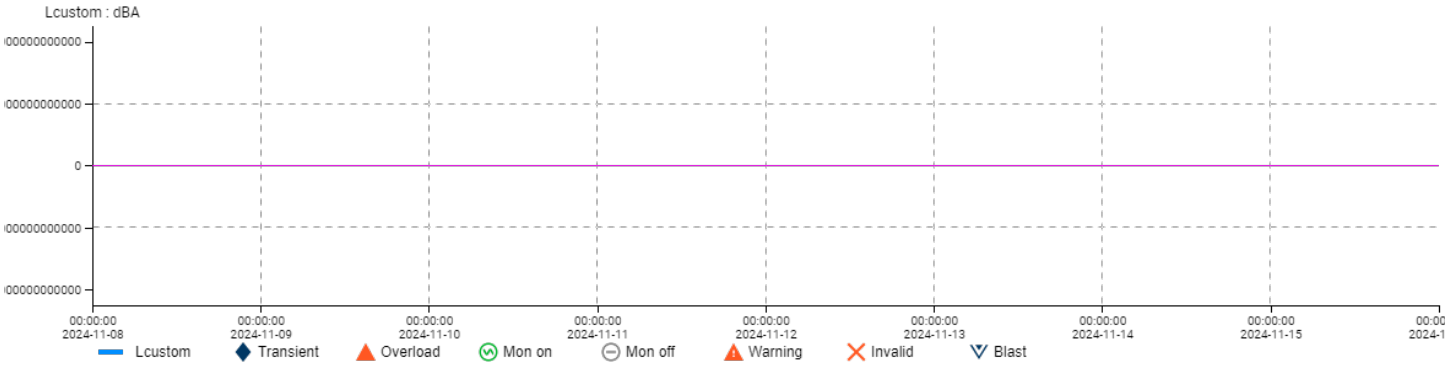
X-span	2024-10-18 00:00 - 2024-10-26 00:00
Y-span	Lmax, Leq : dBA: 33.14 - 97.14, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	94.3 dBA	76.5 dBA	
Date	2024-10-19	2024-10-23	-
Time	10:00:00	18:28:00	-

Interval report

Project	NST
Project maintainer	-
Time frame	2024-11-08 00:00 - 2024-11-16 00:00 (Australia/Sydney)
Measuring point	NST_1
Description	NST S50 #14084
Sensor type	S50
Sensor serial no.	14084
Master(s) serial no.	108061
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 93.4 dBA, Leq: 74.1 dBA, Lcustom: null



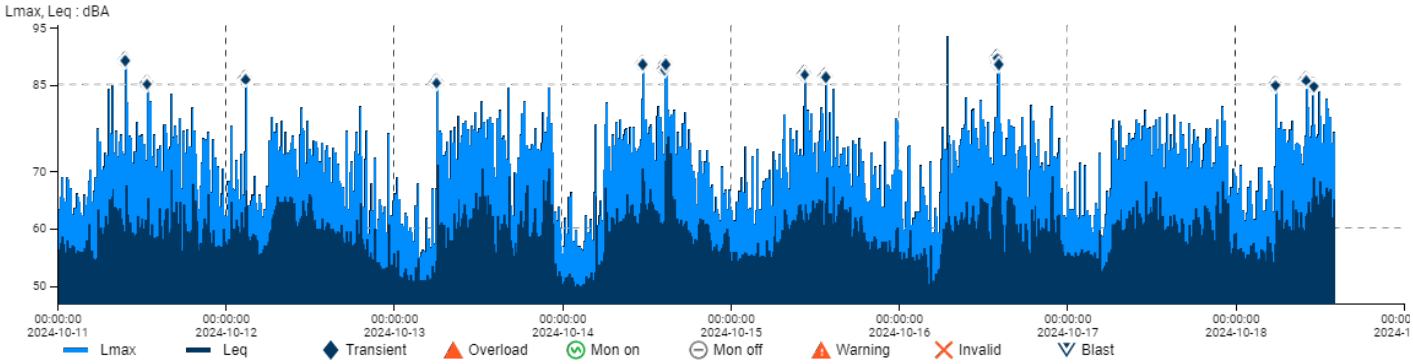


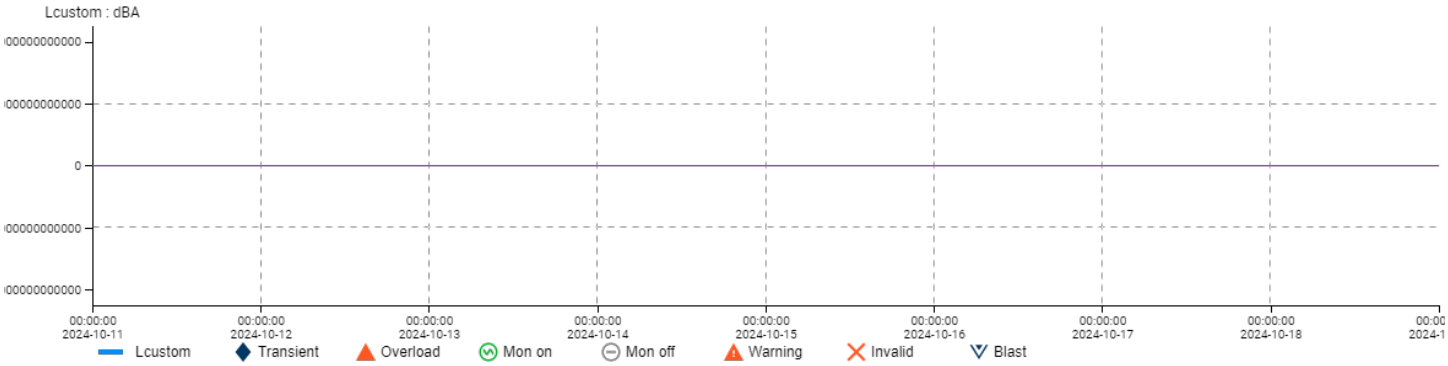
X-span	2024-11-08 00:00 - 2024-11-16 00:00
Y-span	Lmax, Leq : dBA: 35.15 - 96.06, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	93.4 dBA	74.1 dBA	
Date	2024-11-13	2024-11-08	-
Time	14:40:00	10:44:00	-

Interval report

Project	BWD
Project maintainer	-
Time frame	2024-10-11 00:00 - 2024-10-19 00:00 (Australia/Sydney)
Measuring point	BWD_1
Description	16 Burton St Noise
Sensor type	S50
Sensor serial no.	14085
Master(s) serial no.	108062
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 93.3 dBA, Leq: 76.1 dBA, Lcustom: null



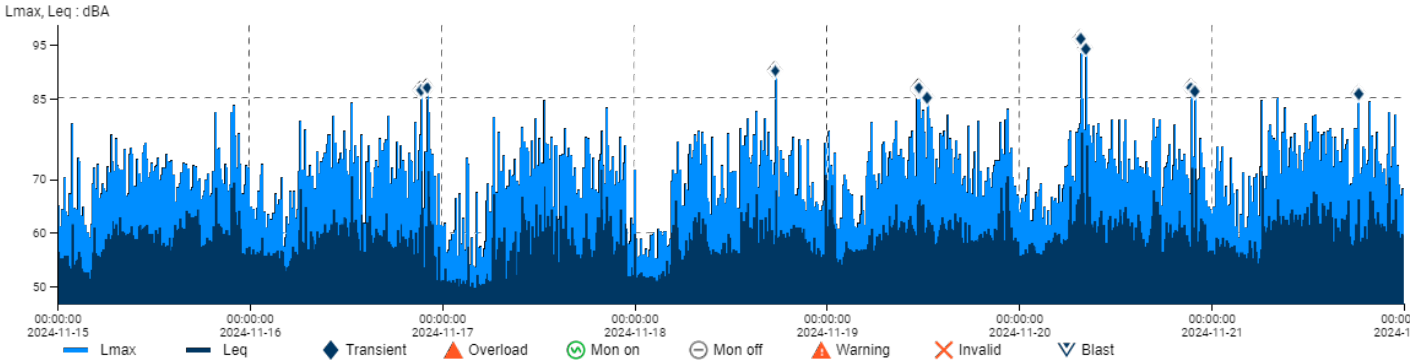


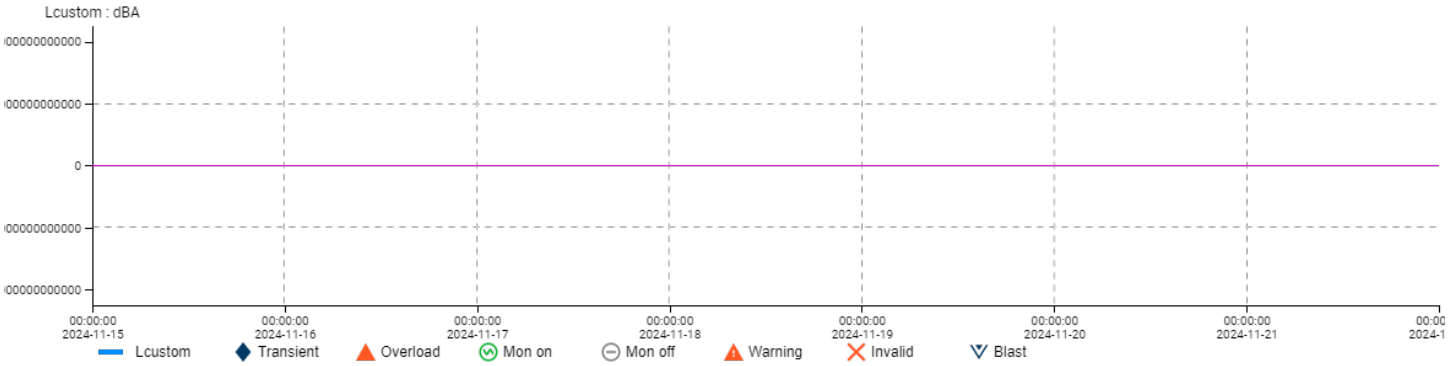
X-span	2024-10-11 00:00 - 2024-10-19 00:00
Y-span	Lmax, Leq : dBA: 46.91 - 95.43, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	93.3 dBA	76.1 dBA	
Date	2024-10-16	2024-10-14	-
Time	06:54:00	15:04:00	-

Interval report

Project	BWD
Project maintainer	-
Time frame	2024-11-15 00:00 - 2024-11-22 00:00 (Australia/Sydney)
Measuring point	BWD_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	14085
Master(s) serial no.	108062
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 96.4 dBA, Leq: 78.8 dBA, Lcustom: null



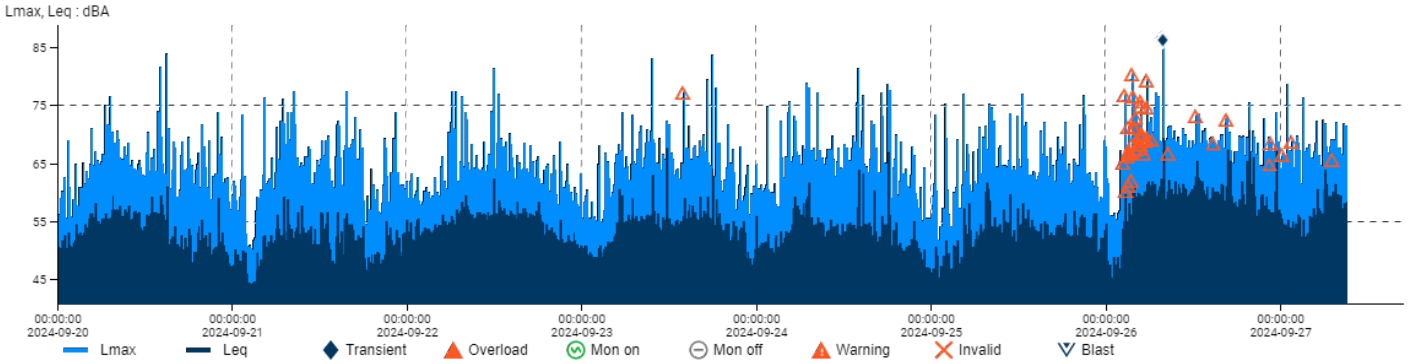


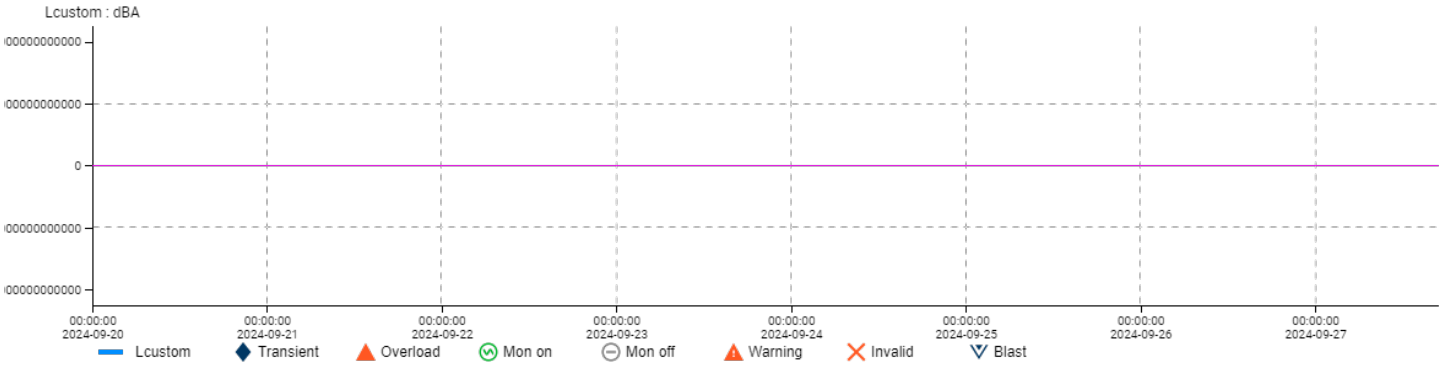
X-span	2024-11-15 00:00 - 2024-11-22 00:00
Y-span	Lmax, Leq : dBA: 46.88 - 98.67, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	96.4 dBA	78.8 dBA	
Date	2024-11-20	2024-11-20	-
Time	07:42:00	07:42:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-09-20 00:00 - 2024-09-27 17:00 (Australia/Sydney)
Measuring point	N7 TBY
Description	[redacted]
Sensor type	S50
Sensor serial no.	14625
Master(s) serial no.	108059
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 86.7 dBA, Leq: 70.8 dBA, Lcustom: null



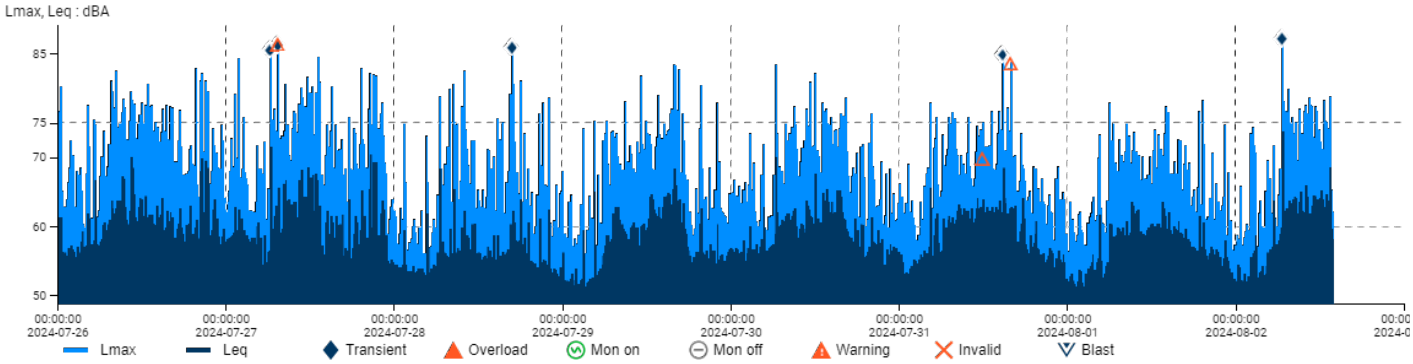


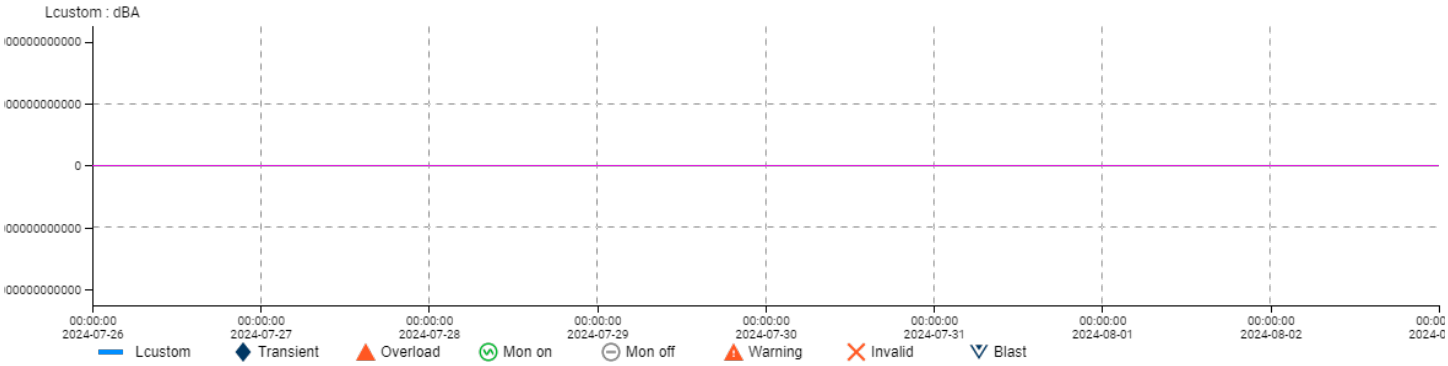
X-span	2024-09-20 00:00 - 2024-09-27 17:00
Y-span	Lmax, Leq : dBA: 40.88 - 88.83, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	86.7 dBA	70.8 dBA	
Date	2024-09-26	2024-09-26	-
Time	07:56:00	19:44:00	-

Interval report

Project	BWD
Project maintainer	-
Time frame	2024-07-26 00:00 - 2024-08-03 00:00 (Australia/Sydney)
Measuring point	BWD_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	11135
Master(s) serial no.	108062
Latest calibration	2024-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 87.4 dBA, Leq: 73.7 dBA, Lcustom: null



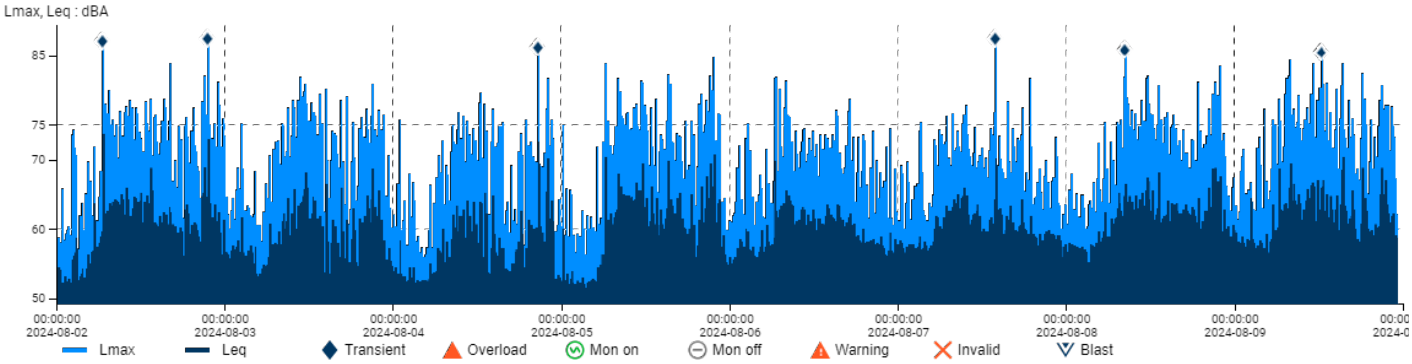


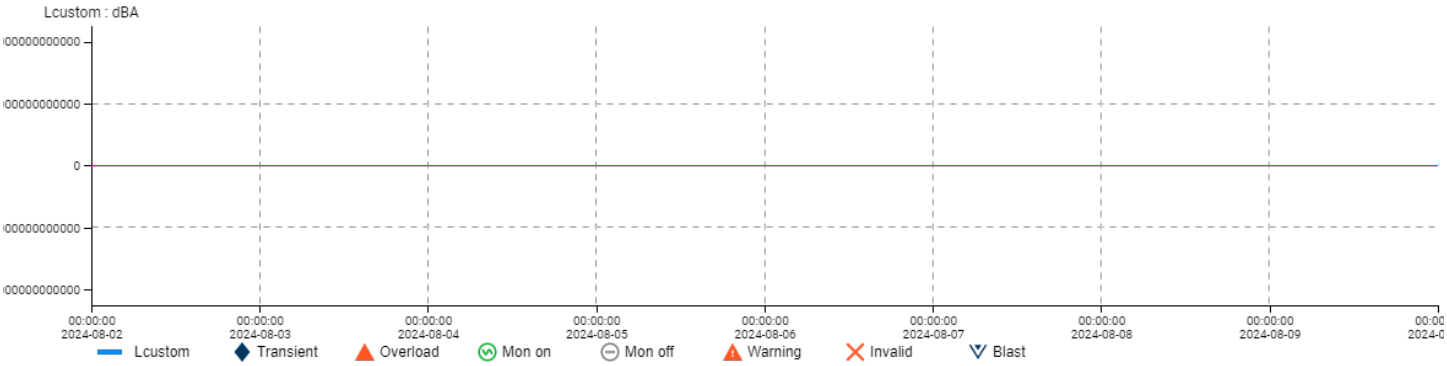
X-span	2024-07-26 00:00 - 2024-08-03 00:00
Y-span	Lmax, Leq : dBA: 48.82 - 89.15, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	87.4 dBA	73.7 dBA	
Date	2024-08-02	2024-08-02	-
Time	06:40:00	06:40:00	-

Interval report

Project	BWD
Project maintainer	-
Time frame	2024-08-02 00:00 - 2024-08-10 00:00 (Australia/Sydney)
Measuring point	BWD_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	11135
Master(s) serial no.	108062
Latest calibration	2024-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 87.6 dBA, Leq: 73.7 dBA, Lcustom: null



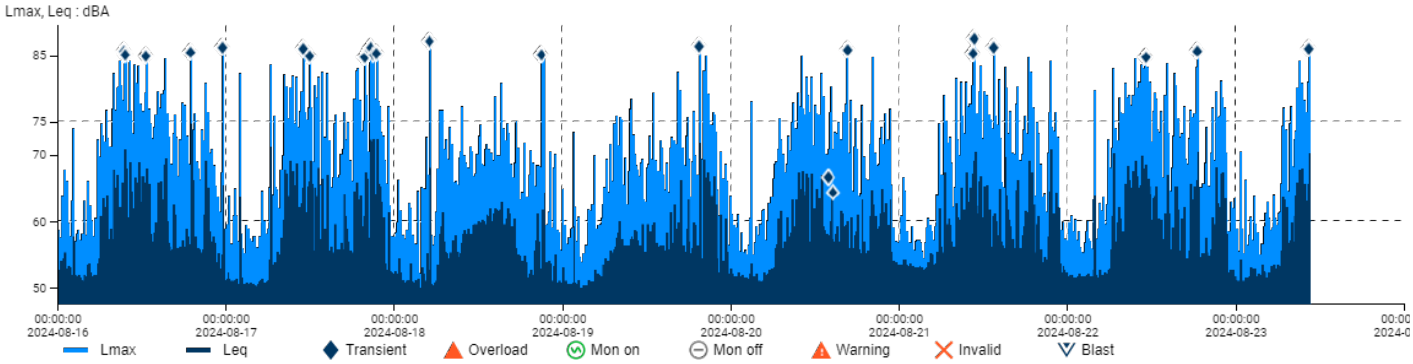


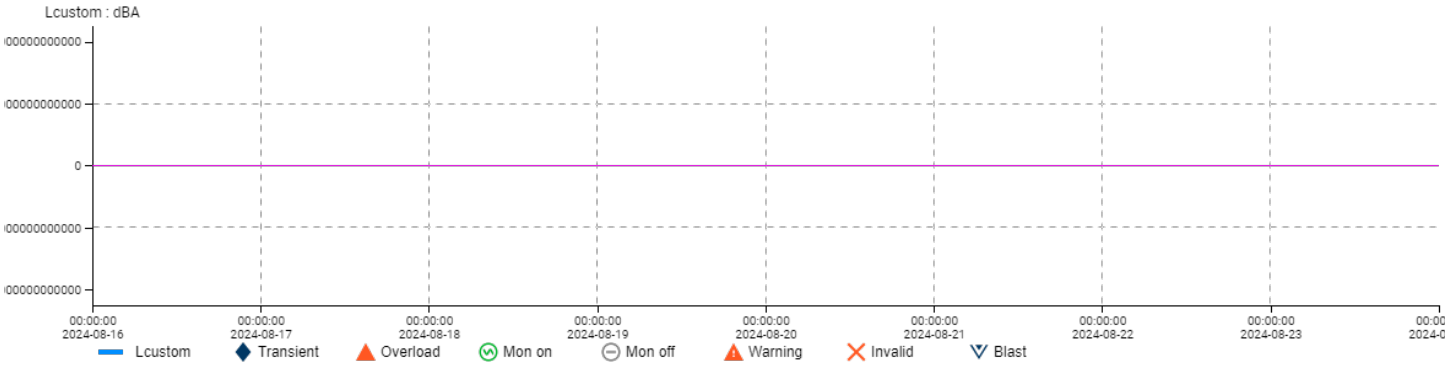
X-span	2024-08-02 00:00 - 2024-08-10 00:00
Y-span	Lmax, Leq : dBA: 49.24 - 89.35, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	87.6 dBA	73.7 dBA	
Date	2024-08-02	2024-08-02	-
Time	21:36:00	06:40:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-08-16 00:00 - 2024-08-24 00:00 (Australia/Sydney)
Measuring point	FDK_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	9956
Master(s) serial no.	107964
Latest calibration	2024-06-26
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 87.7 dBA, Leq: 74.7 dBA, Lcustom: null



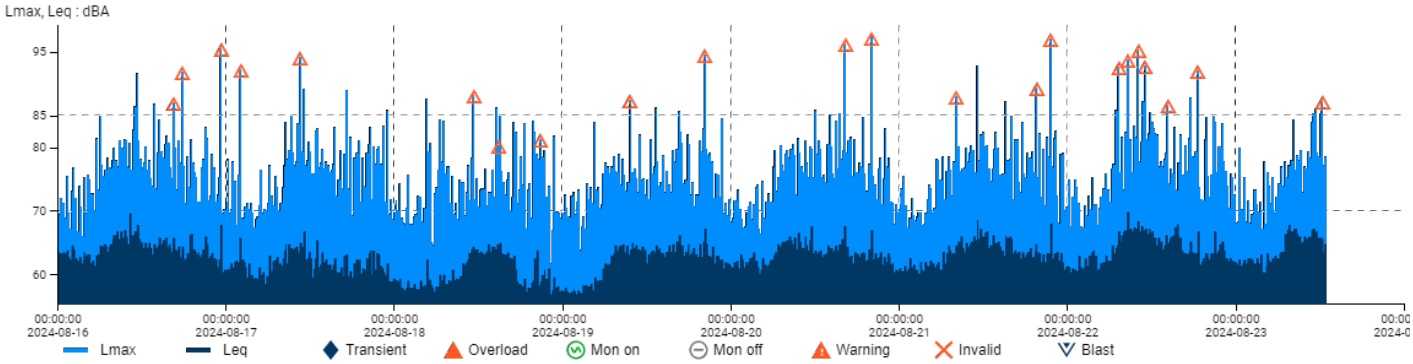


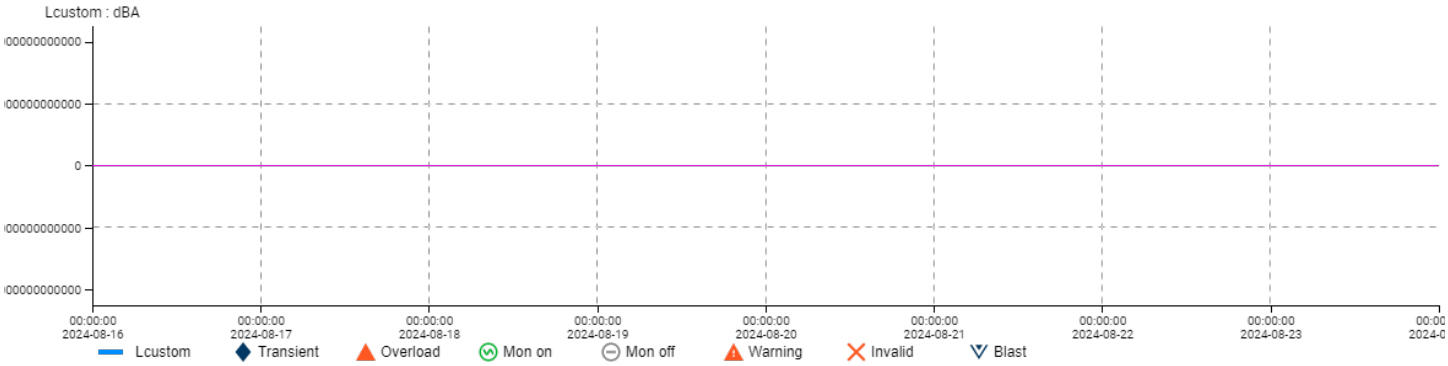
X-span	2024-08-16 00:00 - 2024-08-24 00:00
Y-span	Lmax, Leq : dBA: 47.61 - 89.54, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	87.7 dBA	74.7 dBA	
Date	2024-08-21	2024-08-16	-
Time	10:42:00	19:00:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-08-16 00:00 - 2024-08-24 00:00 (Australia/Sydney)
Measuring point	FDK_4
Description	[redacted]
Sensor type	S50
Sensor serial no.	9463
Master(s) serial no.	107963
Latest calibration	2022-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 97.3 dBA, Leq: 69.8 dBA, Lcustom: null



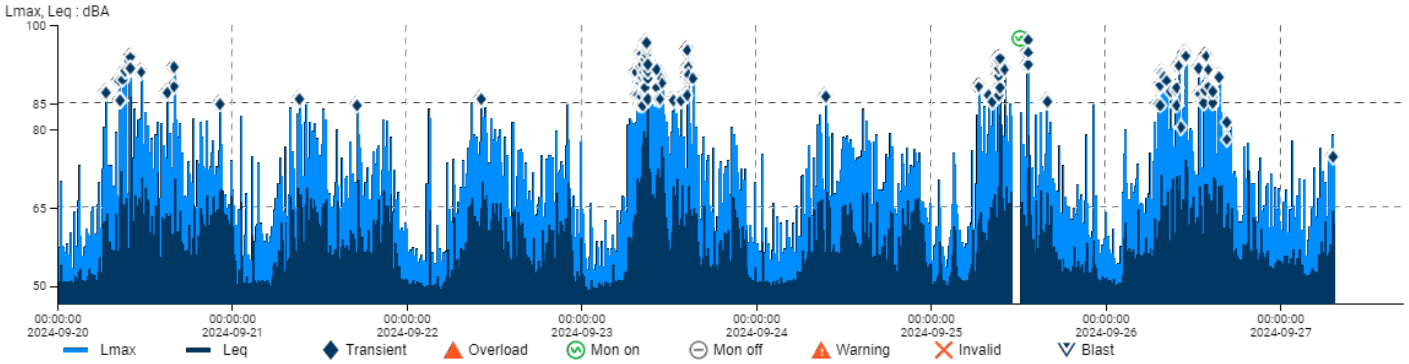


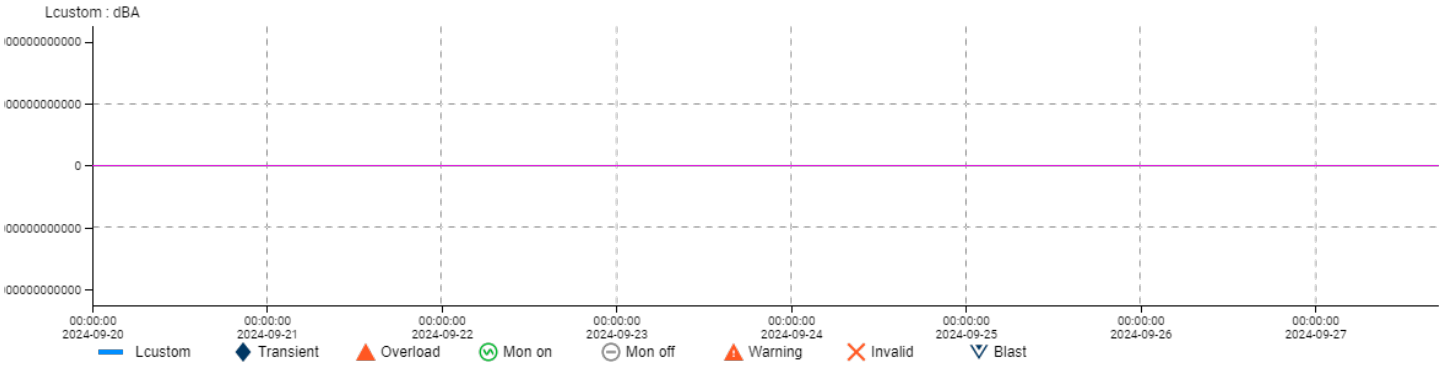
X-span	2024-08-16 00:00 - 2024-08-24 00:00
Y-span	Lmax, Leq : dBA: 55.42 - 99.19, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	97.3 dBA	69.8 dBA	
Date	2024-08-20	2024-08-22	-
Time	20:15:00	08:45:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-09-20 00:00 - 2024-09-27 17:00 (Australia/Sydney)
Measuring point	FDK_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	14176
Master(s) serial no.	107964
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 97.7 dBA, Leq: 86.7 dBA, Lcustom: null



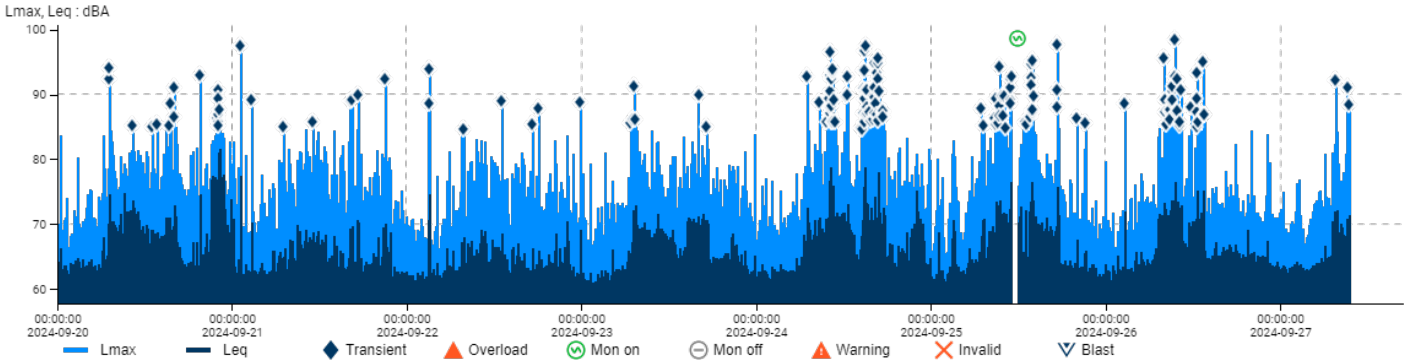


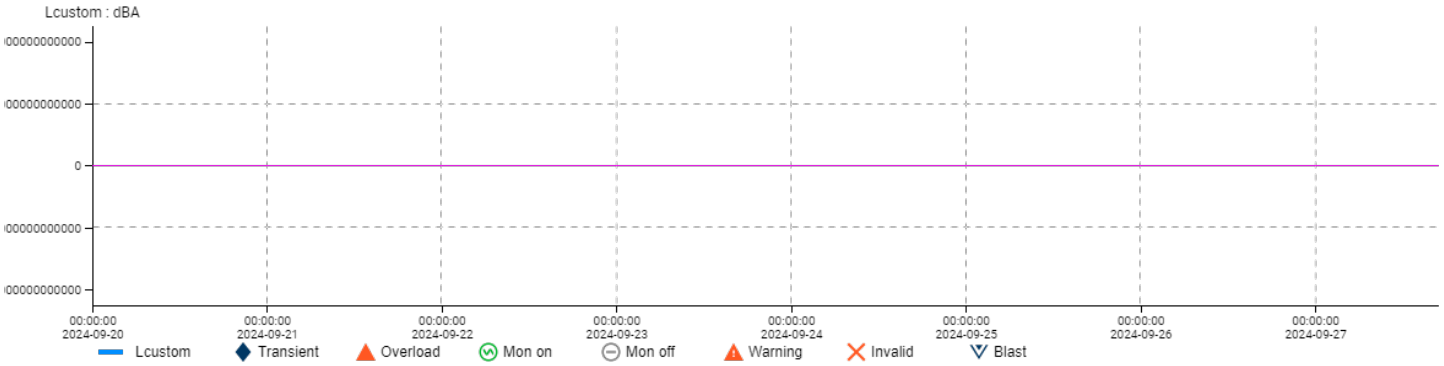
X-span	2024-09-20 00:00 - 2024-09-27 17:00
Y-span	Lmax, Leq : dBA: 46.59 - 100.07, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	97.7 dBA	86.7 dBA	
Date	2024-09-25	2024-09-25	-
Time	13:20:00	09:26:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-09-20 00:00 - 2024-09-27 17:00 (Australia/Sydney)
Measuring point	FDK_4
Description	[redacted]
Sensor type	S50
Sensor serial no.	14157
Master(s) serial no.	107963
Latest calibration	2024-08-19
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 98.8 dBA, Leq: 81.5 dBA, Lcustom: null



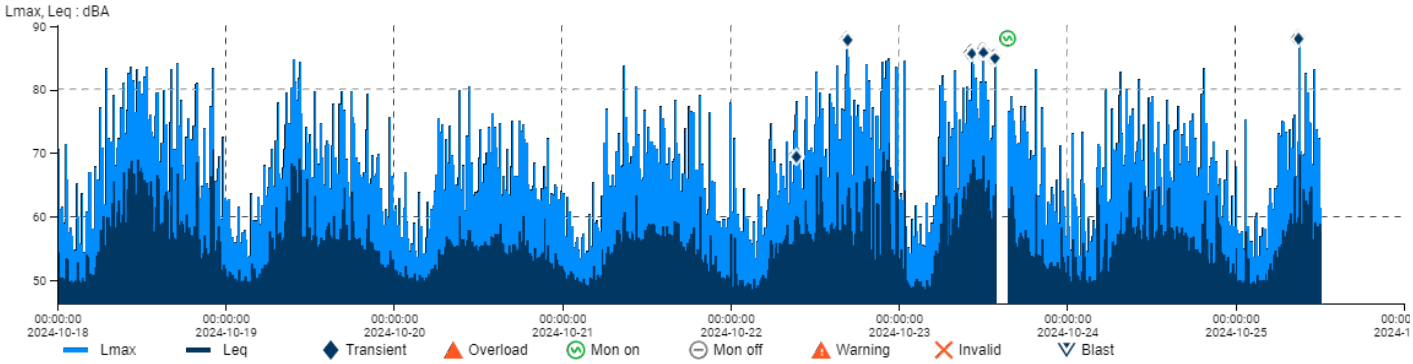


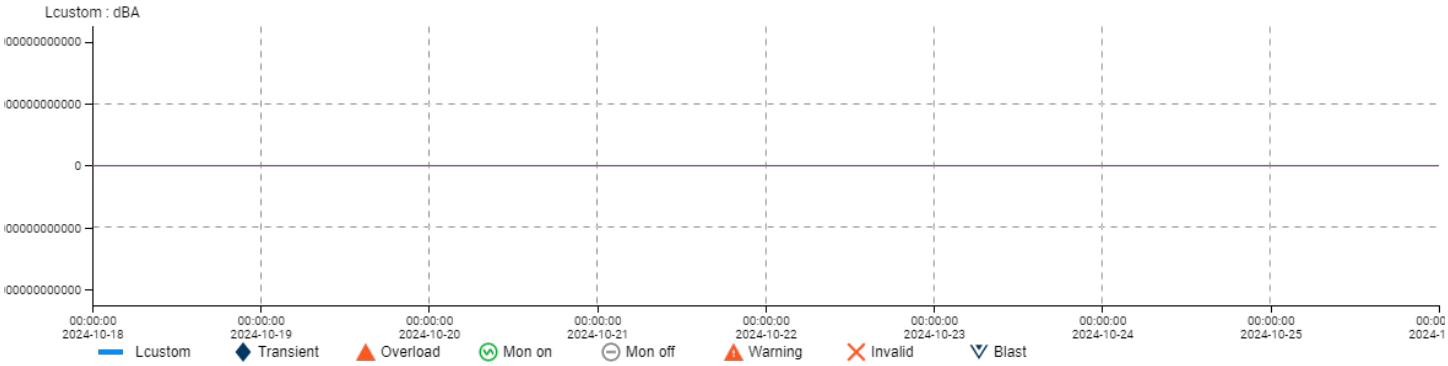
X-span	2024-09-20 00:00 - 2024-09-27 17:00
Y-span	Lmax, Leq : dBA: 57.77 - 100.72, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	98.8 dBA	81.5 dBA	
Date	2024-09-26	2024-09-20	-
Time	09:32:00	22:22:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-10-18 00:00 - 2024-10-26 00:00 (Australia/Sydney)
Measuring point	FDK_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	14176
Master(s) serial no.	107964
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 88.3 dBA, Leq: 71.6 dBA, Lcustom: null



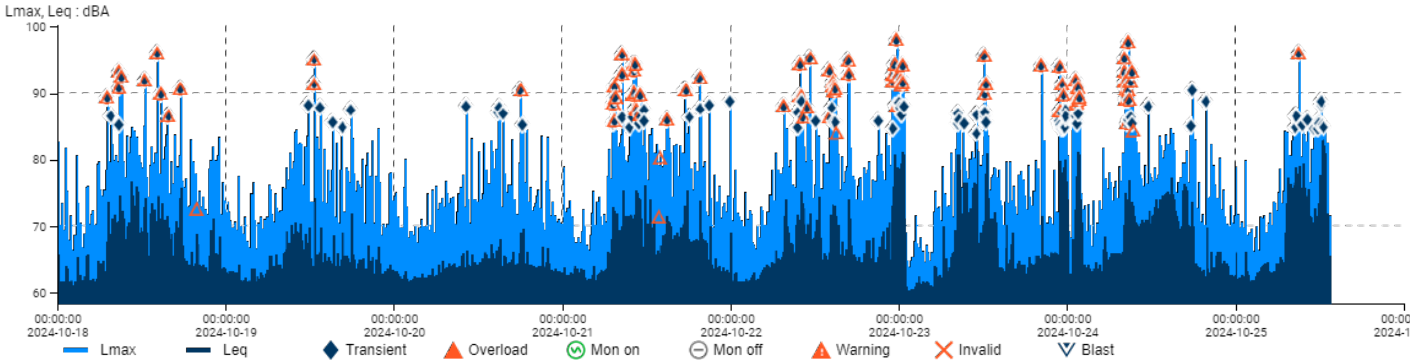


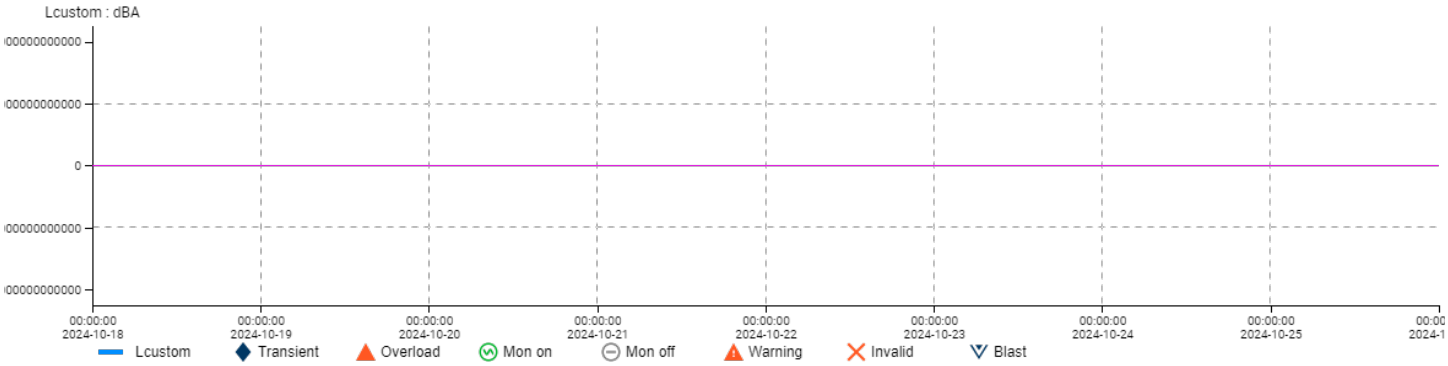
X-span	2024-10-18 00:00 - 2024-10-26 00:00
Y-span	Lmax, Leq : dBA: 46.3 - 90.21, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	88.3 dBA	71.6 dBA	
Date	2024-10-25	2024-10-22	-
Time	09:06:00	22:26:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-10-18 00:00 - 2024-10-26 00:00 (Australia/Sydney)
Measuring point	FDK_4
Description	St Albans Church noise
Sensor type	S50
Sensor serial no.	14157
Master(s) serial no.	107963
Latest calibration	2024-08-19
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 98.4 dBA, Leq: 83 dBA, Lcustom: null



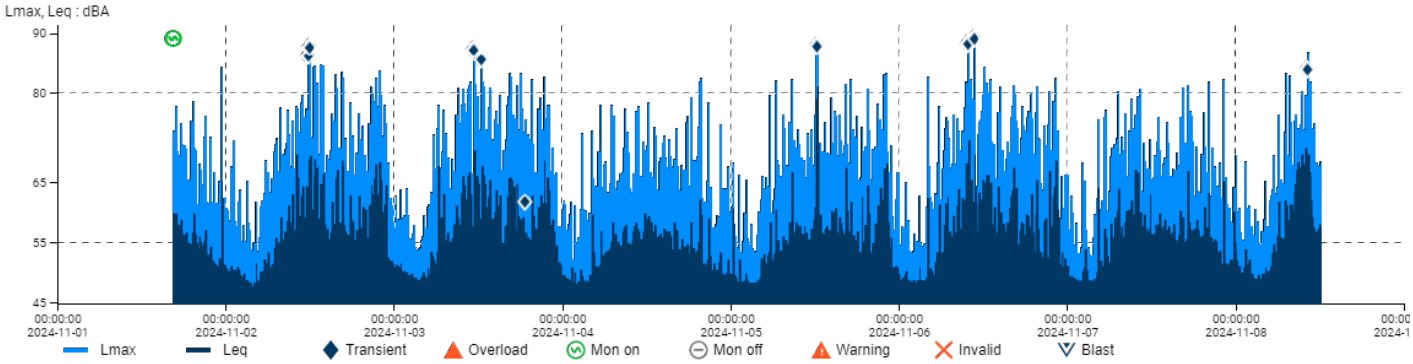


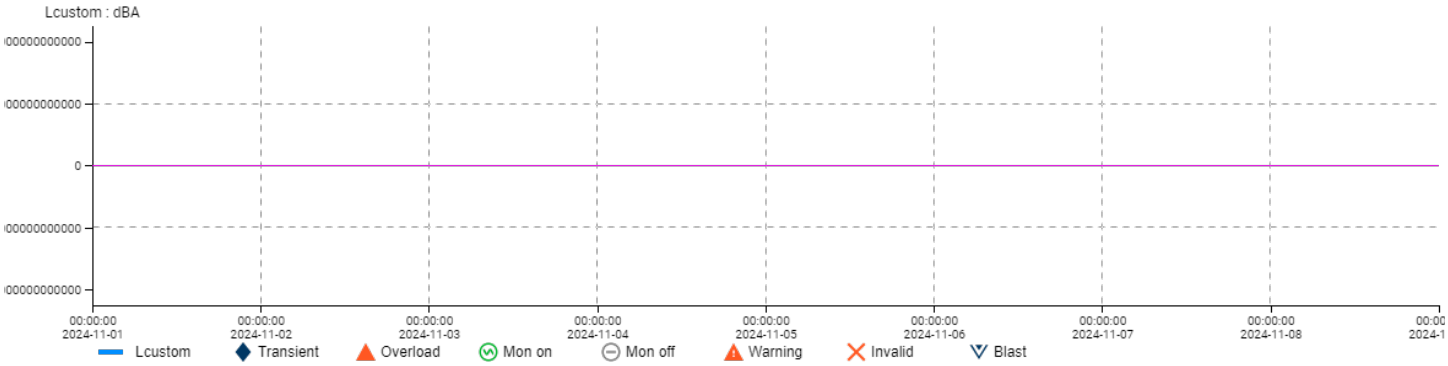
X-span	2024-10-18 00:00 - 2024-10-26 00:00
Y-span	Lmax, Leq : dBA: 58.33 - 100.27, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	98.4 dBA	83 dBA	
Date	2024-10-22	2024-10-25	-
Time	23:44:00	12:20:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-11-01 00:00 - 2024-11-09 00:00 (Australia/Sydney)
Measuring point	FDK_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	14176
Master(s) serial no.	107964
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 89.3 dBA, Leq: 80.9 dBA, Lcustom: null



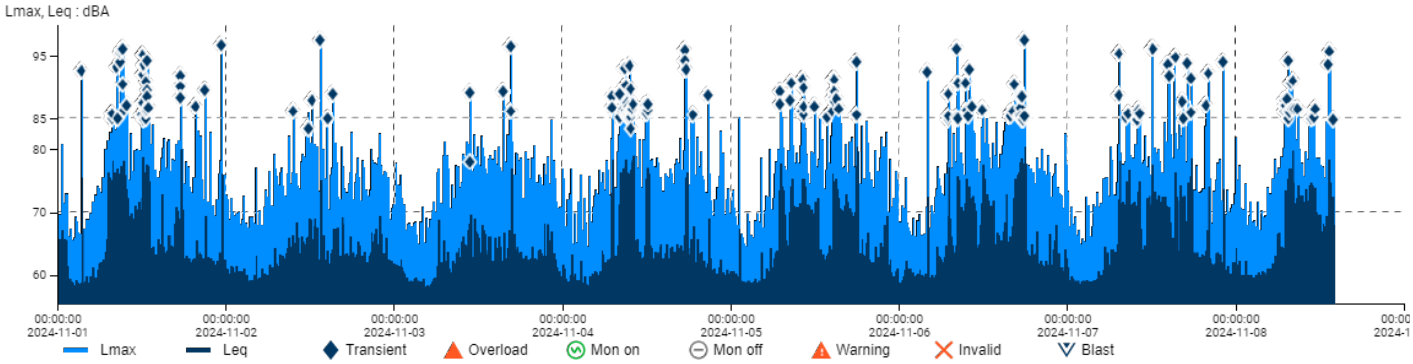


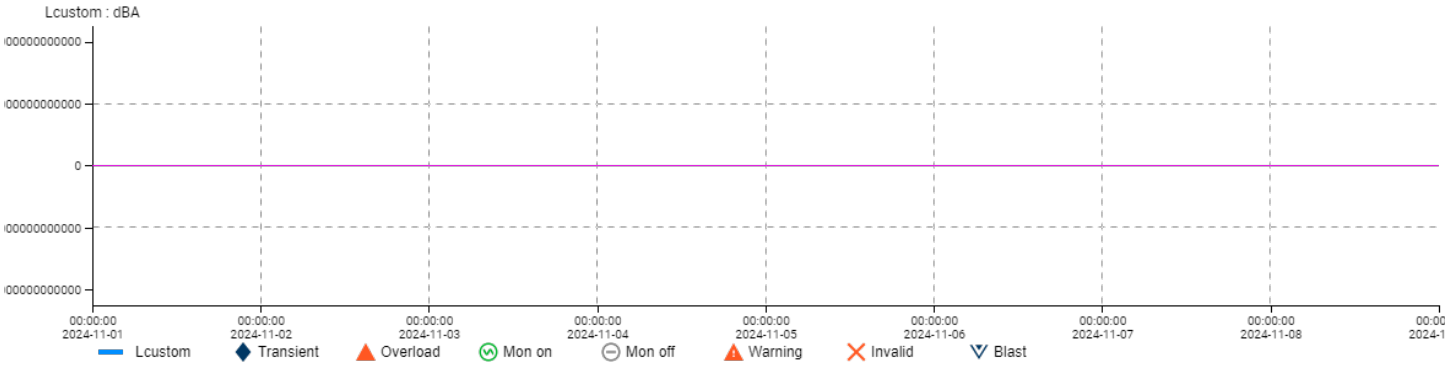
X-span	2024-11-01 00:00 - 2024-11-09 00:00
Y-span	Lmax, Leq : dBA: 44.78 - 91.34, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	89.3 dBA	80.9 dBA	
Date	2024-11-06	2024-11-05	-
Time	10:48:00	12:18:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-11-01 00:00 - 2024-11-09 00:00 (Australia/Sydney)
Measuring point	FDK_4
Description	[redacted]
Sensor type	S50
Sensor serial no.	14157
Master(s) serial no.	107963
Latest calibration	2024-08-19
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 97.9 dBA, Leq: 80.4 dBA, Lcustom: null



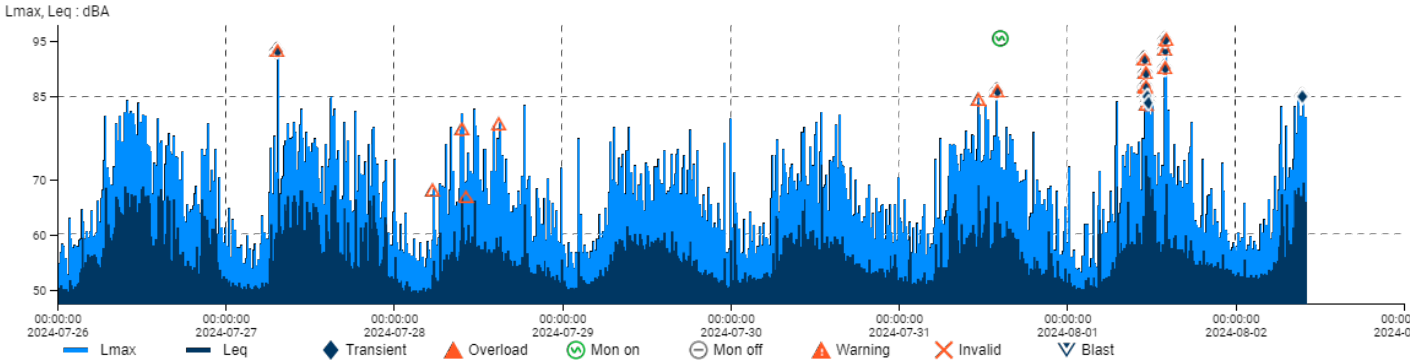


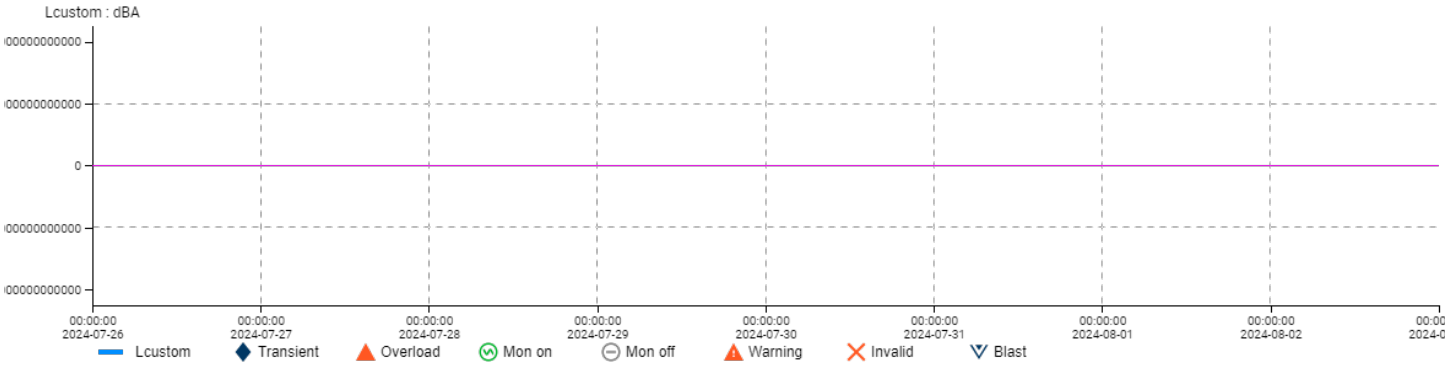
X-span	2024-11-01 00:00 - 2024-11-09 00:00
Y-span	Lmax, Leq : dBA: 55.41 - 99.88, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	97.9 dBA	80.4 dBA	
Date	2024-11-02	2024-11-05	-
Time	13:28:00	17:54:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-07-26 00:00 - 2024-08-03 00:00 (Australia/Sydney)
Measuring point	FDK_1
Description	[redacted]
Sensor type	S50
Sensor serial no.	9956
Master(s) serial no.	107964
Latest calibration	2024-06-26
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 95.7 dBA, Leq: 74.3 dBA, Lcustom: null



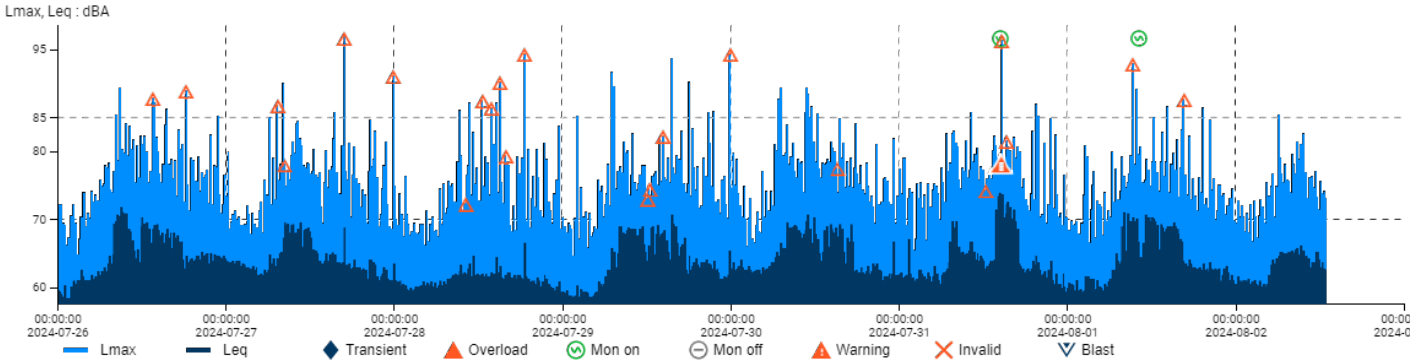


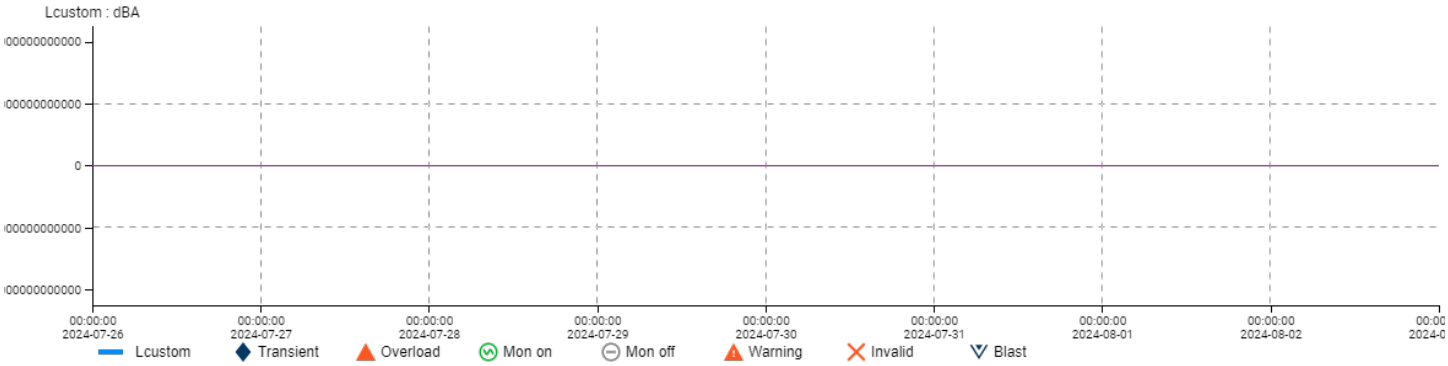
X-span	2024-07-26 00:00 - 2024-08-03 00:00
Y-span	Lmax, Leq : dBA: 47.53 - 97.96, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	95.7 dBA	74.3 dBA	
Date	2024-08-01	2024-08-01	-
Time	14:06:00	11:04:00	-

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-07-26 00:00 - 2024-08-03 00:00 (Australia/Sydney)
Measuring point	FDK_4
Description	[redacted]
Sensor type	S50
Sensor serial no.	9463
Master(s) serial no.	107963
Latest calibration	2022-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 96.9 dBA, Leq: 74 dBA, Lcustom: null



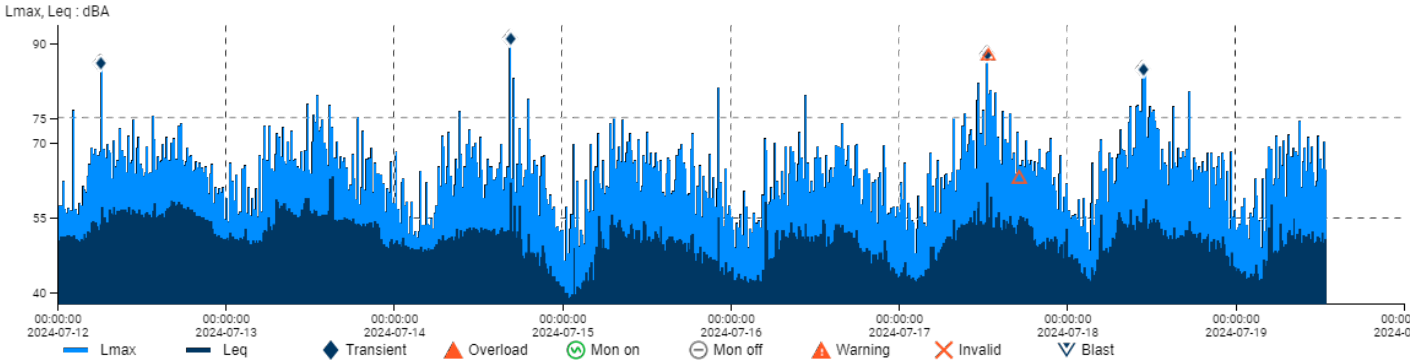


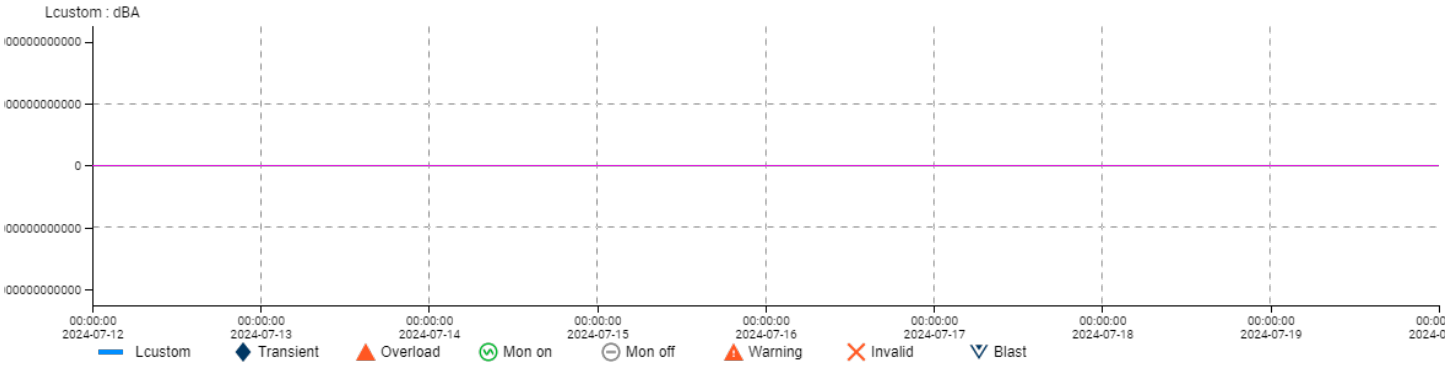
X-span	2024-07-26 00:00 - 2024-08-03 00:00
Y-span	Lmax, Leq : dBA: 57.62 - 98.52, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	96.9 dBA	74 dBA	
Date	2024-07-27	2024-07-31	-
Time	17:00:00	14:30:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-07-12 00:00 - 2024-07-20 00:00 (Australia/Sydney)
Measuring point	N7
Description	Rear of [redacted]
Sensor type	S50
Sensor serial no.	14625
Master(s) serial no.	108059
Latest calibration	2023-07-25
Standard	(02) Lmax + Leq 30-105 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 91.4 dBA, Leq: 63.3 dBA, Lcustom: null



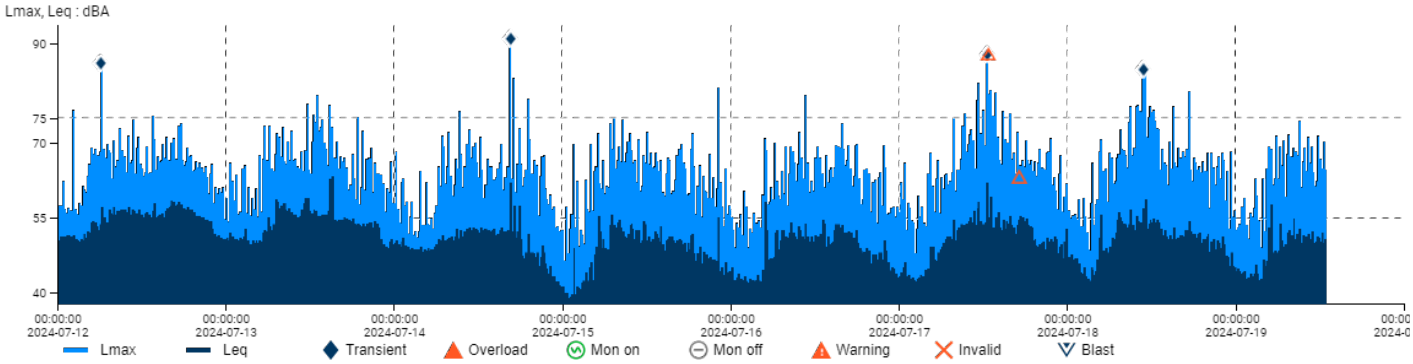


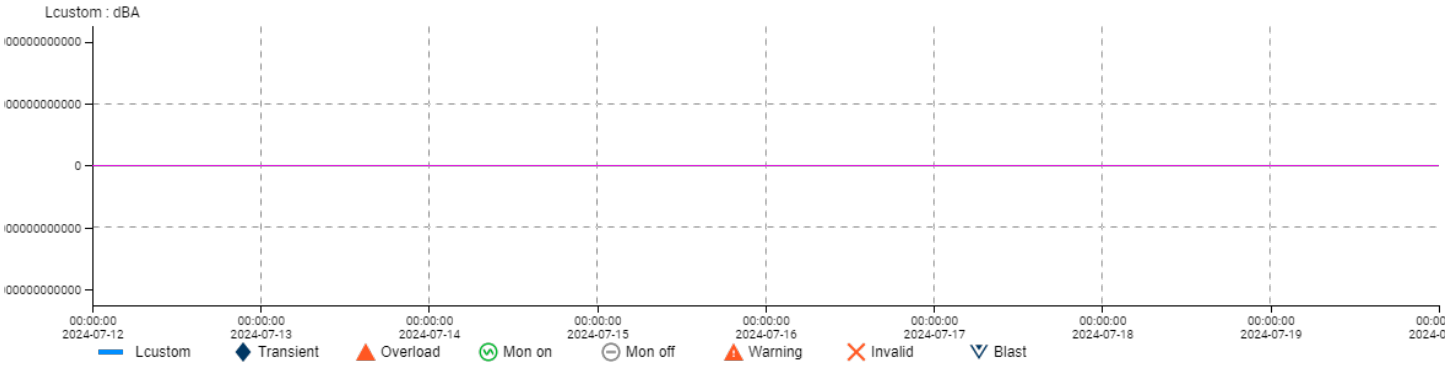
X-span	2024-07-12 00:00 - 2024-07-20 00:00
Y-span	Lmax, Leq : dBA: 37.89 - 93.65, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	91.4 dBA	63.3 dBA	
Date	2024-07-14	2024-07-13	-
Time	16:45:00	15:15:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-07-12 00:00 - 2024-07-20 00:00 (Australia/Sydney)
Measuring point	N7 TBY
Description	Rear of [redacted]
Sensor type	S50
Sensor serial no.	14625
Master(s) serial no.	108059
Latest calibration	2023-07-25
Standard	(02) Lmax + Leq 30-105 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	15 minutes
Table threshold	High
Max	Lmax: 91.4 dBA, Leq: 63.3 dBA, Lcustom: null



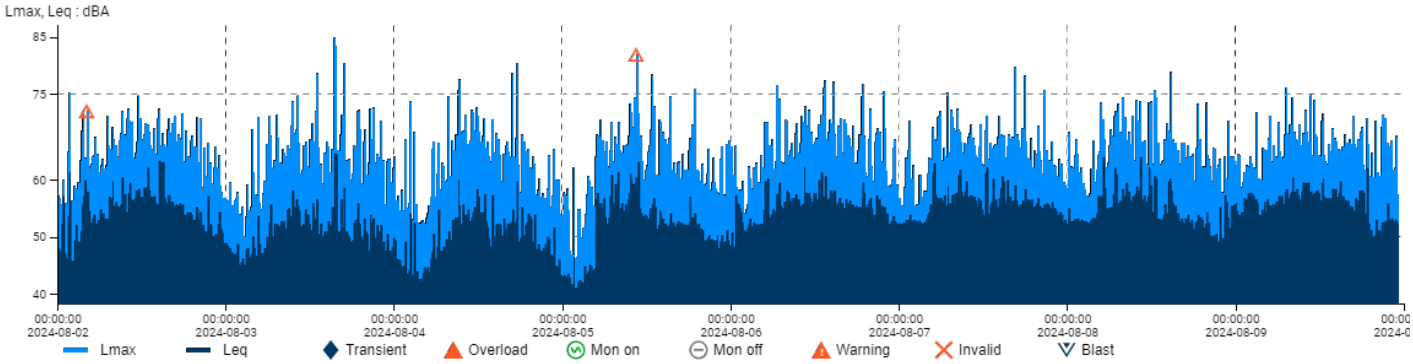


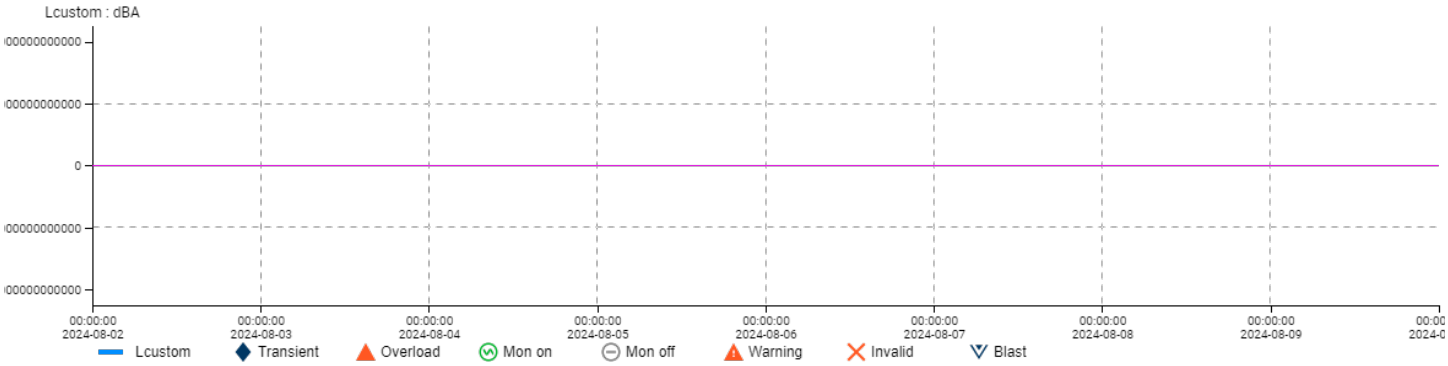
X-span	2024-07-12 00:00 - 2024-07-20 00:00
Y-span	Lmax, Leq : dBA: 37.89 - 93.65, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	91.4 dBA	63.3 dBA	
Date	2024-07-14	2024-07-13	-
Time	16:45:00	15:15:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-08-02 00:00 - 2024-08-10 00:00 (Australia/Sydney)
Measuring point	N7 TBY
Description	Rear of [redacted]
Sensor type	S50
Sensor serial no.	10835
Master(s) serial no.	108059
Latest calibration	2024-06-20
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 84.9 dBA, Leq: 64.7 dBA, Lcustom: null



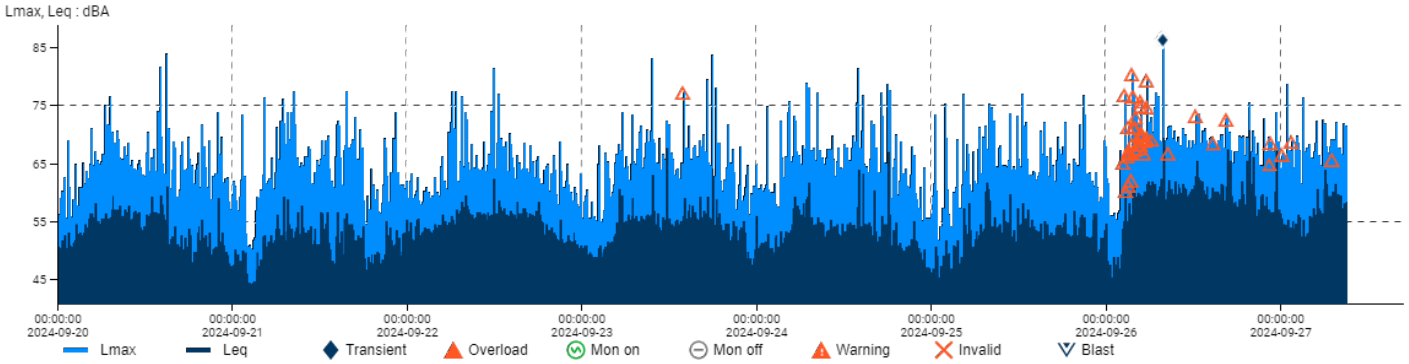


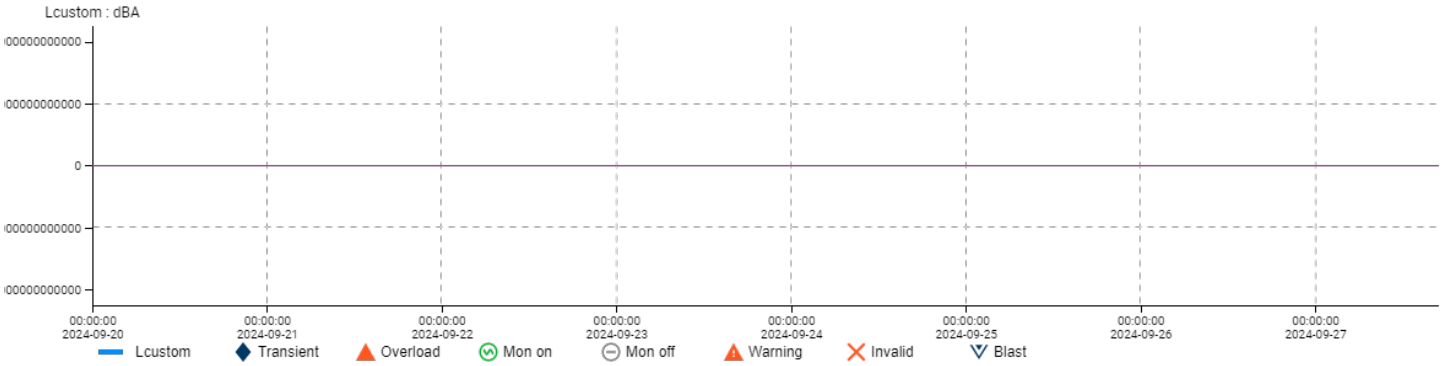
X-span	2024-08-02 00:00 - 2024-08-10 00:00
Y-span	Lmax, Leq : dBA: 38.35 - 87.07, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	84.9 dBA	64.7 dBA	
Date	2024-08-03	2024-08-03	-
Time	15:30:00	15:30:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-09-20 00:00 - 2024-09-27 17:00 (Australia/Sydney)
Measuring point	N7 TBY
Description	Rear of [redacted]
Sensor type	S50
Sensor serial no.	14625
Master(s) serial no.	108059
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 86.7 dBA, Leq: 70.8 dBA, Lcustom: null



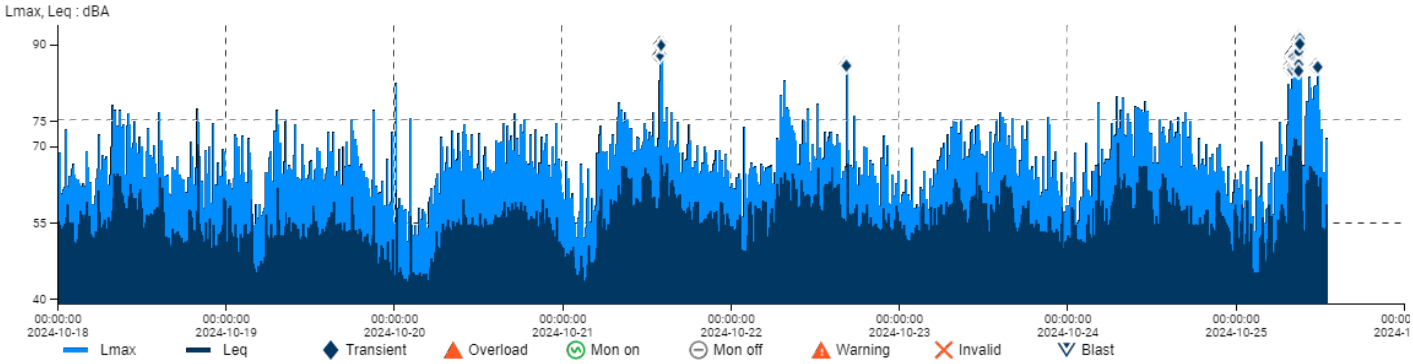


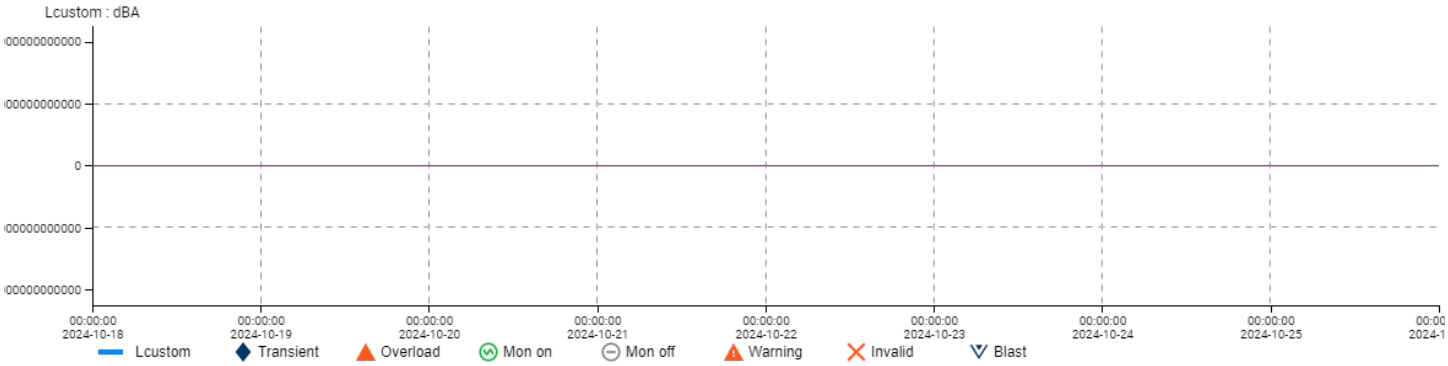
X-span	2024-09-20 00:00 - 2024-09-27 17:00
Y-span	Lmax, Leq : dBA: 40.88 - 88.83, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	86.7 dBA	70.8 dBA	
Date	2024-09-26	2024-09-26	-
Time	07:56:00	19:44:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-10-18 00:00 - 2024-10-26 00:00 (Australia/Sydney)
Measuring point	N7 TBY
Description	Rear of [redacted]
Sensor type	S50
Sensor serial no.	14625
Master(s) serial no.	108059
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 91.4 dBA, Leq: 71.7 dBA, Lcustom: null



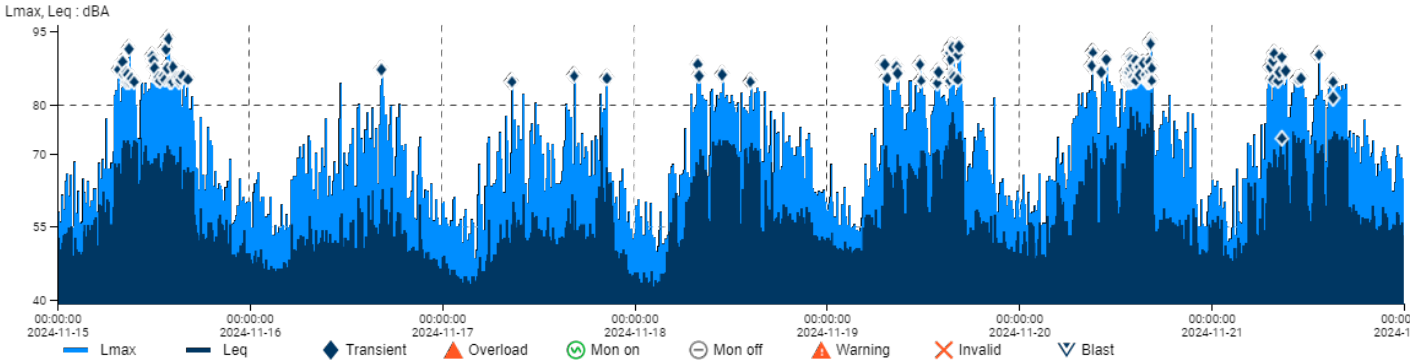


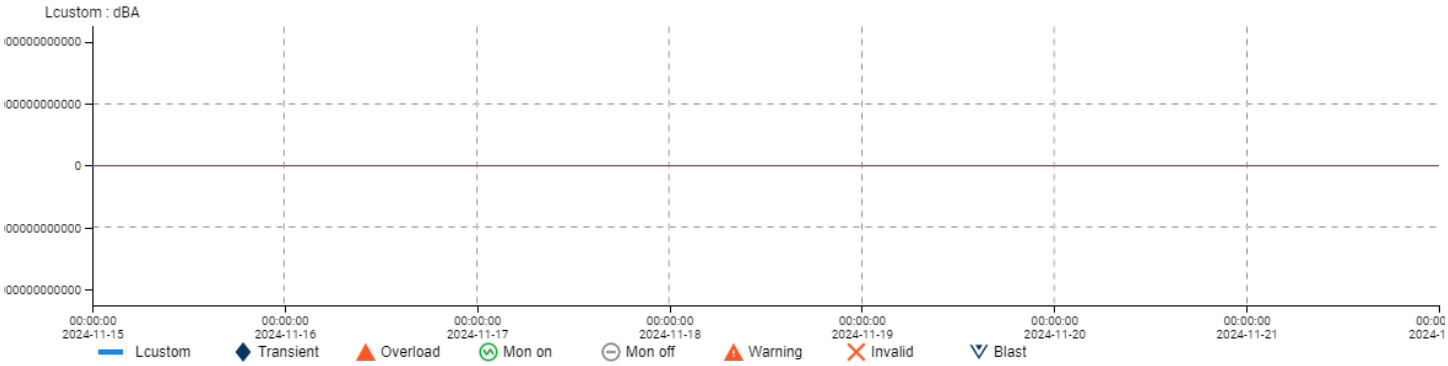
X-span	2024-10-18 00:00 - 2024-10-26 00:00
Y-span	Lmax, Leq : dBA: 39.15 - 93.73, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	91.4 dBA	71.7 dBA	
Date	2024-10-25	2024-10-25	-
Time	09:10:00	08:12:00	-

Interval report

Project	TBY
Project maintainer	-
Time frame	2024-11-15 00:00 - 2024-11-22 00:00 (Australia/Sydney)
Measuring point	N7 TBY
Description	Rear of [redacted]
Sensor type	S50
Sensor serial no.	14625
Master(s) serial no.	108059
Latest calibration	2024-08-07
Standard	(01) Lmax + Leq 20-95 dBA Fast
Unit	dBA
Quantity	Sound Pres.Level, Eqv.Sound Pres.L, Leq accumulation
Interval time	2 minutes
Table threshold	High
Max	Lmax: 93.9 dBA, Leq: 82.5 dBA, Lcustom: null





X-span	2024-11-15 00:00 - 2024-11-22 00:00
Y-span	Lmax, Leq : dBA: 39.24 - 96.38, Lcustom : dBA: 9007199254740991 - -9007199254740991

	Lmax	Leq	Lcustom
Max	93.9 dBA	82.5 dBA	
Date	2024-11-15	2024-11-20	-
Time	13:52:00	16:28:00	-

APPENDIX A (iv) – CALIBRATION RECORDS

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C39361

EQUIPMENT TESTED : Sound Level Calibrator

Manufacturer: Svantek
Type No: SV 31 **Serial No:** 31892
Class: 1
Owner: Ferrovial York Joint Venture
[redacted]
Newington, NSW 2127
Tests Performed: Measured Output Pressure level, Frequency & Distortion
Comments: See Details and Class Tolerance overleaf.

CONDITION OF TEST:

Ambient Pressure	996	hPa ±1 hPa	**Date of Receipt :**	03/04/2024
Temperature	24	°C ±1° C	**Date of Calibration :**	08/04/2024
Relative Humidity	49	% ±5%	**Date of Issue :**	08/04/2024

Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2017

CHECKED BY: .....

AUTHORISED SIGNATURE: .....

Hein Soe

Accredited for compliance with ISO/IEC 17025 - Calibration

Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

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Acoustic and Vibration Measurements

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: SLM39359

EQUIPMENT TESTED: Sound Level Meter

Manufacturer:	Svantek		
Type No:	SVAN 971	**Serial No:**	34933
Mic. Type:	ACO 7052E	**Serial No:**	56008
Pre-Amp. Type:	SV18	**Serial No:**	33351

Owner: Ferrovial York Joint Venture
[redacted]
Newington, NSW 2127

Tests Performed: IEC 61672-3:2013

Comments: All Tests passed for Class 1. (See overleaf for details)

CONDITIONS OF TEST:

Ambient Pressure	997	hPa ±1 hPa	**Date of Receipt :**	03/04/2024
Temperature	25	°C ±1° C	**Date of Calibration :**	08/04/2024
Relative Humidity	50	% ±5%	**Date of Issue :**	08/04/2024

Acu-Vib Test Procedure: AVP10 (SLM) based on IEC 61672-3

CHECKED BY: .....

AUTHORISED SIGNATURE: .....
Hein Soe

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: C39654

EQUIPMENT TESTED : Sound Level Calibrator

Manufacturer: Pulsar
Type No: 106 **Serial No:** 70390
Class: 2
Owner: Ferrovial York Joint Venture
[redacted]
Newington NSW 2127
Tests Performed: Measured Output Pressure level, Frequency & Distortion
Comments: See Details and Class Tolerance overleaf.

CONDITION OF TEST:

Ambient Pressure	1014	hPa ±1 hPa	**Date of Receipt :**	03/05/2024
Temperature	25	°C ±1° C	**Date of Calibration :**	07/05/2024
Relative Humidity	53	% ±5%	**Date of Issue :**	08/05/2024

Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2017

CHECKED BY: .....

AUTHORISED SIGNATURE: .....

Bruce Meldrum

Accredited for compliance with ISO/IEC 17025 - Calibration

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The Calibrator described in this report has been tested to the requirements of the standard IEC 60942-[Ed 4]:2017-11.
The tests described in Annex B of the standard (Periodic tests) were carried out under the environmental conditions listed above to the following clauses:

Clause	Test description
B4.6	Sound Pressure Level (By comparison with a reference calibrator).
B4.7	Frequency (By measurement with a calibrated frequency meter).
B4.8	Total distortion and noise. (By measurement with a calibrated Noise and Distortion meter).

Notes:

1. The calibrator was calibrated with the main axis vertical and facing down.
2. No corrections have been made for atmospheric pressure,

Parameter	Pre-Adj	Adj Y/N	Output: (dB re 20 µPa)	Frequency (Hz)	THD&N (%)
Level:	94.48	Y	94.01 dB	1000.30 Hz	0.89 %
Uncertainty			±0.11 dB	±0.05%	±0.20 %
Uncertainty (at 95% c.l.) k=2					

Parameter	Class 1		Class 2	
Nominal Frequency	250 Hz	1 kHz	250 Hz	1 kHz
Output dB SPL	0.25 dB	0.25 dB	0.40 dB	0.40 dB
Frequency Hz	0.7 % (1.75 Hz)	0.7 % (7 Hz)	1.7 % (4.25 Hz)	1.7 % (17 Hz)
THD&N	2.5 %	2.5 %	3.0 %	3.0 %

Tolerance limits from AS/IEC60942 (edition 4)

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The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO: SLM39651

EQUIPMENT TESTED: Sound Level Meter

Manufacturer:	Rion		
Type No:	NL-42	**Serial No:**	00145400
Mic. Type:	UC-52	**Serial No:**	149905
Pre-Amp. Type:	NH-24	**Serial No:**	35296

Owner: Ferrovial York Joint Venture
[redacted]
Newington NSW 2127

Tests Performed: IEC 61672-3:2013

Comments: All Tests passed for Class 2. (See overleaf for details)

CONDITIONS OF TEST:

Ambient Pressure	1015	hPa ±1 hPa	**Date of Receipt :**	03/05/2024
Temperature	25	°C ±1° C	**Date of Calibration :**	07/05/2024
Relative Humidity	53	% ±5%	**Date of Issue :**	08/05/2024

Acu-Vib Test Procedure: AVP10 (SLM) based on IEC 61672-3.

CHECKED BY: .....

AUTHORISED SIGNATURE: .....
Bruce Meldrum

Accredited for compliance with ISO/IEC 17025 - Calibration

Results of the tests, calibration and/or measurements included in this document are traceable to SI units through reference equipment that has been calibrated by the Australian National Measurement Institute or other NATA accredited laboratories demonstrating traceability.

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The performance characteristics listed below were tested. The tests are based on the relevant clauses of IEC 61672-3:2013

Tests Performed:	*Clause*	*Result*
Absolute Calibration	10	Pass
Acoustical Frequency Weighting	12	Pass
Self-Generated Noise	11.1	Observed
Electrical Noise	11.2	Observed
Long Term Stability	15	Pass
Electrical Frequency Weightings	13	Pass
Frequency and Time Weightings	14	Pass
Reference Level Linearity	16	Pass
Range Level Linearity	17	Not Applicable
Toneburst	18	Pass
Peak C Sound Level	19	Pass
Overload Indicator	20	Pass
High Level Stability	21	Pass

Statement of Compliance: The sound level meter submitted for testing successfully completed the periodic tests of IEC 61672-3:-2013, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:-2013 because evidence was not publically available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of sound level meter fully conformed to the class 2 specifications in IEC 61672-1:-2013 and because the periodic tests of IEC 61672-3:-2013 cover only a limited subset of the specifications in IEC 61672-1:-2013.

A full technical report is available on request.

APPENDIX B - VIBRATION MONITORING REGISTER

Vibration Monitoring Register

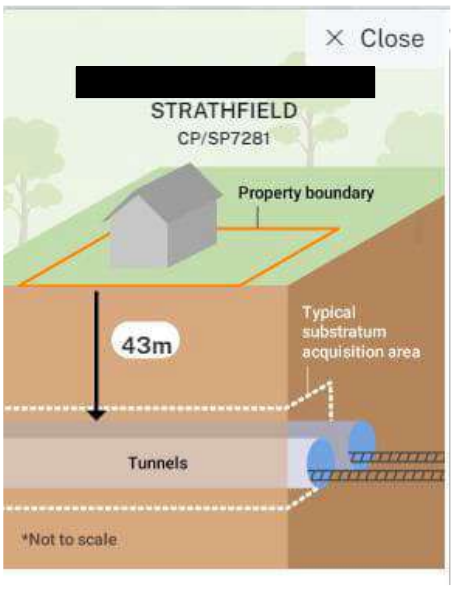
Date	Time	Site	Conducted by	Attended/ Unattended	Type/Model number	Serial No.	Calibration due	Duration of monitoring	Source location	Measurement location	Distance to source (m)	Works being undertaken	PPV Preferred Criteria (mm/s)	PPV (mm/s)	Frequency (Hz)	VDV Preferred Criteria (m/s1.75)	Vibration Dose Value (VDV m/s1.75)	Below criteria (Y/N)	Comments
01-31/07/2024	12am-12pm	Burwood South	[redacted]	Unattended	V12	33770	25/07/2024	31 days	BWD North shaft	[redacted]	5	BWD South shaft excavation	7.5	5.95	N/A	N/A	N/A	Y	No exceedance recorded
01-31/07/2024	12am-12pm	Five Dock		Unattended	V12	106845	26/07/2025	31 days	FDK East		1	Tunneling work, excavation and spoil loadout	7.5	205	16.5	N/A	N/A	No	On 17/07/2024 at 11:00:00, the data exceedance limits (Vert(z) 205mm/s- Hz 16.5) is attributed to the replacement of the battery by the Environmental representative.
01-31/07/2024	12am-12pm	Five Dock		Unattended	V12	33730	25/07/2025	31 days	FDK East		3	TBM Maintenance & Spoil loadout	7.5	1.3	256	N/A	N/A	Y	No exceedance recorded.
01-31/07/2024	12am-12pm	N Strathfield		Unattended	V12	33720	25/07/2025	31 days	N Strathfield Site		5	Rocking hammering 250T crane excavation	7.5	0.45	23	N/A	N/A	Y	No exceedence recorded.
01-31/07/2024	12am-12pm	SOP		Unattended	C22	106848	26/04/2025	31 days	SOP site		5	Concrete pours. spoil loadout works	7.5	18.1	228	N/A	N/A	No	On 18/07/2024 at 15:56:00, the data exceedance limits (Long(x) 18.1mm/s- Hz 228) is attributed to the replacement of the battery by the Environmental representative. Photo
01-31/08/2024	12am-12pm	Burwood South		Unattended	V12	33770	25/07/2024	31 days	BWD North shaft		5	BWD South shaft excavation	7.5	1.65	114	N/A	N/A	Y	No exceedance recorded.
01-31/08/2024	12am-12pm	Five Dock		Unattended	V12	106845	26/07/2025	31 days	FDK East		1	Tunneling work, excavation and spoil loadout	7.5	126	1.5	N/A	N/A	No	On 30/08/2024 at 10:18:00, the data exceedance limits (Trans(T) 126mm/s- Hz 1.5) is attributed to the replacement of the battery by the Environmental representative.
01-31/08/2024	12am-12pm	Five Dock		Unattended	V12	33730	25/07/2025	31 days	FDK East		3	TBM Maintenance & Spoil loadout	7.5	0.5	256	N/A	N/A	Y	No exceedance recorded
01-31/08/2024	12am-12pm	N Strathfield		Unattended	V12	33720	25/07/2025	31 days	N Strathfield Site		5	Rocking hammering 250T crane excavation	7.5	1.35	114	N/A	N/A	Y	No exceedence recorded
01-31/08/2024	12am-12pm	SOP		Unattended	C22	106848	26/04/2025	31 days	SOP site		5	Concrete pours. spoil loadout works	7.5	1.65	32.5	N/A	N/A	Y	No exceedence recorded
01-30/09/2024	12am-12pm	Burwood South		Unattended	V12	33770	25/07/2024	30 days	BWD North shaft		5	BWD South shaft excavation	7.5	0.9	32.5	N/A	N/A	Y	No exceedance recorded
01-30/09/2024	12am-12pm	Five Dock		Unattended	V12	106845	26/07/2025	30 days	FDK East		1	Tunneling work, excavation and spoil loadout	7.5	281	50	N/A	N/A	No	On 16/09/2024 at 16:26:00, the data exceedance limits (Vert(V) 281mm/s- Hz 50) is attributed to the replacement of the battery by the Environmental representative.
01-30/09/2024	12am-12pm	Five Dock		Unattended	V12	33730	25/07/2025	30 days	FDK East		3	TBM Maintenance & Spoil loadout	7.5	0.35	5.5	N/A	N/A	Y	No exceedence recorded
01-30/09/2024	12am-12pm	N Strathfield		Unattended	V12	33720	25/07/2025	30 days	N Strathfield Site		5	Rocking hammering 250T crane excavation	7.5	0.4	128	N/A	N/A	Y	No exceedence recorded
01-31/10/2024	12am-12pm	SOP		Unattended	C22	106848	26/04/2025	30 days	SOP site		5	Concrete pours. spoil loadout works	7.5	1.45	31	N/A	N/A	Y	No exceedence recorded
01-31/10/2024	12am-12pm	Burwood South		Unattended	V12	33770	25/07/2024	31 days	BWD North shaft		5	BWD South shaft excavation	7.5	1.35	N/A	N/A	N/A	Y	No exceedance recorded
01-31/10/2024	12am-12pm	Five Dock		Unattended	V12	106845	26/07/2025	31 days	FDK East		1	Tunneling work, excavation and spoil loadout	7.5	117	2	N/A	N/A	No	On 22/10/2024 at 09:24:00, the data exceedance limits (Trans(y) 117mm/s- Hz 28) is attributed to the replacement of the battery by the Environmental representative.
01-31/10/2024	12am-12pm	Five Dock		Unattended	V12	33730	25/07/2025	31 days	FDK East		3	TBM Maintenance & Spoil loadout	7.5	1.35	256	N/A	N/A	Y	No exceedence recorded
01-31/10/2024	12am-12pm	N Strathfield		Unattended	V12	33720	25/07/2025	31 days	N Strathfield Site		5	Rocking hammering 250T crane excavation	7.5	0.45	97.5	N/A	N/A	Y	No exceedence recorded
01-31/10/2024	12am-12pm	SOP		Unattended	C22	106848	26/04/2025	31 days	SOP site		5	Concrete pours. spoil loadout works	7.5	28.6	120	N/A	N/A	No	On 02/10/2024 at 16:12:00, the data exceedance limits (Trans(y) 28.6mm/s- Hz 120) is attributed to the replacement of the battery by the Environmental representative.
01-30/11/2024	12am-12pm	Burwood South		Unattended	V12	33770	25/07/2024	30 days	BWD North shaft		5	BWD South shaft excavation	7.5	4.15	N/A	N/A	N/A	Y	No exceedance recorded
01-30/11/2024	12am-12pm	Five Dock		Unattended	V12	106845	26/07/2025	30 days	FDK East		1	Tunneling work, excavation and spoil loadout	7.5	224	26.5	N/A	N/A	No	On 14/11/2024 at 01:18:00, the data exceedance limits (Long(X) 224mm/s- Hz 26.5) is attributed to the replacement of the battery by the Environmental representative.
01-30/11/2024	12am-12pm	Five Dock		Unattended	V12	33730	25/07/2025	30 days	FDK East		3	TBM Maintenance & Spoil loadout	7.5	2.25	34	N/A	N/A	Y	No exceedence recorded
01-30/11/2024	12am-12pm	N Strathfield		Unattended	V12	33720	25/07/2025	30 days	N Strathfield Site		5	Rocking hammering 250T crane excavation	7.5	0.7	114	N/A	N/A	Y	No exceedence recorded.
01-30/11/2024	12am-12pm	SOP		Unattended	C22	106848	26/04/2025	30 days	SOP site		5	Concrete pours. spoil loadout works	7.5	2.65	120	N/A	N/A	Y	No exceedence recorded.
01-31/12/2024	12am-12pm	Burwood South		Unattended	V12	33770	25/07/2024	30 days	BWD North shaft		5	BWD South shaft excavation	7.5	2.55	N/A	N/A	N/A	Y	No exceedance recorded
01-31/12/2024	12am-12pm	Five Dock		Unattended	V12	106845	26/07/2025	30 days	FDK East		1	Tunneling work, excavation and spoil loadout	7.5	120	3	N/A	N/A	No	On 03/12/2024 at 14:54:00, the data exceedance limits (Trans(T) 120mm/s- Hz 3) is attributed to the replacement of the battery by the Environmental representative.
01-31/12/2024	12am-12pm	Five Dock		Unattended	V12	33730	25/07/2025	30 days	FDK East		3	TBM Maintenance & Spoil loadout	7.5	0.65	228	N/A	N/A	Y	No exceedence recorded.
01-31/12/2024	12am-12pm	N Strathfield		Unattended	V12	33720	25/07/2025	30 days	N Strathfield Site		5	Rocking hammering 250T crane excavation	7.5	1.2	205	N/A	N/A	Y	No exceedence recorded.
01-31/12/2024	12am-12pm	SOP		Unattended	C22	106848	26/04/2025	30 days	SOP site		5	Concrete pours. spoil loadout works	7.5	11	51.2	N/A	N/A	Y	No exceedence recorded.

mGround borne Noise & Vibration Monitoring Report

Project: Sydney Metro West – Central Tunnelling Package	**Report No.** 20240805-GBN-01
Start: 15:00pm, 05 August 2024	**End:** 17:05pm, 07 August 2024
Data collected by: [redacted]	**Attended/Unattended monitoring:** Unattended
Was this monitoring event conducted in response to a complaint? Yes	
Location and description of construction activity (including operation and load conditions of plant) XP44 Excavation. Brokk 500 (5TN) used for excavation, hammering and bolting. XP 44 cutting on 05/08/2024. XP 44 cutting on 06/08/2024. XP 44 was directly under the monitoring location.	**Monitoring location** [redacted] Monitored inside the apartment on the first level of the building, with the monitor installed in the living room area on the ground floor of a dwelling. The living room is located at the back of the house, directly above Cross Passage 44. **Reason for location selection:** Location was selected in consultation with the resident. It was located less than 1.5 meters from a window and a wall. This was decided due to space constrains and in consultation with the resident not to affect their day to day life.
Distance between monitoring location and source (m)	Various, refer to summary tables

Map/diagram of monitoring location/sensitive receiver and construction activity

XP44 Excavation at depth of approximately 43 meters, located directly beneath the monitor.



Instrumentation details			
Type of monitor	One unit with noise (microphone) and vibration (tri-axial geophone) logging functions		
Make and Model	Svan958AG	**Last calibration date**	31/07/2024
Serial Number	59185	**Calibration valid until**	31/07/2025

Instrumentation set-up and method

Microphone placed on stand inside living room.

Geophone secured to weighted plate placed on wooden floor.

Refer to Attachment C for photo of set up.

Results and analysis

The monitoring occurred during day, evening, and night shifts, however, only results from the night period have been assessed in this report due to lower domestic and ambient noise and vibration sources allowing a more accurate comparison between prediction and actual levels.

Noise Results summary

Date	Night shift of 05/08/24	
Time	1:30AM – 2:30AM	03:30AM –06:00AM
Activity	Brokk Cutting	Bolting
Prediction $LAeq_{15min}$ dBA	39	39
Trigger for Alt. Accomm. $LAeq_{15min}$ dBA	45	45
LAeq15min dBA	44.4	41.3
LA10 dBA	45.8	45.6
LA90 dBA	28.7	31.4
LAmax dBA	71	56.9
Commentary (including estimated contribution of construction activities vs non-construction sources)	Vibration peaks did not align with the detected noise levels. Given that the monitor is positioned next to a window, the elevated readings could be associated with either road activities or events within the residence. While the values recorded were higher than predicted, they remained below trigger for Alternative Accommodation offering.	The detected values may be associated with construction activities, and while they were higher than predicted, they remained below the trigger for Alternative Accommodation. Values recorded after 5 AM have been disregarded because after this time noise levels consistently increase, which could likely be attributable to road activities.

Date	Night shift of 06/08/24		
Time	12:00AM – 01:00AM	01:30AM –04:00AM	04:15AM – 06:00AM
Activity	Brokk Cutting	Brokk Cutting	Brokk Cutting
Prediction $LAeq_{15min}$ dBA	39	39	39
Trigger for Alt. Accomm. $LAeq_{15min}$ dBA	45	45	45
LAeq15min dBA	40	41.9	42.1
LA10 dBA	44.6	45.5	46.6
LA90 dBA	29.7	28	32.3
LAmax dBA	54.9	64.8	55.3
Commentary (including estimated contribution of construction activities vs non-construction sources)	Monitoring event considered representative of impact from Brokk cutting. As noise level is <2dB(A) above the prediction, the significance of residual noise level is negligible (NSW Noise policy for Industry - 2017).	Monitoring event potentially representative of impact from Brokk cutting. However, since the vibration peaks do not align with the noise peak, no definitive conclusion can be drawn from this data.	The detected values may be associated with construction activities, and while they were higher than predicted, they remained below the trigger for Alternative Accommodation. Values recorded after 5 AM have been disregarded because after this time noise levels consistently increase, which could likely be attributable to road activities.

As previously mentioned, the monitoring location was chosen in consultation with the resident, positioned less than 1.5 meters from a window and a wall due to space constraints and to minimize disruption to the resident's day-to-day life. For this reason, no definitive conclusions can be drawn from the monitoring results. Due to the lack of recorded noise data (for privacy reasons), it is challenging to determine whether the detected noise levels are attributable to construction activities.

Data was collected for only two nights, as the resident requested the removal of the monitor from the property.

Given the resident's ongoing complaints and because the Lamax values slightly exceeded the Sleep Disturbance value (54 dB) for Noise Catchment Area 11, Alternative Accommodation has been offered to the resident for the duration of the remaining XP excavation activities.

Refer to Attachment A for graphs from the monitoring period.

Noise Conclusion:

Were results from tunnelling higher than predicted?	Yes	If yes, discuss what action has been taken	Potentially related to activities inside the property or noise generated from road activities.
Were results from XP excavation higher than trigger for alternative accommodation?	No	If yes, was alternative accommodation offered?	N/A
Was the monitoring and results compliant with the NVMP?	Yes	If no, discuss what action has been taken	N/A

Summary of vibration results:

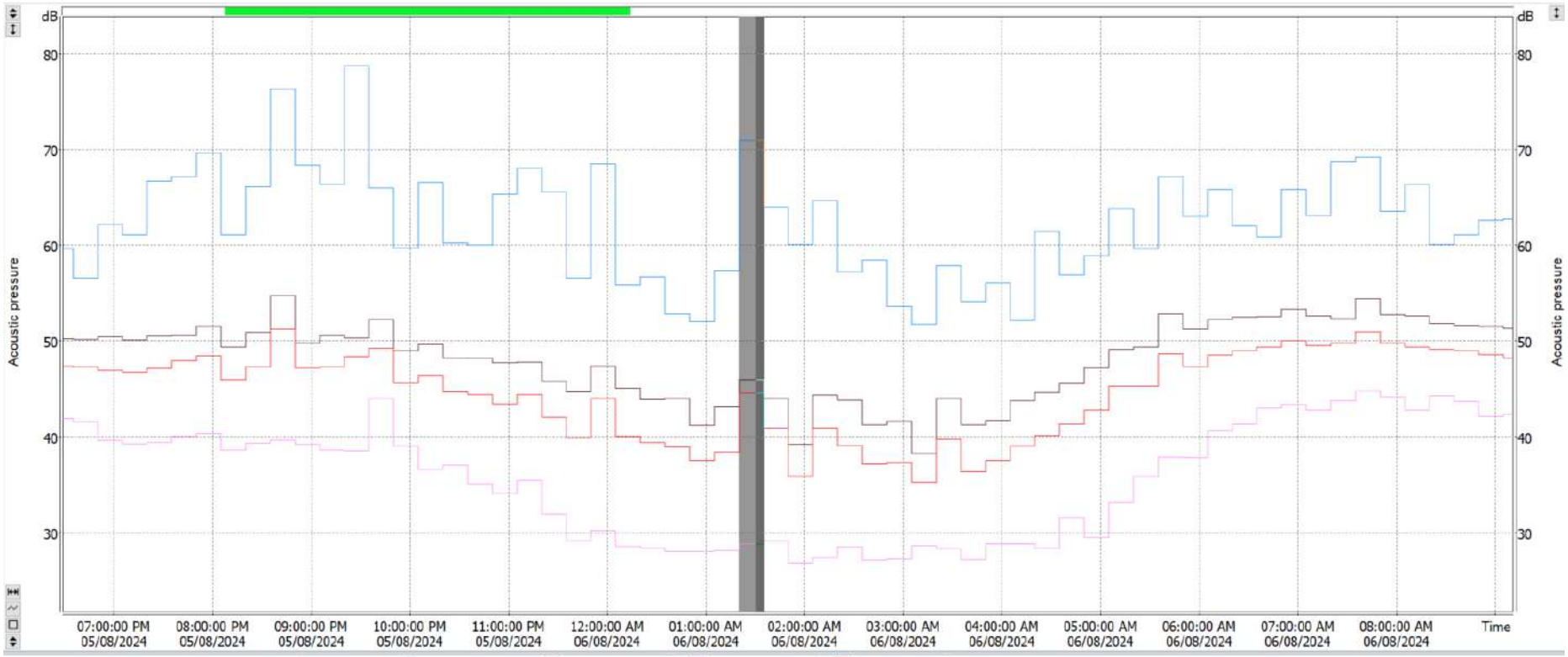
Date	Night of 05/08/2024	Night of 06/08/24
Time	11pm-7am	11pm-7am
Activity	XP Cutting	XP Cutting
Approximate horizontal distance between TBM and monitor	XP44 depth was 43m below 1/84 Concord Ln, and the monitor located above the XP44	XP44 depth was 43m below 1/84 Concord Ln, and the monitor located above the XP44
Prediction m/s$^{1.75}$	0.13	0.13
VML m/s1.75	**0.26**	**0.26**
Night (8 hr) VDV m/s$^{1.75}$	0.011	0.034
Screening level mm/s	7.5	7.5
Predicted PPV mm/s	0.2	0.2
PPV mm/s	0.412	3.311
Commentary (Including estimated contribution of construction activities vs non-construction sources)	The PPV level is slightly higher than the predicted level, but it is well below the screening level. VDV below prediction and VML	The PPV level recorded was higher than the predicted level. Based on the shift reports, at the time of the detected high levels, clean-up activities were going on inside the tunnel (1AM-1:45AM), so most likely this vibration peaks are not construction related. It is important to note that the resident lodged a complaint at around the time the peak vibration was detected. The increased vibration could be partly due to the resident potentially walking around the living room at that moment. VDV below prediction and VML

Refer to Attachment B for examples of graphs from the monitoring period.

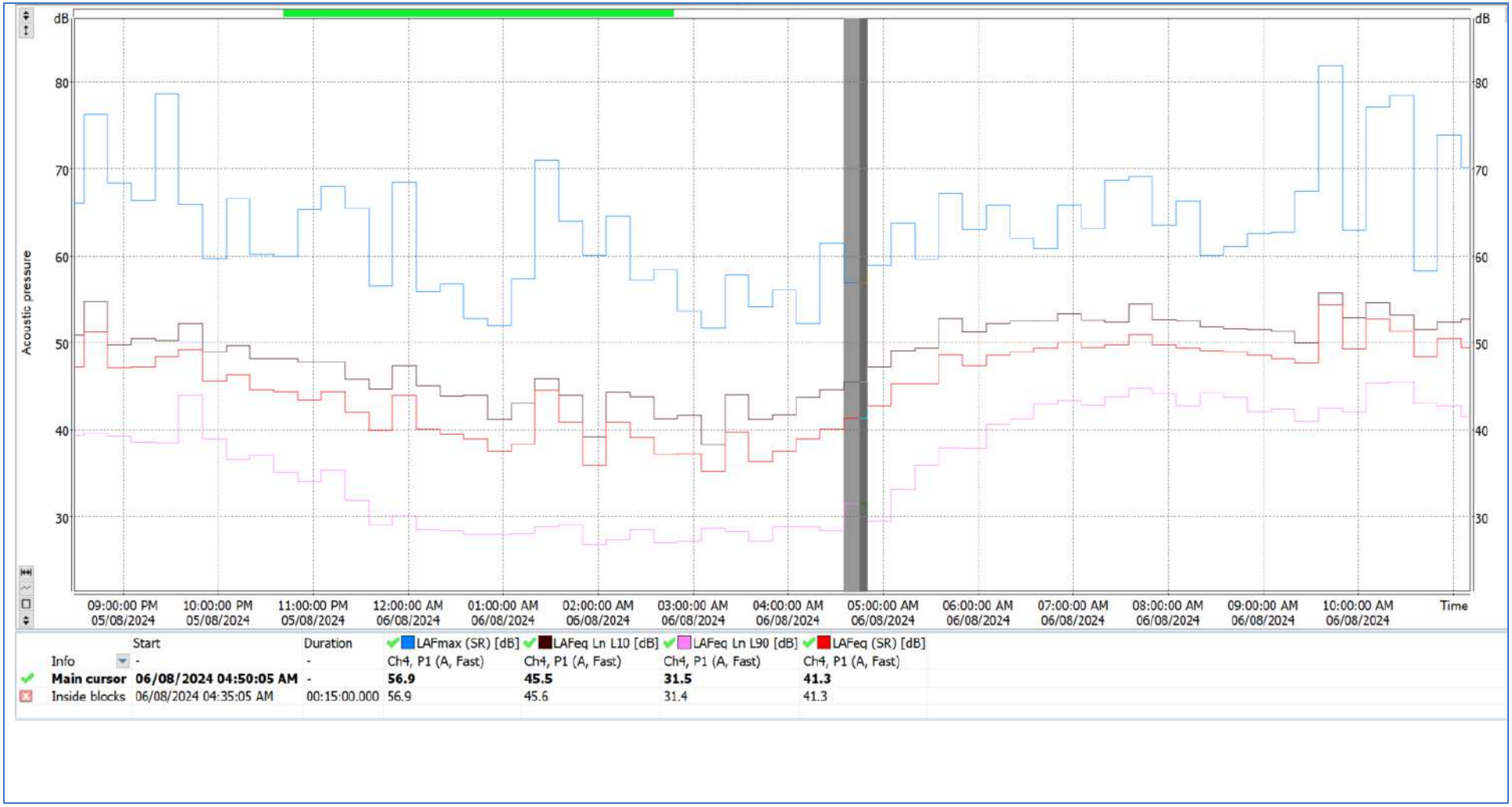
Vibration Conclusion:

Were results from tunnelling higher than predicted?	Yes	If yes, discuss what action has been taken	Potentially related to activities inside the property. Three residents live in the unit. No excavation activities were occurring at the time of the peaks. A complaint was received around 1 AM, so it is likely that the affected resident was in the living room at that time, which could have impacted the vibration monitor.
Were results from XP excavation higher than screening level and/or VML?	No concluding results	If yes, discuss what action has been taken	N/A
Was the monitoring and results compliant with the NVMP?	Yes	If no, discuss what action has been taken	N/A

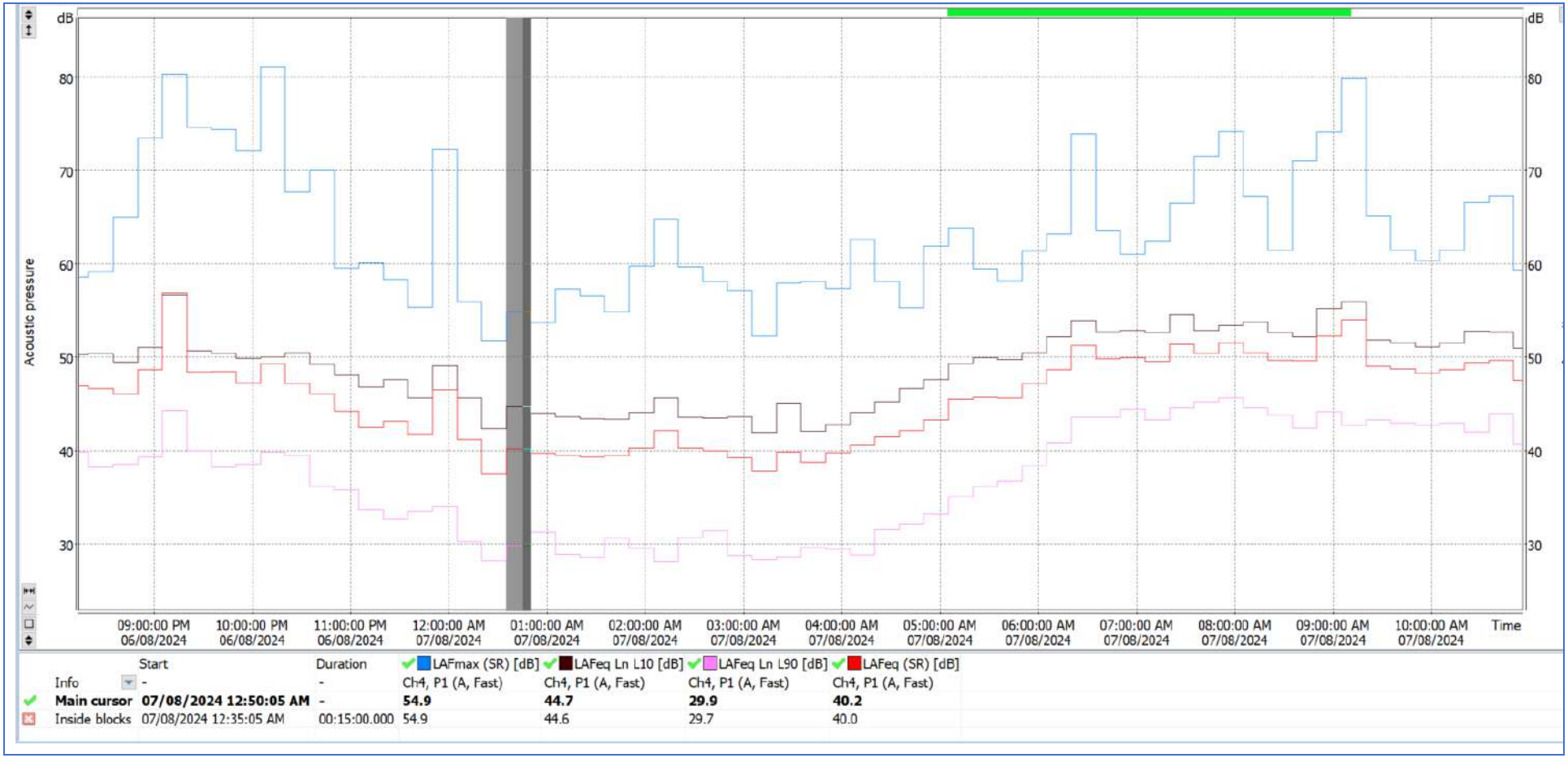
Attachment A: Noise Graphs



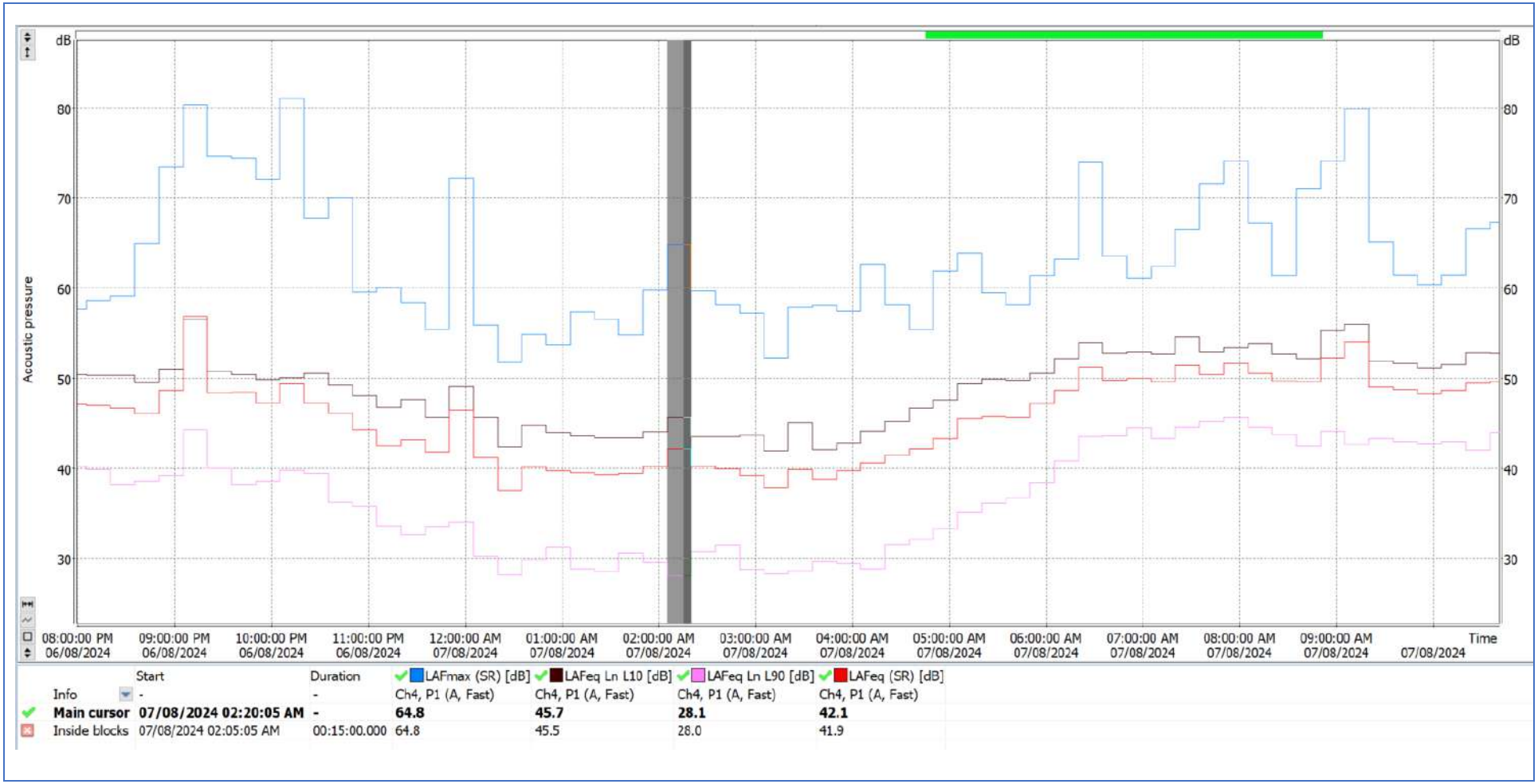
	Start	Duration	LAFmax (SR) [dB]	LAFeq Ln L10 [dB]	LAFeq Ln L90 [dB]	LAFeq (SR) [dB]
Info	-	-	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)
Main cursor	**06/08/2024 01:35:05 AM**	**-**	**71.0**	**45.9**	**28.8**	**44.6**
Inside blocks	06/08/2024 01:20:05 AM	00:15:00.000	71.0	45.8	28.7	44.4



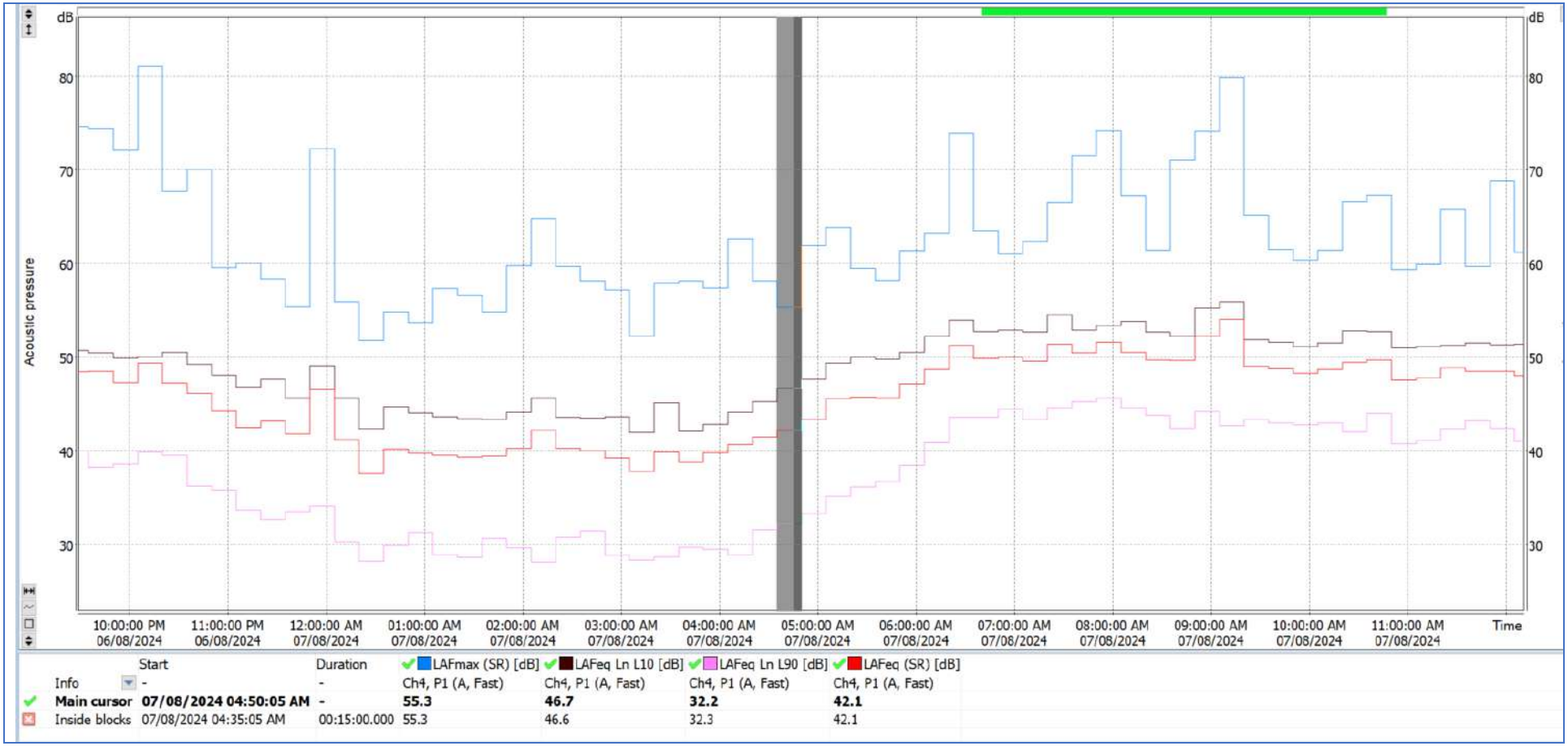
	Start	Duration	LAFmax (SR) [dB]	LAFeq Ln L10 [dB]	LAFeq Ln L90 [dB]	LAFeq (SR) [dB]
Info	-	-	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)
Main cursor	**06/08/2024 04:50:05 AM**	-	**56.9**	**45.5**	**31.5**	**41.3**
Inside blocks	06/08/2024 04:35:05 AM	00:15:00.000	56.9	45.6	31.4	41.3



	Start	Duration	LAFmax (SR) [dB]	LAFeq Ln L10 [dB]	LAFeq Ln L90 [dB]	LAFeq (SR) [dB]
Info	-	-	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)
Main cursor	**07/08/2024 12:50:05 AM**	-	**54.9**	**44.7**	**29.9**	**40.2**
Inside blocks	07/08/2024 12:35:05 AM	00:15:00.000	54.9	44.6	29.7	40.0



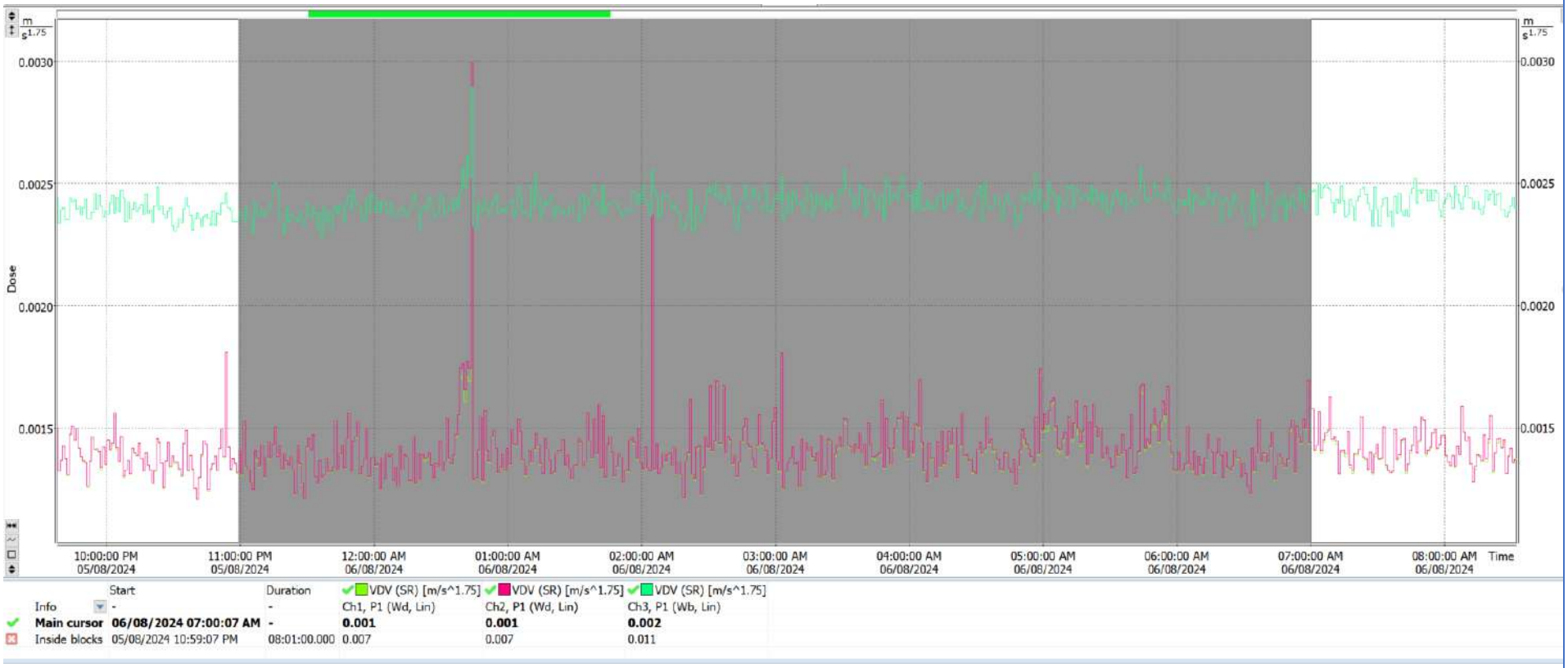
	Start	Duration	LAFmax (SR) [dB]	LAFeq Ln L10 [dB]	LAFeq Ln L90 [dB]	LAFeq (SR) [dB]
Info	-	-	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)
Main cursor	**07/08/2024 02:20:05 AM**	**-**	**64.8**	**45.7**	**28.1**	**42.1**
Inside blocks	07/08/2024 02:05:05 AM	00:15:00.000	64.8	45.5	28.0	41.9



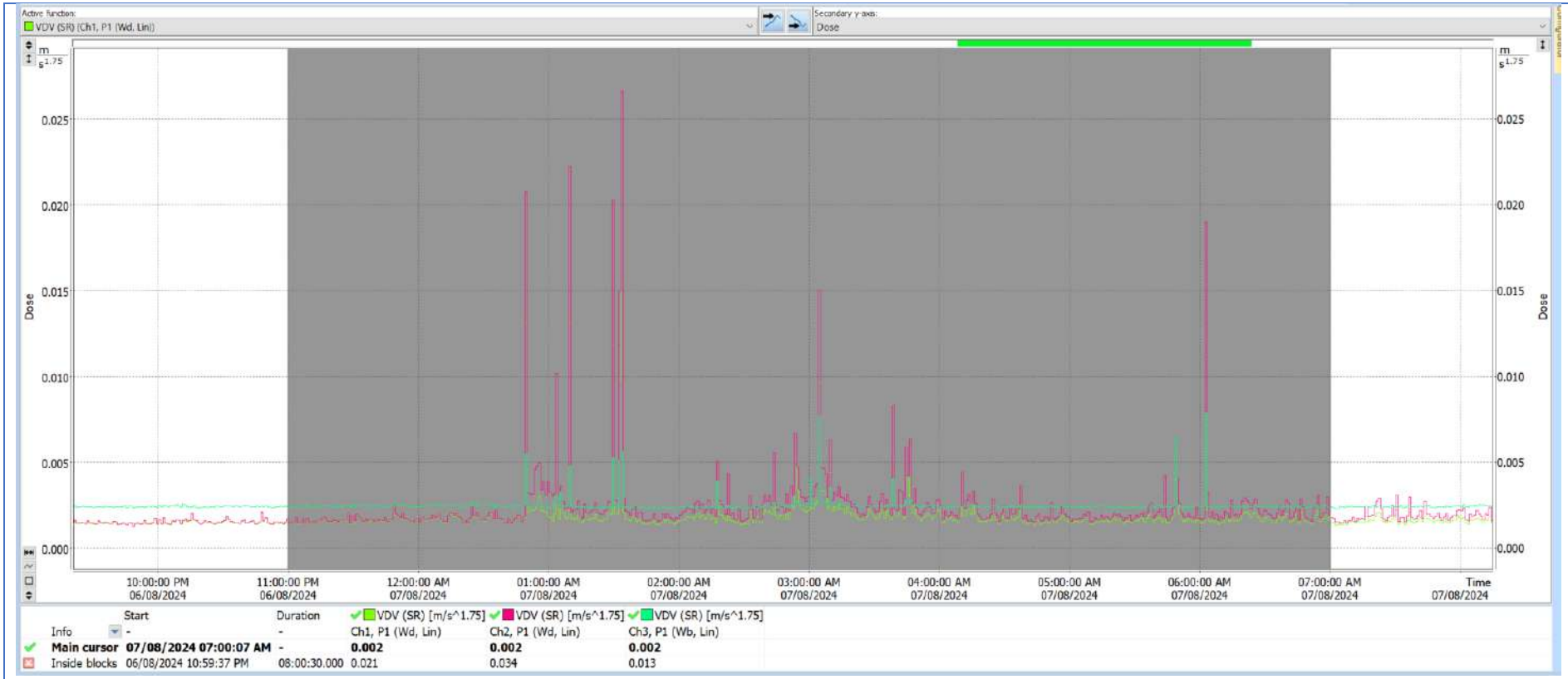
	Start	Duration	LAFmax (SR) [dB]	LAFeq Ln L10 [dB]	LAFeq Ln L90 [dB]	LAFeq (SR) [dB]
Info	-	-	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)	Ch4, P1 (A, Fast)
Main cursor	**07/08/2024 04:50:05 AM**	**-**	**55.3**	**46.7**	**32.2**	**42.1**
Inside blocks	07/08/2024 04:35:05 AM	00:15:00.000	55.3	46.6	32.3	42.1

Attachment B: Vibration Graphs

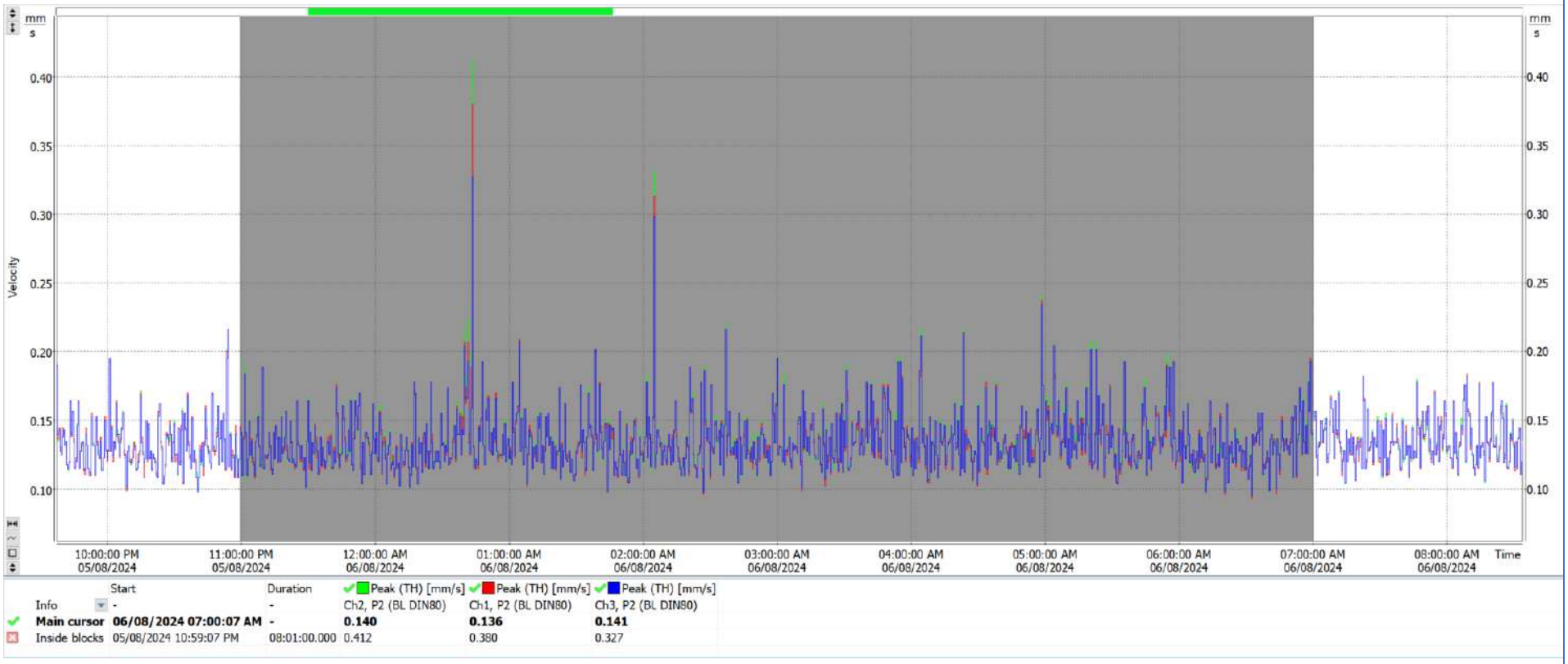
VDV vibration graph/s:



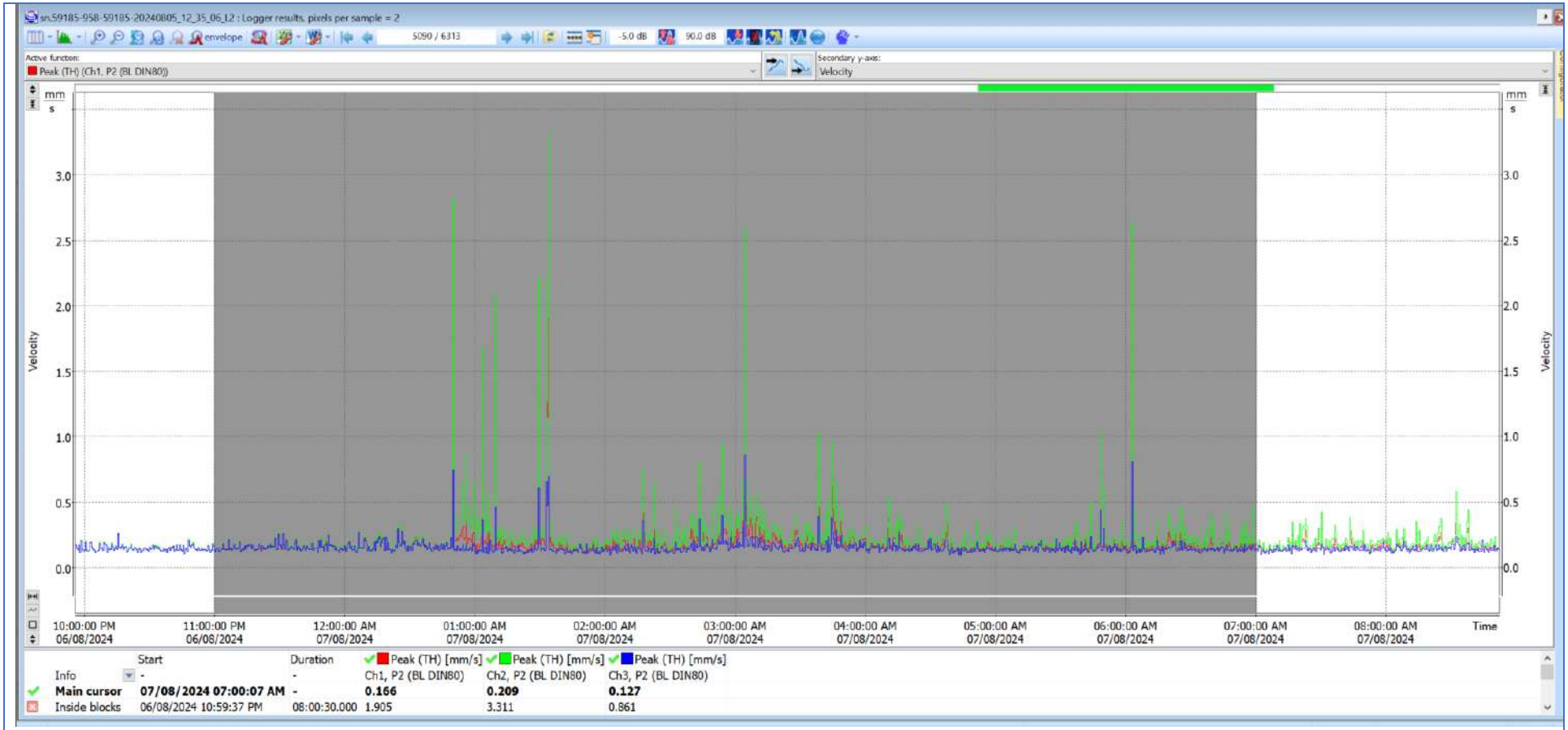
	Start	Duration	VDV (SR) [m/s^1.75]	VDV (SR) [m/s^1.75]	VDV (SR) [m/s^1.75]
Info	-	-	Ch1, P1 (Wd, Lin)	Ch2, P1 (Wd, Lin)	Ch3, P1 (Wb, Lin)
Main cursor	**06/08/2024 07:00:07 AM**	-	**0.001**	**0.001**	**0.002**
Inside blocks	05/08/2024 10:59:07 PM	08:01:00.000	0.007	0.007	0.011


Active function:
VDV (SR) (Ch1, P1 (Wd, Lin))
Secondary y-axis:
Dose
m/s^1.75
Dose
0.025
0.020
0.015
0.010
0.005
0.000
10:00:00 PM 06/08/2024
11:00:00 PM 06/08/2024
12:00:00 AM 07/08/2024
01:00:00 AM 07/08/2024
02:00:00 AM 07/08/2024
03:00:00 AM 07/08/2024
04:00:00 AM 07/08/2024
05:00:00 AM 07/08/2024
06:00:00 AM 07/08/2024
07:00:00 AM 07/08/2024
Time
07/08/2024
Start
Duration
VDV (SR) [m/s^1.75]
VDV (SR) [m/s^1.75]
VDV (SR) [m/s^1.75]
Info
-
-
Ch1, P1 (Wd, Lin)
Ch2, P1 (Wd, Lin)
Ch3, P1 (Wb, Lin)
Main cursor 07/08/2024 07:00:07 AM - 0.002 0.002 0.002
Inside blocks 06/08/2024 10:59:37 PM 08:00:30.000 0.021 0.034 0.013

PPV vibration graph/s:

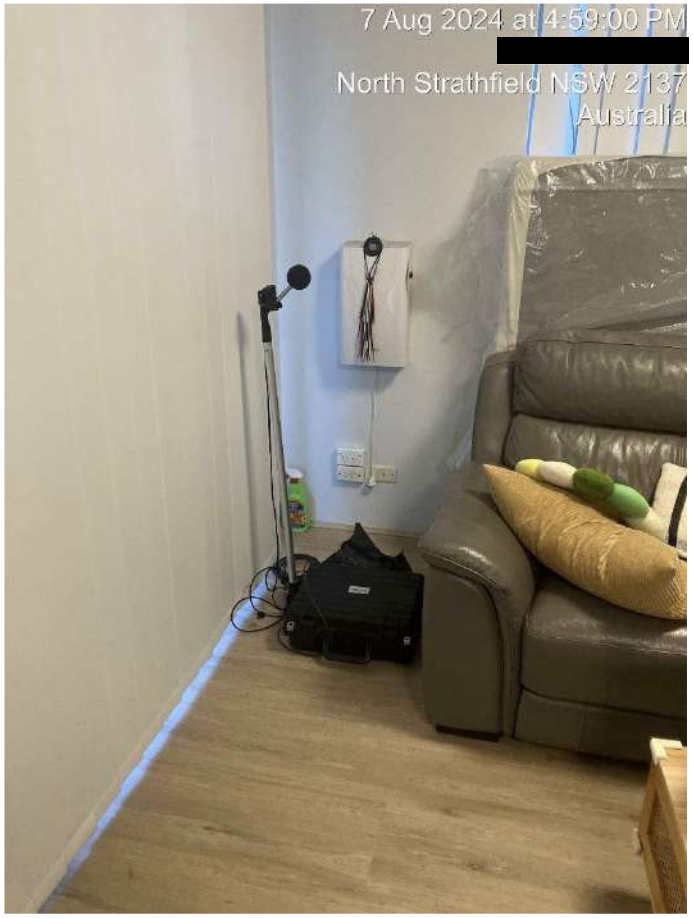


	Start	Duration	Peak (TH) [mm/s]	Peak (TH) [mm/s]	Peak (TH) [mm/s]
Info	-	-	Ch2, P2 (BL DIN80)	Ch1, P2 (BL DIN80)	Ch3, P2 (BL DIN80)
Main cursor	**06/08/2024 07:00:07 AM**	-	**0.140**	**0.136**	**0.141**
Inside blocks	05/08/2024 10:59:07 PM	08:01:00.000	0.412	0.380	0.327

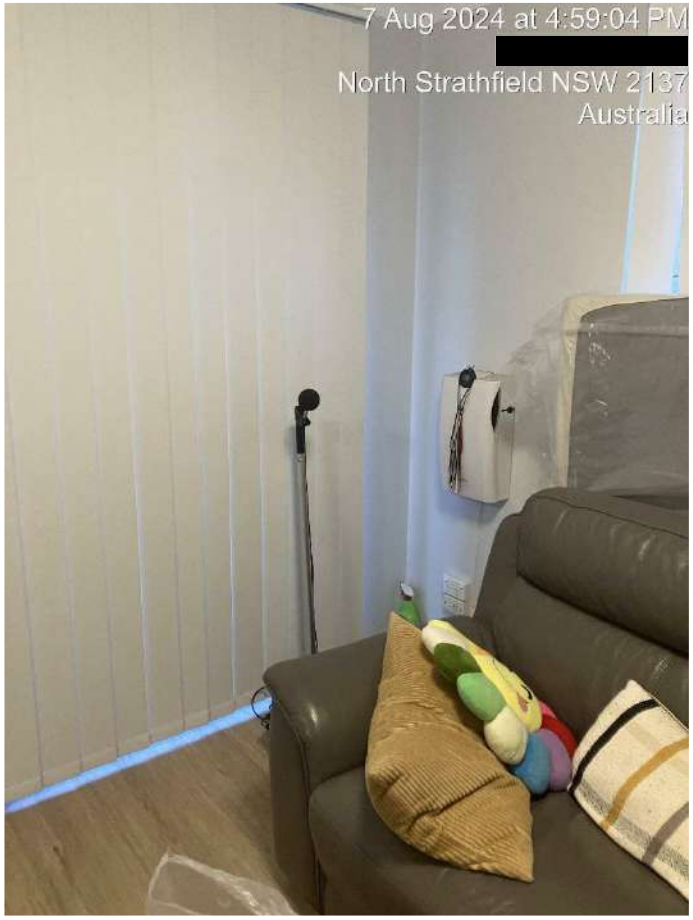

sn.59185-958-59185-20240805_12_35_06_L2 : Logger results, pixels per sample = 2
envelope
5090 / 6313
-5.0 dB
90.0 dB
Active function:
Peak (TH) (Ch1, P2 (BL DIN80))
Secondary y-axis:
Velocity
mm
s
Velocity
3.0
2.5
2.0
1.5
1.0
0.5
0.0
10:00:00 PM 06/08/2024
11:00:00 PM 06/08/2024
12:00:00 AM 07/08/2024
01:00:00 AM 07/08/2024
02:00:00 AM 07/08/2024
03:00:00 AM 07/08/2024
04:00:00 AM 07/08/2024
05:00:00 AM 07/08/2024
06:00:00 AM 07/08/2024
07:00:00 AM 07/08/2024
08:00:00 AM 07/08/2024
Time
Start
Duration
Peak (TH) [mm/s]
Peak (TH) [mm/s]
Peak (TH) [mm/s]
Info
Ch1, P2 (BL DIN80)
Ch2, P2 (BL DIN80)
Ch3, P2 (BL DIN80)
Main cursor 07/08/2024 07:00:07 AM 0.166 0.209 0.127
Inside blocks 06/08/2024 10:59:37 PM 08:00:30.000 1.905 3.311 0.861

Attachment C Monitoring set up

Left: view of set up facing towards front of house,



right: view of set up facing back of house



Attachment D Night Shift Reports

AFJV XP Shift Report

Date:	07-Aug-24
Day:	Wednesday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
CO	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SE	Electrical Breakdown
SM	Mechanical Breakdown
SO	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		Kelko	XP

Drive Information:	Progress Summary			←1800				←1900				←2000				←2100				←2200				←2300				←2400				←0100				←0200				←0300				←0400				←0500				Total
XP42	Ch Start Shift	0.0	Excavation																																															0.00
	Ch End Shift	0.0	Bolt																																															0.00
	Heading Area	22.0	Shotcrete																																															0.00
	Shift Progress	0BCM	Others																																															0.00
																																																		0.00
XP45	Ch Start Shift	10.8	Excavation																																														0.00
	Ch End Shift	10.8	Bolt		B	B	B	B	B	B	B	B																																					2.00
	Heading Area	19.2	Shotcrete										SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP	SP									6.75
	Shift Progress	0BCM	Others	TP																																				ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	ES	3.25
																																																	12.00
XP44	Ch Start Shift	9.2	Excavation			C	C	CU	CU																			C	C	C	C	C	C	C	C			C	C	CM	CM	CM	CM	C	C	C	C	C	C	C	C	6.50
	Ch End Shift	9.6	Bolt							B	B	BM	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B																			4.50
	Heading Area	19.2	Shotcrete																																														0.00
	Shift Progress	8BCM	Others	TP	TP																															AC	AC													1.00
																																																	12.00
XP43	Ch Start Shift	5.5	Excavation																					C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	7.00
	Ch End Shift	6.1	Bolt			BS	BS	BS	BS	B	B	B	B	B	B	B	B	B	B	B	B	B	B																											4.50
	Heading Area	19.2	Shotcrete																																														0.00
	Shift Progress	12BCM	Others	TP	TP																																												0.50
																																																	12.00

AFJV XP Shift Report

Date:	06-Aug-24
Day:	Tuesday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
C0	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SB	Electrical Breakdown
SM	Mechanical Breakdown
S0	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		Kelko	XP

Drive Information:	Progress Summary			←1800	←1900	←2000	←2100	←2200	←2300	←2400	←0100	←0200	←0300	←0400	←0500	Total
XP42	Ch Start Shift	0.0	Excavation													0.00
	Ch End Shift	0.0	Bolt													0.00
	Heading Area	22.0	Shotcrete													0.00
	Shift Progress	0BCM	Others													0.00
																0.00
XP45	Ch Start Shift	10.8	Excavation	CU CU	CBE CBE CBE CBE CBE CBE CBE CU CU	CBE CBE CBE CBE CBE CBE CBE CU CU						CBE CBE CBE CBE CBE CBE CBE CBE CBE CBE CBE CBE CBE CU CU CU					8.00
	Ch End Shift	10.8	Bolt						B B B B B B B B B B B B B B								3.50
	Heading Area	19.2	Shotcrete														0.00
	Shift Progress	0BCM	Others	TP TP													0.50
																12.00
XP44	Ch Start Shift	7.5	Excavation	CM CM	CM CM CM CM CM CM CM CM CM	C C C C C C C C	C C C C C C C C	C C C C C C C C	C C C C C C C C	C C C C C C C C	CU CU CU C	C C C C C C C C	CM C C C C C C C			11.50
	Ch End Shift	8.6	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	21BCM	Others	TP TP												0.50
																12.00
XP43	Ch Start Shift	4.1	Excavation	C C C C C C C	CU CU C C	C C C C C C C C	C C C C C C C C	C C CU CU	C C C C C C C C	CU CU C C	C C C C C C C CU	CU C C C C C C C	C C CU CU			11.75
	Ch End Shift	4.9	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	15BCM	Others	TP												0.25
																12.00

Ground borne Noise & Vibration Monitoring Report

Project: Sydney Metro West – Central Tunnelling Package	Report No. 20240701-GBN
Start: 13:00pm, 01/07/2024	End: 16:25 pm,04/07/2024
Data collected by: [redacted]	Attended/Unattended monitoring: Unattended
Was this monitoring event conducted in response to a complaint? Yes	
Location and description of construction activity (including operation and load conditions of plant) TBM 3 & 4 Cutting TBM3 was at [redacted], North Strathfield on 02/07/2024. TBM4 was at [redacted] North Strathfield on 02/07/2024. [redacted], North Strathfield is approx. 57 off TBM alignment.	Monitoring location [redacted] North Strathfield Monitored inside the bedroom on the ground floor and it is approx. 57 m off alignment of TBM3. Reason for location selection: The location was selected in consultation with the resident.
Distance between monitoring location and source (m)	Various, refer to summary tables

Map/diagram of monitoring location/sensitive receiver and construction activity

TBM3 & TBM4 locations (blue arrow) on evening of 1st July 2024 (beginning of monitoring period).

Instrumentation details			
Type of monitor	One unit with noise (microphone) and vibration (tri-axial geophone) logging functions		
Make and Model	Svan958AG	Last calibration date	14/09/2022
Serial Number	59503	Calibration valid until	14/09/2024

Instrumentation set-up and method

Microphone placed on stand inside the bedroom.

Geophone secured to weighted plate placed on a carpeted floor. .

Refer to Attachment C for photo of set up.

Results and analysis

The monitoring occurred during day, evening, and night shifts, however, only results from the night period have been assessed in this report due to lower domestic and ambient noise and vibration sources allowing a more accurate comparison between prediction and actual levels.

Noise Results summary

Date	Night of 01/07/2024	Night of 02/07/2024
Time	11:15-11:30pm	14:01-14:16am
Activity	TBM 3 cutting ~ 50m TBM 4 cutting ~ 50m	TBM 3 cutting ~ 54m TBM 4 cutting ~ 39m
Approximate horizontal distance between TBM and monitor (m)	TBM depth was 17m below 31 Nelson Road, North Strathfield located was offset from the TBM alignment by 57m off TBM alignment	TBM depth was 17m below 31 Nelson Road, North Strathfield located was offset from the TBM alignment by 57m off TBM alignment
Prediction $LAeq_{15min}$ dBA	40	34
Trigger for Alt. Accomm. $LAeq_{15min}$ dBA	45	45
$LAeq_{15min}$ dBA	30.3	29.7
LAmax dBA	37.3	32.2
Commentary (including estimated contribution of construction activities vs non-construction sources)	Time chosen was indicative of TBM cutting for approx. 4hrs and minimal ambient noise. Level is below prediction, and trigger for AA	Time chosen was indicative of TBM cutting for approx. 4hrs and minimal ambient noise. Level is below prediction, and trigger for AA

Refer to Attachment A for examples of graphs from the monitoring period.

The recorded levels during TBM operation were below the noise prediction.

Noise Conclusion:

Were results from tunnelling higher than predicted?	No	If yes, discuss what action has been taken	N/A
Were results from tunnelling higher than trigger for alternative accommodation?	No	If yes, was alternative accommodation offered?	N/A
Was the monitoring and results compliant with the NVMP?	Yes	If no, discuss what action has been taken	N/A

Summary of vibration results:

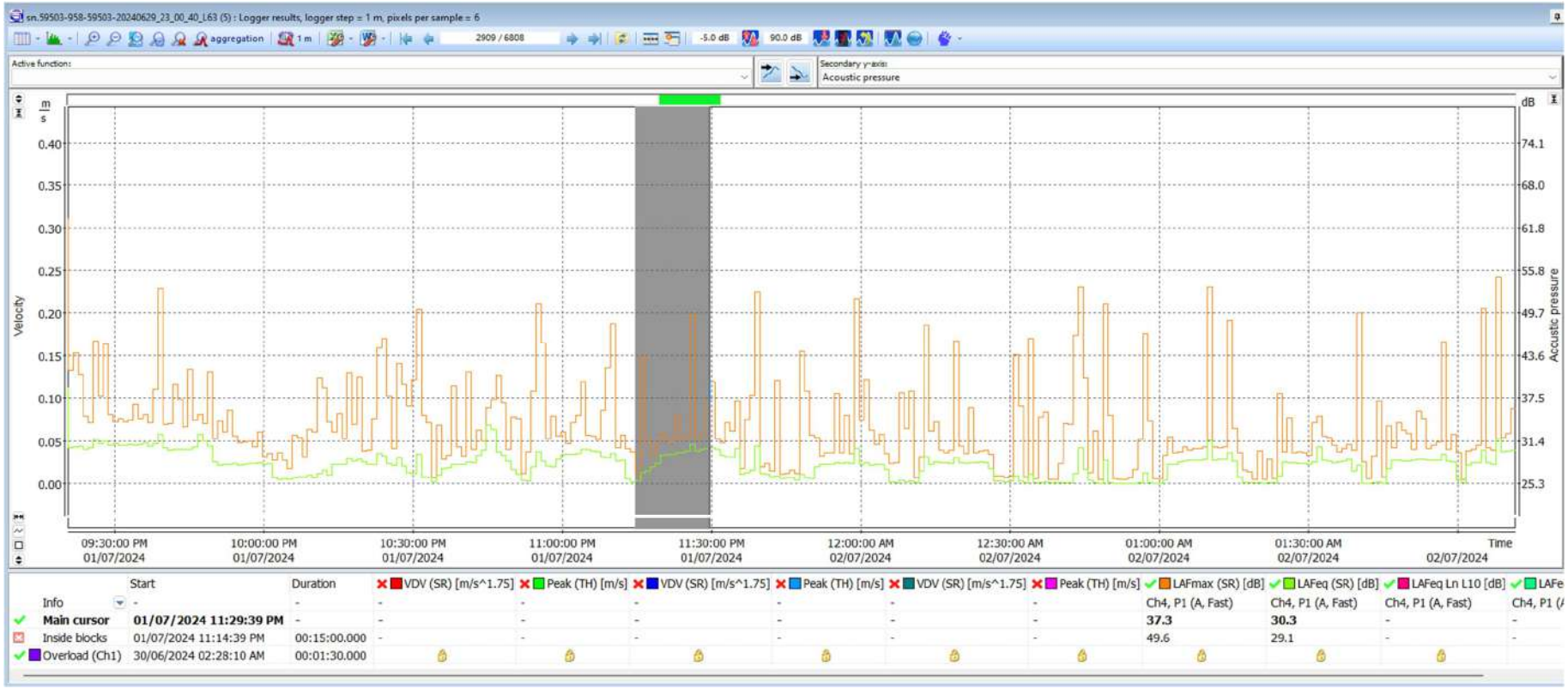
Date	Night of 01/07/2024	Night of 02/07/2024
Time	11pm-7am	11pm-7am
Activity	TBM 3 cutting ~ 50m TBM 4 cutting ~ 50m	TBM 3 cutting ~ 54m TBM 4 cutting ~ 39m
Approximate horizontal distance between TBM and monitor	TBM depth was 17m below 31 Nelson Road, North Strathfield located was offset from the TBM alignment by 57m off TBM alignment	TBM depth was 17m below 31 Nelson Road, North Strathfield located was offset from the TBM alignment by 57m off TBM alignment
VDV Prediction $m/s^{1.75}$	0.15	0.15
VML $m/s^{1.75}$	0.26	0.26
Night (8 hr) VDV $m/s^{1.75}$	0.0005	0.023
Screening level mm/s	7.5	7.5
Predicted PPV mm/s	0.3	0.3
PPV mm/s (during TBM)	0.058	0.495
Commentary (Including estimated contribution of construction activities vs non-construction sources)	VDV below prediction and VML. PPV below screening level Graph in Attachment B shows evidence of TBM operation intermittently through the period.	VDV below prediction and VML.PPV is above predicted value, but well below the screening level for unreinforced structures. Graph in Attachment B shows evidence of TBM operation intermittently through the period.

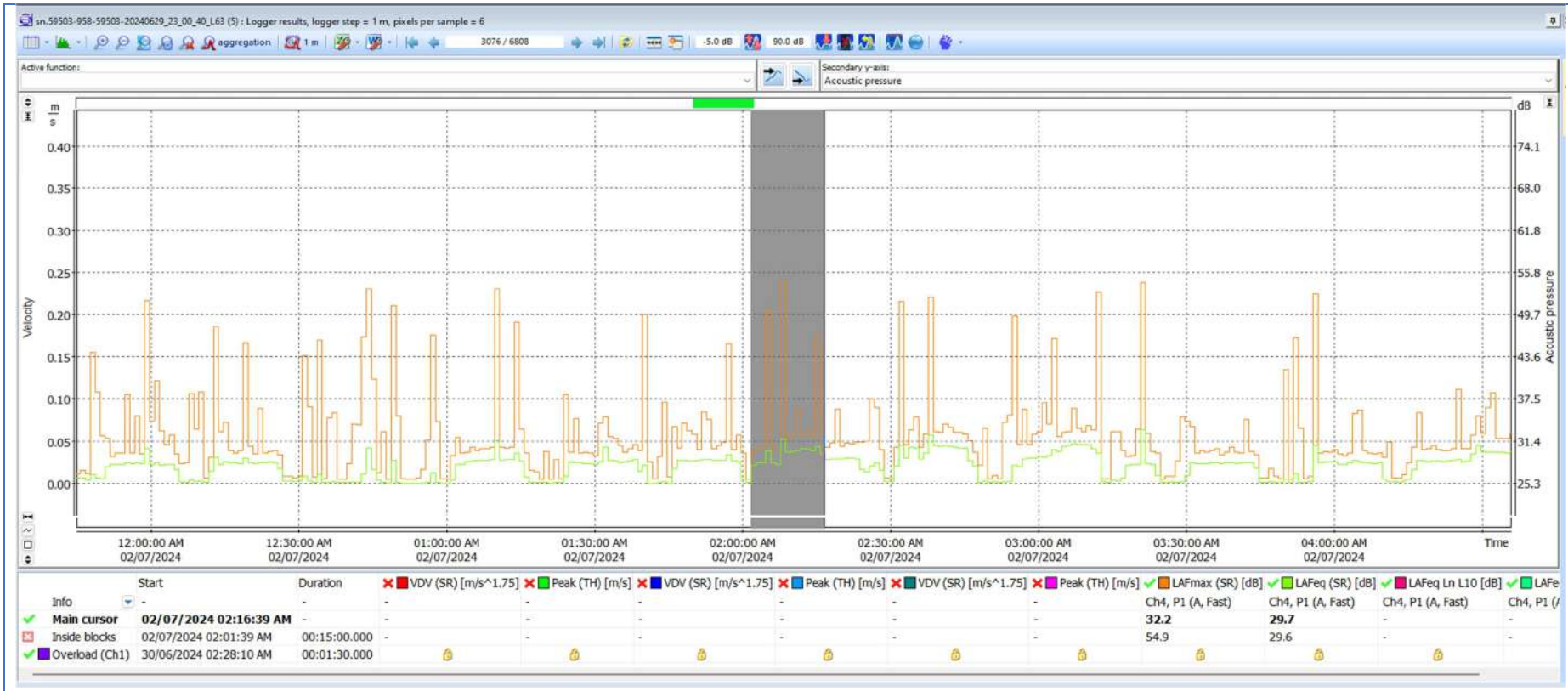
Refer to Attachment B for examples of graphs from the monitoring period.

Vibration Conclusion:

Were results from tunnelling higher than predicted?	No	If yes, discuss what action has been taken	N/A
Were results from tunnelling higher than screening level and/or VML?	No	If yes, discuss what action has been taken	N/A
Was the monitoring and results compliant with the NVMP?	Yes	If no, discuss what action has been taken	N/A

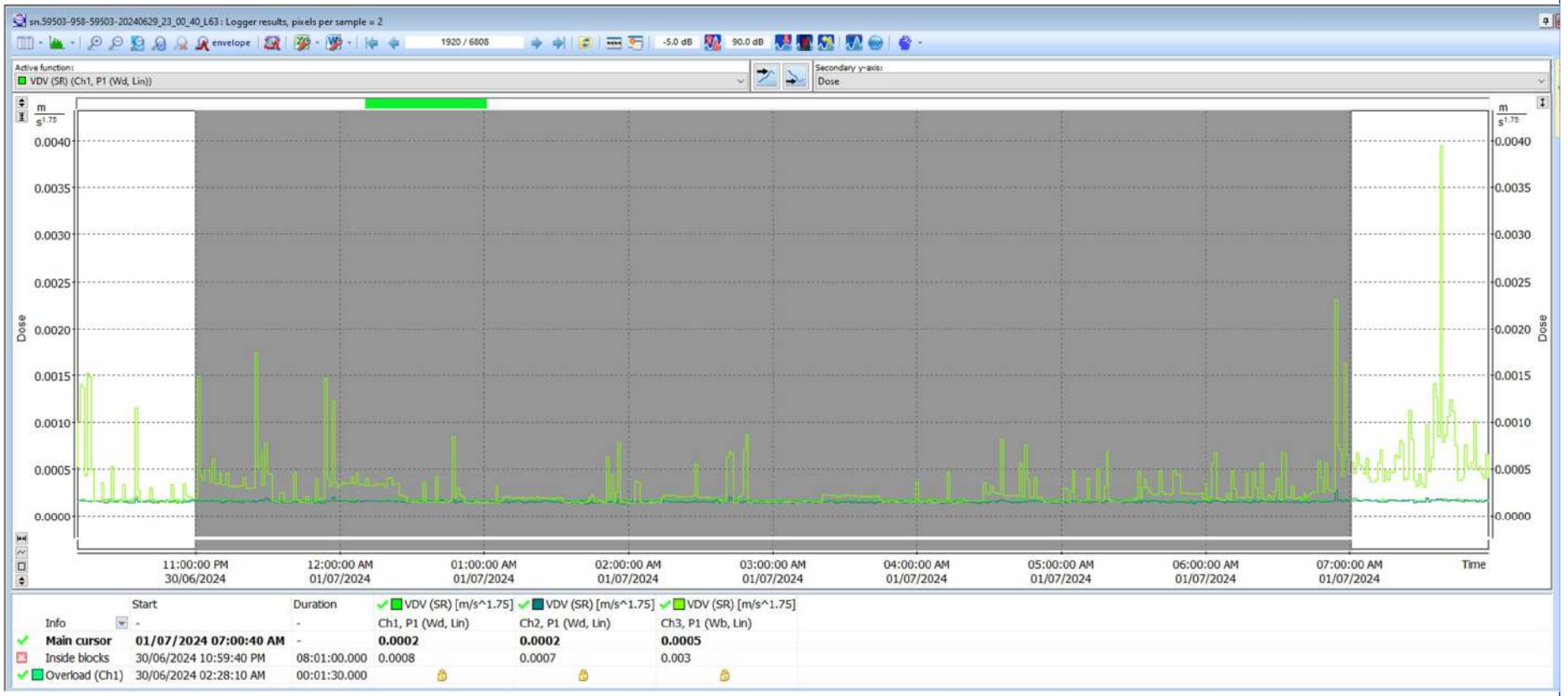
Attachment A: Example Noise Graphs

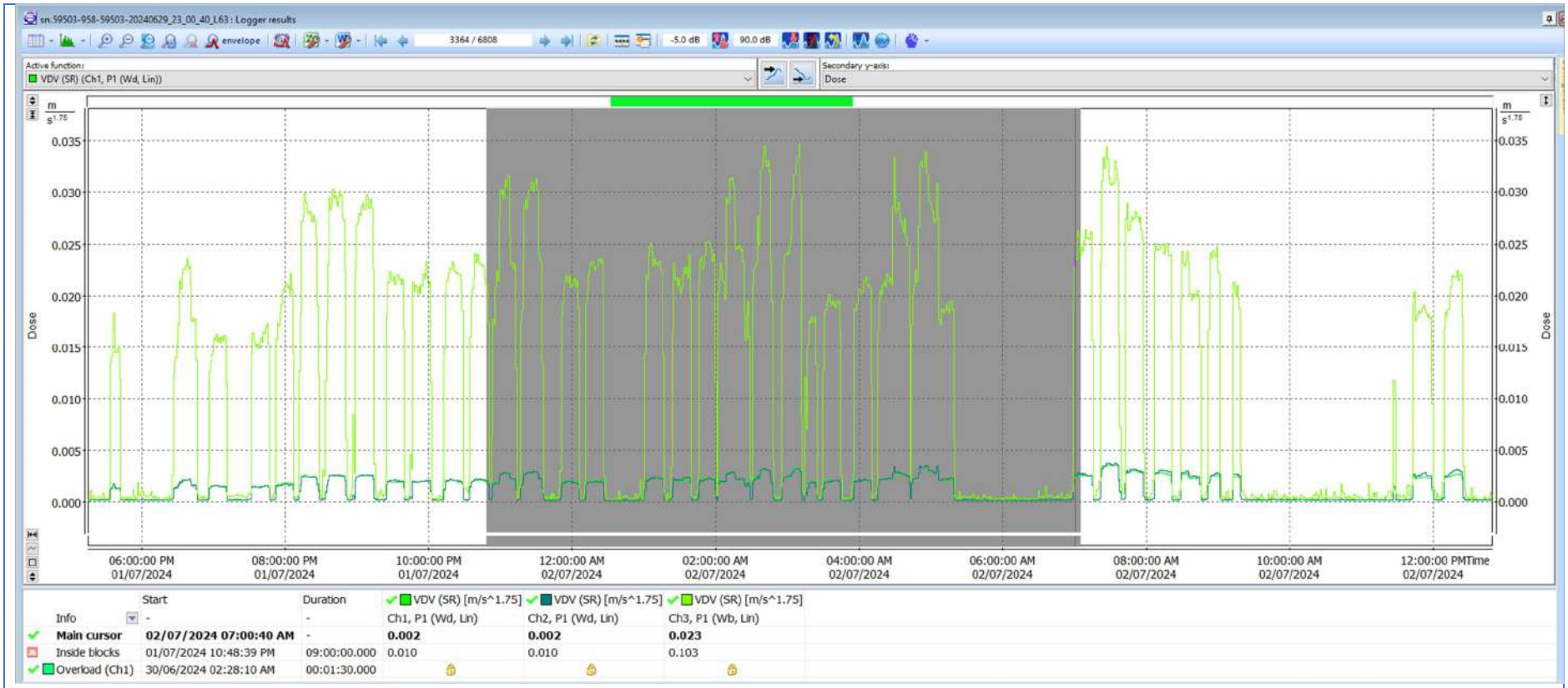



sn.59503-958-59503-20240629_23_00_40_L63 (5) : Logger results, logger step = 1 m, pixels per sample = 6
aggregation
1 m
3076 / 6808
-5.0 dB
90.0 dB
Active function:
Secondary y-axis:
Acoustic pressure
m/s
dB
Velocity
Acoustic pressure
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
74.1
68.0
61.8
55.8
49.7
43.6
37.5
31.4
25.3
12:00:00 AM 02/07/2024
12:30:00 AM 02/07/2024
01:00:00 AM 02/07/2024
01:30:00 AM 02/07/2024
02:00:00 AM 02/07/2024
02:30:00 AM 02/07/2024
03:00:00 AM 02/07/2024
03:30:00 AM 02/07/2024
04:00:00 AM 02/07/2024
Time
Start
Duration
VDV (SR) [m/s^1.75]
Peak (TH) [m/s]
VDV (SR) [m/s^1.75]
Peak (TH) [m/s]
VDV (SR) [m/s^1.75]
Peak (TH) [m/s]
LAFmax (SR) [dB]
LAFeq (SR) [dB]
LAFeq Ln L10 [dB]
LAFe
Info
Ch4, P1 (A, Fast)
Ch4, P1 (A, Fast)
Ch4, P1 (A, Fast)
Ch4, P1 (A
Main cursor
02/07/2024 02:16:39 AM
32.2
29.7
Inside blocks
02/07/2024 02:01:39 AM
00:15:00.000
54.9
29.6
Overload (Ch1)
30/06/2024 02:28:10 AM
00:01:30.000

Attachment B: Example Vibration Graphs

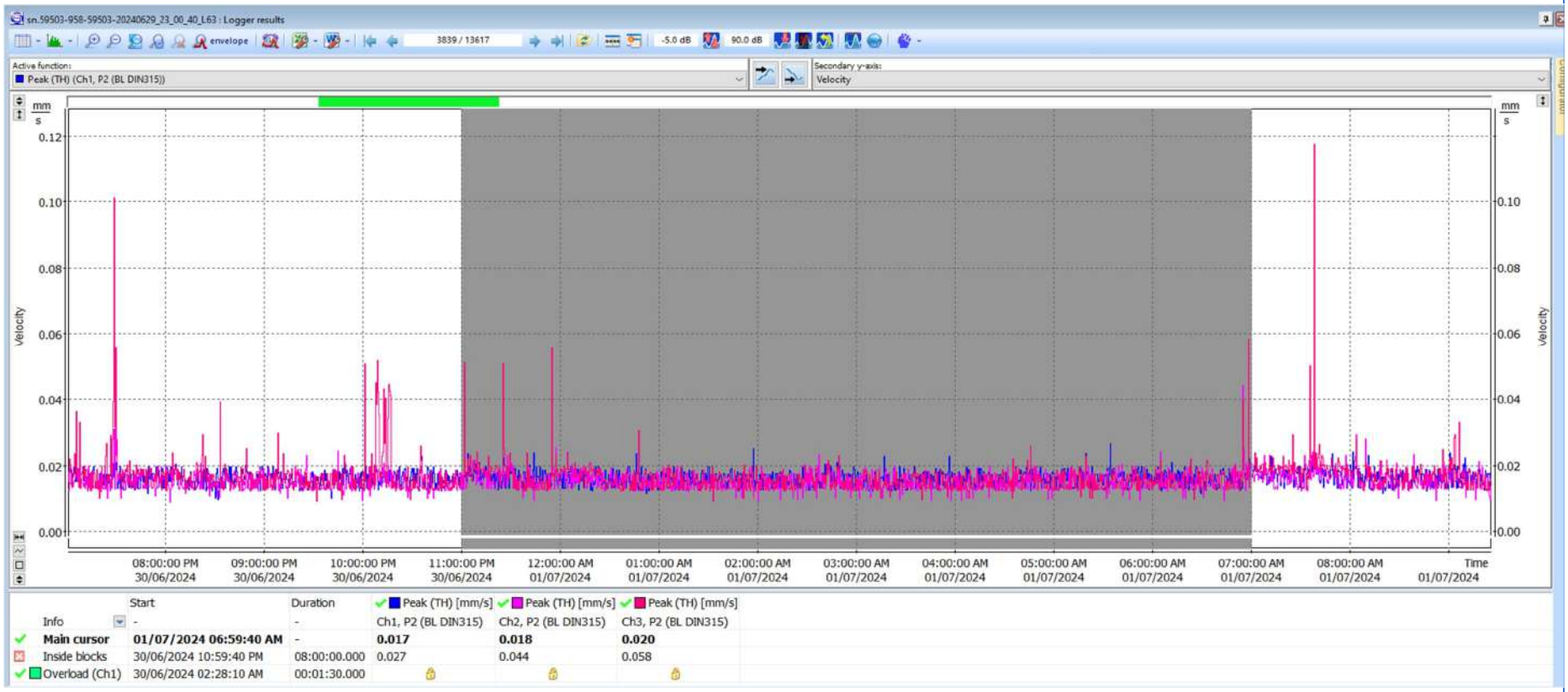
VDV vibration graph/s:



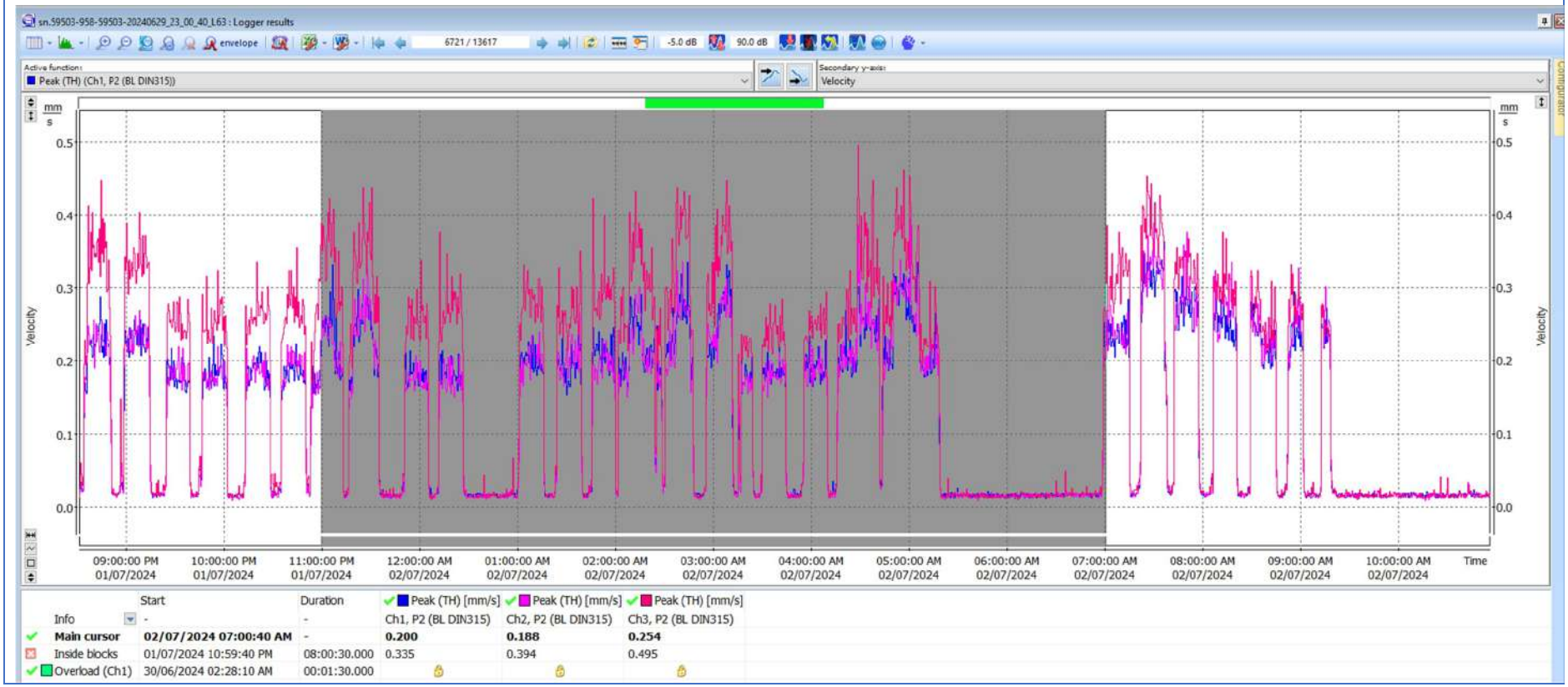


	Start	Duration	VDV (SR) [m/s^1.75]	VDV (SR) [m/s^1.75]	VDV (SR) [m/s^1.75]
Info	-	-	Ch1, P1 (Wd, Lin)	Ch2, P1 (Wd, Lin)	Ch3, P1 (Wb, Lin)
Main cursor	**02/07/2024 07:00:40 AM**	-	**0.002**	**0.002**	**0.023**
Inside blocks	01/07/2024 10:48:39 PM	09:00:00.000	0.010	0.010	0.103
Overload (Ch1)	30/06/2024 02:28:10 AM	00:01:30.000			

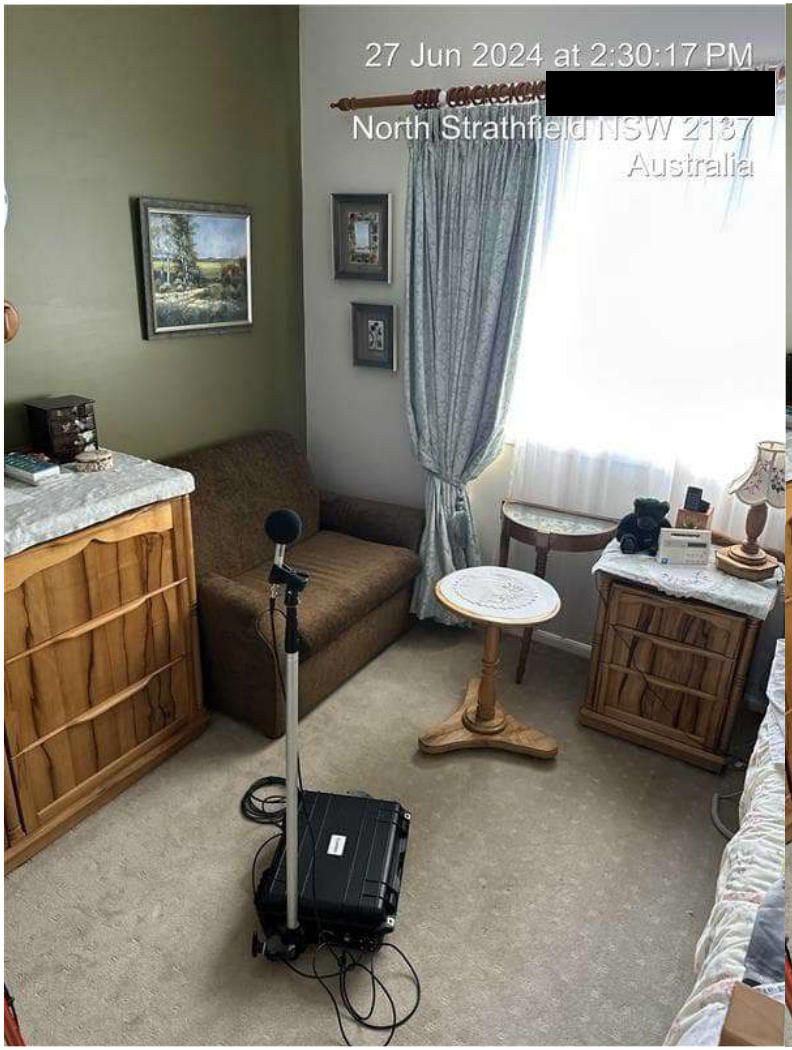
PPV vibration graph/s:



	Start	Duration	Peak (TH) [mm/s]	Peak (TH) [mm/s]	Peak (TH) [mm/s]
Info	-	-	Ch1, P2 (BL DIN315)	Ch2, P2 (BL DIN315)	Ch3, P2 (BL DIN315)
Main cursor	**01/07/2024 06:59:40 AM**	-	**0.017**	**0.018**	**0.020**
Inside blocks	30/06/2024 10:59:40 PM	08:00:00.000	0.027	0.044	0.058
Overload (Ch1)	30/06/2024 02:28:10 AM	00:01:30.000			


sn.59503-958-59503-20240629_23_00_40_L63 : Logger results
envelope
6721 / 13617
-5.0 dB
90.0 dB
Active function:
Peak (TH) (Ch1, P2 (BL DIN315))
Secondary y-axis:
Velocity
mm
s
Velocity
0.5
0.4
0.3
0.2
0.1
0.0
09:00:00 PM 01/07/2024
10:00:00 PM 01/07/2024
11:00:00 PM 01/07/2024
12:00:00 AM 02/07/2024
01:00:00 AM 02/07/2024
02:00:00 AM 02/07/2024
03:00:00 AM 02/07/2024
04:00:00 AM 02/07/2024
05:00:00 AM 02/07/2024
06:00:00 AM 02/07/2024
07:00:00 AM 02/07/2024
08:00:00 AM 02/07/2024
09:00:00 AM 02/07/2024
10:00:00 AM 02/07/2024
Time
Start
Duration
Peak (TH) [mm/s]
Peak (TH) [mm/s]
Peak (TH) [mm/s]
Info
Ch1, P2 (BL DIN315)
Ch2, P2 (BL DIN315)
Ch3, P2 (BL DIN315)
Main cursor
02/07/2024 07:00:40 AM
0.200
0.188
0.254
Inside blocks
01/07/2024 10:59:40 PM
08:00:30.000
0.335
0.394
0.495
Overload (Ch1)
30/06/2024 02:28:10 AM
00:01:30.000

Attachment C Monitoring set up



AFJV XP Shift Report

Date:	04-Jul-24
Day:	Thursday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
C0	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SB	Electrical Breakdown
SM	Mechanical Breakdown
S0	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]	[redacted]	AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP

Drive Information:	Progress Summary			←1800				←1900				←2000				←2100				←2200				←2300				←2400				←0100				←0200				←0300				←0400				←0500				Total
XP42	Ch Start Shift	8.7	Excavation	C	C	C	C	C	C	C	CU	CU	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	12.00
	Ch End Shift	9.9	Bolt																																																0.00
	Heading Area	19.2	Shotcrete																																																0.00
	Shift Progress	23BCM	Others																																																0.00
																																																			12.00
XP36	Ch Start Shift	0.3	Excavation				CUM	CUM	CUM	CUM	CUM	CUM	CUM	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CUM	CUM	CUM	CUM	CUM	CUM	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CUM	CUM	CUM	CSU	CSU	CSU	11.25
	Ch End Shift	0.7	Bolt																																															0.00
	Heading Area	21.2	Shotcrete																																															0.00
	Shift Progress	0BCM	Others	TP	TP	TP																																												0.75
																																																		12.00
XP40	Ch Start Shift	2.3	Excavation																																																0.00
	Ch End Shift	2.3	Bolt																																															0.00
	Heading Area	19.2	Shotcrete																																															0.00
	Shift Progress	0BCM	Others	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	12.00
																																																		12.00
XP41	Ch Start Shift	4.7	Excavation			C	C	C	C	C	CU	CU	C	C	C	C	CU	CU	C	C	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	11.50
	Ch End Shift	5.3	Bolt																																																0.00
	Heading Area	19.2	Shotcrete																																																0.00
	Shift Progress	12BCM	Others	TP	TP																																														0.50
																																																			12.00

AFJV XP Shift Report	
Date:	05-Jul-24
Day:	Friday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
CO	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SB	Electrical Breakdown
SM	Mechanical Breakdown
SO	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP

Drive Information:	Progress Summary			←1800		←1900					←2000				←2100				←2200				←2300				←2400				←0100				←0200				←0300				←0400				←0500				Total
XP42	Ch Start Shift	10.4	Excavation			C	C	C	C	C	CU	CU	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	C	C	C	C	C	C	CU	CU	11.50
	Ch End Shift	10.8	Bolt																																																0.00
	Heading Area	19.2	Shotcrete																																																0.00
	Shift Progress	8BCM	Others	TP	TP																																														0.50
																																																				12.00
XP36	Ch Start Shift	0.9	Excavation			CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CUM	CUM	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CUM	CUM	CSU	CSU	CSU	CSU	CSU	CSU	CUM	CUM	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CSU	CUM	CUM	CUM	CUM	CUM	CUM	CSU	CSU	11.50
	Ch End Shift	1.2	Bolt																																																0.00
	Heading Area	21.2	Shotcrete																																																0.00
	Shift Progress	0BCM	Others	TP	TP																																															0.50
																																																				12.00
XP40	Ch Start Shift	2.3	Excavation																																																		0.00
	Ch End Shift	2.3	Bolt																																																	0.00
	Heading Area	19.2	Shotcrete																																																	0.00
	Shift Progress	0BCM	Others	TP	TP	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	PW	12.00
																																																			12.00
XP41	Ch Start Shift	5.5	Excavation			C	C	C	C	C	C	C	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	CE	11.50
	Ch End Shift	5.5	Bolt																																																	0.00
	Heading Area	19.2	Shotcrete																																																0.00
	Shift Progress	0BCM	Others	TP	TP																																														0.50
																																																				12.00

AFJV XP Shift Report

Date:	01-Jul-24
Day:	Monday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
C0	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SB	Electrical Breakdown
SM	Mechanical Breakdown
S0	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]	[redacted]	AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP

Drive Information:	Progress Summary			←1800	←1900	←2000	←2100	←2200	←2300	←2400	←0100	←0200	←0300	←0400	←0500	Total
XP42	Ch Start Shift	7.8	Excavation		CM CM	CM CM CM CM	CM CM CM CM	CM CM CM CM	CM CM CM CM		CU CU CU CU	C C C C	C C C C	C C C C	C C C C	10.50
	Ch End Shift	7.9	Bolt													0.00
	Heading Area	25.2	Shotcrete													0.00
	Shift Progress	3BCM	Others	TP TP						AC AC AC AC						1.50
																12.00
XP36	Ch Start Shift	0.0	Excavation													0.00
	Ch End Shift	0.0	Bolt													0.00
	Heading Area	21.2	Shotcrete													0.00
	Shift Progress	0BCM	Others													0.00
																0.00
XP40	Ch Start Shift	2.3	Excavation													0.00
	Ch End Shift	2.3	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	12.00
																12.00
XP41	Ch Start Shift	2.3	Excavation													0.00
	Ch End Shift	2.3	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	12.00
																12.00

AFJV XP Shift Report

Date:	02-Jul-24
Day:	Tuesday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
CO	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SB	Electrical Breakdown
SM	Mechanical Breakdown
SO	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]	[redacted]	AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP

Drive Information:	Progress Summary			←1800	←1900	←2000	←2100	←2200	←2300	←2400	←0100	←0200	←0300	←0400	←0500	Total
XP42	Ch Start Shift	8.0	Excavation													0.00
	Ch End Shift	8.0	Bolt													0.00
	Heading Area	25.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	12.00
																12.00
XP36	Ch Start Shift	0.0	Excavation													0.00
	Ch End Shift	0.0	Bolt													0.00
	Heading Area	21.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	ES ES ES ES	12.00
																12.00
XP40	Ch Start Shift	2.3	Excavation													0.00
	Ch End Shift	2.3	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	12.00
																12.00
XP41	Ch Start Shift	2.3	Excavation		C C C C CU	CU C C C	CU CU C C	C C C C	C C CU CU	C C C C	C C C CU	CU C C C	C C CU CU	C C C C	C C CU CU	11.50
	Ch End Shift	3.1	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	TP TP												0.50
																12.00

AFJV XP Shift Report	
Date:	03-Jul-24
Day:	Wednesday
Shift:	Night Shift

Cut/Benching Legend (C)	
CS	Set Up/Remove Brokk
C	Cutting
CU	Mucking/Clean Up
GE	Geo Inspection/Mapping
CY	Survey
CV	Ventilation (scrubber/bags)
CE	Electrical Breakdown
CM	Mechanical Breakdown
CO	Waiting on Dump Truck

Cut/Benching Legend (C)	
CBB	Benching Brokk
CMB	Muck Bound
CBE	Benching Excavator
CSU	Sump Excavation
CUM	Sump Mucking

Bolting Legend (B)	
BS	Set Up/Remove bolter
B	Meshing and Bolting
BY	Bolt Survey
BE	Electrical Breakdown
BM	Mechanical Breakdown

Shotcrete Legend (S)	
SS	Set up/Remove Shotcrete Rig
S	Shotcreting
SY	Shotcrete Survey
SC	Curing
SB	Electrical Breakdown
SM	Mechanical Breakdown
SO	Waiting on Shotcrete
SP	Depth pins set up

Others	
PM	Plant Maintenance/Servicing
TP	Pre-start/Toolbox
WA	Walk Out
PB	All other plant mech. breakdown
PO	All other plant elect. breakdown
AC	Access/Egress
LA	Labour Resourcing
ES	Excavation Setup (Weepholes, Spear Bolts, Scrubber Moves)
PW	Power Supply

Workforce

First Name	Surname	Company	Crew
[redacted]		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP
		AFJV	XP

Drive Information:	Progress Summary			←1800	←1900	←2000	←2100	←2200	←2300	←2400	←0100	←0200	←0300	←0400	←0500	Total
XP42	Ch Start Shift	8.0	Excavation													0.00
	Ch End Shift	8.0	Bolt													0.00
	Heading Area	25.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	AC AC AC AC	12.00
																12.00
XP36	Ch Start Shift	0.0	Excavation													0.00
	Ch End Shift	0.0	Bolt													0.00
	Heading Area	21.2	Shotcrete													0.00
	Shift Progress	0BCM	Others													0.00
																0.00
XP40	Ch Start Shift	2.3	Excavation													0.00
	Ch End Shift	2.3	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	0BCM	Others													0.00
																0.00
XP41	Ch Start Shift	3.9	Excavation	C C	C C C C CU	CU C C C	CU CU C C	C C C C	C C CU CU	C C C C	C C C CU	CU C C C	C C CU CU	C C C C	C C CU CU	11.50
	Ch End Shift	4.2	Bolt													0.00
	Heading Area	19.2	Shotcrete													0.00
	Shift Progress	0BCM	Others	TP TP												0.50
																12.00

AFJV Central Tunnel Package

Vibration Monitoring Event Report

Monitoring Information			
Test Location	[redacted]	Unsound heritage structure	YES ☐ NO ☒
Works Monitoring	FDK East	Distance between geophone and works (m)	1m
Conducted by	[redacted]	Attended monitoring	YES ☐ NO ☒
Date/s	01.08.2024 – 31.08.2024		
Instrumentation & Test Procedure			
Instrument	Sigicom V12		
Calibrator	Sigicom		
Calibration Date	26/07/2023	Calibration Due	26/07/2025
Monitor Serial #	V12 33760		

Preferred Criteria (circle criteria relevant to monitoring event)						
	Reinforced or framed structures	Unreinforced or light framed structures	Heritage structurally sound	Heritage structurally unsound	Residential human comfort Day	Residential human comfort Night
Peak Particle Velocity (PPV mm/s)	25	7.5	7.5	2.5	-	-
Vibration Dose Value (VDV $m/s^{1.75}$)	-	-	-	-	0.4	0.26

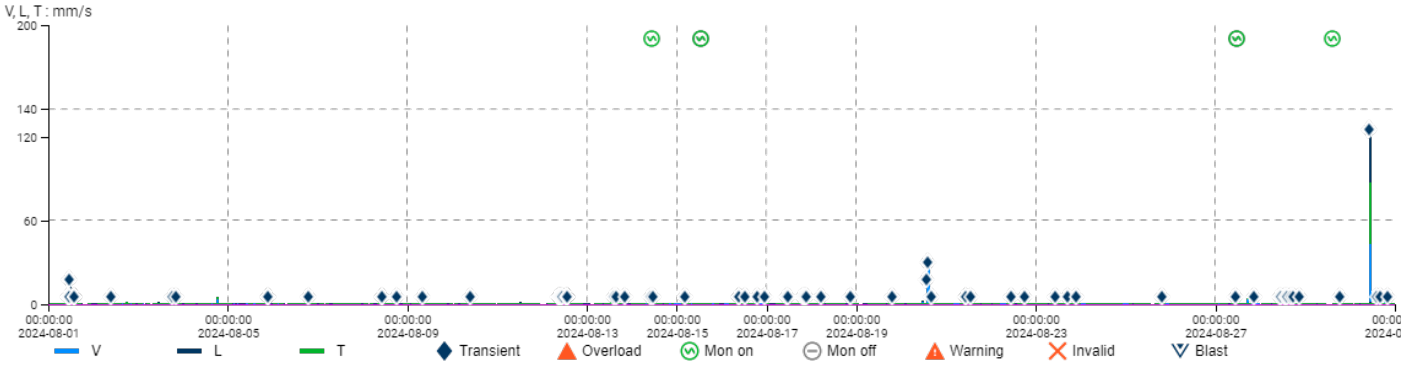
Monitoring Results						
Start Time	00:00		Duration		31 Days	
Trigger value (mm/s)	5mm/s		# of vibration triggers		0	
	Trans (y)		Vert (z)		Long (x)	
	Value	Freq (Hz)	Value	Freq (Hz)	Value	Freq (Hz)
Peak Particle Velocity (PPV mm/s)	86.5	2.5	43	9.5	126	1.5
Vibration Dose Value (VDV mm/s1.75)	-	-	-	-	-	-
Below preferred criteria?	YES ☐ NO ☒ If "NO", provide explanation and corrective actions taken in next section					

AFJV Central Tunnel Package

Notes and Diagram/Map, Photos and Graphs
Geophones located inside [redacted] building against wall. On 30/08/2024 at 10:18:00, the data exceedance limits (Trans(T) 126mm/s- Hz 1.5) is attributed to the replacement of the battery by the Environmental representative.   

Interval report

Project	FDK
Project maintainer	-
Time frame	2024-08-01 00:00 - 2024-08-31 00:00 (Australia/Sydney)
Measuring point	FDK_2
Description	[redacted]
Sensor type	V12
Sensor serial no.	33760
Master(s) serial no.	107964
Latest calibration	2023-07-26
Standard	(18) DIN4150-3 + Freq 250 mm/s 1-315Hz
Unit	mm/s
Quantity	Velocity
Interval time	2 minutes
Max	V: 43 mm/s, L: 126 mm/s, T: 86.5 mm/s



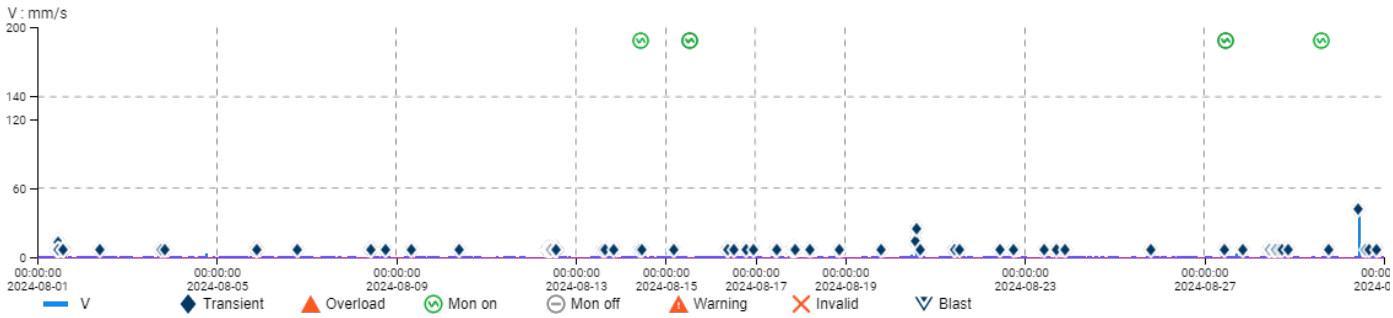
X-span	2024-08-01 00:00 - 2024-08-31 00:00
Y-span	V, L, T : mm/s: 0 - 200

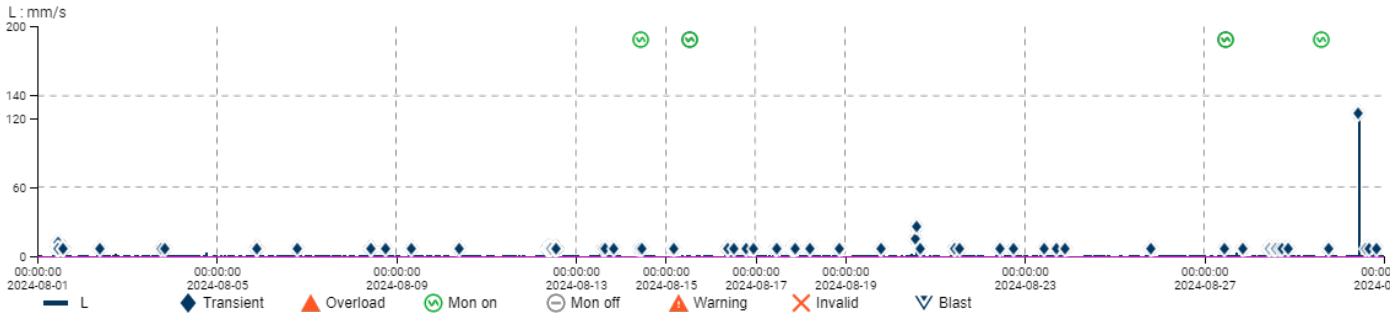
	V	L	T
Max	43 mm/s	126 mm/s	86.5 mm/s
Date	2024-08-30	2024-08-30	2024-08-30
Time	10:18:00	10:18:00	10:18:00

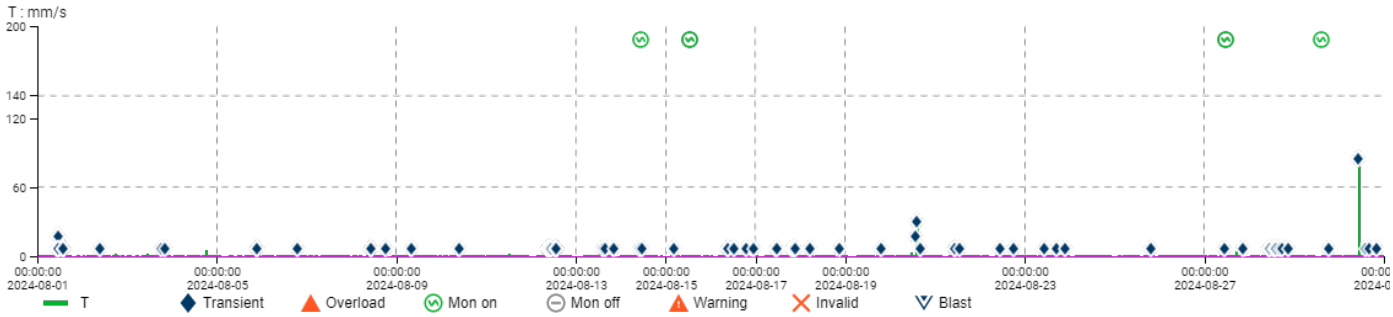
Multi report

Project	FDK
Project maintainer	-
Time frame	2024-08-01 00:00 - 2024-08-31 00:00 (Australia/Sydney)

FDK_2, [redacted], V12, Serial number: 33760, Calibrated: 2023-07-26, true







X-span	2024-08-01 00:00 - 2024-08-31 00:00
Y-span	V, L, T : mm/s: 0 - 200

	V	L	T
Max	43 mm/s	126 mm/s	86.5 mm/s
Date	2024-08-30	2024-08-30	2024-08-30
Time	10:18:00	10:18:00	10:18:00
Hz	9.5	1.5	2.5

AFJV Central Tunnel Package

Vibration Monitoring Event Report

Monitoring Information			
Test Location	Queen St, NST	Unsound heritage structure	YES ☐ NO ☒
Works Monitoring	NST Site	Distance between geophone and works (m)	5m
Conducted by	[redacted]	Attended monitoring	YES ☐ NO ☒
Date/s	01.09.2024 – 30.09.2024		
Instrumentation & Test Procedure			
Instrument	Sigicom V12		
Calibrator	Sigicom		
Calibration Date	25/07/2023	Calibration Due	25/07/2025
Monitor Serial #	V12- 33720		

Preferred Criteria (circle criteria relevant to monitoring event)						
	Reinforced or framed structures	Unreinforced or light framed structures	Heritage structurally sound	Heritage structurally unsound	Residential human comfort Day	Residential human comfort Night
Peak Particle Velocity (PPV mm/s)	25	7.5	7.5	2.5	-	-
Vibration Dose Value (VDV $m/s^{1.75}$)	-	-	-	-	0.4	0.26

Monitoring Results						
Start Time	00:00		Duration		30 Days	
Trigger value (mm/s)	5mm/s		# of vibration triggers		0	
	Trans (y)		Vert (z)		Long (x)	
	Value	Freq (Hz)	Value	Freq (Hz)	Value	Freq (Hz)
Peak Particle Velocity (PPV mm/s)	0.25	N/A	0.4	128	0.4	21.5
Vibration Dose Value (VDV mm/s1.75)	-	-	-	-	-	-
Below preferred criteria?	YES ☒ NO ☐ If "NO", provide explanation and corrective actions taken in next section					

AFJV Central Tunnel Package

Notes and Diagram/Map, Photos and Graphs

Geophones located inside 125 Queen St, against building wall.

Multi report

Project	NST
Project maintainer	-
Time frame	2024-09-01 00:00 - 2024-09-30 00:00 (Australia/Sydney)

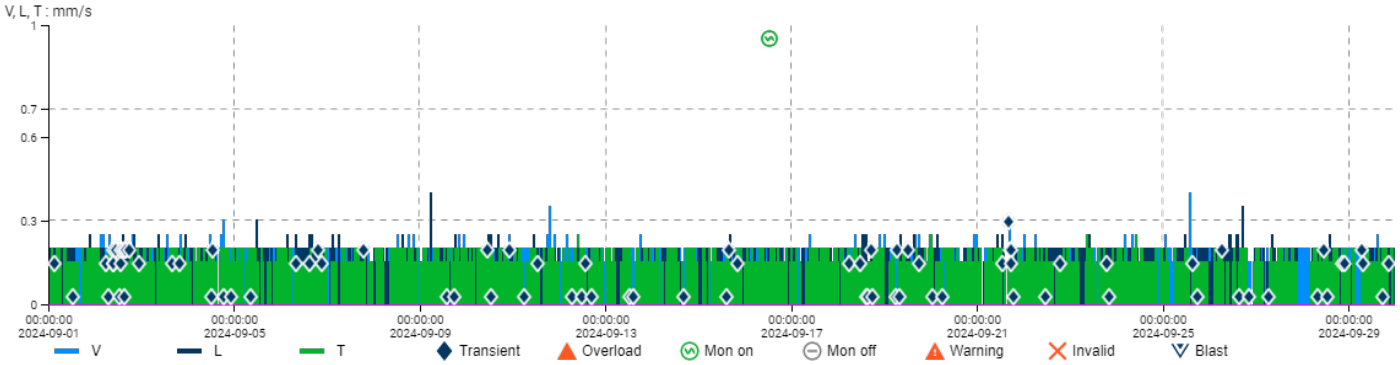
NST_2 #33720, NST V12, V12, Serial number: 33720, Calibrated: 2023-07-25, true

X-span	2024-09-01 00:00 - 2024-09-30 00:00
Y-span	V, L, T : mm/s: 0 - 1

	V	L	T
Max	0.4 mm/s	0.4 mm/s	0.25 mm/s
Date	2024-09-25	2024-09-09	2024-09-12
Time	14:04:00	05:30:00	09:26:00
Hz	128	21.5	

Interval report

Project	NST
Project maintainer	-
Time frame	2024-09-01 00:00 - 2024-09-30 00:00 (Australia/Sydney)
Measuring point	NST_2 #33720
Description	NST V12
Sensor type	V12
Sensor serial no.	33720
Master(s) serial no.	108061
Latest calibration	2023-07-25
Standard	(18) DIN4150-3 + Freq 250 mm/s 1-315Hz
Unit	mm/s
Quantity	Velocity
Interval time	2 minutes
Max	V: 0.4 mm/s, L: 0.4 mm/s, T: 0.25 mm/s



X-span	2024-09-01 00:00 - 2024-09-30 00:00
Y-span	V, L, T : mm/s: 0 - 1

	V	L	T
Max	0.4 mm/s	0.4 mm/s	0.25 mm/s
Date	2024-09-25	2024-09-09	2024-09-12
Time	14:04:00	05:30:00	09:26:00

AFJV Central Tunnel Package

Vibration Monitoring Event Report

Monitoring Information			
Test Location	[redacted]	Unsound heritage structure	YES ☐ NO ☒
Works Monitoring	SOP Site	Distance between geophone and works (m)	5m
Conducted by	[redacted]	Attended monitoring	YES ☐ NO ☒
Date/s	01.09.2024 – 30.09.2024		

Instrumentation & Test Procedure			
Instrument	Sigicom C22		
Calibrator	Sigicom		
Calibration Date	26/04/2023	Calibration Due	26/04/2025
Monitor Serial #	C22-106848		

Preferred Criteria (circle criteria relevant to monitoring event)						
	Reinforced or framed structures	Unreinforced or light framed structures	Heritage structurally sound	Heritage structurally unsound	Residential human comfort Day	Residential human comfort Night
Peak Particle Velocity (PPV mm/s)	25	(7.5)	7.5	2.5	-	-
Vibration Dose Value (VDV $m/s^{1.75}$)	-	-	-	-	0.4	0.26

Monitoring Results						
Start Time	00:00		Duration		30 Days	
Trigger value (mm/s)	5mm/s		# of vibration triggers		0	
	Trans (y)		Vert (z)		Long (x)	
	Value	Freq (Hz)	Value	Freq (Hz)	Value	Freq (Hz)
Peak Particle Velocity (PPV mm/s)	0.7	341	1.45	31	0.4	341
Vibration Dose Value (VDV mm/s1.75)	-	-	-	-	-	-
Below preferred criteria?	YES ☒ NO ☐ If "NO", provide explanation and corrective actions taken in next section					

AFJV Central Tunnel Package

Notes and Diagram/Map, Photos and Graphs

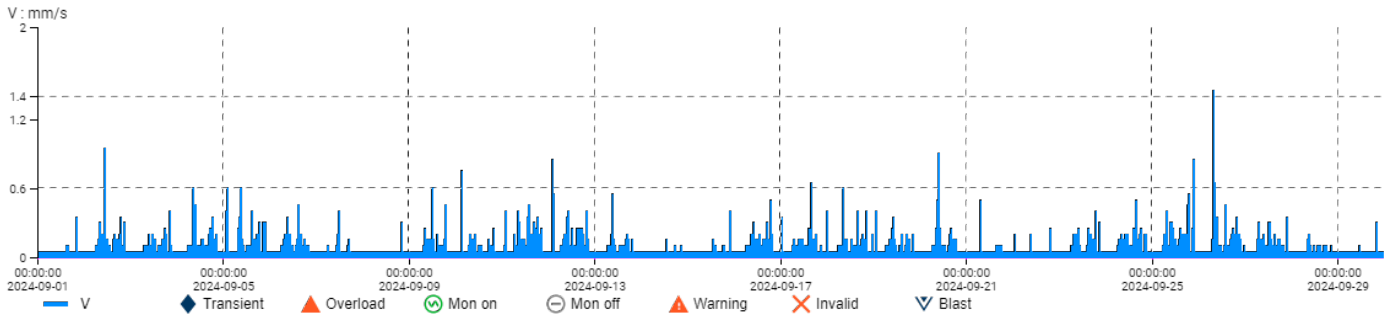
Multi report

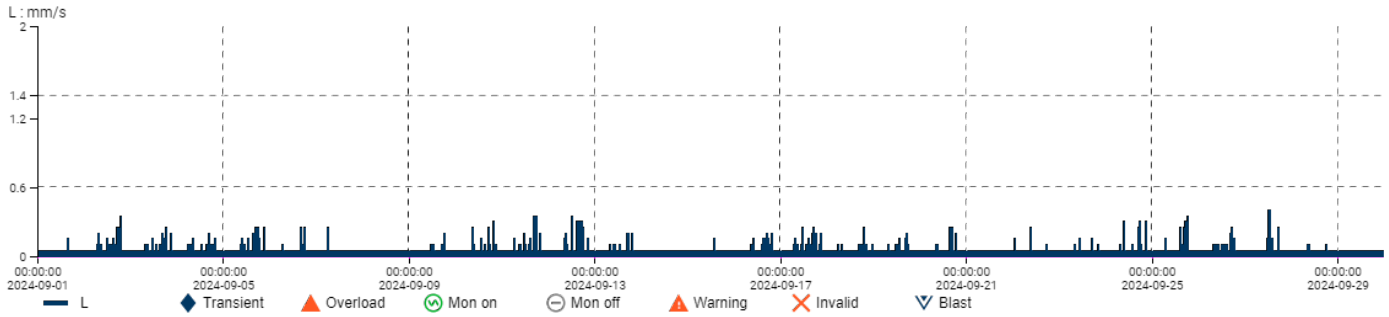
Project	SOP
Project maintainer	-
Time frame	2024-09-01 00:00 - 2024-09-30 00:00 (Australia/Sydney)

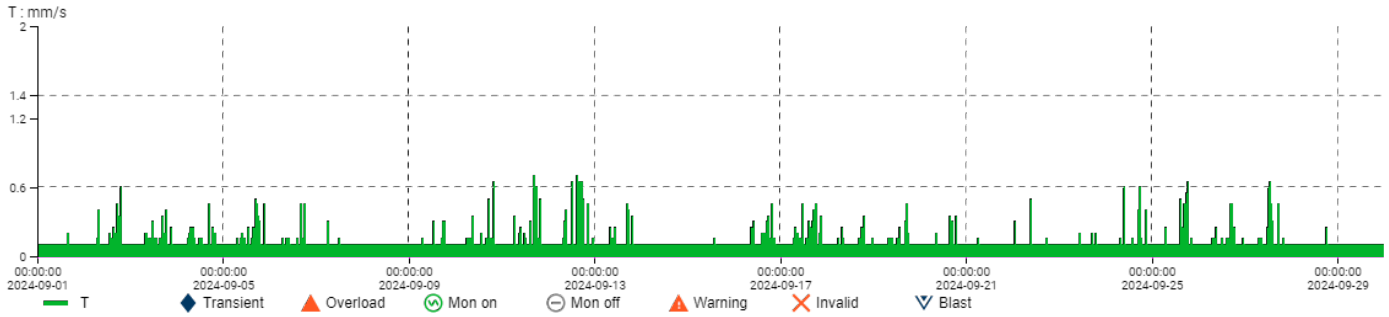
NB!

Chart data is aggregated by 4 minutes.

SOP, [redacted]r (basement), C22, Serial number: 106848, Calibrated: 2023-04-26,







X-span	2024-09-01 00:00 - 2024-09-30 00:00
Y-span	V, L, T : mm/s: 0 - 2

	V	L	T
Max	1.45 mm/s	0.4 mm/s	0.7 mm/s
Date	2024-09-26	2024-09-27	2024-09-11
Time	07:32:00	11:52:00	16:44:00
Hz	31	341	341

Interval report

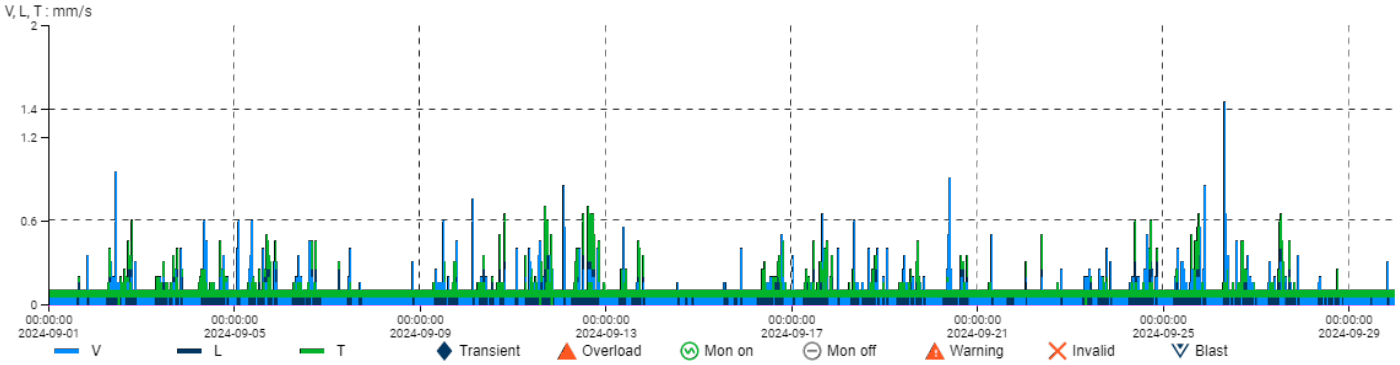
Project	SOP
Project maintainer	-
Time frame	2024-09-01 00:00 - 2024-09-30 00:00 (Australia/Sydney)

NB!

Chart data is aggregated by 4 minutes.

Measuring point	SOP
Description	[redacted]
Sensor type	C22
Sensor serial no.	106848
Master(s) serial no.	106848
Latest calibration	2023-04-26
Aggregate	max
Standard	(18A) DIN4150-3 Anlage 250mm/s 1-315Hz
Unit	mm/s
Quantity	Velocity
Interval time	2 minutes
Frequency weighting	OFF
Aggregated time	4 minutes

Max	V: 1.45 mm/s, L: 0.4 mm/s, T: 0.7 mm/s



X-span	2024-09-01 00:00 - 2024-09-30 00:00
Y-span	V, L, T : mm/s: 0 - 2

	V	**L**	**T**
Max	1.45 mm/s	0.4 mm/s	0.7 mm/s
Date	2024-09-26	2024-09-27	2024-09-11
Time	07:32:00	11:52:00	16:44:00

AFJV Central Tunnel Package

Vibration Monitoring Event Report

Monitoring Information			
Test Location	[redacted]	Unsound heritage structure	YES ☐ NO ☒
Works Monitoring	BWD North shaft excavation including excavator	Distance between geophone and works (m)	5m
Conducted by	[redacted]	Attended monitoring	YES ☐ NO ☒
Date/s	01.08.2024 – 31.08.2024		

Instrumentation & Test Procedure			
Instrument	Sigicom V12		
Calibrator	Sigicom		
Calibration Date	25/07/2023	Calibration Due	25/07/2025
Monitor Serial #	V12 – 33770		

Preferred Criteria (circle criteria relevant to monitoring event)						
	Reinforced or framed structures	Unreinforced or light framed structures	Heritage structurally sound	Heritage structurally unsound	Residential human comfort Day	Residential human comfort Night
Peak Particle Velocity (PPV mm/s)	25	7.5	7.5	2.5	-	-
Vibration Dose Value (VDV $m/s^{1.75}$)	-	-	-	-	0.4	0.26

Monitoring Results						
Start Time	00:00		Duration		31 Days	
Trigger value (mm/s)	5mm/s		# of vibration triggers		0	
	Trans (y)		Vert (z)		Long (x)	
	Value	Freq (Hz)	Value	Freq (Hz)	Value	Freq (Hz)
Peak Particle Velocity (PPV mm/s)	1.45	158	1.65	114	1.3	33
Vibration Dose Value (VDV mm/s1.75)	-	-	-	-	-	-
Below preferred criteria?	YES ☒ NO ☐ If "NO", provide explanation and corrective actions taken in next section					

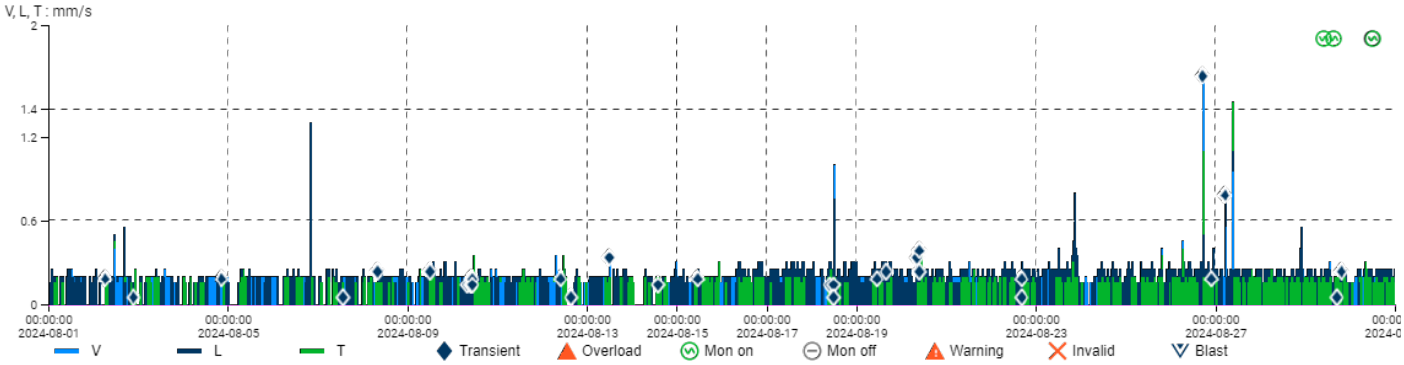
AFJV Central Tunnel Package

Notes and Diagram/Map, Photos and Graphs

Geophones located inside [redacted] against house wall.

Interval report

Project	BWD
Project maintainer	-
Time frame	2024-08-01 00:00 - 2024-08-31 00:00 (Australia/Sydney)
Measuring point	BWD_2
Description	[redacted]
Sensor type	V12
Sensor serial no.	33770
Master(s) serial no.	108062
Latest calibration	2023-07-25
Standard	(18) DIN4150-3 + Freq 250 mm/s 1-315Hz
Unit	mm/s
Quantity	Velocity
Interval time	2 minutes
Max	V: 1.65 mm/s, L: 1.3 mm/s, T: 1.45 mm/s



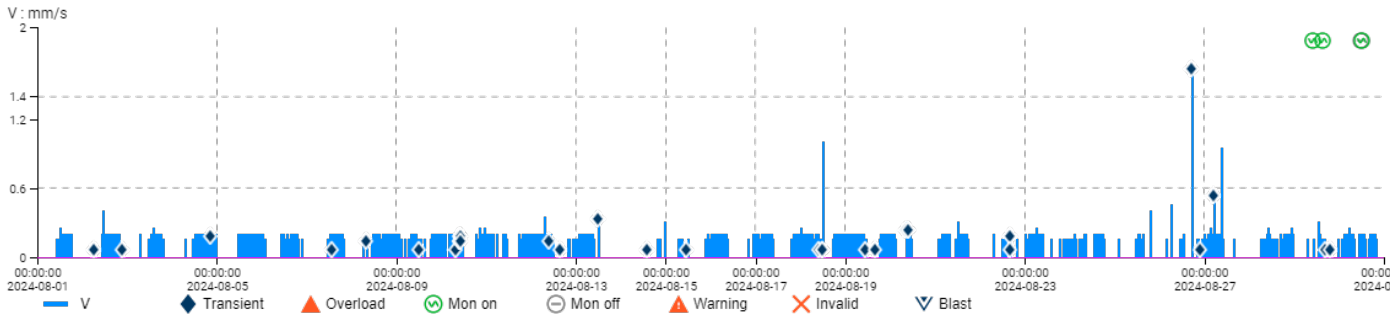
X-span	2024-08-01 00:00 - 2024-08-31 00:00
Y-span	V, L, T : mm/s: 0 - 2

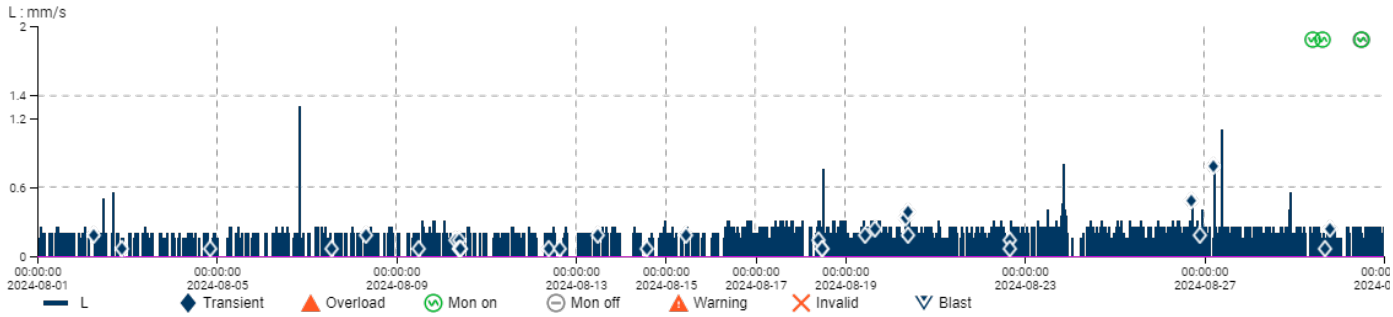
	V	L	T
Max	1.65 mm/s	1.3 mm/s	1.45 mm/s
Date	2024-08-26	2024-08-06	2024-08-27
Time	17:14:00	20:18:00	08:56:00

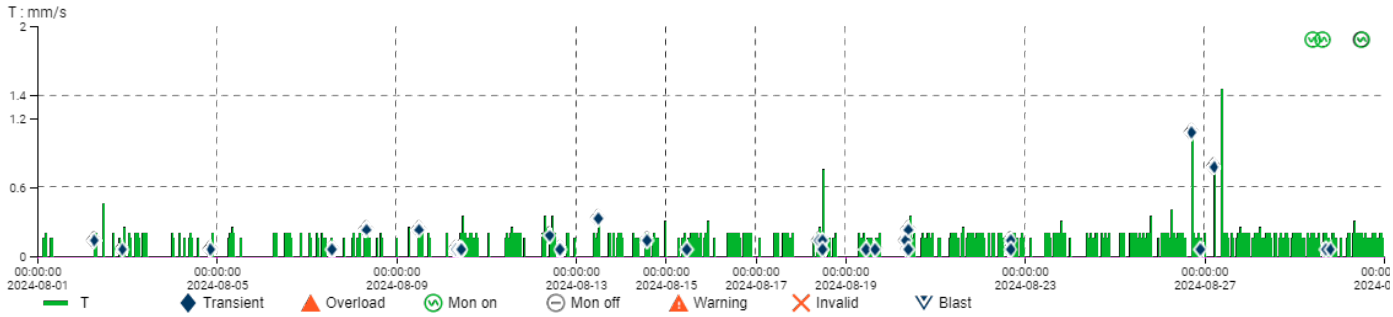
Multi report

Project	BWD
Project maintainer	-
Time frame	2024-08-01 00:00 - 2024-08-31 00:00 (Australia/Sydney)

BWD_2, [redacted] V12, Serial number: 33770, Calibrated: 2023-07-25, true







X-span	2024-08-01 00:00 - 2024-08-31 00:00
Y-span	V, L, T : mm/s: 0 - 2

	V	L	T
Max	1.65 mm/s	1.3 mm/s	1.45 mm/s
Date	2024-08-26	2024-08-06	2024-08-27
Time	17:14:00	20:18:00	08:56:00
Hz	114	33	158

APPENDIX C - SURFACE WATER MONITORING

Sydney Metro West - Central Tunnelling Package
Surface Water Monitoring

TABLE 6-4 PELIMINARY TRIGGER VALUES TO MAINTAIN WATER QUALITY OBJECTIVES

Receiving watercourse type (WQO)	Turbidity	pH	Dissolved Oxygen	Oil and grease	Electrical conductivity/Salinity
Aquatic Ecosystem (Estuarine)	0.5–10 NTU	7.0-8.5	80-110%	None visible on surface	Lowland rivers: 125–2200 µS/cm

Rev: 00	Last Updated:	14/11/2024

LEGEND

	Preliminary Trigger Value Exceedance

SW Monitoring ID	Waterway Name	Coordinates	Date	Person (Undertaking Measurements)	Sample Time	Monitoring Category	Field Measurement										
							pH	Temp (degrees)	DO (mg/L)	DO (%)	Electrical Conductivity (mS/cm)	Electrical Conductivity (µS/cm)	Turbidity (NTU)	Visual Inspection (Oil & Grease)	Current Weather Conditions	Rainfall in last 24hrs Sydney (Observatory Hill) (mm)	Rainfall in last 24hrs ydney Olympic Park AWS (Archery Centre) (mm)
WB-D/s	White Bay	-33.866245° S, 151.180450° E	9/07/2024	[redacted]	10:16 AM	Post-Rainfall Monitoring	7.89	16.62	11.77	149.3	46.6	46,600	0	Clear water	Sunny	4.2	0.2
DC-D/S	Dobroyd Canal / Iron Cove Creek	-33.870604° S, 151.141474° E	9/07/2024		2:50 PM	Post-Rainfall Monitoring	8.59	17.4	13.87	151.4	4.84	4,840	29.6	Clear water	Sunny	4.2	0.2
DC-US	Dobroyd Canal / Iron Cove Creek	-33.873828 ° S, 151.128243° E	9/07/2024		2:37 PM	Post-Rainfall Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clear water	Sunny	4.2	0.2
SLP-D/S	St Lukes Park Canal	-33.861571° S , 151.113347° E	9/07/2024		2:28 PM	Post-Rainfall Monitoring	8.24	17.7	12.23	150.4	35	35000	1.3	Clear water	Sunny	4.2	0.2
PC-U/S	Powells Creek	-33.862145° S, 151.086294° E	9/07/2024		2:13 PM	Post-Rainfall Monitoring	9.68	18.73	11.52	127.5	0.707	707	22.9	Small amount of dirt flowing in the water	Sunny	4.2	0.2
PC-D/S	Powells Creek	-33.852589° S, 151.082359° E	9/07/2024		1:52 PM	Post-Rainfall Monitoring	7.75	16.52	16.49	189.2	23.8	23,800	7.2	Clear water	Sunny	4.2	0.2
SC-D/S	Saleyards Creek	-33.852282° S, 151.081934° E	9/07/2024		1:49 PM	Post-Rainfall Monitoring	7.84	17.7	11.69	136.7	22.9	22,900	5.9	Clear water	Sunny	4.2	0.2
HC-D/S	Haslams Creek	-33.834564° S, 151.075772° E	9/07/2024		1:24 PM	Post-Rainfall Monitoring	7.85	17.08	13.97	173	39.4	39,400	0.4	Clear water	Sunny	4.2	0.2
WB-D/s	White Bay	-33.866245° S, 151.180450° E	12/08/2024		12:50 PM	Monthly Monitoring	7.66	16	N/A	91.3	49.512	49,512	5.25	Clear water	Partly cloudy	8.4	0
DC-D/S	Dobroyd Canal / Iron Cove Creek	-33.870604° S, 151.141474° E	12/08/2024		12:25 PM	Monthly Monitoring	7.81	15.6	N/A	91.1	10.178	10,178	32.4	Clear water	Partly cloudy	8.4	0
DC-US	Dobroyd Canal / Iron Cove Creek	-33.873828 ° S, 151.128243° E	12/08/2024		12:15 PM	Monthly Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clear water	Partly cloudy	8.4	0
SLP-D/S	St Lukes Park Canal	-33.861571° S , 151.113347° E	12/08/2024		12:07 PM	Monthly Monitoring	7.45	16	N/A	91.7	46.26	46260	22.45	Clear water	Partly cloudy	8.4	0
PC-U/S	Powells Creek	-33.862145° S, 151.086294° E	12/08/2024		11:52 AM	Monthly Monitoring	8.16	15.7	N/A	92.1	0.366	366	48.65	Small amount of dirt flowing in the water	Partly cloudy	8.4	0
PC-D/S	Powells Creek	-33.852589° S, 151.082359° E	12/08/2024		11:35 AM	Monthly Monitoring	7.38	14.6	N/A	93.6	10.853	10,853	51.5	Clear water	Partly cloudy	8.4	0
SC-D/S	Saleyards Creek	-33.852282° S, 151.081934° E	12/08/2024		11:32 AM	Monthly Monitoring	7.5	15.1	N/A	95.1	12.11	12,115	40.08	Clear water	Partly cloudy	8.4	0
HC-D/S	Haslams Creek	-33.834564° S, 151.075772° E	12/08/2024		11:14 AM	Monthly Monitoring	7.41	15.7	N/A	94	44.5	44,565	8.63	Clear water	Partly cloudy	8.4	0
WB-D/s	White Bay	-33.866245° S, 151.180450° E	11/09/2024		10:57 AM	Monthly Monitoring	7.49	18.81	11.84	155.2	51.1	51,100	0.5	Clear water	Sunny	0	0
DC-D/S	Dobroyd Canal / Iron Cove Creek	-33.870604° S, 151.141474° E	11/09/2024		11:21 AM	Monthly Monitoring	7.61	19.45	11.68	155.3	51.7	51,700	11.1	Clear water	Sunny	0	0
DC-US	Dobroyd Canal / Iron Cove Creek	-33.873828 ° S, 151.128243° E	11/09/2024		11:32 AM	Monthly Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clear water	Sunny	0	0
SLP-D/S	St Lukes Park Canal	-33.861571° S , 151.113347° E	11/09/2024		11:46 AM	Monthly Monitoring	7.83	20.7	10.1	136.9	50.8	50,800	17.7	Small amount of dirt flowing in the water	Sunny	0	0
PC-U/S	Powells Creek	-33.862145° S, 151.086294° E	11/09/2024		12:00 PM	Monthly Monitoring	9.02	19.64	18.01	198.1	2.36	2,360	6.4	Small amount of dirt flowing in the water	Sunny	0	0
PC-D/S	Powells Creek	-33.852589° S, 151.082359° E	11/09/2024		12:09 PM	Monthly Monitoring	7.83	18.9	10.9	139.5	45.2	45,200	4.7	Clear water	Sunny	0	0
SC-D/S	Saleyards Creek	-33.852282° S, 151.081934° E	11/09/2024		12:12 PM	Monthly Monitoring	7.65	19.06	13.27	171.1	46.4	46,400	4.8	Clear water	Sunny	0	0
HC-D/S	Haslams Creek	-33.834564° S, 151.075772° E	11/09/2024		12:29 PM	Monthly Monitoring	7.84	20.26	10.14	135.8	50	50,000	12.6	Clear water	Sunny	0	0
WB-D/s	White Bay	-33.866245° S, 151.180450° E	10/10/2024		9:05 AM	Monthly Monitoring	8	17.97	9.63	125.1	52.9	52,900	0	Clear water	Cloudy	0	0
DC-D/S	Dobroyd Canal / Iron Cove Creek	-33.870604° S, 151.141474° E	10/10/2024		9:27 AM	Monthly Monitoring	7.83	17.17	9.64	122.2	50.7	50,700	6.3	Mild turbiduity	Cloudy	0	0
DC-US	Dobroyd Canal / Iron Cove Creek	-33.873828 ° S, 151.128243° E	10/10/2024		9:36 AM	Monthly Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Clear water	Cloudy	0	0
SLP-D/S	St Lukes Park Canal	-33.861571° S , 151.113347° E	10/10/2024		9:49 AM	Monthly Monitoring	7.82	17.5	9.52	120.4	48.9	48,900	9.6	Mild turbiduity	Cloudy	0	0
PC-U/S	Powells Creek	-33.862145° S, 151.086294° E	10/10/2024		10:03 AM	Monthly Monitoring	9.43	16.07	10.72	109.4	2	2,000	0	Algae present in the flowing water. Clear water	Cloudy	0	0
PC-D/S	Powells Creek	-33.852589° S, 151.082359° E	10/10/2024		10:20 AM	Monthly Monitoring	7.5	17.1	8.44	102.5	41.4	41,400	0.3	Clear water	Cloudy	0	0
SC-D/S	Saleyards Creek	-33.852282° S, 151.081934° E	10/10/2024		10:16 AM	Monthly Monitoring	7.56	17.41	8.78	106.7	40.1	40,100	0.5	Clear water	Cloudy	0	0
HC-D/S	Haslams Creek	-33.834564° S, 151.075772° E	10/10/2024		10:35 AM	Monthly Monitoring	7.72	17.92	7.91	100.1	47.2	47,200	5.5	Mild turbiduity	Cloudy	0	0
WB-D/s	White Bay	-33.866245° S, 151.180450° E	13/11/2024		2:59 PM	Monthly Monitoring	6.61	23.22	7.5	105.5	49	49,000	0.5	Clear water	Partially Cloudy	0.6	0.6
DC-D/S	Dobroyd Canal / Iron Cove Creek	-33.870604° S, 151.141474° E	13/11/2024		2:36 PM	Monthly Monitoring	10.91	25.03	7.94	115.2	48.5	48,500	17.5	Mild turbidity	Partially Cloudy	0.6	0.6
DC-US	Dobroyd Canal / Iron Cove Creek	-33.873828 ° S, 151.128243° E	13/11/2024		2:25 PM	Monthly Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Not possible testing. Clear water	Partially Cloudy	0.6	0.6
SLP-D/S	St Lukes Park Canal	-33.861571° S , 151.113347° E	13/11/2024		2:14 PM	Monthly Monitoring	10.1	24.27	9.79	117.4	1.51	15100	40.6	Mild turbiduity. Low flow water	Partially Cloudy	0.6	0.6
PC-U/S	Powells Creek	-33.862145° S, 151.086294° E	13/11/2024		1:58 PM	Monthly Monitoring	9.41	25.52	10.57	129.8	1.65	16,500	2.1	Algae present in the flowing water. Clear water	Partially Cloudy	0.6	0.6
PC-D/S	Powells Creek	-33.852589° S, 151.082359° E	13/11/2024		1:45 PM	Monthly Monitoring	7.65	27.19	7.83	112.9	37.9	37,900	4.9	Dry creek.	Partially Cloudy	0.6	0.6
SC-D/S	Saleyards Creek	-33.852282° S, 151.081934° E	13/11/2024		1:49 PM	Monthly Monitoring	8.06	25.94	7.85	110.7	37.7	37,700	48.6	High turbidity. Dirty creek	Partially Cloudy	0.6	0.6
HC-D/S	Haslams Creek	-33.834564° S, 151.075772° E	13/11/2024		1:23 AM	Monthly Monitoring	7.33	23.76	13.75	194	47.3	47,300	7.1	Green looking water.	Partially Cloudy	0.6	0.6
WB-D/S	White Bay	-33.866245° S, 151.180450° E	3/12/2024		1:17 PM	Post-Rainfall Monitoring	8.53	26.48	6.97	102.6	46.3	46,300	0	Clear water	Cloudy	4.2	0.2
DC-D/S	Dobroyd Canal / Iron Cove Creek	-33.870604° S, 151.141474° E	3/12/2024		3:12 PM	Post-Rainfall Monitoring	7.94	26.61	5.19	75.9	44	44,000	11.6	High turbidity and Dirty	Slight Rain	4.2	0.2
DC-US	Dobroyd Canal / Iron Cove Creek	-33.873828 ° S, 151.128243° E	3/12/2024		3:21 PM	Post-Rainfall Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mild turbiduity	Cloudy	4.2	0.2
SLP-D/S	St Lukes Park Canal	-33.861571° S , 151.113347° E	3/12/2024		3:37 PM	Post-Rainfall Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	High turbidity and Dirty.	Cloudy	4.2	0.2
PC-U/S	Powells Creek	-33.862145° S, 151.086294° E	3/12/2024		3:51 PM	Post-Rainfall Monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Algae present in the flowing water.	Cloudy	4.2	0.2
PC-D/S	Powells Creek	-33.852589° S, 151.082359° E	3/12/2024		4:08 PM	Post-Rainfall Monitoring	9.57	26.73	10.24	133.2	12.7	12,700	7.5	High turbidity and Dirty	Slight Rain	4.2	0.2
SC-D/S	Saleyards Creek	-33.852282° S, 151.081934° E	3/12/2024		4:13 PM	Post-Rainfall Monitoring	9.6	26.42	7.38	101.2	28.7	28,700	12.7	High turbidity	Slight Rain	4.2	0.2
HC-D/S	Haslams Creek	-33.834564° S, 151.075772° E	3/12/2024		4:34 PM	Post-Rainfall Monitoring	10.16	26.47	7.56	107.2	22.4	22,400	12.1	Mild turbiduity	Slight Rain	4.2	0.2

APPENDIX D - GROUNDWATER MONITORING

7.1 OVERVIEW

The methodology for monitoring groundwater for the project includes:

- Assessment of groundwater level (measurement and datalogger download)
- Assessment of groundwater salinity as EC (datalogger download)
- Assessment of groundwater quality at key locations
- Assessment of WTP discharge water quality (grab samples for lab analysis and field measurements)
- Assessment of groundwater inflows (pump flow meter data)
- Implementation of quality control plan including appropriate chain-of-custody for laboratory analysis and provision of appropriate documentation.

Groundwater monitoring is to be undertaken by suitably qualified personnel at all times.

Groundwater monitoring will be undertaken in accordance with the following monitoring regime:

- Baseline monitoring will be gathered from all bores for at least two consecutive months prior to construction commencing that will interact with groundwater
- Construction monitoring will occur monthly for the first three months of construction and then quarterly thereafter
- Construction monitoring will occur at smaller intervals where the Revised Groundwater Modelling Report indicates it is required
- Continuous groundwater level and EC monitoring will only occur where recommended by the Revised Groundwater Modelling Report
- WTP discharge monitoring is outlines in Section 7.5
- Groundwater inflow monitoring is outlined in Section 7.6.

7.2 MANUAL GROUNDWATER LEVEL MEASUREMENTS

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 monitoring equipment.

The static groundwater level will be measured and recorded at each standpipe groundwater monitoring bore using an electronic groundwater level dip meter (dipper) to verify the continuous data recorded by dataloggers. The level (to the nearest millimetre) will be referenced to a known (and consistent) surveyed point at the top of the bore casing (mTOC). This measurement will be corrected to mAHD using survey data. Recorded groundwater level will be tabulated in both metres below top of bore casing (mBTOC) and mAHD.

The base of the bore will be measured and recorded periodically by lowering the dipper to the base of the bore until it touches the bottom, where possible.

7.3 CONTINUOUS GROUNDWATER LEVEL AND QUALITY (EC) MEASUREMENTS

Groundwater level (as pressure) and EC will be measured automatically by calibrated dataloggers at key monitoring locations and VWPs (pore pressure only). Continuous data (recorded every 6 hours) will be periodically validated by manual measurements. Continuous groundwater level and EC monitoring will only occur in those bores where recommended in the Revised Groundwater Modelling Report, otherwise they will be monitored quarterly.

Groundwater level/pressure measurement will be converted to mAHD using calibration coefficients, installation data, and survey data. Spreadsheets will be maintained detailing the conversion and converted groundwater level measurement.

The dataloggers will be downloaded quarterly. Dataloggers will be checked and maintained as necessary before being re-calibrated and then returned to the monitoring bore at a known depth below the top of casing.

7.4 MANUAL GROUNDWATER QUALITY SAMPLING

Groundwater quality sampling will be carried out by suitably qualified personnel at all times, in accordance with AS/NZS 5667.11:1998, and will follow these general principles:

- Sampling equipment should not change the water quality in any way; particular effort should be made to avoid cross contamination between bores and sampling equipment
- Sufficient water should be removed to ensure the sample is newly derived from the aquifer itself rather than from water that sits in the bore
- Methods of collection and storage in bottles and transportation to the laboratory should suit the type of analysis required.

Groundwater sampling may produce a potentially large volume of purged water. This water will be captured in containers and treated in the constructions WTP's or disposed of in accordance with the Waste Management Plan. To avoid large volumes of purged water, low-flow monitoring is recommended where possible. Passive sampling or no-purge sampling may be suitable in some of the monitoring bores, however, these sampling methods will only be carried out where recommended by the subject matter expert.

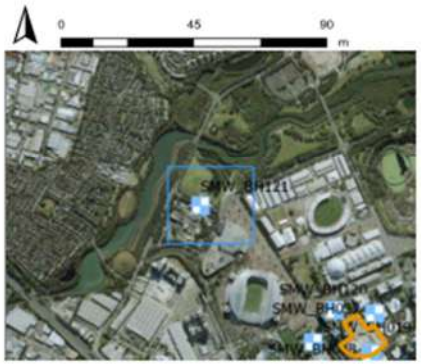
Sydney Metro West - CTP

Tunnel North West of SOP

Legend

Site boundary

Groundwater well



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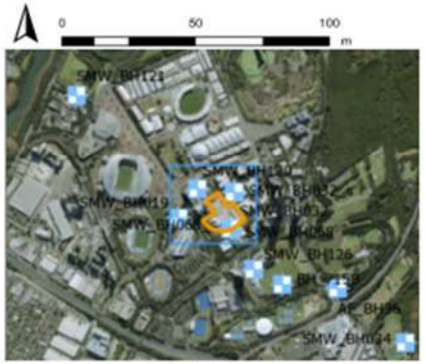
Sydney Metro West - CTP

Sydney Olympic Park

Legend

- Site boundary
- Groundwater well



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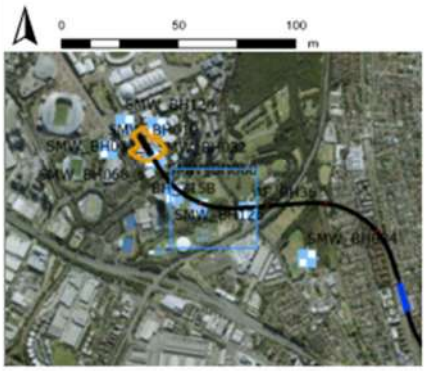
Sydney Metro West - CTP

Tunnel - Sydney Olympic Park to Nort...

Legend

- Site boundary
- Groundwater well



afJV

Sydney Metro West - CTP

North Strathfield

Legend

Site boundary

Groundwater well

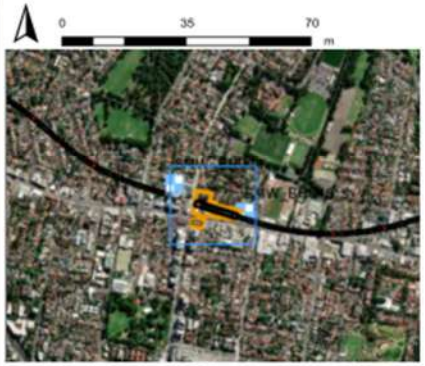
afJV

Sydney Metro West - CTP

Burwood North

Legend

- Site boundary
- Groundwater well



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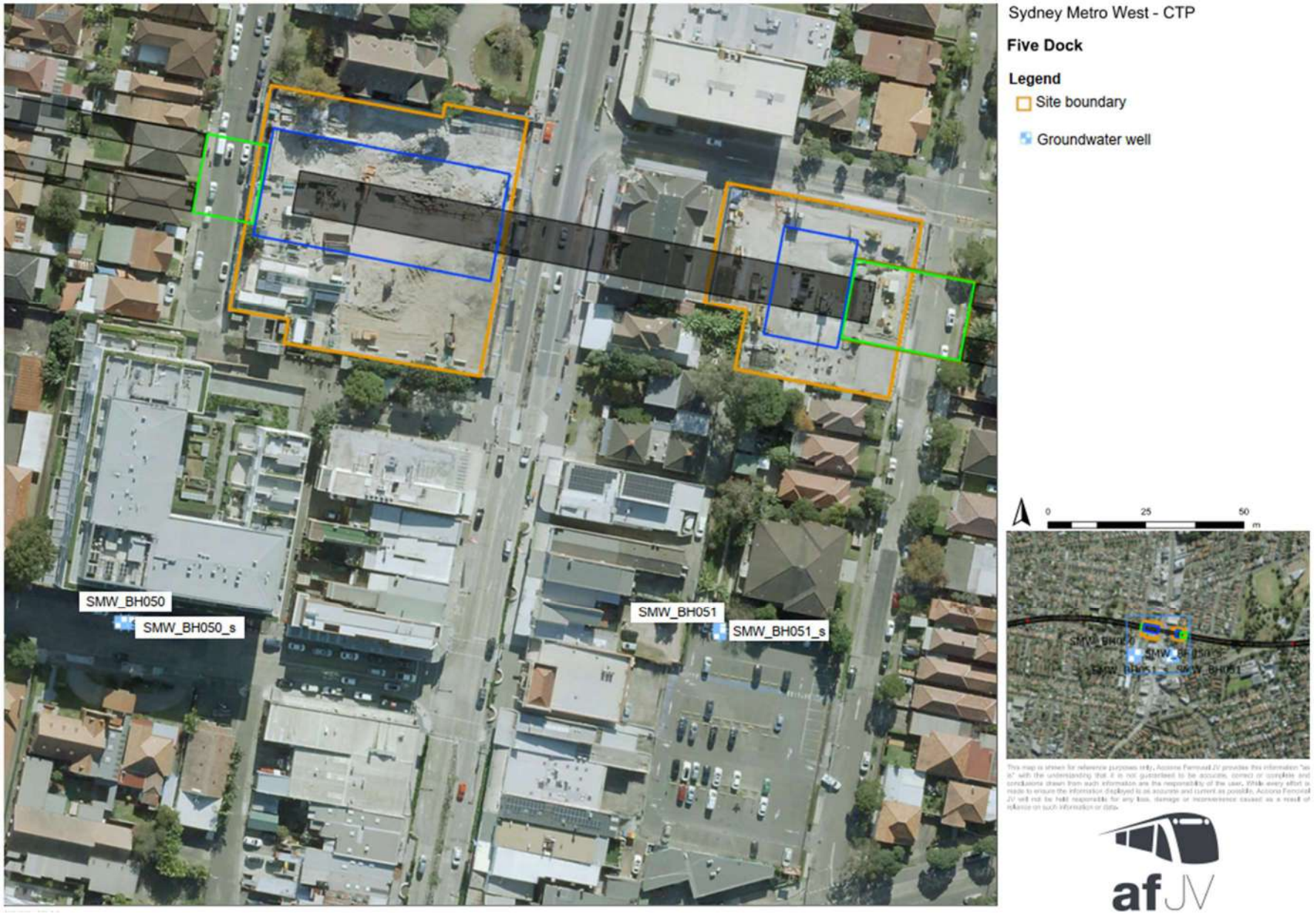
Sydney Metro West - CTP
Five Dock
Legend
Site boundary
Groundwater well
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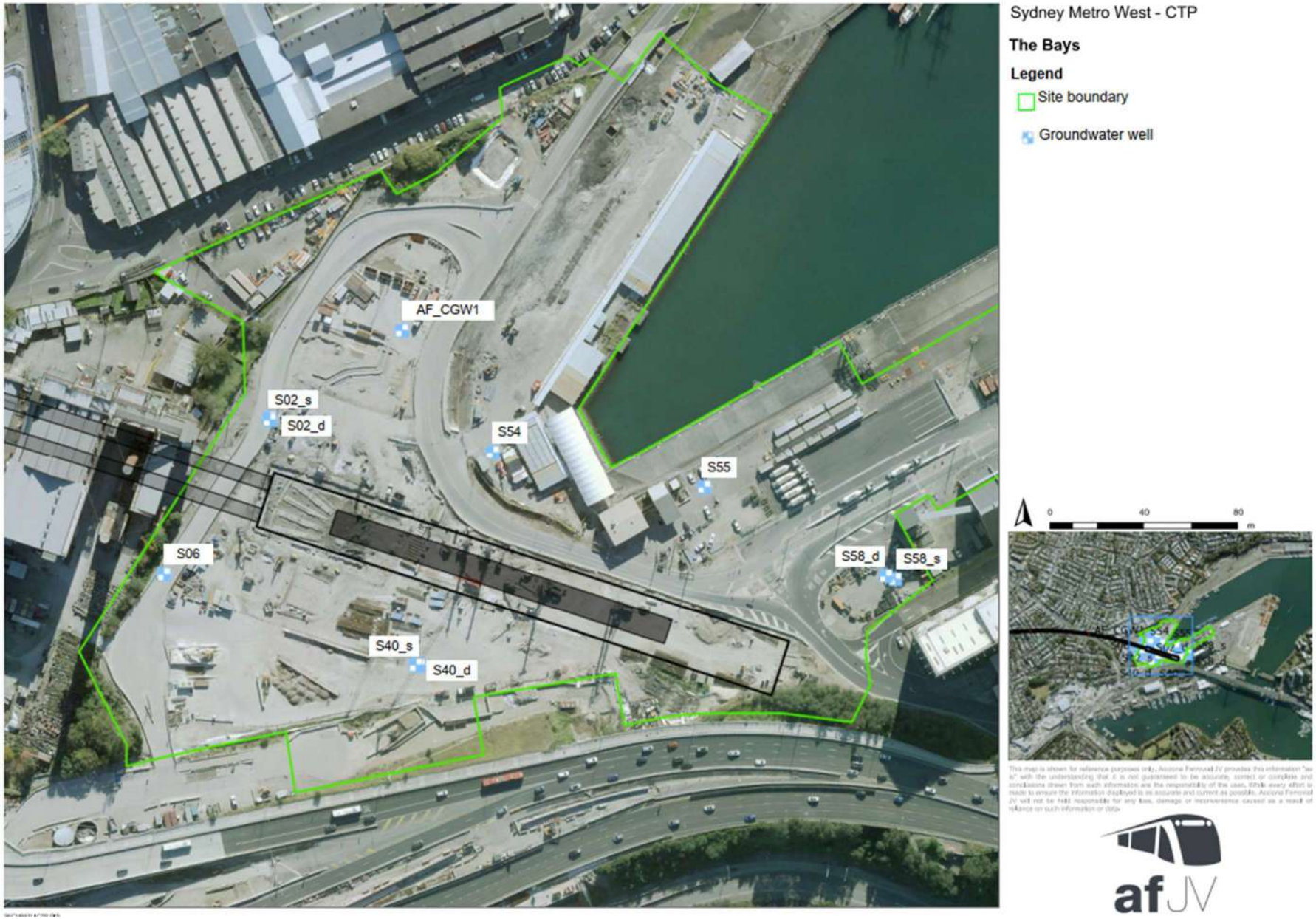
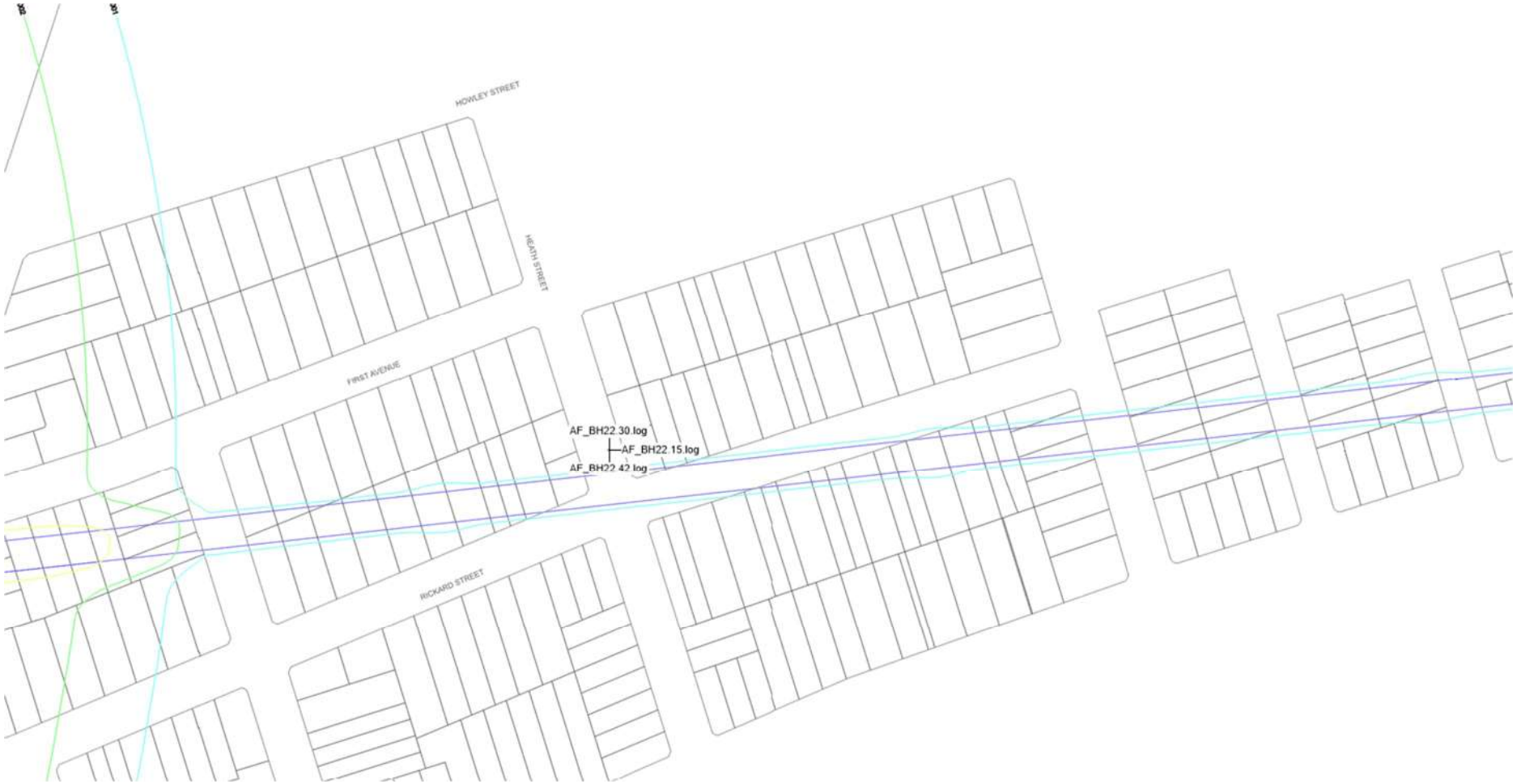
SMW_BH050_s
SMW_BH051
SMW_BH051_s
0
25
50
m


Sydney Metro West - CTP
The Bays
Legend
Site boundary
Groundwater well
AF_CGW1
S02_s
S02_d
S54
S55
S06
S58_d
S58_s
S40_s
S40_d
0
40
80
m

LIVE DATALOGGER BOREHOLES					
TBM Alignment Water Levels	**THE BAYS**	**FIVE DOCK**	**BURWOOD**	**NORTH STRATHFIELD**	**SYDNEY OLYMPIC PARK**
AF_BH26.15 AF_BH26.30 AF_BH26.42 AF_BH30.15 AF_BH30.30 AF_BH30.48 AF_BH36 AF_BH36s AF_BH37 AF_BH37s SMW_BH710_v SMW_ENV715B_w	No live dataloggers from July 2024 onwards.	SMW_BH050_s SMW_BH050_w SMW_BH051_s SMW_BH051_w R248_3103_BH141 R248_3103_BH141A	BH1326 SMW_BH044w SMW_BH046s BH1333 BH1336 BH714_s BH714_w SMW_BHCINT01 SMW_BHCINT03	SMW_BH009_s SMW_BH009_w SMW_BH035_s SMW_BH035_w SMW_BH038_w	SMW_BH019_w SMW_BH120_W SMW_ENV714_W


HENRY STREET
HENRY STREET
SCHOOL LANE
WEST STREET
SECOND AVENUE
SECOND AVENUE
SUTTON STREET
CORONATION AVENUE
SMW_BH050_w.log
SMW_BH050_s.dip
SMW_BH050_w.dip
SMW_BH050_s.log
SMW_BH051_w.log
SMW_BH051_s.dip
SMW_BH051_w.dip
SMW_BH051_s.log


HOWLEY STREET
HEATH STREET
FIRST AVENUE
RICKARD STREET
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AF_BH22.15.log
AF_BH22.42.log


SMW_BH044w.dip
SMW_BH044w.log
BN_W1.log
BN_W1.dip
SMW_BH046s.log
SMW_BH046s.dip
SMW_BH046w.log
SMW_BH046w.dip
BH1326.log
BH1326.dip
BH1333.dip
BH714_w.log
BH714_w.dip
BH714_s.log
BH714_s.dip
SMW_I1.dip
BH1336.log
BH1336.dip

North Strathfield:


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AF_BH33_w.dip
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SMW_BH039.1_v
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SMW_BH035_w.dip
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SMW_BH035_w.log
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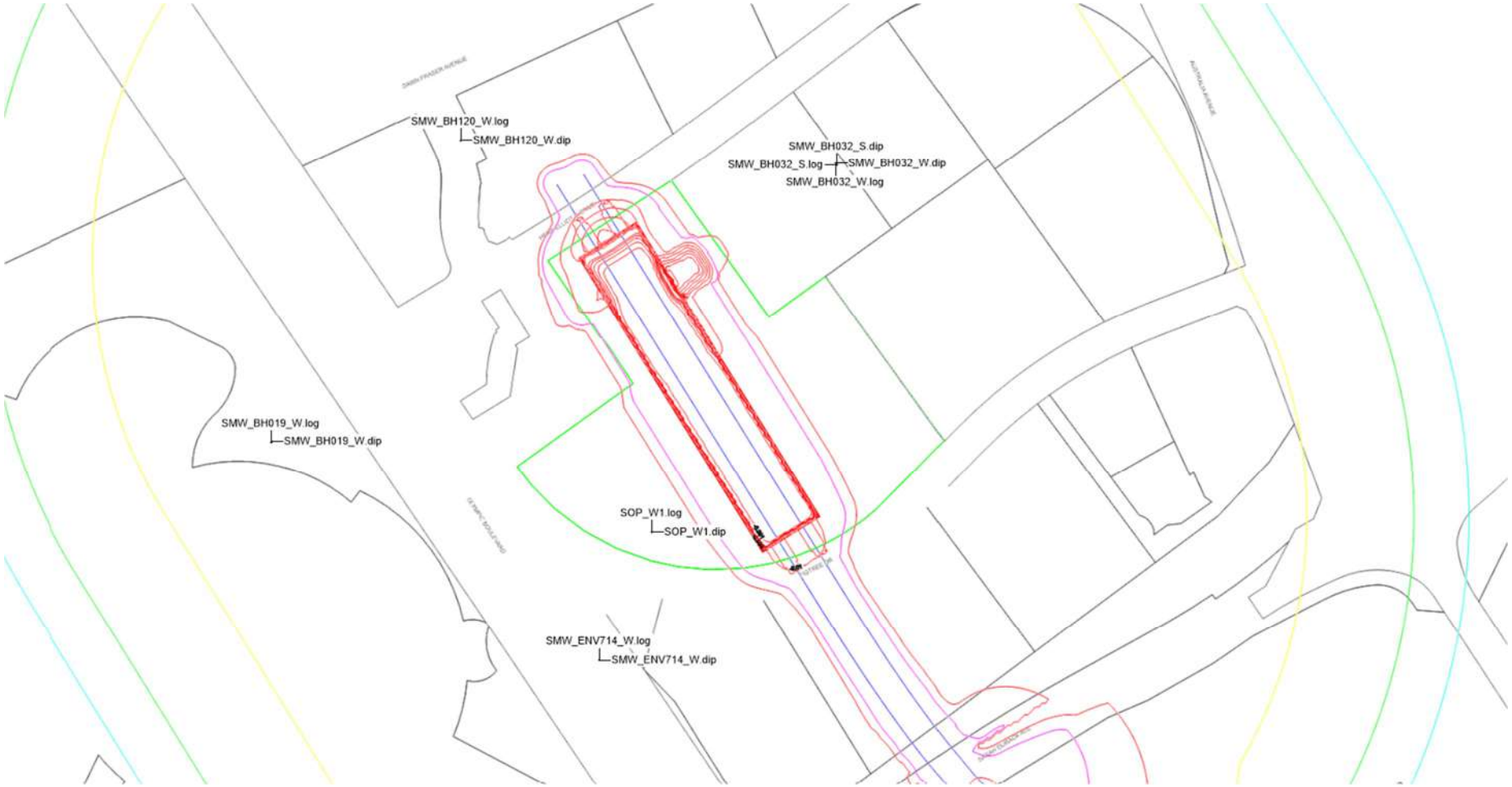
SMW_BH009_w.dip
SMW_BH036_v.log

Sydney Olympic Park: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SOP_W1.dip
SMW_ENV714_W.log
SMW_ENV714_W.dip


SOP_W1.log
SOP_W1.dip
/714_W.log
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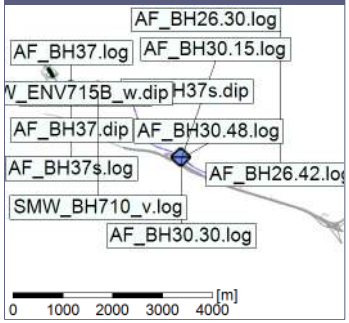
AF_BH36s.log
AF_BH36.log
SMW_BH069_w.dip
SMW_BH069_w.log

Project: Kronos MetroCTP
Construction: TBM Alignment Water Levels
Location:

Water Level - Time Related Diagram

1/07/2024
30/12/2024

Plan View



New zero measurements

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- SMW_ENV715B_w.dip
  25/07/2022 12:59 PM
- SMW_BH710_v.log
  28/06/2024 8:00 AM
- AF_BH37s.log
  9/02/2022 2:10 PM
- AF_BH37s.dip
  26/06/2024 10:35 AM
- AF_BH37.log
  9/02/2022 2:15 PM
- AF_BH37.dip
  26/06/2024 10:32 AM

...

Remarks

AF_BH26.15.log
AF_BH26.30.log
AF_BH26.42.log
AF_BH30.15.log
AF_BH30.30.log
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AF_BH37.dip
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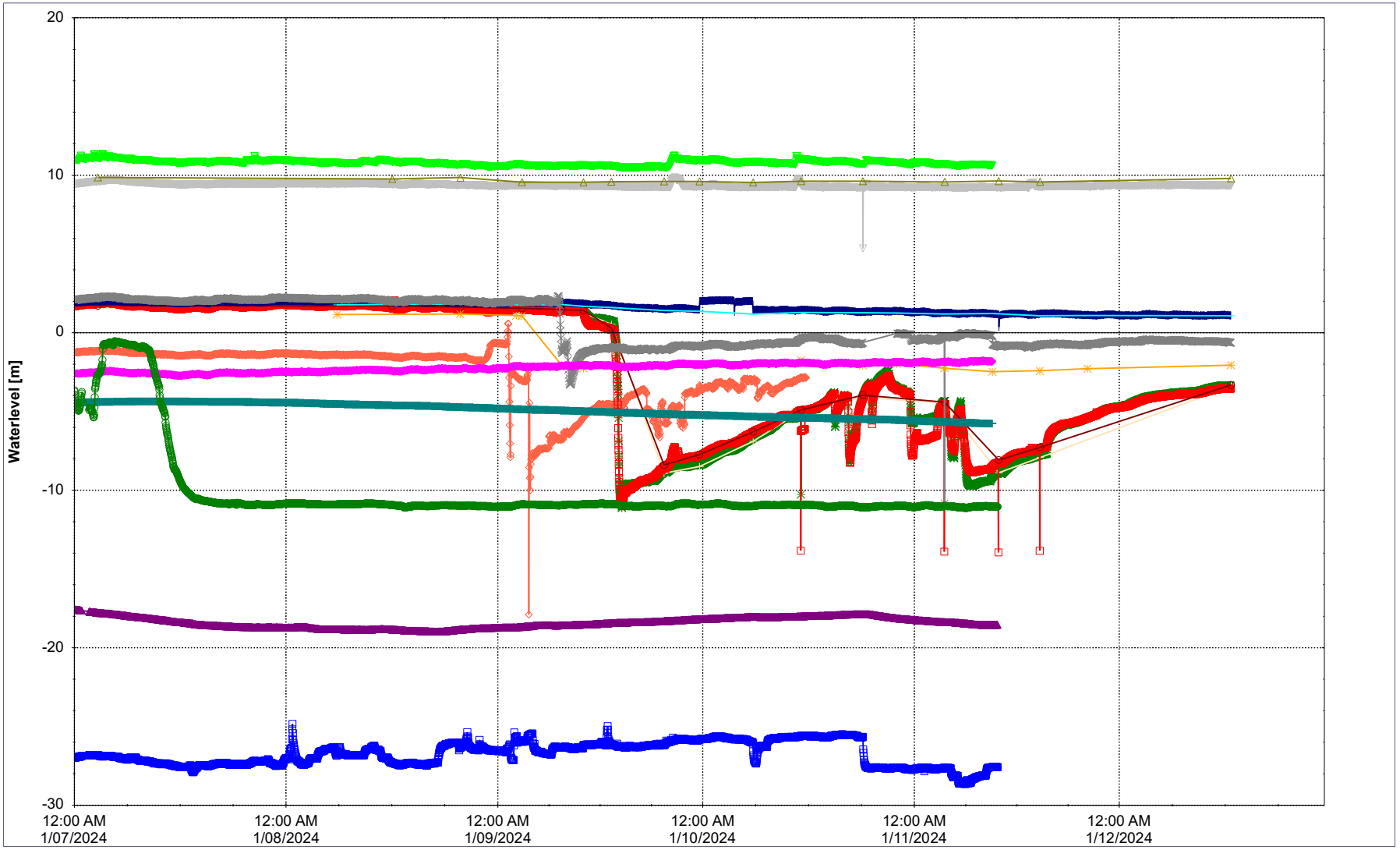


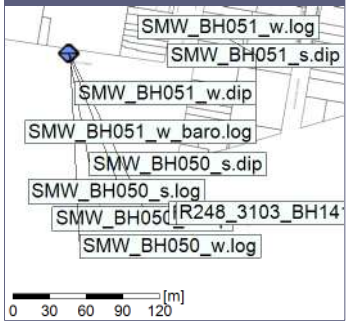
Project: Kronos MetroCTP
Construction: FDK Water Levels
Location:

GEODATA

Water Level - Time Related Diagram

1/07/2024
30/12/2024

Plan View

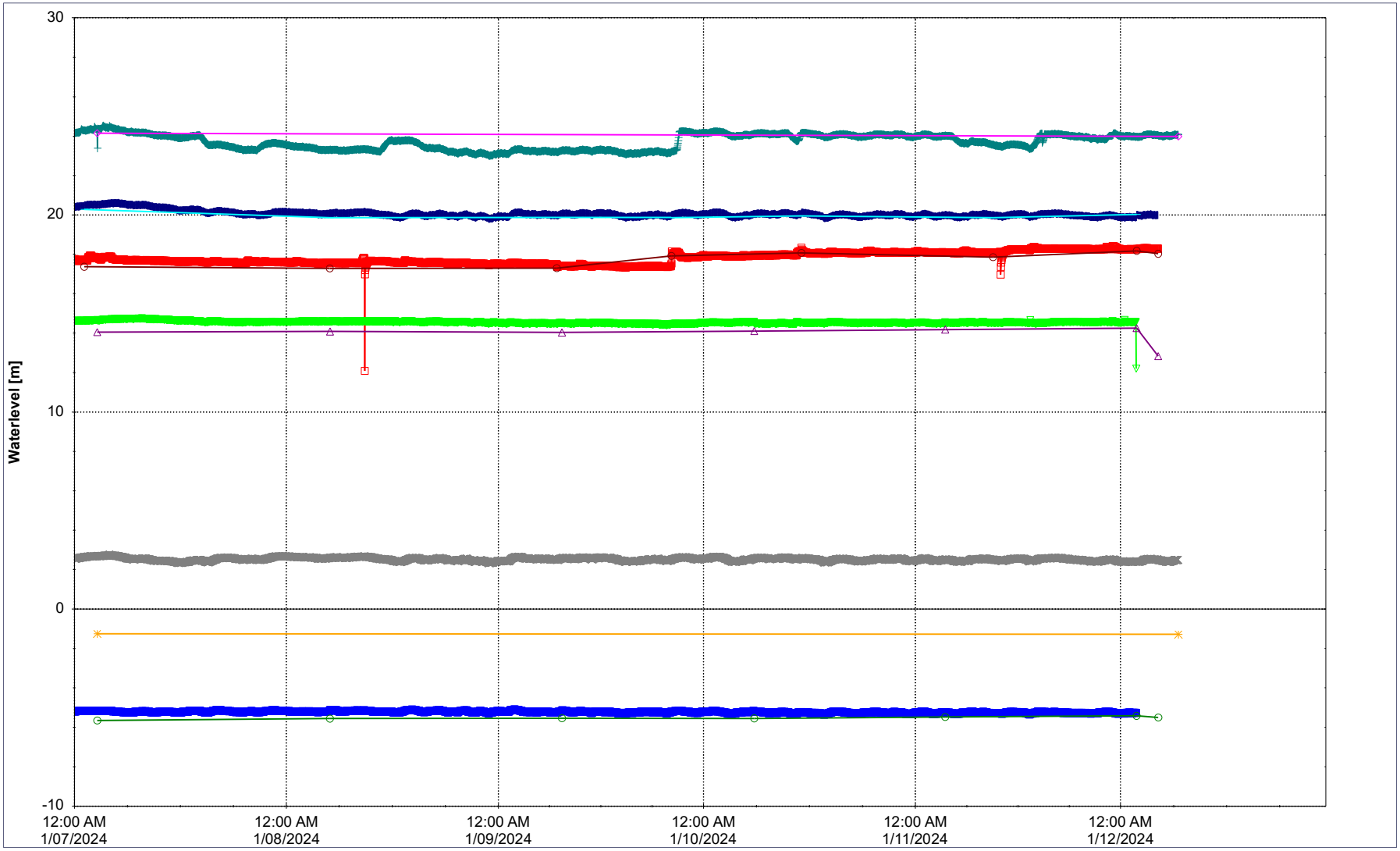


New zero measurements

- SMW_BH051_w_baro.log
  4/10/2018 7:00 AM
- SMW_BH051_w.log
  8/08/2018 7:00 PM
- SMW_BH051_w.dip
  7/12/2022 9:38 AM
- SMW_BH051_s.log
  8/08/2018 9:00 AM
- SMW_BH051_s.dip
  7/12/2022 9:42 AM
- SMW_BH050_w.log
  15/08/2018 11:00 AM
- SMW_BH050_w.dip
  25/08/2022 12:41 PM

...

Remarks



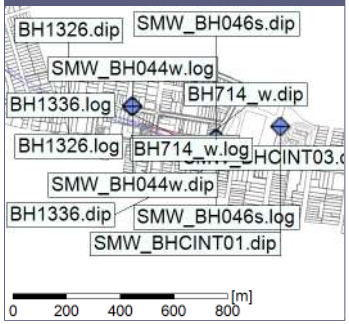
Project: Kronos MetroCTP
Construction: BUR Water Levels
Location:

GEODATA

Water Level - Time Related Diagram

1/07/2024
30/12/2024

Plan View

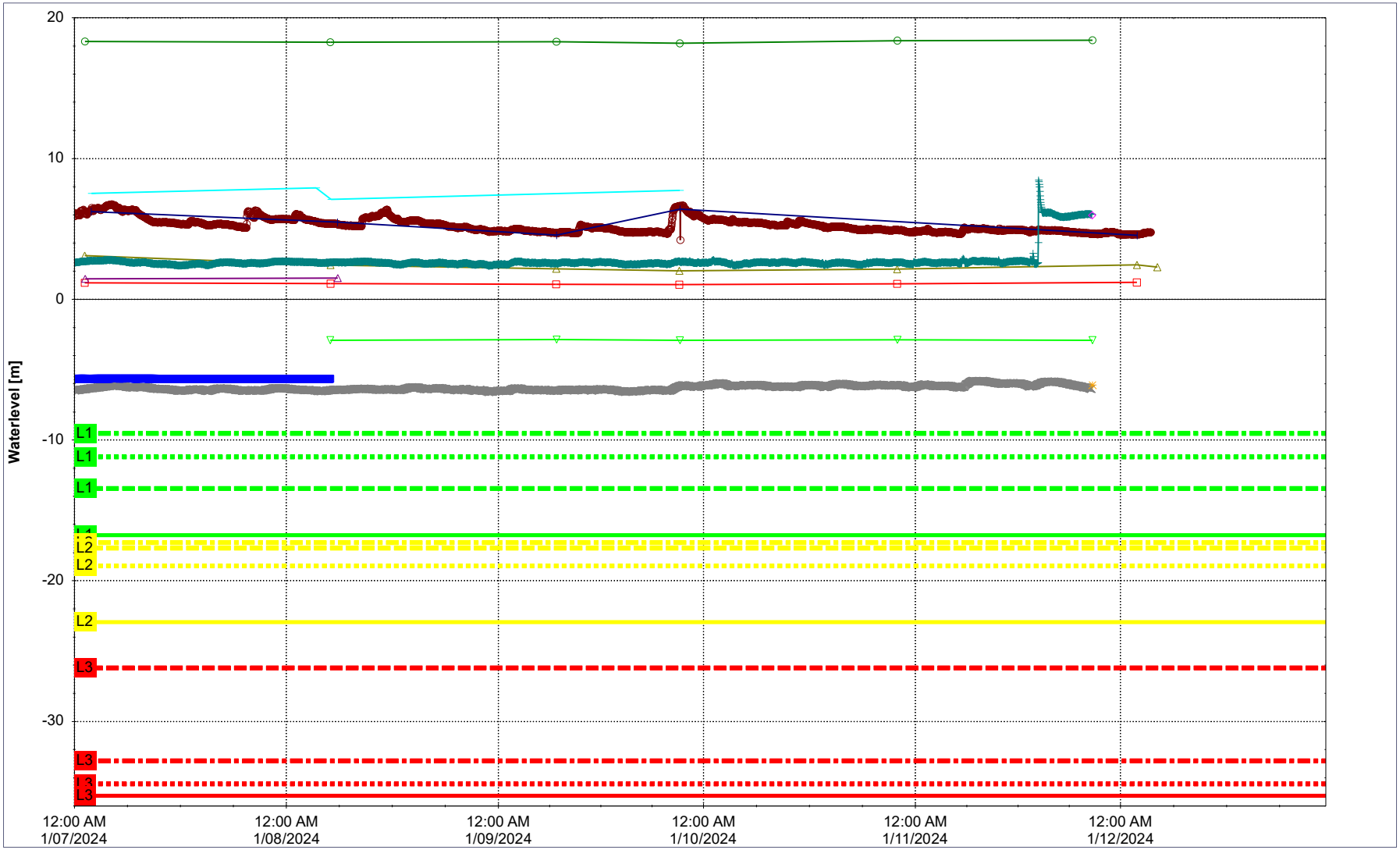


New zero measurements

- SMW_BHCINT03.dip
  5/01/2023 9:00 AM
- SMW_BHCINT01.dip
  5/01/2023 8:50 AM
- SMW_BH046s.log
  16/01/2019 12:00 PM
- SMW_BH046s.dip
  3/08/2022 8:00 AM
- SMW_BH044w.log
  24/09/2018 8:00 AM
- SMW_BH044w.dip
  22/11/2022 11:35 AM
- BH714_w.log
  19/03/2021 5:00 AM

...

Remarks



Project: Kronos MetroCTP
Construction: NST Water Levels
Location:

Water Level - Time Related Diagram

1/07/2024
30/12/2024

Plan View

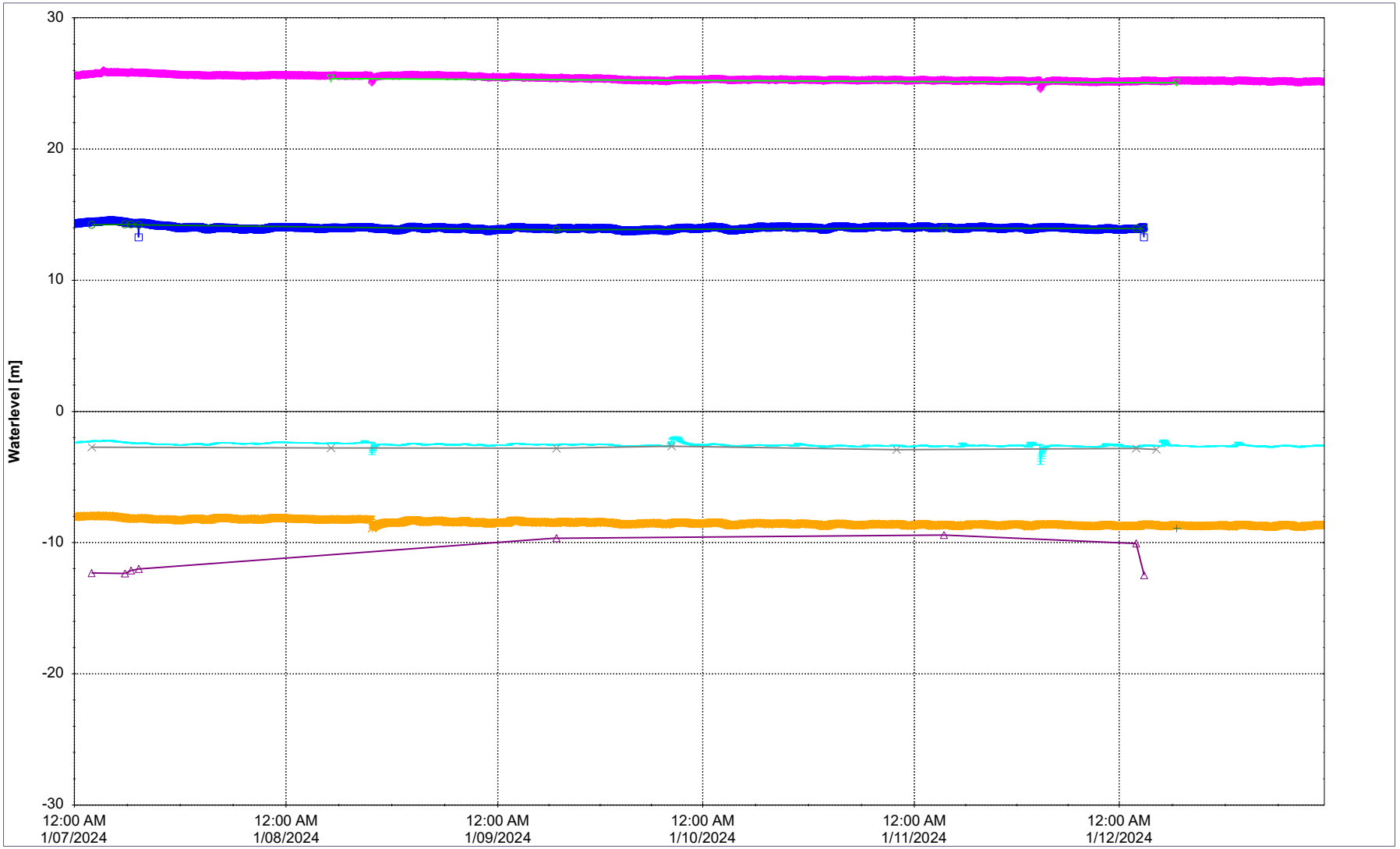
New zero measurements

- SMW_BH038_w.log
  24/09/2018 8:00 AM
- SMW_BH038_w.dip
  7/12/2022 10:53 AM
- SMW_BH035_w.log
  7/09/2018 2:00 PM
- SMW_BH035_w.dip
  2/03/2023 1:35 PM
- SMW_BH035_s.log
  30/08/2018 1:00 PM
- SMW_BH035_s.dip
  27/01/2023 3:19 PM
- SMW_BH009_w.dip
  10/11/2022 9:50 AM

...

Remarks

SMW_BH009_s.dip
SMW_BH009_s.log
SMW_BH009_w.dip
SMW_BH035_s.dip
SMW_BH035_s.log
SMW_BH035_w.dip
SMW_BH035_w.log
SMW_BH038_w.dip
SMW_BH038_w.log



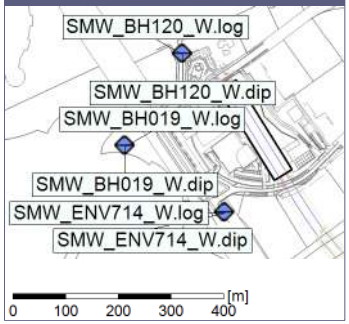
Project: Kronos MetroCTP
Construction: SOP Water Levels
Location:

GEODATA

Water Level - Time Related Diagram

1/07/2024
30/12/2024

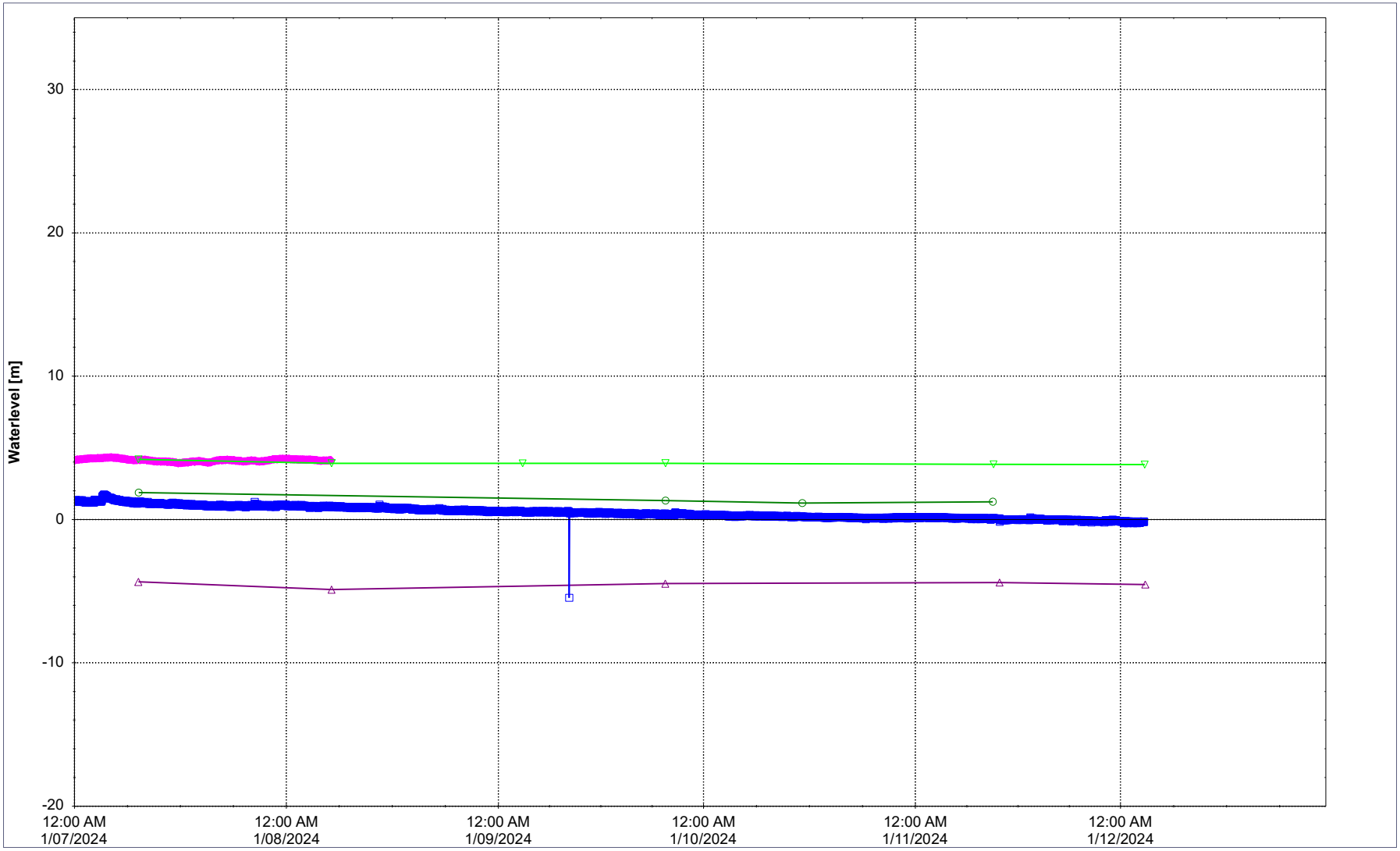
Plan View



New zero measurements

- SMW_ENV714_W.log
  31/03/2021 8:00 PM
- SMW_ENV714_W.dip
  8/09/2022 12:20 PM
- SMW_BH120_W.log
  4/10/2019 7:00 AM
- SMW_BH120_W.dip
  8/09/2022 11:13 AM
- SMW_BH019_W.log
  12/11/2018 10:00 AM
- SMW_BH019_W.dip
  29/09/2022 8:36 AM

Remarks



Site			Sydney Olympic Park																								
Month			Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Nov-24	Jun-23	Mar-23	Sep-23	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Nov-24	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24
Borehole numbers	Trigger values	Unit	SMW_BH120								BH032	SMW_BH068d		SMW_BH126								AF_BH36					
Calcium - Dissolved	499.2	mg/L	180	250	210	210	200	310	210	200	41	25	35	31	29	37	43	33	11	38	24	20	2	3	1	0.6	1
Potassium - Dissolved	504	mg/L	45	52	52	54	56	70	48	49	12	4	9	350	210	400	380	410	4	340	120	66	8	8.1	8.3	5.6	6.5
Sodium - Dissolved	4032	mg/L	3000	2900	3300	3500	3500	4800	3000	3000	34	26	29	2100	920	2300	2100	2100	6.3	1900	600	1000	360	400	430	360	360
Magnesium - Dissolved	568.8	mg/L	340	420	470	490	460	680	460	420	4	2	3	60	40	81	80	70	1	86	24	3	8.6	9.5	8.3	4	7.1
Hardness	2760	mgCaCO3	1900	2300	2500	2600	2400	3600	2400	2200	120	68	99	320	240	430	430	370	34	450	160	64	40	48	38	18	33
Hydroxide Alkalinity (OH-) as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	1800	mg/L	610	570	670	640	680	660	670	660	160	110	130	1200	770	1600	2000	1800	44	1600	510	60	81	110	78	32	37
Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	27	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	1800	mg/L	610	570	670	640	680	660	670	660	160	110	130	1200	770	1600	2000	1800	44	1600	510	87	81	110	78	32	37
Sulphate, SO4	660	mg/L	530	550	480	550	470	550	560	630	17	52	24	2	3	7	2	6	4	2	4	170	470	420	380	210	270
Chloride, Cl	8100	mg/L	6000	6200	6000	6200	5300	6100	5800	6600	44	20	31	3400	1900	4000	3300	3100	10	3000	1100	1900	340	310	300	310	310
Ionic Balance	22.8	%	-7	-6	0	2	7	18	-2	-9	-7	-19	-7	-6	-16	-10	-9	-7	-9	-7	-10	-10	-11	-3	4	9	4
Ammonia (as N in water)	348	mg/L	0.08	0.016	1.3	0.87	0.73	0.91	1	1	0.83	<0.005	0.44	210	110	300	290	270	0.13	270	76	2	0.057	0.031	0.014	0.01	0.042
Nitrate as N in water	3.72	mg/L	0.85	2.7	0.32	0.48	0.59	0.6	0.46	0.7	0.15	0.02	0.56	0.077	3.1	<0.005	<0.005	0.05	0.2	0.28	2.8	0.01	0.14	1.1	0.15	0.23	0.24
Total Nitrogen in water	372	mg/L	1.3	3	1.7	1.4	1.4	1.7	1.8	1.8	1.1	0.2	1.6	220	120	320	340	320	0.8	320	100	3.1	0.5	0.5	0.6	0.6	1.2
Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	3.6	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	15.6	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	2	<1	13	3	<1	9	1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	76.8	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	44	18	<1	69	12	<1	82	6	<1	<1	<1	<1	<1	<1
Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	24	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	3.6	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	42	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	29	9.9	<1	51	10	1	31	4	<1	<1	<1	<1	<1	<1
Ethylbenzene	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	14	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	2.4	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<1	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Styrene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-xylene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	6	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	1	<1	5	1	<1	3	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	6	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	4	<1	<1	3	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	264	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	45	<1	180	62	<10	210	12	<10	<10	<10	62	10	<10
TRH C6 - C10	300	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	49	110	200	73	<10	240	13	<10	<10	<10	75	28	<10
TRH C6 - C10 lessBTEX (F1)	216	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100	26	130	130	61	<10	160	<10	<10	<10	<10	62	28	<10
Benzene	76.8	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	44	23	110	69	12	<1	82	6	<1	<1	<1	13	<1	<1
Toluene	3.6	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	24	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
Ethylbenzene	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	2.4	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<10	<2	<1	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-xylene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<2	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	28.8	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	12	2	<1	15	4	<1	13	<1	<1	<1	<1	3	<1	<1
TRH C10 - C14	996	µg/L	<50	110	<50	<50	<50	<50	<50	<50	110	<50	100	520	280	3	550	510	<50	580	67	180	<50	<50	510	<50	<100
TRH C15 - C28	1800	µg/L	<100	170	<100	<100	<100	<100	<100	<100	170	<100	140	1100	740	1100	1300	1400	<100	1200	180	150	<100	<100	1400	<100	<200
TRH C29 - C36	132	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	110	100	2300	110	150	<100	190	<100	<100	<100	<100	150	<100	<200
Total +ve TRH (C10-C36)	2760	µg/L	<50	280	<50	<50	<50	<50	<50	<50	280	<50	240	1700	1100	170	1900	2000	<50	1900	250	330	<50	<50	2000	<50	<100
TRH >C10 - C16	1320	µg/L	<50	140	<50	<50	<50	<50	<50	<50	140	<50	130	700	360	3600	740	690	<50	740	89	190	<50	<50	690	<50	<100
TRH >C10 - C16less Naphthalene (F2)	1320	µg/L	<50	140	<50	<50	<50	<50	<50	<50	140	<50	130	680	360	1400	720	690	<50	720	89	190	<50	<50	690	<50	<100
TRH >C16 - C34	1440	µg/L	<100	130	<100	<100	<100	<100	<100	<100	130	<100	100	940	690	1400	1100	1200	130	1100	170	140	<100	<100	1200	<100	<200
TRH >C34 - C40	240	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	2000	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<200
Total +ve TRH (>C10-C40)	2760	µg/L	<50	270	<50	<50	<50	<50	<50	<50	270	<50	230	1600	1100	<100	1800	1900	130	1900	260	320	<50	<50	1900	<50	<100
Naphthalene	28.8	µg/L	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	10	2	8.2	13	0.3	0.6	12	0.3	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.12	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.12	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.2	0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2
Benzo(a)pyrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5
Total +vePAH's	21.6	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	11	1.9	8.4	13	0.27	0.62	12	0.27	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	0.264	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.22	<0.01	2	3.8	0.85	<0.01	0.59	0.05	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.192	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.14	0.06	0.13	0.11	0.13	<0.01	0.07	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.468	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.39	0.14	0.13	0.22	0.22	<0.01	0.1	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	0.012	µg/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	<0.01	0.28	<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	0.276	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.2	0.12	<0.01	0.15	0.23	0.01	0.09	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	0.192	µg/L	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.17	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
Perfluorobutanoic acid	2.4	µg/L	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	0.02	1.8	0.83	<0.02	1.5	1.5	<0.02	0.68	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	0.528	µg/L	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	0.41	<0.02	2.1	<0.1	0.1	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	1.068	µg/L	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	<0.01	0.63	0.32	0.3	0.6	0.71	<0.01	0.28	0.11	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	0.264	µg/L	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	0.21	0.08	0.8	0.19	0.18	<0.01	0.07	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.78	µg/L	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.48	0.27	0.23	0.46	0.46	<0.01	0.22	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid	0.12	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.04	0.45	0.05	0.06	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.06	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.2	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5
4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01
6:2 FTS	0.192	µg/L	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01	<0.05	<0.01	0.01	0.16	<0.01	0.02	0.04	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01
8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.1	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<0.1	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	0.5	µg/L	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<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	<0.1	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	5	µg/L	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	0.12	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.1	0.05	<0.02	0.2	0.1	<0.02	0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.708	µg/L	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.59	0.25	0.45	0.37	0.45	0.01	0.2	0.09	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	1.032	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.68	0.38	0.62	0.61	0.69	0.01	0.31	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	5.64	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.06	0.24	0.07	4.7	1.9	6.7	7.2	4.5	0.01	2.2	0.63	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic-Dissolved	32.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	2	4	4	3	<1	3	1	2	1	2	<1	<1	1
Boron-Dissolved	2280	µg/L	100	100	100	40	100	100	90	80	40	30	30	1500	870	1800	1800	1600	20	1600	540	40	100	100	200	280	220
Barium-Dissolved	6840	µg/L	96	110	60	50	56	66	52	65	39	55	20	950	540	1300	1100	1100	32	1300	330	200	12	13	9	10	9
Beryllium-Dissolved	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	2	1	1	1	2
Cadmium-Dissolved	0.12	µg/L	<0.1	0.1	0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.1	<0.1	0.1
Chromium-Dissolved	19.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	14	11	19	24	19	3	17	6	<1	<1	<1	<1	2	<1
Copper-Dissolved	13.2	µg/L	7	11	7	10	<1	2	4	3	<1	1	2	2	2	<1	<1	3	9	2	5	2	3	5	3	4	5
Cobalt-Dissolved	13.2	µg/L	2	<1	17	27	14	14	19	19	<1	<1	<1	8	5	16	11	9	2	10	3	<1	36	32	33	16	26
Mercury-Dissolved	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	357.6	µg/L	140	23	350	420	290	230	360	240	130	20	22	32	51	33	26	43	14	87	33	<5	1800	1600	2000	680	1000
Molybdenum-Dissolved	74.4	µg/L	7	9	3	1	<1	12	2	3	<1	7	1	3	4	5	2	3	1	4	3	26	<1	<1	<1	<1	<1
Nickel-Dissolved	58.8	µg/L	21	18	9	20	16	67	36	26	9	1	8	25	22	42	28	29	7	39	18	4	25	23	25	12	19
Lead-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	2	<1	1	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	4.8	µg/L	<1	2	1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	4	<1	<1	<1	<1	<1
Selenium-Dissolved	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin-Dissolved	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	216	µg/L	110	180	15	18	2	16	18	10	7	<1	40	17	24	8	25	10	35	9	24	2	110	100	67	46	70
Iron-Dissolved	6936	µg/L	<10	<10	<10	<10	760	<10	<10	<10	980	<10	340	210	2000	280	410	290	580	560	1200	10	10	10	30	270	30
Arsenic-Total	9.6	µg/L	<1	1	1	1	<1	<1	<1	<1	<1	5	<1	5	3	12	9	5	1	5	2	2	10	25	10	4	4
Boron-Total	2040	µg/L	100	100	100	80	70	100	80	80	30	30	40	1600	850	1900	2300	1800	30	1700	420	30	220	50	230	230	200
Barium-Total	7080	µg/L	93	150	100	91	71	100	93	100	38	210	26	1200	540	2100	1400	1100	42	1500	260	220	350	570	140	94	83
Beryllium-Total	1.08	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	3	0.9	<0.5	<0.5	<0.5	<0.5	<0.5	9	15	7	4	5
Cadmium-Total	0.48	µg/L	<0.1	0.2	0.2	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	1.6	0.5	<0.1	<0.1	0.2	<0.1	<0.1	0.6	0.8	0.3	0.2	0.1
Chromium-Total	63.6	µg/L	4	33	9	16	6	5	9	5	5	17	3	30	30	200	99	41	7	27	9	6	26	91	31	12	11
Copper-Total	49.2	µg/L	9	41	89	37	24	7	16	29	13	36	16	8	17	110	35	19	19	17	21	14	120	360	120	63	50
Cobalt-Total	50.4	µg/L	3	4	25	33	14	16	18	21	2	9	1	11	6	190	60	16	3	17	5	<1	79	150	70	37	43
Mercury-Total	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	0.07
Manganese-Total	312	µg/L	160	200	460	540	280	250	300	310	140	260	50	53	68	810	230	85	21	140	51	<5	3600	5000	3000	1400	1400
Molybdenum-Total	74.4	µg/L	8	9	4	3	2	16	2	5	1	7	2	3	5	3	1	3	1	3	3	25	1	5	2	<1	<1
Nickel-Total	64.8	µg/L	22	36	16	40	18	89	37	44	17	17	11	32	29	110	46	36	9	40	19	6	80	210	80	35	35
Lead-Total	74.4	µg/L	<1	10	8	5	2	<1	5	3	2	12	1	8	7	280	96	16	6	26	5	<1	63	160	72	37	32
Antimony-Total	6	µg/L	1	2	1	<1	<1	<1	<1	2	<1	1	<1	<1	<1	2	1	<1	<1	<1	2	3	<1	<1	<1	<1	<1
Selenium-Total	2.4	µg/L	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	1
Tin-Total	3.6	µg/L	<1	<1	2	1	<1	<1	<1	2	<1	<1	1	<1	<1	6	4	2	<1	1	2	<1	<1	4	1	<1	<1
Zinc-Total	360	µg/L	84	300	30	39	12	28	33	46	99	96	71	49	150	1200	490	99	54	110	81	17	410	980	310	180	170
Iron-Total	20400	µg/L	250	5700	4300	1800	2000	840	2200	1700	2800	12000	1300	5300	6600	67000	32000	7600	1700	8600	2300	190	43000	190000	52000	17000	15000

Site			Sydney Olympic Park						
Month			Nov-24	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Nov-24
Borehole numbers	Trigger values	Unit	AF_BH36	SMW_BH019					
Calcium - Dissolved	499.2	mg/L	7	26	260	12	10	13	19
Potassium - Dissolved	504	mg/L	8	12	38	14	5.6	5.1	9
Sodium - Dissolved	4032	mg/L	390	90	1800	140	12	63	140
Magnesium - Dissolved	568.8	mg/L	12	5.7	240	8.2	2	5	6.1
Hardness	2760	mgCaCO3/L	53	89	1600	63	34	52	73
Hydroxide Alkalinity (OH-) as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	1800	mg/L	100	100	560	110	50	67	100
Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	1800	mg/L	100	100	560	110	50	67	100
Sulphate, SO4	660	mg/L	450	84	150	10	5	14	37
Chloride, Cl	8100	mg/L	340	120	3500	170	13	95	190
Ionic Balance	22.8	%	7	3	1	5	4	5	2
Ammonia (as N in water)	348	mg/L	0.055	0.32	4.1	0.66	0.062	0.47	0.45
Nitrate as N in water	3.72	mg/L	0.18	0.062	<0.005	<0.005	0.26	<0.005	0.01
Total Nitrogen in water	372	mg/L	0.6	1.4	4.2	1.2	2.1	1.3	1.1
Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10
Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<10
Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<10
Chloroethane	100	ust.	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	3.6	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	10	µg/L	<1	<1	<1	<1	<1	<1	<1
2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	15.6	µg/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<1
Benzene	76.8	µg/L	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	1	ust.	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Toluene	3.6	µg/L	<1	<1	<1	<1	<1	<1	<1
1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	10	ust.	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	42	µg/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	2.4	µg/L	<2	<2	<2	<2	<2	<2	<2
Styrene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
o-xylene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	6	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	6	µg/L	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	10	µg/L	<1	<1	6	5	<1	<1	<1
1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	10	ust.	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	264	µg/L	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10	300	ust.	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10 less BTEX (F1)	216	µg/L	<10	<10	<10	<10	<10	<10	<10
Benzene	76.8	µg/L	<1	<1	<1	<1	<1	<1	<1
Toluene	3.6	ust.	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	2.4	µg/L	<2	<2	<2	<2	<2	<2	<2
o-xylene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1
Naphthalene	28.8	ust.	<1	<1	<1	<1	<1	<1	<1
TRH C10 - C14	990	µg/L	<50	<50	75	<50	<50	<50	<50
TRH C15 - C28	1800	µg/L	<100	<100	130	110	<100	<100	<100
TRH C29 - C36	132	µg/L	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	2700	µg/L	<50	<50	200	110	<50	<50	<50
TRH >C10 - C16	1320	µg/L	<50	<50	84	<50	<50	<50	<50
TRH >C10 - C16less Naphthalene (F2)	1320	µg/L	<50	<50	84	<50	<50	<50	<50
TRH >C16 - C34	1440	ust.	<100	<100	160	160	120	110	<100
TRH >C34 - C40	240	µg/L	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	2700	µg/L	<50	<50	240	160	120	110	<50
Naphthalene	28.8	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	0.12	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	0.12	ust.	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	1	ust.	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +vePAH's	21.6	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	0.264	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.192	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.468	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	0.012	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.276	µg/L	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01
Perfluorodecanesulfonic acid	0.192	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	2.4	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	0.528	ust.	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	1.068	µg/L	<0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	0.264	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.78	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid	0.12	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.5	ust.	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	0.192	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02
8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	1	ust.	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	0.12	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.708	ust.	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01
Total Positive PFOA & PFOS	1.032	µg/L	<0.01	<0.01	0.01	0.01	<0.01	<0.01	0.01
Total Positive PFAS	5.64	µg/L	<0.01	0.04	0.02	0.01	<0.01	0.01	0.03
Arsenic- Dissolved	32.4	µg/L	<1	8	1	3	4	3	3
Boron-Dissolved	2280	µg/L	210	40	50	60	30	30	30
Barium-Dissolved	6840	µg/L	12	30	21000	580	16	81	71
Beryllium-Dissolved	5	µg/L	<1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	0.12	ust.	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	19.2	µg/L	<1	<1	<1	<1	2	<1	<1
Copper-Dissolved	13.2	µg/L	22	3	<1	2	8	2	1
Cobalt-Dissolved	13.2	µg/L	36	<1	<1	<1	<1	<1	<1
Mercury-Dissolved	0.05	ust.	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	357.6	µg/L	1350	26	360	48	25	58	70
Molybdenum-Dissolved	74.4	µg/L	<1	7	1	<1	<1	1	4
Nickel-Dissolved	58.8	ust.	36	2	2	2	2	1	1
Lead-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	4.8	µg/L	<1	<1	<1	<1	<1	<1	<1
Selenium-Dissolved	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1
Tin-Dissolved	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	216	µg/L	92	14	18	3	31	3	4
Iron-Dissolved	6936	µg/L	20	140	780	480	310	550	350
Arsenic-Total	9.6	ust.	6	16	9	5	4	2	3
Boron-Total	2040	µg/L	220	60	60	50	30	30	50
Barium-Total	7080	µg/L	73	160	20000	680	24	3600	82
Beryllium-Total	1.08	µg/L	1	0.6	0.9	<0.5	<0.5	<0.5	<0.5
Cadmium-Total	0.48	ust.	0.3	0.2	0.2	<0.1	<0.1	<0.1	<0.1
Chromium-Total	63.6	µg/L	10	19	14	2	3	1	<1
Copper-Total	49.2	µg/L	33	45	36	12	15	7	6
Cobalt-Total	50.4	ust.	53	9	5	<1	<1	<1	<1
Mercury-Total	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	312	µg/L	1200	330	460	64	53	82	72
Molybdenum-Total	74.4	µg/L	<1	8	6	2	<1	<1	4
Nickel-Total	64.8	ust.	54	16	14	4	3	2	2
Lead-Total	74.4	µg/L	24	17	12	2	2	2	<1
Antimony-Total	6	µg/L	<1	1	<1	<1	<1	<1	<1
Selenium-Total	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1
Tin-Total	3.6	µg/L	1	1	1	<1	<1	<1	<1
Zinc-Total	360	µg/L	160	280	160	41	60	21	8
Iron-Total	20400	µg/L	12000	7900	12000	1200	690	2300	670

Site		Tunnel SOP-NS									
Month	Month	Tunnel SOP-NS		Mar-23	Jun-23	Sep-23	Dec-23	May-24	Jun-24	Sep-24	Nov-24
Borehole numbers	Borehole numbers	Trigger values	Unit	BH_715B							
Calcium - Dissolved	Calcium - Dissolved	168	mg/L	110	120	130	180	210	200	180	160
Potassium - Dissolved	Potassium - Dissolved	79.2	mg/L	38	46	48	64	44	69	50	37
Sodium - Dissolved	Sodium - Dissolved	5040	mg/L	390	480	4000	3300	4400	4200	2500	4500
Magnesium - Dissolved	Magnesium - Dissolved	492	mg/L	14	30	400	280	590	470	280	530
Hardness	Hardness	2400	mgCaCO3/L	320	410	2000	1600	3000	2500	1600	2600
Hydroxide Alkalinity (OH-) as CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	Bicarbonate Alkalinity as CaCO3	648	mg/L	240	250	500	440	640	570	470	590
Carbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	32.4	mg/L	<5	<5	<5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	Total Alkalinity as CaCO3	648	mg/L	240	250	500	440	640	570	470	590
Sulphate, SO4	Sulphate, SO4	660	mg/L	55	110	650	610	680	900	490	760
Chloride, Cl	Chloride, Cl	7560	mg/L	720	950	7100	4900	8400	6700	4100	9800
Ionic Balance	Ionic Balance	14.4	%	-4	-6	-2	5	-2	4	3	-10
Ammonia (as N in water)	Ammonia (as N in water)	2.4	mg/L	0.65	0.14	0.8	1	1.4	0.74	0.35	1.3
Nitrate as N in water	Nitrate as N in water	2.04	mg/L	1.3	1.7	0.59	0.01	<0.005	0.01	0.47	<0.005
Total Nitrogen in water	Total Nitrogen in water	3.72	mg/L	1.9	2	1.4	1	1.5	0.9	1.3	1.4
Dichlorodifluoromethane	Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Chloromethane	Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	Chloroethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	Cis-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	Chloroform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
2,2-dichloropropane	2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	Cyclohexane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	Trichloroethene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichloropropane	1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	1,1,1,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	Chlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
Styrene	Styrene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	Isopropylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	n-propyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	1,2,4-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	Sec-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	4-isopropyl toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	1,2,4-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	TRH C6 - C9	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10	TRH C6 - C10	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	TRH C6 - C10 lessBTEX (F1)	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<2	<2	<2
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	Naphthalene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
TRH C10 - C14	TRH C10 - C14	216	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
TRH C15 - C28	TRH C15 - C28	180	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
TRH C29 - C36	TRH C29 - C36	1000	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	Total +ve TRH (C10-C36)	396	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C10 - C16	TRH >C10 - C16	228	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C10 - C16less Naphthalene (F2)	TRH >C10 - C16less Naphthalene (F2)	228	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	TRH >C16 - C34	168	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	TRH >C34 - C40	1000	µg/L	<100	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	Total +ve TRH (>C10-C40)	384	µg/L	<50	<50	<50	<50	<50	<50	<50	<50
Naphthalene	Naphthalene	10	µg/L	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	Phenanthrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2
Benzo(a)pyrene	Benzo(a)pyrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5
Total +vePAH's	Total +vePAH's	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	Perfluorobutanesulfonic acid	0.024	µg/L	0.02	<0.01	<0.01	<0.01	<0.1	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	Perfluoropentanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	Perfluorohexanesulfonic acid - PFHxS	0.024	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	Perfluoroheptanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	Perfluorooctanesulfonic acid PFOS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	Perfluorodecanesulfonic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
Perfluorobutanoic acid	Perfluorobutanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1
Perfluoropentanoic acid	Perfluoropentanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	Perfluorohexanoic acid	0.012	µg/L	<0.01	0.01	<0.01	<0.01	<0.02	<0.01	0.02	<0.01
Perfluoroheptanoic acid	Perfluoroheptanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	Perfluorooctanoic acid PFOA	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid	Perfluorononanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5
4:2 FTS	4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.05	<0.05
6:2 FTS	6:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.05
8:2 FTS	8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.1	<0.04
10:2 FTS	10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.04
Perfluorooctane sulfonamide	Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	N-Me perfluorooctanesulfonamidoethanol	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	N-Et perfluorooctanesulfonamidoethanol	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	Total Positive PFHxS & PFOS	0.024	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	Total Positive PFOA & PFOS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	Total Positive PFAS	0.024	µg/L	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Arsenic-Dissolved	Arsenic-Dissolved	2.4	µg/L	1	1	<1	1	<1	<1	1	<1
Boron-Dissolved	Boron-Dissolved	408	µg/L	40	70	50	70	50	210	90	50
Barium-Dissolved	Barium-Dissolved	240	µg/L	76	69	49	94	49	54	140	39
Beryllium-Dissolved	Beryllium-Dissolved	0.84	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	Cadmium-Dissolved	0.24	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	2.1
Chromium-Dissolved	Chromium-Dissolved	1	µg/L	<1	<1	<1	<1	2	<1	<1	<1
Copper-Dissolved	Copper-Dissolved	7.2	µg/L	5	4	<1	1	<1	<1	<1	10
Cobalt-Dissolved	Cobalt-Dissolved	28.8	µg/L	4	4	16	15	5	35	7	59
Mercury-Dissolved	Mercury-Dissolved	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	Manganese-Dissolved	1440	µg/L	140	270	1300	1300	1200	2100	1100	1300
Molybdenum-Dissolved	Molybdenum-Dissolved	31.2	µg/L	9	9	2	8	<1	3	9	1
Nickel-Dissolved	Nickel-Dissolved	168	µg/L	10	9	11	14	5	10	25	72
Lead-Dissolved	Lead-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	Antimony-Dissolved	4.8	µg/L	<1	<1	<1	<1	<1	<1	<1	1
Selenium-Dissolved	Selenium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Tin-Dissolved	Tin-Dissolved	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	Zinc-Dissolved	132	µg/L	20	23	27	31	13	10	7	590
Iron-Dissolved	Iron-Dissolved	4200	µg/L	20	20	20	<10	1800	320	210	<10
Arsenic-Total	Arsenic-Total	14.4	µg/L	1	2	2	2	1	1	1	8
Boron-Total	Boron-Total	408	µg/L	200	50	60	60	80	230	100	50
Barium-Total	Barium-Total	1032	µg/L	82	92	100	120	130	110	150	210
Beryllium-Total	Beryllium-Total	20.4	µg/L	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	2
Cadmium-Total	Cadmium-Total	2.04	µg/L	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1	3.4
Chromium-Total	Chromium-Total	46.8	µg/L	9	39	12	19	13	4	3	28
Copper-Total	Copper-Total	372	µg/L	8	13	16	6	12	10	4	190
Cobalt-Total	Cobalt-Total	120	µg/L	24	7	83	16	22	40	8	160
Mercury-Total	Mercury-Total	0.6	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	Manganese-Total	4560	µg/L	990	300	1800	1100	1400	2400	1000	1600
Molybdenum-Total	Molybdenum-Total	30	µg/L	9	11	2	11	5	5	8	2
Nickel-Total	Nickel-Total	192	µg/L	25	34	51	29	21	16	24	140
Lead-Total	Lead-Total	204	µg/L	<1	2	13	2	4	1	<1	34
Antimony-Total	Antimony-Total	3.6	µg/L	<1	<1	<1	<1	<1	<1	<1	1
Selenium-Total	Selenium-Total	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	1
Tin-Total	Tin-Total	1.2	µg/L	<1	<1	2	2	<1	1	1	16
Zinc-Total	Zinc-Total	1032	µg/L	46	130	200	110	89	37	16	1500
Iron-Total	Iron-Total	91200	µg/L	1200	1600	12000	2700	5800	4600	1900	21000

	Tunnel-NW of SOP			
Month			Mar-23	Jun-23
Borehole numbers	Trigger values	Unit	SMW_BH121	
Calcium - Dissolved	1680	mg/L	1100	1300
Potassium - Dissolved	372	mg/L	310	310
Sodium - Dissolved	12000	mg/L	9600	8900
Magnesium - Dissolved	1068	mg/L	110	130
Hardness	8400	mgCaCO	3100	3800
Hydroxide Alkalinity (OH-) as CaCO3	50	mg/L	<5	<5
Bicarbonate Alkalinity as CaCO3	216	mg/L	48	18
Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5
Total Alkalinity as CaCO3	216	mg/L	48	18
Sulphate, SO4	2880	mg/L	2300	2300
Chloride, Cl	21600	mg/L	15000	17000
Ionic Balance	10.8	%	2	-4
Ammonia (as N in water)	6	mg/L	4.5	5
Nitrate as N in water	0.228	mg/L	0.19	0.17
Total Nitrogen in water	7.44	mg/L	6.2	5.7
Dichlorodifluoromethane	100	µg/L	<10	<10
Chloromethane	100	µg/L	<10	<10
Vinyl Chloride	10	µg/L	<10	<10
Bromomethane	10	µg/L	<10	<10
Chloroethane	100	µg/L	<10	<10
Trichlorofluoromethane	100	µg/L	<10	<10
1,1-Dichloroethene	10	µg/L	<1	<1
Trans-1,2-dichloroethene	10	µg/L	<1	<1
1,1-dichloroethane	10	µg/L	<1	<1
Cis-1,2-dichloroethene	10	µg/L	<1	<1
Bromochloromethane	10	µg/L	<1	<1
Chloroform	10	µg/L	<1	<1
2,2-dichloropropane	10	µg/L	<1	<1
1,2-dichloroethane	10	µg/L	<1	<1
1,1,1-trichloroethane	10	µg/L	<1	<1
1,1-dichloropropene	10	µg/L	<1	<1
Cyclohexane	10	µg/L	<1	<1
Carbon tetrachloride	1	µg/L	<1	<1
Benzene	1	µg/L	<1	<1
Dibromomethane	10	µg/L	<1	<1
1,2-dichloropropane	10	µg/L	<1	<1
Trichloroethene	1	µg/L	<1	<1
Bromodichloromethane	1	µg/L	<1	<1
trans-1,3-dichloropropene	10	µg/L	<1	<1
cis-1,3-dichloropropene	10	µg/L	<1	<1
1,1,2-trichloroethane	10	µg/L	<1	<1
Toluene	10	µg/L	<1	<1
1,3-dichloropropane	10	µg/L	<1	<1
Dibromochloromethane	10	µg/L	<1	<1
1,2-dibromoethane	10	µg/L	<1	<1
Tetrachloroethene	10	µg/L	<1	<1
1,1,1,2-tetrachloroethane	10	µg/L	<1	<1
Chlorobenzene	10	µg/L	<1	<1
Ethylbenzene	10	µg/L	<1	<1
Bromoform	10	µg/L	<1	<1
m+p-xylene	20	µg/L	<2	<2
Styrene	10	µg/L	<1	<1
1,1,2,2-tetrachloroethane	10	µg/L	<1	<1
o-xylene	10	µg/L	<1	<1
1,2,3-trichloropropane	10	µg/L	<1	<1
Isopropylbenzene	10	µg/L	<1	<1
Bromobenzene	10	µg/L	<1	<1
n-propyl benzene	10	µg/L	<1	<1
2-chlorotoluene	10	µg/L	<1	<1
4-chlorotoluene	10	µg/L	<1	<1
1,3,5-trimethyl benzene	10	µg/L	<1	<1
Tert-butyl benzene	10	µg/L	<1	<1
1,2,4-trimethyl benzene	10	µg/L	<1	<1
1,3-dichlorobenzene	10	µg/L	<1	<1
Sec-butyl benzene	10	µg/L	<1	<1
1,4-dichlorobenzene	10	µg/L	<1	<1
4-isopropyl toluene	10	µg/L	<1	<1
1,2-dichlorobenzene	10	µg/L	<1	<1
n-butyl benzene	10	µg/L	<1	<1
1,2-dibromo-3-chloropropane	1	µg/L	<1	<1
1,2,4-trichlorobenzene	10	µg/L	<1	<1
Hexachlorobutadiene	1	µg/L	<1	<1
1,2,3-trichlorobenzene	10	µg/L	<1	<1
TRH C6 - C9	100	µg/L	<10	<10
TRH C6 - C10	100	µg/L	<10	<10
TRH C6 - C10 lessBTEX (F1)	100	µg/L	<10	<10
Benzene	1	µg/L	<1	<1
Toluene	10	µg/L	<1	<1
Ethylbenzene	10	µg/L	<1	<1
m+p-xylene	20	µg/L	<2	<2
o-xylene	10	µg/L	<1	<1
Naphthalene	10	µg/L	<1	<1
TRH C10 - C14	156	µg/L	110	<50
TRH C15 - C28	1000	µg/L	<100	<100
TRH C29 - C36	1000	µg/L	<100	<100
Total +ve TRH (C10-C36)	156	µg/L	110	<50
TRH >C10 - C16	168	µg/L	110	<50
TRH >C10 - C16less Naphthalene (F2)	168	µg/L	110	<50
TRH >C16 - C34	1000	µg/L	<100	<100
TRH >C34 - C40	1000	µg/L	<100	<100
Total +ve TRH (>C10-C40)	168	µg/L	110	<50
Naphthalene	10	µg/L	<0.2	<0.2
Acenaphthylene	10	µg/L	<0.1	<0.1
Acenaphthene	10	µg/L	<0.1	<0.1
Fluorene	10	µg/L	<0.1	<0.1
Phenanthrene	1	µg/L	<0.1	<0.1
Anthracene	1	µg/L	<0.1	<0.1
Fluoranthene	1	µg/L	<0.1	<0.1
Pyrene	10	µg/L	<0.1	<0.1
Benzo(a)anthracene	10	µg/L	<0.1	<0.1
Chrysene	10	µg/L	<0.1	<0.1
Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2
Benzo(a)pyrene	1	µg/L	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1
Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1
Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1
Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5
Total +vePAH's	10	µg/L	<0.1	<0.1
Perfluorobutanesulfonic acid	0.1	µg/L	<0.01	<0.01
Perfluoropentanesulfonic acid	0.1	µg/L	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.1	µg/L	<0.01	<0.01
Perfluoroheptanesulfonic acid	0.1	µg/L	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.1	µg/L	<0.01	<0.01
Perfluorodecanesulfonic acid	0.2	µg/L	<0.02	<0.02
Perfluorobutanoic acid	0.2	µg/L	<0.02	<0.02
Perfluoropentanoic acid	0.2	µg/L	<0.02	<0.02
Perfluorohexanoic acid	0.012	µg/L	0.01	0.01
Perfluoroheptanoic acid	0.1	µg/L	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.1	µg/L	<0.01	<0.01
Perfluorononanoic acid	0.1	µg/L	<0.01	<0.01
Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02
Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02
Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.05
Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1
Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5
4:2 FTS	0.1	µg/L	<0.01	<0.01
6:2 FTS	0.072	µg/L	0.06	0.05
8:2 FTS	0.2	µg/L	<0.02	<0.02
10:2 FTS	0.2	µg/L	<0.02	<0.02
Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamidoethanol	0.5	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamidoethanol	5	µg/L	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02
Total Positive PFHxS & PFOS	0.1	µg/L	<0.01	<0.01
Total Positive PFOA & PFOS	0.1	µg/L	<0.01	<0.01
Total Positive PFAS	0.084	µg/L	0.07	0.06
Arsenic-Dissolved	1	µg/L	<1	<1
Boron-Dissolved	516	µg/L	430	400
Barium-Dissolved	204	µg/L	170	170
Beryllium-Dissolved	5	µg/L	<0.5	<0.5
Cadmium-Dissolved	0.1	µg/L	<0.1	<0.1
Chromium-Dissolved	2.4	µg/L	2	<1
Copper-Dissolved	24000	µg/L	410	1300
Cobalt-Dissolved	1.2	µg/L	1	<1
Mercury-Dissolved	0.05	µg/L	<0.05	<0.05
Manganese-Dissolved	4080	µg/L	22	33
Molybdenum-Dissolved	20.4	µg/L	17	17
Nickel-Dissolved	144	µg/L	9	10
Lead-Dissolved	1	µg/L	<1	<1
Antimony-Dissolved	2.4	µg/L	2	2
Selenium-Dissolved	1	µg/L	<1	<1
Tin-Dissolved	10	µg/L	<1	<1
Zinc-Dissolved	112.8	µg/L	16	32
Iron-Dissolved	1800	µg/L	<10	<10
Arsenic-Total	2.4	µg/L	1	2
Boron-Total	528	µg/L	390	440
Barium-Total	252	µg/L	190	200
Beryllium-Total	5	µg/L	<0.5	<0.5
Cadmium-Total	0.1	µg/L	<0.1	<0.1
Chromium-Total	19.2	µg/L	12	12
Copper-Total	108000	µg/L	3400	2100
Cobalt-Total	2.4	µg/L	2	<1
Mercury-Total	0.096	µg/L	<0.05	<0.05
Manganese-Total	2760	µg/L	36	47
Molybdenum-Total	24	µg/L	19	20
Nickel-Total	117.6	µg/L	23	21
Lead-Total	7.2	µg/L	<1	<1
Antimony-Total	2.4	µg/L	2	2
Selenium-Total	1	µg/L	<1	<1
Tin-Total	1.2	µg/L	<1	<1
Zinc-Total	99.6	µg/L	22	51
Iron-Total	11040	µg/L	910	480

	Burwood							
Month			Mar-23	Jun-23	Sep-23	Nov-23	Feb-24	May-24
Borehole numbers	Trigger values	Unit	SMW_BH046R					
Calcium - Dissolved	192	mg/L	150	160	150	140	86	130
Potassium - Dissolved	42	mg/L	32	35	36	30	30	32
Sodium - Dissolved	2640	mg/L	1800	2200	2000	1900	1600	1500
Magnesium - Dissolved	324	mg/L	270	270	280	230	210	200
Hardness	1800	mgCaCO3	1500	1500	1500	1300	1100	1100
Hydroxide Alkalinity (OH-) as CaCO3	117.6	mg/L	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	636	mg/L	470	530	550	550	630	650
Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	834	mg/L	470	530	550	550	630	650
Sulphate, SO4	648	mg/L	530	540	360	510	390	500
Chloride, Cl	4800	mg/L	3600	4000	2600	3200	2300	2800
Ionic Balance	10.596	%	-6	-2	13	-1	3	-6
Ammonia (as N in water)	0.552	mg/L	0.34	0.46	0.45	0.33	0.24	0.31
Nitrate as N in water	0.756	mg/L	<0.005	0.02	<0.005	0.05	0.096	0.45
Total Nitrogen in water	1.44	mg/L	0.4	1.2	0.5	0.4	0.9	0.9
Dichlorodifluoromethane	100	µg/L	<100	<10	<10	<10	<10	<10
Chloromethane	100	µg/L	<100	<10	<10	<10	<10	<10
Vinyl Chloride	10	µg/L	<100	<10	<10	<10	<10	<10
Bromomethane	10	µg/L	<100	<10	<10	<10	<10	<10
Chloroethane	100	µg/L	<100	<10	<10	<10	<10	<10
Trichlorofluoromethane	100	µg/L	<100	<10	<10	<10	<10	<10
1,1-Dichloroethene	10	µg/L	<10	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	10	µg/L	<10	<1	<1	<1	<1	<1
1,1-dichloroethane	10	µg/L	<10	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	10	µg/L	<10	<1	<1	<1	<1	<1
Bromochloromethane	10	µg/L	<10	<1	<1	<1	<1	<1
Chloroform	1.2	µg/L	<10	<1	<1	<1	<1	<1
2,2-dichloropropane	10	µg/L	<10	<1	<1	<1	<1	<1
1,2-dichloroethane	10	µg/L	<10	<1	<1	<1	<1	<1
1,1,1-trichloroethane	10	µg/L	<10	<1	<1	<1	<1	<1
1,1-dichloropropene	10	µg/L	<10	<1	<1	<1	<1	<1
Cyclohexane	10	µg/L	<10	<1	<1	<1	<1	<1
Carbon tetrachloride	1	µg/L	<10	<1	<1	<1	<1	<1
Benzene	1	µg/L	<10	<1	<1	<1	<1	<1
Dibromomethane	10	µg/L	<10	<1	<1	<1	<1	<1
1,2-dichloropropane	10	µg/L	<10	<1	<1	<1	<1	<1
Trichloroethene	1	µg/L	<10	<1	<1	<1	<1	<1
Bromodichloromethane	1	µg/L	<10	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	10	µg/L	<10	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	10	µg/L	<10	<1	<1	<1	<1	<1
1,1,2-trichloroethane	10	µg/L	<10	<1	<1	<1	<1	<1
Toluene	10	µg/L	<10	<1	<1	<1	<1	<1
1,3-dichloropropane	10	µg/L	<10	<1	<1	<1	<1	<1
Dibromochloromethane	10	µg/L	<10	<1	<1	<1	<1	<1
1,2-dibromoethane	10	µg/L	<10	<1	<1	<1	<1	<1
Tetrachloroethene	10	µg/L	<10	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	10	µg/L	<10	<1	<1	<1	<1	<1
Chlorobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
Ethylbenzene	10	µg/L	<10	<1	<1	<1	<1	<1
Bromoform	10	µg/L	<10	<1	<1	<1	<1	<1
m+p-xylene	20	µg/L	<20	<2	<2	<2	<2	<2
Styrene	10	µg/L	<10	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	10	µg/L	<10	<1	<1	<1	<1	<1
o-xylene	10	µg/L	<10	<1	<1	<1	<1	<1
1,2,3-trichloropropane	10	µg/L	<10	<1	<1	<1	<1	<1
Isopropylbenzene	10	µg/L	<10	<1	<1	<1	<1	<1
Bromobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
n-propyl benzene	10	µg/L	<10	<1	<1	<1	<1	<1
2-chlorotoluene	10	µg/L	<10	<1	<1	<1	<1	<1
4-chlorotoluene	10	µg/L	<10	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	10	µg/L	<10	<1	<1	<1	<1	<1
Tert-butyl benzene	10	µg/L	<10	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	10	µg/L	<10	<1	<1	<1	<1	<1
1,3-dichlorobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
Sec-butyl benzene	10	µg/L	<10	<1	<1	<1	<1	<1
1,4-dichlorobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
4-isopropyl toluene	10	µg/L	<10	<1	<1	<1	<1	<1
1,2-dichlorobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
n-butyl benzene	10	µg/L	<10	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1	µg/L	<10	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
Hexachlorobutadiene	1	µg/L	<10	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	10	µg/L	<10	<1	<1	<1	<1	<1
TRH C6 - C9	100	µg/L	<100	<10	<1	<10	<10	<10
TRH C6 - C10	100	µg/L	<100	<10	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	100	µg/L	<100	<10	<10	<10	<10	<10
Benzene	1	µg/L	<10	<1	<10	<1	<1	<1
Toluene	10	µg/L	<10	<1	<1	<1	<1	<1
Ethylbenzene	10	µg/L	<10	<1	<1	<1	<1	<1
m+p-xylene	20	µg/L	<20	<2	<1	<2	<2	<2
o-xylene	10	µg/L	<10	<1	<2	<1	<1	<1
Naphthalene	10	µg/L	<10	<1	<1	<1	<1	<1
TRH C10 - C14	500	µg/L	<50	<50	<50	<50	<50	<50
TRH C15 - C28	516	µg/L	<100	<100	<100	<100	<100	<100
TRH C29 - C36	1000	µg/L	<100	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	864	µg/L	<50	<50	<50	<50	<50	<50
TRH >C10 - C16	684	µg/L	<50	<50	<50	<50	<50	<50
TRH >C10 - C16less Naphthalene (F2)	684	µg/L	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	228	µg/L	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	1000	µg/L	<100	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	912	µg/L	<50	<50	<50	<50	<50	<50
Naphthalene	10	µg/L	<0.2	<0.2	<0.2	<0.1	0.2	<0.1
Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	10	µg/L	<0.1	<0.1	<0.1	<0.1	0.16	<0.1
Perfluorobutanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	0.36	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamidoethanol	0.5	µg/L	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamidoethanol	5	µg/L	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.1	µg/L	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	0.36	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic-Dissolved	20.4	µg/L	<1	<1	1	<1	4	<1
Boron-Dissolved	120	µg/L	100	90	100	100	50	70
Barium-Dissolved	43.2	µg/L	36	36	37	29	33	34
Beryllium-Dissolved	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	0.48	µg/L	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1
Copper-Dissolved	39.6	µg/L	<1	33	12	<1	1	140
Cobalt-Dissolved	1.2	µg/L	<1	<1	2	1	3	35
Mercury-Dissolved	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	1092	µg/L	910	850	880	890	740	610
Molybdenum-Dissolved	6	µg/L	1	3	4	1	3	15
Nickel-Dissolved	33.6	µg/L	3	8	28	3	8	69
Lead-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	3.6	µg/L	<1	<1	<1	<1	<1	<1
Selenium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	1
Tin-Dissolved	1.2	µg/L	<1	<1	1	<1	<1	<1
Zinc-Dissolved	18	µg/L	8	10	21	4	10	38
Iron-Dissolved	2400	µg/L	880	<10	10	140	140	<10
Arsenic-Total	10.8	µg/L	<1	9	20	7	39	14
Boron-Total	108	µg/L	80	80	100	80	70	70
Barium-Total	192	µg/L	34	160	220	83	71	110
Beryllium-Total	1.2	µg/L	0.5	0.9	2	1	4	1
Cadmium-Total	0.12	µg/L	<0.1	0.1	0.2	<0.1	0.3	0.1
Chromium-Total	19.2	µg/L	<1	7	17	3	11	7
Copper-Total	348	µg/L	<1	290	1400	110	65	280
Cobalt-Total	7.2	µg/L	<1	5	15	7	33	54
Mercury-Total	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	1200	µg/L	910	1000	1100	930	920	680
Molybdenum-Total	6	µg/L	1	3	4	1	4	19
Nickel-Total	31.2	µg/L	<1	26	90	12	49	96
Lead-Total	10.8	µg/L	<1	9	24	7	38	11
Antimony-Total	3.6	µg/L	<1	<1	1	<1	<1	1
Selenium-Total	1	µg/L	<1	<1	<1	<1	1	2
Tin-Total	7.2	µg/L	2	<1	2	<1	<1	<1
Zinc-Total	103.2	µg/L	2	44	110	32	130	120
Iron-Total	13200	µg/L	2800	11000	22000	8200	22000	8700

Site			Burwood						
Month			Aug-24	Nov-24	Jun-23	Sep-23	Feb-24	Aug-24	Nov-24
Borehole numbers	Trigger values	Unit	SMW_BH04GR		SMW_BH044				
Calcium - Dissolved	192	mg/L	66	67	22	58	26	82	21
Potassium - Dissolved	42	mg/L	24	22	2	24	3	4	4
Sodium - Dissolved	2640	mg/L	1100	1100	28	1100	20	41	25
Magnesium - Dissolved	336	mg/L	130	120	2	67	1	3	2
Hardness	1800	mgCaCO3	760	750	63	420	54	220	62
Hydroxide Alkalinity (OH-) as CaCO3	117.6	mg/L	<5	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	636	mg/L	700	810	66	480	52	68	68
Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	834	mg/L	700	810	66	480	52	68	68
Sulphate, SO4	648	mg/L	420	370	33	380	14	180	25
Chloride, Cl	4800	mg/L	1700	1700	44	1900	24	48	39
Ionic Balance	10.596	%	-4	-5	-12	-10	0	-1	-10
Ammonia (as N in water)	0.552	mg/L	0.006	0.013	<0.005	0.38	<0.005	<0.005	0.009
Nitrate as N in water	0.756	mg/L	0.84	0.2	0.63	0.11	0.67	0.42	0.55
Total Nitrogen in water	1.44	mg/L	1	0.3	0.8	0.6	1	0.7	1.2
Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10
Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<10
Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<10
Chloroethane	100	ug/L	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Chloroform	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1
2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<1
Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	1	ug/L	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	10	ug/L	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<2	<2
Styrene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	10	ug/L	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	100	µg/L	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10	100	ug/L	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	100	µg/L	<10	<10	<10	<10	<10	<10	<10
Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<1
Toluene	10	ug/L	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<2	<2
o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1
Naphthalene	10	ug/L	<1	<1	<1	<1	<1	<1	<1
TRH C10 - C14	500	µg/L	<50	<50	<50	<50	<50	<50	63
TRH C15 - C28	536	µg/L	<100	<100	<100	<100	110	160	1200
TRH C29 - C36	1000	µg/L	<100	<100	<100	<100	<100	150	1400
Total +ve TRH (C10-C36)	864	µg/L	<50	<50	<50	<50	110	320	2800
TRH >C10 - C16	684	µg/L	<50	<50	<50	<50	<50	<50	110
TRH >C10 - C16less Naphthalene (F2)	684	µg/L	<50	<50	<50	<50	<50	<50	110
TRH >C16 - C34	238	ug/L	<100	<100	<100	<100	190	290	2400
TRH >C34 - C40	1000	µg/L	<100	<100	<100	<100	<100	<100	880
Total +ve TRH (>C10-C40)	912	µg/L	<50	<50	<50	<50	190	290	3300
Naphthalene	10	µg/L	<0.1	<0.1	<0.2	<0.1	0.1	<0.1	0.7
Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	0.8	0.8	<0.1
Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.6
Phenanthrene	1	ug/L	<0.1	<0.1	<0.1	<0.1	0.4	0.3	4
Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	0.4	0.4	2.7
Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	0.1	2	1.7	18
Pyrene	10	µg/L	<0.1	<0.1	<0.1	0.1	2.1	1.8	25
Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	0.1	1.6	1.2	9.4
Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	1.1	1	10
Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	0.3	4.5	3.8	34
Benzo(a)pyrene	1	ug/L	<0.1	<0.1	<0.1	0.3	3.4	3	27
Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	2.1	2	16
Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	0.7	0.6	4.9
Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	0.1	2.2	3	16
Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5	5	4.4	30
Total +vePAH's	10	µg/L	<0.1	<0.1	<0.1	1.1	23	20	176
Perfluorobutanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctanoic acid	0.2	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoroctanoic acid PFOA	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.5	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	0.36	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	1	ug/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.1	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFAS	0.36	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01
Arsenic-Dissolved	20.4	µg/L	3	<1	<1	1	2	<1	<1
Boron-Dissolved	135	µg/L	70	50	30	80	<20	50	30
Barium-Dissolved	43.2	µg/L	31	33	21	28	15	23	21
Beryllium-Dissolved	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	0.48	ug/L	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	2	<1
Copper-Dissolved	39.6	µg/L	79	110	5	3	7	6	8
Cobalt-Dissolved	1.2	µg/L	16	8	<1	<1	<1	<1	<1
Mercury-Dissolved	0.05	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	1092	µg/L	250	320	<5	240	<5	<5	<5
Molybdenum-Dissolved	6	µg/L	5	4	2	2	1	1	1
Nickel-Dissolved	33.6	ug/L	40	34	<1	1	<1	<1	1
Lead-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	3.6	µg/L	1	<1	<1	<1	1	<1	<1
Selenium-Dissolved	1	µg/L	2	1	<1	<1	<1	<1	<1
Tin-Dissolved	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	18	µg/L	6	13	1	6	9	4	6
Iron-Dissolved	2400	µg/L	<10	<10	<10	2300	20	<10	20
Arsenic-Total	10.8	ug/L	27	8	<1	10	<1	<1	<1
Boron-Total	108	µg/L	100	70	40	90	20	50	30
Barium-Total	192	µg/L	170	100	64	94	23	30	38
Beryllium-Total	1.2	µg/L	2	0.5	<0.5	1	<0.5	<0.5	<0.5
Cadmium-Total	0.12	ug/L	0.2	<0.1	<0.1	0.4	<0.1	<0.1	<0.1
Chromium-Total	19.2	µg/L	17	8	8	16	4	4	4
Copper-Total	348	µg/L	1600	210	12	52	14	15	25
Cobalt-Total	7.2	ug/L	39	21	<1	9	<1	<1	1
Mercury-Total	0.05	µg/L	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	1200	µg/L	750	500	92	320	25	22	30
Molybdenum-Total	6	µg/L	5	4	3	3	1	4	1
Nickel-Total	31.2	ug/L	85	46	6	22	4	3	6
Lead-Total	10.8	µg/L	30	9	3	10	3	3	10
Antimony-Total	3.6	µg/L	<1	<1	1	2	1	1	1
Selenium-Total	1	µg/L	2	1	<1	<1	<1	<1	<1
Tin-Total	7.2	µg/L	<1	<1	<1	6	1	1	1
Zinc-Total	103.2	µg/L	120	53	36	150	74	25	46
Iron-Total	13200	µg/L	10000	4900	3000	10000	850	590	1800

Site		Five Dock															
Month	Month			Feb-23	Jun-23	Sep-23	Nov-23	Feb-24	May-24	Aug-24	Nov-24	Sep-23	Nov-23	Feb-24	May-24	Nov-24	Sep-23
Borehole numbers	Borehole numbers	Trigger values	Unit	SMW_BH051								SMW_BH051s	SMW_BH050s				SMW_BH050
Calcium - Dissolved	Calcium - Dissolved	92.4	mg/L	13	59	180	13	21	16	29	26	43	34	53	56	46	53
Potassium - Dissolved	Potassium - Dissolved	24	mg/L	8	20	25	4	10	12	5.7	5.8	5.2	5.1	6.7	6.8	5.4	23
Sodium - Dissolved	Sodium - Dissolved	1356	mg/L	350	1100	1300	64	430	490	95	110	76	28	31	24	25	1300
Magnesium - Dissolved	Magnesium - Dissolved	55920	mg/L	22	86	210	4	30	38	5	5.6	6.3	2	2	3	3	89
Hardness	Hardness	600	mgCaCO3/L	120	500	1300	48	170	190	94	87	130	95	140	150	120	500
Hydroxide Alkalinity (OH-) as CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	Bicarbonate Alkalinity as CaCO3	930	mg/L	70	250	1300	54	110	98	110	120	170	160	190	270	190	490
Carbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	Total Alkalinity as CaCO3	930	mg/L	70	250	1300	54	110	98	110	120	170	160	190	270	190	490
Sulphate, SO4	Sulphate, SO4	576	mg/L	140	480	170	38	160	210	120	98	15	16	13	12	15	570
Chloride, Cl	Chloride, Cl	2160	mg/L	550	1800	2900	86	550	840	72	100	24	14	10	12	14	2400
Ionic Balance	Ionic Balance	7.344	%	-5	-6	-13	-6	3	-8	-5	-3	16	-10	0	-17	-10	-15
Ammonia (as N in water)	Ammonia (as N in water)	11.88	mg/L	0.1	0.76	0.03	0.017	0.082	0.38	5.8	0.51	0.063	<0.005	0.057	0.013	0.039	0.77
Nitrate as N in water	Nitrate as N in water	2.04	mg/L	0.28	1.7	0.5	2.1	1.4	0.58	6.4	0.4	0.17	0.14	0.077	0.16	0.4	0.01
Total Nitrogen in water	Total Nitrogen in water	12	mg/L	0.5	6.7	1	2	3.1	1.5	14	1.3	0.3	0.3	0.2	0.2	0.4	0.9
Dichlorodifluoromethane	Dichlorodifluoromethane	100	µg/L	<10	6.2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloromethane	Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	Chloroethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	1,1-Dichloroethene	10	µg/L	<1	<10	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	Cis-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	Chloroform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-dichloropropane	2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	Cyclohexane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	Trichloroethene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichloropropane	1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	1,1,1,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	Chlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<1	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Styrene	Styrene	10	µg/L	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	Isopropylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	n-propyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	1,2,4-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	Sec-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	4-isopropyl toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	1,2,4-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	TRH C6 - C9	100	µg/L	<10	<10	<10	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10	TRH C6 - C10	48	µg/L	<10	<10	<10	<1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	TRH C6 - C10 lessBTEX (F1)	48	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	Benzene	1	µg/L	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	10	µg/L	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	Naphthalene	10	µg/L	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C10 - C14	TRH C10 - C14	500	µg/L	<50	<50	<50	<1	<50	<50	<50	<50	<50	<50	<50	<50	54	<50
TRH C15 - C28	TRH C15 - C28	156	µg/L	<100	130	<100	<1	<100	130	<100	250	<100	<100	<100	<100	380	<100
TRH C29 - C36	TRH C29 - C36	1000	µg/L	<100	<100	<100	<50	<100	100	<100	140	<100	<100	<100	<100	350	<100
Total +ve TRH (C10-C36)	Total +ve TRH (C10-C36)	156	µg/L	<50	130	<50	<100	<50	240	<50	390	<50	<50	<50	<50	790	<50
TRH >C10 - C16	TRH >C10 - C16	500	µg/L	<50	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	<50	72	<50
TRH >C10 - C16less Naphthalene (F2)	TRH >C10 - C16less Naphthalene (F2)	500	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	72	<50
TRH >C16 - C34	TRH >C16 - C34	216	µg/L	<100	180	<100	<50	110	210	<100	340	<100	<100	<100	<100	640	130
TRH >C34 - C40	TRH >C34 - C40	1000	µg/L	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100	<100	<100	120	<100
Total +ve TRH (>C10-C40)	Total +ve TRH (>C10-C40)	216	µg/L	<50	180	<50	<100	110	210	<50	340	<50	<50	<50	<50	830	130
Naphthalene	Naphthalene	10	µg/L	<0.2	<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
Acenaphthylene	Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	Phenanthrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	Benzo(a)pyrene	1	µg/L	<0.1	<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
Indeno(1,2,3-c,d)pyrene	Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +vePAH's	Total +vePAH's	10	µg/L	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	Perfluorobutanesulfonic acid	0.036	µg/L	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	Perfluoropentanesulfonic acid	0.1	µg/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	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	Perfluorohexanesulfonic acid - PFHxS	0.048	µg/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	<0.01	<0.01
Perfluoroheptanesulfonic acid	Perfluoroheptanesulfonic acid	0.1	µg/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	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	Perfluorooctanesulfonic acid PFOS	0.024	µg/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	<0.01	<0.01
Perfluorodecanesulfonic acid	Perfluorodecanesulfonic acid	0.552	µg/L	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	Perfluorobutanoic acid	0.2	µg/L	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.03	<0.02	<0.02	<0.02
Perfluoropentanoic acid	Perfluoropentanoic acid	0.168	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	Perfluorohexanoic acid	0.18	µg/L	<0.01	<0.02	<0.01	<0.01	0.03	<0.01	<0.01	0.01	<0.02	0.01	0.01	0.01	<0.01	<0.01
Perfluoroheptanoic acid	Perfluoroheptanoic acid	0.036	µg/L	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	Perfluorooctanoic acid PFOA	0.06	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.01	<0.01
Perfluorononanoic acid	Perfluorononanoic acid	0.1	µg/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	<0.01	<0.01
Perfluorodecanoic acid	Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	Perfluorotridecanoic acid	1	µg/L	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	4:2 FTS	0.1	µg/L	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	6:2 FTS	0.156	µg/L	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	0.02	0.02	<0.01	<0.01	<0.01
8:2 FTS	8:2 FTS	0.2	µg/L	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	10:2 FTS	0.2	µg/L	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	N-Me perfluorooctanesulfonamidoethanol	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	N-Et perfluorooctanesulfonamidoethanol	5	µg/L	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	Total Positive PFHxS & PFOS	0.1	µg/L	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	Total Positive PFOA & PFOS	0.1	µg/L	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.01	<0.01
Total Positive PFAS	Total Positive PFAS	0.552	µg/L	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	0.01	<0.02	0.03	0.1	0.01	0.01	<0.01
Arsenic-Dissolved	Arsenic-Dissolved	3.6	µg/L	<1	1	<1	<1	1	<1	<1	<1	<1	<1	1	<1	<1	3
Boron-Dissolved	Boron-Dissolved	72	µg/L	30	60	70	20	30	30	50	50	70	100	100	70	80	60
Barium-Dissolved	Barium-Dissolved	82.8	µg/L	12	69	120	12	18	22	28	32	350	310	440	370	370	81
Beryllium-Dissolved	Beryllium-Dissolved	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	Cadmium-Dissolved	0.12	µg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	Chromium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper-Dissolved	Copper-Dissolved	13.2	µg/L	7	<1	<1	12	13	10	15	12	<1	1	<1	<1	2	<1
Cobalt-Dissolved	Cobalt-Dissolved	156	µg/L	39	120	2	5	61	76	2	5	1	<1	<1	<1	<1	140
Mercury-Dissolved	Mercury-Dissolved	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	Manganese-Dissolved	52800	µg/L	17000	44000	250	1800	18000	31000	680	1700	120	9	80	6	22	50000
Molybdenum-Dissolved	Molybdenum-Dissolved	3.6	µg/L	1	3	4	1	1	<1	1	1	1	<1	1	<1	<1	3
Nickel-Dissolved	Nickel-Dissolved	312	µg/L	31	100	2	5	36	44	3	5	2	1	2	<1	1	110
Lead-Dissolved	Lead-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	Antimony-Dissolved	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Selenium-Dissolved	Selenium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin-Dissolved	Tin-Dissolved	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	Zinc-Dissolved	288	µg/L	200	82	3	49	100	130	33	91	19	12	12	12	32	33
Iron-Dissolved	Iron-Dissolved	1440	µg/L	30	700	1200	10	20	80	50	30	220	<10	<10	<10	<10	6500
Arsenic-Total	Arsenic-Total	10.8	µg/L	1	9	170	<1	1	<1	<1	<1	21	5	3	2	3	44
Boron-Total	Boron-Total	84	µg/L	40	60	100	<20	50	50	80	70	100	90	100	100	90	100
Barium-Total	Barium-Total	276	µg/L	26	230	1900	19	42	38	31	35	1400	510	470	530	590	1100
Beryllium-Total	Beryllium-Total	3.6	µg/L	<0.5	3	21	<0.5	<0.5	<0.5	<0.5	<0.5	12	0.9	<0.5	<0.5	0.7	15
Cadmium-Total	Cadmium-Total	1.8	µg/L	0.3	1.5	2	<0.1	0.1	0.2	<0.1	<0.1	0.6	<0.1	<0.1	<0.1	<0.1	8.2
Chromium-Total	Chromium-Total	60	µg/L	4	50	380	3	8	3	2	<1	24	6	4	3	5	250
Copper-Total	Copper-Total	240	µg/L	34	200	390	20	25	15	20	13	120	27	5	8	26	1100
Cobalt-Total	Cobalt-Total	300	µg/L	60	250	140	10	79	160	14	10	10	2	1	<1	2	1000
Mercury-Total	Mercury-Total	0.096	µg/L	<0.05	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	Manganese-Total	84000	µg/L	21000	70000	5000	3900	30000	57000	5100	3300	310	110	75	44	89	190000
Molybdenum-Total	Molybdenum-Total	4.8	µg/L	2	4	17	2	1	<1	1	1	3	1	1	1	<1	10
Nickel-Total	Nickel-Total	372	µg/L	47	190	160	9	46	90	11	8	17	3	7	3	3	790
Lead-Total	Lead-Total	57.6	µg/L	9	48	190	2	6	3	<1	1	99	13	6	6	13	260
Antimony-Total	Antimony-Total	2.4	µg/L	1	2	1	1	<1	<1	<1	1	2	1	1	<1	1	5
Selenium-Total	Selenium-Total	1	µg/L	<1	<1	1	<1	<1	<1	<1	<1	4	<1	<1	<1	<1	3
Tin-Total	Tin-Total	8.4	µg/L	<1	7	7	2	1	<1	<1	<1	2	1	<1	<1	<1	13
Zinc-Total	Zinc-Total	996	µg/L	340	830	1400	67	120	210	63	93	1200	84	29	48	78	3800
Iron-Total	Iron-Total	15600	µg/L	880	13000		840	1900	1600	640	1000	84000	19000	7900	8500	15000	65000

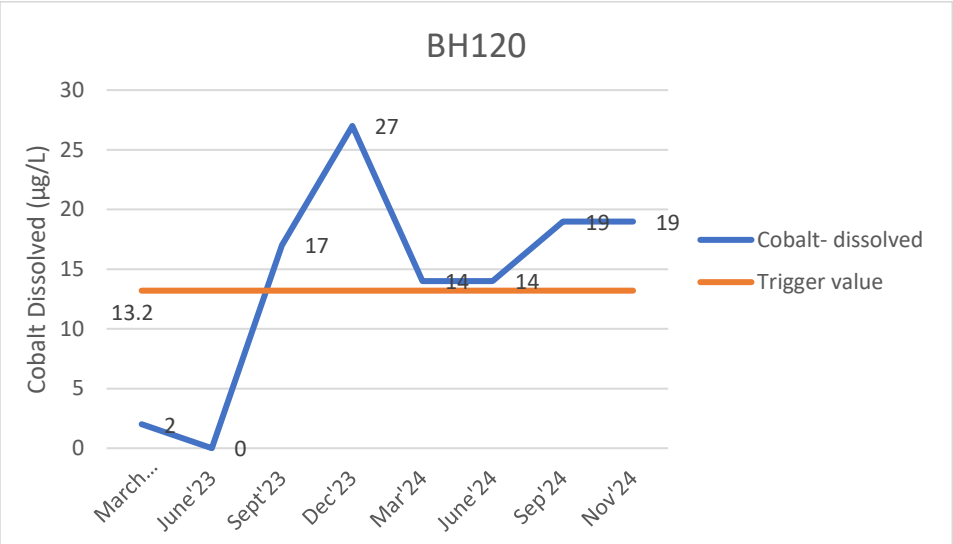
Site				North Strathfield																															
Month	Month			Mar-23	Apr-23	May-23	Sep-23	Nov-23	Feb-24	Aug-24	Nov-24	Mar-23	Apr-23	May-23	Mar-23	Apr-23	May-23	Aug-23	Nov-23	Feb-24	May-24	Aug-24	Nov-24	Mar-23	Apr-23	May-23	Sep-23	Nov-23	Feb-24	Aug-24	Mar-23	Apr-23	May-23	Aug-23	Nov-23
Borehole numbers	Borehole numbers	Trigger values	Unit	SMW_BH035s								SMW_BH009			SMW_BH009S									SMW_BH035							SMW_B H038				
Calcium - Dissolved	Calcium - Dissolved	681.6	mg/L	160	27	37	60	46	34	13	22	220	45	250	65	270	37	55	150	190	27	76	45	34	410	390	410	470	470	480	230	280	260	98	240
Potassium - Dissolved	Potassium - Dissolved	54	mg/L	24	5	6	7.1	9.2	9.8	5	6.6	18	4	17	5	19	3	4	8.4	8.6	4	6.7	5	4	40	40	39	43	47	43	3	4	3	22	6.7
Sodium - Dissolved	Sodium - Dissolved	3120	mg/L	1200	340	450	770	740	600	440	550	220	99	220	160	190	87	100	180	170	66	140	85	340	1700	2300	2500	2700	2600	1900	58	95	100	1200	340
Magnesium - Dissolved	Magnesium - Dissolved	7308	mg/L	150	12	22	35	55	50	15	29	<0.5	13	<0.5	20	<0.5	10	16	39	48	8.1	22	11	12	260	260	310	340	360	340	<0.5	<0.5	<0.5	170	<0.5
Hardness	Hardness	2520	mgCaCO3	1000	120	180	290	340	290	93	180	550	170	610	250	670	130	200	540	670	100	280	160	130	2100	2000	2300	2600	2700	2600	580	710	660	960	590
Hydroxide Alkalinity (OH-) as CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	768	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	610	<5	640	<5	540	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	230	350	440	<5	210
Bicarbonate Alkalinity as CaCO3	Bicarbonate Alkalinity as CaCO3	778.8	mg/L	500	94	100	85	50	19	61	36	<5	240	<5	280	<5	210	200	130	81	70	110	120	150	560	600	660	650	670	600	<5	<5	<5	370	<5
Carbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	74.4	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	59	<5	57	<5	60	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	62	59	40	<5	33
Total Alkalinity as CaCO3	Total Alkalinity as CaCO3	840	mg/L	500	94	100	85	50	19	61	36	670	240	700	280	600	210	200	130	81	70	110	120	150	560	600	660	650	670	600	290	410	490	370	240
Sulphate, SO4	Sulphate, SO4	600	mg/L	24	230	310	530	560	480	350	440	17	60	<1	91	24	57	91	580	730	150	210	140	240	32	22	13	17	11	33	280	260	260	230	260
Chloride, Cl	Chloride, Cl	6948	mg/L	2400	360	610	1100	1100	920	390	730	280	90	290	180	310	66	78	130	73	52	170	81	390	4100	4000	6100	5300	4600	4400	92	170	140	2100	480
Ionic Balance	Ionic Balance	8.4	%	-2	2	-4	-5	-6	-6	4	-5	-1	-5	0	-1	2	-4	3	2	5	-9	2	-4	-4	-4	7	-8	2	8	-1	0	0	-4	1	6
Ammonia (as N in water)	Ammonia (as N in water)	1.68	mg/L	0.64	0.066	0.096	0.17	0.15	0.18	0.065	0.18	0.86	<0.005	0.91	0.043	0.69	0.036	0.027	0.073	0.12	0.12	0.071	0.085	0.071	0.93	1.4	2.1	2	2.2	1.4	0.074	<0.005	0.007	2.2	<0.005
Nitrate as N in water	Nitrate as N in water	2.4	mg/L	1.4	0.072	0.13	0.01	0.01	0.01	0.02	0.007	1.1	0.02	0.82	0.04	1.5	0.02	0.01	0.44	0.14	0.3	0.11	0.008	0.02	0.89	2	0.87	2.8	2.7	2.6	0.53	0.74	0.51	0.19	0.32
Total Nitrogen in water	Total Nitrogen in water	3.6	mg/L	2.6	0.3	0.5	0.7	1.3	0.5	0.4	0.5	2.5	0.1	3	0.4	3	0.2	0.1	1.4	0.4	0.7	0.7	0.3	0.2	2.2	2.5	3.9	5.1	5.2	4.4	0.7	1	1	2.7	1.4
Dichlorodifluoromethane	Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloromethane	Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	Chloroethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	Cis-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	Chloroform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2,2-dichloropropane	2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	Cyclohexane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	Trichloroethene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichloropropane	1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	1,1,1,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	Chlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2
Styrene	Styrene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	Isopropylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	n-propyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	1,2,4-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	Sec-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	4-isopropyl toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	1,2,4-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	TRH C6 - C9	100	µg/L	<10	<10	<10	<2	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10	TRH C6 - C10	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	TRH C6 - C10 lessBTEX (F1)	100	µg/L	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	Benzene	1	µg/L	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<1	<2	<2	<2	<2	<2	<2	<2	<2
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	Naphthalene	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C10 - C14	TRH C10 - C14	96	µg/L	<50	<50	<50	<1	<50	<50	<50	<50	<50	<50	<50	80	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH C15 - C28	TRH C15 - C28	360	µg/L	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100	<100	300	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH C29 - C36	TRH C29 - C36	516	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	430	<100	<100	<100	<100	<100	130	110	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (C10-C36)	Total +ve TRH (C10-C36)	972	µg/L	<50	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	810	<50	<50	<50	<50	<50	130	110	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C10 - C16	TRH >C10 - C16	76.8	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	64	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C10 - C16less Naphthalene (F2)	TRH >C10 - C16less Naphthalene (F2)	76.8	µg/L	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	64	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
TRH >C16 - C34	TRH >C16 - C34	684	µg/L	<100	<100	<100	<50	<100	<100	<100	<100	<100	<100	<100	570	<100	<100	<100	<100	<100	170	170	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
TRH >C34 - C40	TRH >C34 - C40	252	µg/L	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	210	<100	<100	<100	<100	<100	120	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	Total +ve TRH (>C10-C40)	1008	µg/L	<50	<50	<50	<100	<50	<50	<50	<50	<50	<50	<50	840	<50	<50	<50	<50	<50	290	170	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Naphthalene	Naphthalene	10	µg/L	<0.2	<0.2	<0.2	<50	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.2	<0.1
Acenaphthylene	Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1
Acenaphthene	Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	Phenanthrene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<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
Benzo(a)pyrene	Benzo(a)pyrene	1	µg/L	<0.1	<0.1	<0.1	<0.2	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +vePAH's	Total +vePAH's	10	µg/L	<0.1	<0.1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	Perfluorobutanesulfonic acid	0.06	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	<0.01	0.02	<0.01	0.05	0.01	0.03	<0.01	<0.1	0.01	<0.01	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	Perfluoropentanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	Perfluorohexanesulfonic acid - PFHxS	0.036	µg/L	<0.01	0.03	0.03	0.02	0.02	0.02	0.06	0.03	0.01	0.02	<0.01	0.03	0.01	0.01	<0.01	0.04	0.02	0.02	0.03	0.03	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01
Perfluoroheptanesulfonic acid	Perfluoroheptanesulfonic acid	0.1	µg/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	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	Perfluorooctanesulfonic acid PFOS	0.06	µg/L	<0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.02	0.02	0.03	<0.01	0.02	<0.01	0.01	<0.01	<0.01	0.01	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	Perfluorodecanesulfonic acid	1.26	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	Perfluorobutanoic acid	0.024	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.04	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	Perfluoropentanoic acid	0.036	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	<0.02	<0.02
Perfluorohexanoic acid	Perfluorohexanoic acid	0.12	µg/L	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.01	<0.01	0.01	0.02	0.01	<0.01	<0.02	0.01	0.02	0.02	0.02	0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.02	0.02	<0.01
Perfluoroheptanoic acid	Perfluoroheptanoic acid	0.012	µg/L	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	Perfluorooctanoic acid PFOA	0.036	µg/L	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.02	<0.01	0.01	0.02	0.01	0.02	0.02	<0.01	<0.01	0.03	0.02	0.04	0.04	0.04	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorononanoic acid	Perfluorononanoic acid	0.1	µg/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	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.02	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	6:2 FTS	1.188	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01	0.12	<0.01	0.1	<0.01	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01
8:2 FTS	8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.01	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.02	<0.05	<0.05	<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	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	N-Me perfluorooctanesulfonamidoethanol	0.5	µg/L	<0.05	<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	<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	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	N-Et perfluorooctanesulfonamidoethanol	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.5
MePerfluorooctanesulf-amid oacetic acid	MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.1	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.5	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.05	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	Total Positive PFHxS & PFOS	0.072	µg/L	<0.01	0.05	0.04	0.02	0.02	0.02	<0.5	0.03	0.03	0.04	0.02	0.06	0.01	0.03	<0.02	0.05	0.02	0.02	0.04	0.04	0.06	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	0.01	0.03	0.01
Total Positive PFOA & PFOS	Total Positive PFOA & PFOS	0.06	µg/L	<0.01	0.03	0.03	<0.01	<0.01	<0.01	<0.02	<0.01	0.03	0.04	0.03	0.05	0.02	0.02	0.03	0.04	0.02	0.04	0.05	0.05	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.03	<0.01
Total Positive PFAS	Total Positive PFAS	1.26	µg/L	<0.01	0.09	0.07	0.02	0.02	0.02	<0.02	0.03	0.2	0.06	0.19	0.16	0.19	0.03	0.04	0.13	0.06	0.08	0.14	0.1	0.17	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.05	0.01	0.08	0.04	0.03
Arsenic-Dissolved	Arsenic-Dissolved	4.8	µg/L	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	9	<1
Boron-Dissolved	Boron-Dissolved	120	µg/L	50	100	70	50	60	50	80	50	<20	100	<20	100	30	70	100	100	100	90	90	90	90	70	50	70	70	50	60	<20	40	<20	60	30
Barium-Dissolved	Barium-Dissolved	3720	µg/L	1400	46	41	38	32	39	16	24	670	52	650	76	680	53	62	120	53	52	60	35	37	2100	3100	6100	4800	5000	1900	80	120	110	76	100
Beryllium-Dissolved	Beryllium-Dissolved	5	µg/L	<0.5	<0.5	<0.5	<0.5	3	4	0.6	2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	Cadmium-Dissolved	0.48	µg/L	<0.1	<0.1	0.1	0.1	0.3	0.4	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.7	<0.1	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
Chromium-Dissolved	Chromium-Dissolved	69.6	µg/L	<1	<1	<1	<1	<1	<1	<1	1	58	<1	57	<1	56	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	9	14	13	<1	11
Copper-Dissolved	Copper-Dissolved	9.6	µg/L	2	3	1	<1	4	12	4	3	7	6	8	5	8	2	10	4	3	4	3	3	<1	<1	1	9	1	2	1	8	4	5	<1	4
Cobalt-Dissolved	Cobalt-Dissolved	114	µg/L	4	24	39	66	98	110	20	67	3	1	3	23	3	7	10	130	390	38	52	32	29	5	4	7	2	2	1	<1	<1	<1	<1	<1
Mercury-Dissolved	Mercury-Dissolved	0.05	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	Manganese-Dissolved	3480	µg/L	150	1300	2900	5400	6900	5100	1200	3900	<5	230	<5	1800	<5	980	1400	9100	13000	2300	3400	3100	1600	190	250	330	210	230	190	<5	<5	<5	7	<5
Molybdenum-Dissolved	Molybdenum-Dissolved	50.4	µg/L	2	1	1	3	<1	<1	<1	<1	42	1	42	2	41	3	2	3	<1	<1	<1	<1	<1	1	1	2	<1	<1	1	5	6	7	7	9
Nickel-Dissolved	Nickel-Dissolved	126	µg/L	11	20	35	55	98	99	19	65	2	5	3	13	3	4	19	61	180	22	24	28	15	11	12	14	9	14	6	<1	1	<1	1	<1
Lead-Dissolved	Lead-Dissolved	49.2	µg/L	<1	41	<1	<1	<1	<1	<1	<1	1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Antimony-Dissolved	Antimony-Dissolved	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	1	1	<1	1
Selenium-Dissolved	Selenium-Dissolved	1	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin-Dissolved	Tin-Dissolved	10	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	Zinc-Dissolved	583.2	µg/L	10	180	190	310	660	770	210	470	<1	44	22	20	24	16	96	110	690	120	57	69	85	18	13	10	5	10	10	3	4	3	1	4
Iron-Dissolved	Iron-Dissolved	5760	µg/L	<10	1900	1900	4800	5400	40	300	4400	150	<10	180	<10	170	<10	170	10	280	<10	<10	<10	690	10	<10	3800	<10	<10	<10	<10	<10	<10	<10	<10
Arsenic-Total	Arsenic-Total	62.4	µg/L	4	10	18	47	13	15	6	6	<1	3	<1	52	<1	5	1	11	14	9	14	8	10	<1	1	3	<1	<1	<1	<1	<1	<1	10	<1
Boron-Total	Boron-Total	120	µg/L	60	100	70	90	50	30	70	40	<20	100	<20	100	20	80	90	100	100	100	80	90	100	80	60	70	60	50	60	20	30	20	50	<20
Barium-Total	Barium-Total	11640	µg/L	9300	310	890	1500	400	700	120	210	760	770	650	9700	760	990	84	2600	1600	1500	1800	1200	660	5000	6800	13000	8600	8600	2800	89	170	120	81	170
Beryllium-Total	Beryllium-Total	37.2	µg/L	<0.5	14	22	57	19	33	6	11	<0.5	1	<0.5	31	<0.5	1	<0.5	13	6	3	4	4	7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Total	Cadmium-Total	1.632	µg/L	<0.1	1	1	2.6	0.5	0.7	0.3	0.5	<0.1	<0.1	<0.1	0.8	<0.1	0.1	<0.1	1.5	1.3	0.7	0.9	0.7	0.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Total	Chromium-Total	102	µg/L	18	45	80	170	36	64	15	23	65	24	69	71	85	8	1	55	18	14	20	14	29	9	25	15	6	12	28	10	27	29	3	15
Copper-Total	Copper-Total	816	µg/L	18	200	420	950	200	440	87	130	9	20	11	680	12	36	12	320	110	99	120	80	150	4	12	9	4	6	5	17	9	10	<1	7
Cobalt-Total	Cobalt-Total	336	µg/L	9	75	100	230	130	170	32	79	3	15	3	280	4	17	11	400	440	100	180	240	59	6	5	10	3	2	1	<1	<1	<1	<1	<1
Mercury-Total	Mercury-Total	1.128	µg/L	0.06	0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.1	<0.05	0.94	<0.05	0.1	0.08	<0.05	<0.05	<0.05	0.3	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	Manganese-Total	10200	µg/L	230	2600	4700	9200	7600	8300	1300	4300	<5	930	13	8500	18	1200	1600	19000	18000	4900	6000	8600	2300	240	250	420	220	230	200	19	11	15	21	<5
Molybdenum-Total	Molybdenum-Total	58.8	µg/L	2	1	2	2	<1	<1	<1	<1	44	3	41	5	49	2	1	3	2	1	1	<1	2	3	3	3	<1	2	3	5	8	7	7	10
Nickel-Total	Nickel-Total	168	µg/L	16	77	140	300	140	170	37	87	4	15	11	120	12	11	23	200	210	44	63	68	58	15	32	23	11	17	17	5	6	9	3	3
Lead-Total	Lead-Total	312	µg/L	15	54	110	220	45	83	20	24	2	11	2	260	2	17	2	95	43	36	52	31	34	2	4	6	2	2	1	2	1	1	<1	<1
Antimony-Total	Antimony-Total	2.4	µg/L	1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	2	2	<1	2
Selenium-Total	Selenium-Total	4.8	µg/L	<1	<1	1	3	<1	1	<1	3	<1	<1	<1	4	<1	<1	<1	2	<1	<1	1	3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin-Total	Tin-Total	14.4	µg/L	2	<1	3	2	1	<1	1	<1	<1	<1	<1	5	<1	<1	<1	<1	1	<1	1	<1	3	<1	12	2	<1	1	1	<1	<1	<1	<1	1
Zinc-Total	Zinc-Total	1320	µg/L	51	700	1100	2600	1100	1600	390	750	13	61	42	880	40	64	110	910	960	350	470	340	660	25	74	62	20	18	17	36	19	17	2	6
Iron-Total	Iron-Total	120000	µg/L	7100	49000	100000	250000	75000	83000	20000	33000	290	4200	440	48000	620	7100	970	48000	42000	17000	26000	17000	38000	1400	2500	8500	1700	1100	860	380	270	650	290	100

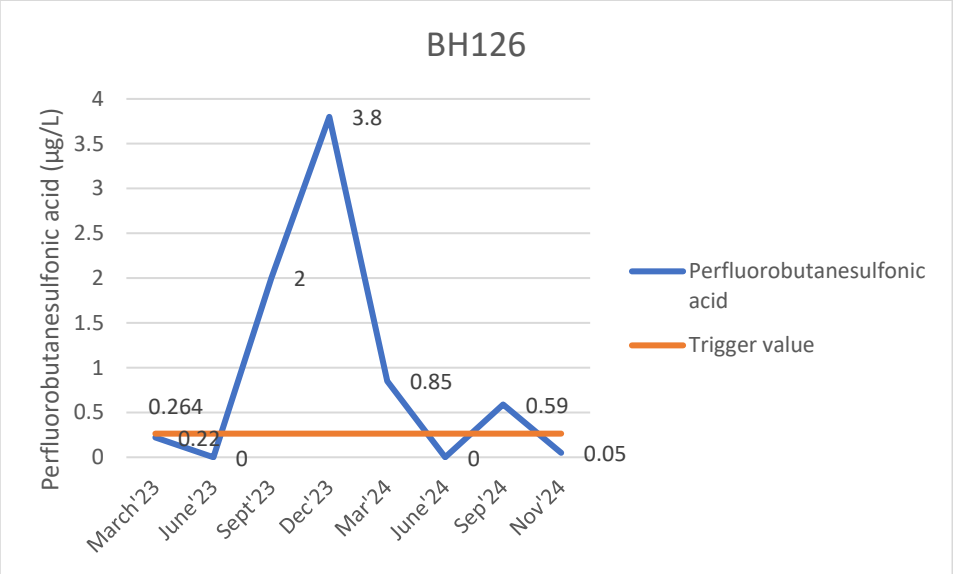
Site			North Strathfield			
Month			Feb-24	May-24	Aug-24	Nov-24
Borehole numbers	Trigger values	Unit	SMW_8 H038			
Calcium - Dissolved	681.6	mg/L	190	120	110	110
Potassium - Dissolved	54	mg/L	5.6	6.9	3	4
Sodium - Dissolved	3120	mg/L	200	300	19	20
Magnesium - Dissolved	7308	mg/L	<0.5	<0.5	2	3
Hardness	2520	mgCaCO3/L	460	300	280	290
Hydroxide Alkalinity (OH-) as CaCO3	768	mg/L	170	150	<5	<5
Bicarbonate Alkalinity as CaCO3	7778.8	mg/L	<5	<5	42	68
Carbonate Alkalinity as CaCO3	74.4	mg/L	38	43	<5	<5
Total Alkalinity as CaCO3	840	mg/L	210	190	42	68
Sulphate, SO4	600	mg/L	160	250	220	220
Chloride, Cl	6948	mg/L	280	480	33	42
Ionic Balance	8.4	%	8	-8	2	-3
Ammonia (as N in water)	1.68	mg/L	0.095	0.01	<0.005	0.011
Nitrate as N in water	2.4	mg/L	0.36	0.33	0.61	0.87
Total Nitrogen in water	3.6	mg/L	1	1	0.7	1
Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10
Chloromethane	100	µg/L	<10	<10	<10	<10
Vinyl Chloride	10	µg/L	<10	<10	<10	<10
Bromomethane	10	µg/L	<10	<10	<10	<10
Chloroethane	100	ust.	<10	<10	<10	<10
Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10
1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1
Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1
1,1-dichloroethane	10	µg/L	<1	<1	<1	<1
Cis-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1
Bromochloromethane	10	µg/L	<1	<1	<1	<1
Chloroform	10	µg/L	<1	<1	<1	<1
2,2-dichloropropane	10	µg/L	<1	<1	<1	<1
1,2-dichloroethane	10	µg/L	<1	<1	<1	<1
1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1
1,1-dichloropropene	10	µg/L	<1	<1	<1	<1
Cyclohexane	10	µg/L	<1	<1	<1	<1
Carbon tetrachloride	1	µg/L	<1	<1	<1	<1
Benzene	1	µg/L	<1	<1	<1	<1
Dibromomethane	10	µg/L	<1	<1	<1	<1
1,2-dichloropropane	10	µg/L	<1	<1	<1	<1
Trichloroethene	1	ust.	<1	<1	<1	<1
Bromodichloromethane	1	µg/L	<1	<1	<1	<1
trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1
cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1
1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1
Toluene	10	µg/L	<1	<1	<1	<1
1,3-dichloropropane	10	µg/L	<1	<1	<1	<1
Dibromochloromethane	10	µg/L	<1	<1	<1	<1
1,2-dibromoethane	10	µg/L	<1	<1	<1	<1
Tetrachloroethene	10	µg/L	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	10	ust.	<1	<1	<1	<1
Chlorobenzene	10	µg/L	<1	<1	<1	<1
Ethylbenzene	10	µg/L	<1	<1	<1	<1
Bromoform	10	µg/L	<1	<1	<1	<1
m+p-xylene	20	µg/L	<2	<2	<2	<2
Styrene	10	µg/L	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1
o-xylene	10	µg/L	<1	<1	<1	<1
1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1
Isopropylbenzene	10	µg/L	<1	<1	<1	<1
Bromobenzene	10	µg/L	<1	<1	<1	<1
n-propyl benzene	10	µg/L	<1	<1	<1	<1
2-chlorotoluene	10	µg/L	<1	<1	<1	<1
4-chlorotoluene	10	µg/L	<1	<1	<1	<1
1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1
Tert-butyl benzene	10	µg/L	<1	<1	<1	<1
1,2,4-trimethyl benzene	10	µg/L	<1	<1	<1	<1
1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1
Sec-butyl benzene	10	µg/L	<1	<1	<1	<1
1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1
4-isopropyl toluene	10	µg/L	<1	<1	<1	<1
1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1
n-butyl benzene	10	µg/L	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1
1,2,4-trichlorobenzene	10	ust.	<1	<1	<1	<1
Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1
1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1
TRH C6 - C9	100	µg/L	<10	<10	<10	<10
TRH C6 - C10	100	ust.	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	100	µg/L	<10	<10	<10	<10
Benzene	1	µg/L	<1	<1	<1	<1
Toluene	10	ust.	<1	<1	<1	<1
Ethylbenzene	10	µg/L	<1	<1	<1	<1
m+p-xylene	20	µg/L	<2	<2	<2	<2
o-xylene	10	µg/L	<1	<1	<1	<1
Naphthalene	10	ust.	<1	<1	<1	<1
TRH C10 - C14	96	µg/L	<50	<50	<50	<50
TRH C15 - C28	360	µg/L	<100	<100	<100	<100
TRH C29 - C36	516	µg/L	<100	<100	<100	<100
Total +ve TRH (C10-C36)	972	µg/L	<50	<50	<50	<50
TRH >C10 - C16	76.8	µg/L	<50	<50	<50	<50
TRH >C10 - C16less Naphthalene (F2)	76.8	µg/L	<50	<50	<50	<50
TRH >C16 - C34	684	ust.	<100	<100	<100	<100
TRH >C34 - C40	252	µg/L	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	1008	µg/L	<50	<50	<50	<50
Naphthalene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Phenanthrene	1	ust.	<0.1	<0.1	<0.1	<0.1
Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1
Fluoranthene	1	µg/L	<0.1	<0.1	<0.1	<0.1
Pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Chrysene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	20	µg/L	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	1	ust.	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	10	µg/L	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5
Total +vePAH's	10	µg/L	<0.1	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	0.06	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	0.036	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	0.06	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	1.26	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	0.024	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	0.036	ust.	<0.02	0.02	<0.02	0.02
Perfluorohexanoic acid	0.12	µg/L	0.02	0.02	<0.01	0.01
Perfluoroheptanoic acid	0.012	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	0.036	µg/L	0.01	0.01	<0.01	<0.01
Perfluorononanoic acid	0.1	µg/L	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	0.5	ust.	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5
4:2 FTS	0.1	µg/L	<0.01	<0.01	<0.01	<0.01
6:2 FTS	1.188	µg/L	<0.01	<0.01	<0.01	<0.01
8:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02
10:2 FTS	0.2	µg/L	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	1	ust.	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	0.5	µg/L	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	5	µg/L	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/L	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	0.072	ust.	<0.01	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	0.06	µg/L	0.01	0.01	<0.01	<0.01
Total Positive PFAS	1.26	µg/L	0.04	0.05	<0.01	0.03
Arsenic- Dissolved	4.8	µg/L	<1	<1	<1	<1
Boron- Dissolved	120	µg/L	<20	20	<20	20
Barium- Dissolved	3720	µg/L	110	94	40	41
Beryllium- Dissolved	5	µg/L	<0.5	<0.5	<0.5	<0.5
Cadmium- Dissolved	0.48	ust.	<0.1	<0.1	<0.1	<0.1
Chromium- Dissolved	69.6	µg/L	8	10	1	2
Copper- Dissolved	9.6	µg/L	6	4	3	6
Cobalt- Dissolved	114	µg/L	<1	<1	<1	<1
Mercury- Dissolved	0.05	ust.	<0.05	<0.05	<0.05	<0.05
Manganese- Dissolved	3480	µg/L	<5	<5	<5	<5
Molybdenum- Dissolved	96.4	µg/L	7	9	2	3
Nickel- Dissolved	126	ust.	<1	<1	<1	<1
Lead- Dissolved	49.2	µg/L	<1	<1	<1	<1
Antimony- Dissolved	2.4	µg/L	2	1	1	2
Selenium- Dissolved	1	µg/L	<1	<1	<1	<1
Tin- Dissolved	10	µg/L	<1	<1	<1	<1
Zinc- Dissolved	583.2	µg/L	<1	5	<1	3
Iron- Dissolved	5760	µg/L	<10	<10	<10	<10
Arsenic- Total	62.4	ust.	<1	<1	<1	<1
Boron- Total	120	µg/L	<20	30	<20	30
Barium- Total	11640	µg/L	120	120	49	49
Beryllium- Total	37.2	µg/L	<0.5	<0.5	<0.5	<0.5
Cadmium- Total	1.632	ust.	<0.1	<0.1	<0.1	<0.1
Chromium- Total	102	µg/L	12	14	2	3
Copper- Total	816	µg/L	5	10	4	12
Cobalt- Total	336	ust.	<1	<1	<1	<1
Mercury- Total	1.128	µg/L	<0.05	<0.05	<0.05	<0.05
Manganese- Total	10200	µg/L	<5	15	9	17
Molybdenum- Total	58.8	µg/L	9	9	3	2
Nickel- Total	168	ust.	1	3	2	2
Lead- Total	312	µg/L	<1	1	<1	1
Antimony- Total	2.4	µg/L	1	2	2	2
Selenium- Total	4.8	µg/L	<1	<1	<1	<1
Tin- Total	14.4	µg/L	<1	<1	<1	<1
Zinc- Total	1320	µg/L	6	22	7	13
Iron- Total	120000	µg/L	40	500	150	160

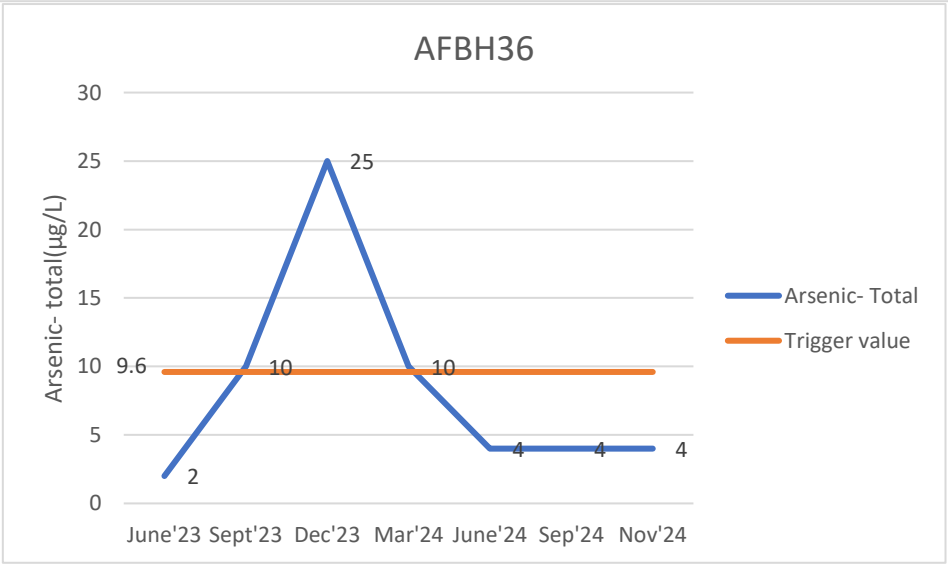
Site				The Bays																					
Month	Month			Mar-23	Jun-23	Jun-24	Nov-24	Mar-23	Jun-23	Sep-23	Dec-23	Mar-24	Jun-24	Sep-24	Nov-24	Mar-23	Sep-23	Dec-23	Mar-24	Jun-24	Mar-23	Mar-23	Mar-23	Sep-24	Nov-24
Borehole numbers	Borehole numbers	Trigger values	Unit	S_02s				S_02d								S06									
Calcium - Dissolved	Calcium - Dissolved	564	mg/L	56	100	63	88	27	82	51	92	28	64	110	77	36	50	43	49	39	420	45	17	43	48
Potassium - Dissolved	Potassium - Dissolved	540	mg/L	15	14	10	56	24	16	22	41	17	8.9	12	13	35	30	32	26	7.4	370	4	1	27	44
Sodium - Dissolved	Sodium - Dissolved	13200	mg/L	29	51	79	180	360	32	200	560	320	76	88	110	110	140	130	75	16	9300	170	5	130	120
Magnesium - Dissolved	Magnesium - Dissolved	1680	mg/L	3	19	4	7.2	13	7	11	26	9.8	9	18	13	22	28	29	15	6.1	1300	19	0.7	28	17
Hardness	Hardness	8400	mgCaCO3	150	330	180	250	120	230	170	340	110	200	350	240	180	240	230	180	120	6400	190	45	220	190
Hydroxide Alkalinity (OH-) as CaCO3	Hydroxide Alkalinity (OH-) as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as CaCO3	Bicarbonate Alkalinity as CaCO3	972	mg/L	810	370	270	230	750	260	200	490	260	140	280	210	630	450	480	320	190	150	35	40	460	330
Carbonate Alkalinity as CaCO3	Carbonate Alkalinity as CaCO3	50	mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Total Alkalinity as CaCO3	Total Alkalinity as CaCO3	972	mg/L	810	370	270	230	750	260	200	490	260	140	280	210	630	450	480	320	190	150	35	40	460	330
Sulphate, SO4	Sulphate, SO4	3000	mg/L	24	30	38	60	150	34	99	200	75	36	69	75	22	23	24	63	10	2500	300	20	20	33
Chloride, Cl	Chloride, Cl	20400	mg/L	32	67	160	310	570	29	280	1000	300	150	200	220	160	110	98	77	24	17000	210	8	78	150
Ionic Balance	Ionic Balance	16.8	%	-58	-4	-19	-2	-30	-2	-4	-13	4	-2	-6	-8	-31	-4	-7	-13	-16	-1	-6	-12	-5	-6
Ammonia (as N in water)	Ammonia (as N in water)	6.48	mg/L	0.52	0.57	0.63	2.5	0.48	0.66	0.21	0.7	0.33	0.96	1.5	11	1.3	1.3	1.4	0.68	0.5	0.11	0.078	0.069	1.3	1.1
Nitrate as N in water	Nitrate as N in water	1.2	mg/L	0.057	0.087	0.02	0.008	<0.005	0.02	<0.005	<0.005	0.13	0.59	0.077	0.098	1	0.15	<0.005	0.74	0.11	0.17	0.06	0.18	0.02	0.98
Total Nitrogen in water	Total Nitrogen in water	7.44	mg/L	1	1.4	1.1	2.5	0.8	1.6	1	1.6	0.9	1.8	5.2	24	1.5	2	3.5	1.7	0.9	0.4	0.5	0.5	4.9	2.3
Dichlorodifluoromethane	Dichlorodifluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloromethane	Chloromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Vinyl Chloride	Vinyl Chloride	10	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bromomethane	Bromomethane	10	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Chloroethane	Chloroethane	100	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	Trichlorofluoromethane	100	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	1,1-Dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-dichloroethene	Trans-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	1,1-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-dichloroethene	Cis-1,2-dichloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	Bromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	Chloroform	1.2	µg/L	<1	<1	2	<1	1	<1	<10	<1	<1	<1	6	1	<1	<1	<1	2	<1	<1	<1	<1	1	<1
2,2-dichloropropane	2,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloroethane	1,2-dichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	1,1,1-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-dichloropropene	1,1-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Cyclohexane	Cyclohexane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon tetrachloride	Carbon tetrachloride	1	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	Benzene	1	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	Dibromomethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	1,2-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	Trichloroethene	1	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	Bromodichloromethane	1	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	trans-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	cis-1,3-dichloropropene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	1,1,2-trichloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichloropropane	1,3-dichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	Dibromochloromethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromoethane	1,2-dibromoethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	Tetrachloroethene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1,2-tetrachloroethane	1,1,1,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	Chlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromoform	Bromoform	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Styrene	Styrene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	1,1,2,2-tetrachloroethane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichloropropane	1,2,3-trichloropropane	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Isopropylbenzene	Isopropylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromobenzene	Bromobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-propyl benzene	n-propyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
2-chlorotoluene	2-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-chlorotoluene	4-chlorotoluene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,3,5-trimethyl benzene	1,3,5-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tert-butyl benzene	Tert-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trimethyl benzene	1,2,4-trimethyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
1,3-dichlorobenzene	1,3-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Sec-butyl benzene	Sec-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,4-dichlorobenzene	1,4-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4-isopropyl toluene	4-isopropyl toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dichlorobenzene	1,2-dichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
n-butyl benzene	n-butyl benzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	1,2-dibromo-3-chloropropane	1	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,4-trichlorobenzene	1,2,4-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Hexachlorobutadiene	Hexachlorobutadiene	1	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	1,2,3-trichlorobenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C6 - C9	TRH C6 - C9	68.4	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10	TRH C6 - C10	68.4	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
TRH C6 - C10 lessBTEX (F1)	TRH C6 - C10 lessBTEX (F1)	68.4	µg/L	<10	<10	<10	<10	<10	<10	<100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Benzene	Benzene	1	µg/L	<1	<1	<1	<1	<1	<10	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	Toluene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	Ethylbenzene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m+p-xylene	m+p-xylene	20	µg/L	<2	<2	<2	<2	<2	<1	<20	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-xylene	o-xylene	10	µg/L	<1	<1	<1	<1	<1	<2	<10	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Naphthalene	Naphthalene	10	µg/L	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
TRH C10 - C14	TRH C10 - C14	132	µg/L	<50	110	<50	<50	<50	70	140	69	110	<50	95	91	<50	65	69	83	67	<50	<50	<50	<50	<50
TRH C15 - C28	TRH C15 - C28	528	µg/L	180	440	200	220	130	800	700	580	830	<100	590	550	<100	260	580	340	230	<100	<100	100	150	290
TRH C29 - C36	TRH C29 - C36	468	µg/L	160	<100	250	130	<100	610	270	450	780	110	320	240	<100	<100	450	170	<100	<100	120	<100	110	250
Total +ve TRH (C10-C36)	Total +ve TRH (C10-C36)	684	µg/L	350	540	450	350	130	1500	1100	1100	1700	110	1000	880	<50	330	1100	590	300	<50	120	100	250	540
TRH >C10 - C16	TRH >C10 - C16	204	µg/L	<50	170	<50	53	<50	110	200	91	120	<50	140	150	<50	140	91	94	110	<50	<50	<50	<50	51
TRH >C10 - C16less Naphthalene (F2)	TRH >C10 - C16less Naphthalene (F2)	204	µg/L	<50	170	<50	53	<50	110	200	91	120	<50	140	150	<50	140	91	94	110	<50	<50	<50	<50	51
TRH >C16 - C34	TRH >C16 - C34	516	µg/L	300	410	380	310	170	1200	820	830	1400	170	780	660	<100	190	830	430	250	<100	160	150	210	450
TRH >C34 - C40	TRH >C34 - C40	408	µg/L	<100	<100	140	<100	<100	390	<100	280	440	<100	110	<100	<100	<100	280	110	<100	<100	<100	<100	<100	170
Total +ve TRH (>C10-C40)	Total +ve TRH (>C10-C40)	924	µg/L	300	580	530	360	170	1700	1000	1200	1900	170	1000	810	<50	340	1700	630	360	<50	160	150	210	670
Naphthalene	Naphthalene	10	µg/L	<0.2	<0.2	<0.1	<0.1	<0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.1
Acenaphthylene	Acenaphthylene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	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	<0.1	<0.1	<0.1
Acenaphthene	Acenaphthene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	Fluorene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	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	<0.1	<0.1	<0.1
Phenanthrene	Phenanthrene	0.72	µg/L	0.3	<0.1	0.2	<0.1	0.1	1	0.2	0.3	0.4	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	Anthracene	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	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	<0.1	<0.1	<0.1
Fluoranthene	Fluoranthene	0.48	µg/L	0.4	<0.1	0.4	<0.1	0.2	1.5	0.3	0.5	0.7	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.4	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Pyrene	Pyrene	10	µg/L	0.6	<0.1	0.4	<0.1	0.2	1.8	0.3	0.6	0.8	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.4	<0.1	0.2	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	Benzo(a)anthracene	0.36	µg/L	0.3	<0.1	0.3	<0.1	<0.1	0.9	0.2	0.3	0.4	<0.1	<0.1	<0.1	<0.1	0.2	0.2	0.3	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	Chrysene	0.36	µg/L	0.3	<0.1	0.2	<0.1	<0.1	0.9	0.2	0.3	0.4	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.3	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	Benzo(b,j+k)fluoranthene	0.6	µg/L	0.5	<0.2	0.5	<0.2	<0.2	1	0.3	0.5	0.7	<0.2	<0.2	<0.2	<0.2	0.3	0.2	0.5	<0.2	0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	Benzo(a)pyrene	0.36	µg/L	0.3	<0.1	0.3	<0.1	<0.1	1	0.2	0.3	0.4	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.3	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	Indeno(1,2,3-c,d)pyrene	0.24	µg/L	0.2	<0.1	0.2	<0.1	<0.1	0.5	<0.1	0.2	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	Dibenzo(a,h)anthracene	10	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	Benzo(g,h,i)perylene	0.36	µg/L	0.3	<0.1	0.2	<0.1	<0.1	0.9	0.1	0.3	0.4	<0.1	<0.1	<0.1	<0.1	0.1	0.1	0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	Benzo(a)pyrene TEQ	50	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total +vePAH's	Total +vePAH's	3.72	µg/L	3.1	<0.1	2.7	<0.1	0.52	11	1.9	3.3	4.6	<0.1	<0.1	<0.1	<0.1	1.5	1.3	3	<0.1	1	<0.1	<0.1	<0.1	<0.1
Perfluorobutanesulfonic acid	Perfluorobutanesulfonic acid	0.156	µg/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	0.1	0.1	0.1	0.02	<0.01	<0.01	<0.01	<0.01	0.05	0.04
Perfluoropentanesulfonic acid	Perfluoropentanesulfonic acid	0.168	µg/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	0.12	0.11	0.11	0.02	<0.01	<0.01	<0.01	<0.01	0.07	0.05
Perfluorohexanesulfonic acid - PFHxS	Perfluorohexanesulfonic acid - PFHxS	0.96	µg/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	0.79	0.76	0.81	0.13	0.03	<0.01	<0.01	<0.01	0.53	0.34
Perfluoroheptanesulfonic acid	Perfluoroheptanesulfonic acid	0.048	µg/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	0.03	0.04	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.01
Perfluorooctanesulfonic acid PFOS	Perfluorooctanesulfonic acid PFOS	1.2	µg/L	0.01	<0.01	0.01	0.03	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.6	1.1	1	0.17	0.04	<0.01	<0.01	<0.01	0.74	0.45
Perfluorodecanesulfonic acid	Perfluorodecanesulfonic acid	0.744	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	Perfluorobutanoic acid	0.036	µg/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	0.02	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	Perfluoropentanoic acid	0.048	µg/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	0.03	0.03	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	<0.02
Perfluorohexanoic acid	Perfluorohexanoic acid	0.216	µg/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	0.14	0.15	0.15	0.03	<0.01	<0.01	<0.01	<0.01	0.1	0.06
Perfluoroheptanoic acid	Perfluoroheptanoic acid	0.036	µg/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	0.02	0.02	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01
Perfluorooctanoic acid PFOA	Perfluorooctanoic acid PFOA	0.072	µg/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	0.04	0.04	0.03	0.01	<0.01	<0.01	<0.01	<0.01	0.03	0.02
Perfluorononanoic acid	Perfluorononanoic acid	0.1	µg/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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	Perfluorodecanoic acid	0.2	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	Perfluoroundecanoic acid	0.2	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	Perfluorododecanoic acid	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	Perfluorotridecanoic acid	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	Perfluorotetradecanoic acid	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	4:2 FTS	0.1	µg/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	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	6:2 FTS	0.744	µg/L	0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.03
8:2 FTS	8:2 FTS	0.2	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	10:2 FTS	0.2	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	Perfluorooctane sulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	N-Methyl perfluorooctane sulfonamide	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfonamide	N-Ethyl perfluorooctanesulfonamide	1	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	N-Me perfluorooctanesulfonamidoethanol	0.5	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	N-Et perfluorooctanesulfonamidoethanol	5	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf-amid oacetic acid	MePerfluorooctanesulf-amid oacetic acid	0.2	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf-amid oacetic acid	EtPerfluorooctanesulf-amid oacetic acid	0.2	µg/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	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Positive PFHxS & PFOS	Total Positive PFHxS & PFOS	2.16	µg/L	0.01	<0.01	0.01	0.03	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	1.4	1.8	1.8	0.3	0.07	<0.01	<0.01	<0.01	1.3	0.79
Total Positive PFOA & PFOS	Total Positive PFOA & PFOS	1.32	µg/L	0.01	<0.01	0.01	0.04	<0.01	0.03	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	0.63	1.1	1.1	0.18	0.04	<0.01	<0.01	<0.01	0.77	0.47
Total Positive PFAS	Total Positive PFAS	2.88	µg/L	0.02	<0.01	0.01	0.06	<0.01	0.03	0.02	0.01	<0.01	<0.01	<0.01	0.04	1.9	2.4	2.4	0.38	0.07	0.02	<0.01	<0.01	1.6	1
Arsenic-Dissolved	Arsenic-Dissolved	96	µg/L	3	1	2	1	<1	2	3	3	<1	<1	<1	1	<1	<1	2	1	<1	1	1	<1	1	<1
Boron-Dissolved	Boron-Dissolved	5160	µg/L	100	330	40	80	1500	100	670	890	1100	100	200	200	680	900	860	350	200	3900	100	<20	850	500
Barium-Dissolved	Barium-Dissolved	432	µg/L	37	47	39	72	45	44	37	74	51	40	54	39	95	110	110	74	30	42	36	16	78	130
Beryllium-Dissolved	Beryllium-Dissolved	1.2	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	Cadmium-Dissolved	0.48	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1	0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	Chromium-Dissolved	44.4	µg/L	<1	<1	2	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1
Copper-Dissolved	Copper-Dissolved	1032	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	5	2	5	<1	<1	3	1	7	<1	6	1	<1
Cobalt-Dissolved	Cobalt-Dissolved	31.2	µg/L	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	26	<1	<1	<1
Mercury-Dissolved	Mercury-Dissolved	0.24	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	Manganese-Dissolved	1320	µg/L	56	220	66	200	54	100	78	130	68	66	140	110	41	63	95	110	41	7	420	<5	44	100
Molybdenum-Dissolved	Molybdenum-Dissolved	40.8	µg/L	9	10	4	23	18	13	61	41	9	2	8	34	26	18	19	13	2	11	<1	1	15	26
Nickel-Dissolved	Nickel-Dissolved	444	µg/L	<1	4	<1	4	<1	1	2	3	<1	<1	2	<1	5	1	2	2	<1	2	28	2	<1	2
Lead-Dissolved	Lead-Dissolved	180	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1
Antimony-Dissolved	Antimony-Dissolved	4.8	µg/L	3	2	2	2	2	3	9	2	2	2	1	2	2	<1	<1	2	<1	<1	<1	<1	<1	3
Selenium-Dissolved	Selenium-Dissolved	1.2	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tin-Dissolved	Tin-Dissolved	2.4	µg/L	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Zinc-Dissolved	Zinc-Dissolved	344.4	µg/L	3	1	3	2	<1	3	<1	<1	<1	5	38	2	2	1	2	3	6	28	160	13	2	4
Iron-Dissolved	Iron-Dissolved	396000	µg/L	<10	40	<10	10	20	<10	10	20	20	40	20	<10	<10	10	1200	<10	<10	<10	15000	<10	30	<10
Arsenic-Total	Arsenic-Total	504	µg/L	30	21	12	7	19	99	340	50	28	2	6	10	35	32	47	25	3	6	420	<1	5	13
Boron-Total	Boron-Total	5160	µg/L	100	360	60	80	1600	100	1000	1000	1200	100	200	200	1000	970	1200	310	200	4000	200	<20	800	580
Barium-Total	Barium-Total	15600	µg/L	740	850	380	180	920	3000	9500	1500	1100	67	180	190	330	1200	1100	620	97	67	13000	94	180	1000
Beryllium-Total	Beryllium-Total	66	µg/L	5	5	1	1	7	16	52	4	5	<0.5	0.7	1	1	5	6	3	<0.5	<0.5	55	<0.5	0.5	3
Cadmium-Total	Cadmium-Total	32.4	µg/L	1	1.3	0.5	0.2	1.6	5	15	2.3	1.7	<0.1	<0.1	0.1	0.2	1.6	1.8	0.8	0.1	0.1	27	<0.1	0.2	0.4
Chromium-Total	Chromium-Total	492	µg/L	110	110	38	23	140	400	1800	190	170	5	15	25	34	150	200	67	9	11	410	25	23	52
Copper-Total	Copper-Total	1140	µg/L	280	260	110	67	340	1100	3800	560	440	19	51	59	71	350	320	130	26	59	720	15	38	180
Cobalt-Total	Cobalt-Total	684	µg/L	35	41	15	9	48	160	560	79	56	<1	7	8	7	48	48	27	3	2	570	1	5	25
Mercury-Total	Mercury-Total	1.044	µg/L	0.5	0.51	<0.05	0.06	0.4	2.8	5	<0.05	<0.1	<0.05	<0.05	<0.05	0.2	<0.05	<0.05	<0.05	<0.05	0.2	<0.05	<0.05	<0.05	<0.05
Manganese-Total	Manganese-Total	9960	µg/L	1300	1900	900	460	1800	7100	23000	3300	2400	120	310	500	220	2000	2200	1500	170	130	8300	48	200	1500
Molybdenum-Total	Molybdenum-Total	105.6	µg/L	9	13	4	20	21	13	220	66	18	2	8	31	26	14	25	13	3	12	88	<1	9	23
Nickel-Total	Nickel-Total	612	µg/L	70	75	26	22	90	270	870	130	95	2	11	13	16	88	96	44	6	6	510	2	10	38
Lead-Total	Lead-Total	21600	µg/L	260	190	87	40	270	1200	2400	400	290	4	17	22	52	330	380	180	13	39	18000	15	37	63
Antimony-Total	Antimony-Total	9.6	µg/L	7	5	4	4	6	10	19	9	6	3	3	6	4	3	4	4	2	1	2	4	1	6
Selenium-Total	Selenium-Total	3.6	µg/L	1	1	<1	<1	2	3	11	2	1	<1	<1	<1	2	3	3	<1	<1	<1	3	<1	<1	<1
Tin-Total	Tin-Total	26.4	µg/L	10	8	3	2	16	13	300	28	17	1	1	2	5	7	19	10	2	3	3	<1	<1	3
Zinc-Total	Zinc-Total	6000	µg/L	1700	1500	920	570	1900	7400	29000	3300	3500	95	340	540	170	1300	1400	810	170	97	5000	84	170	910
Iron-Total	Iron-Total	648000	µg/L	83000	71000	26000	13000	100000	200000	1100000	150000	120000	2500	14000	20000	100000	110000	180000	68000	6400	7500	540000	1700	22000	66000

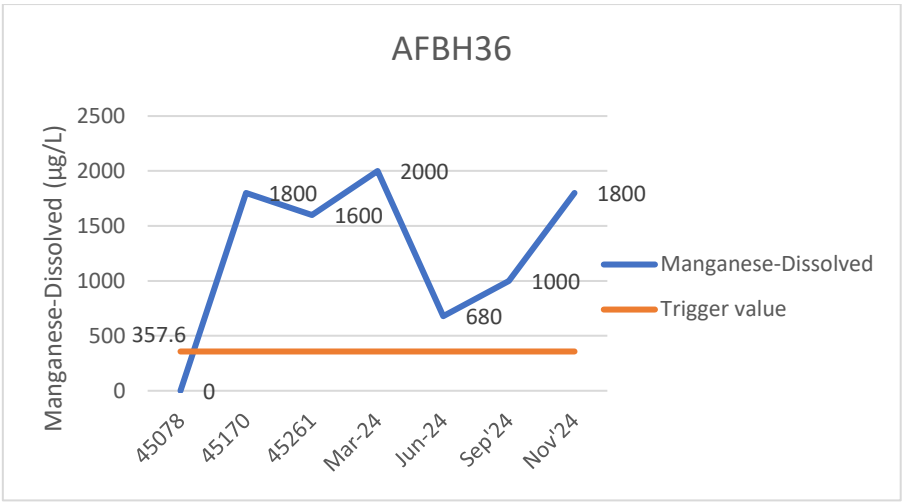
Groundwater Monitoring Program Management Response

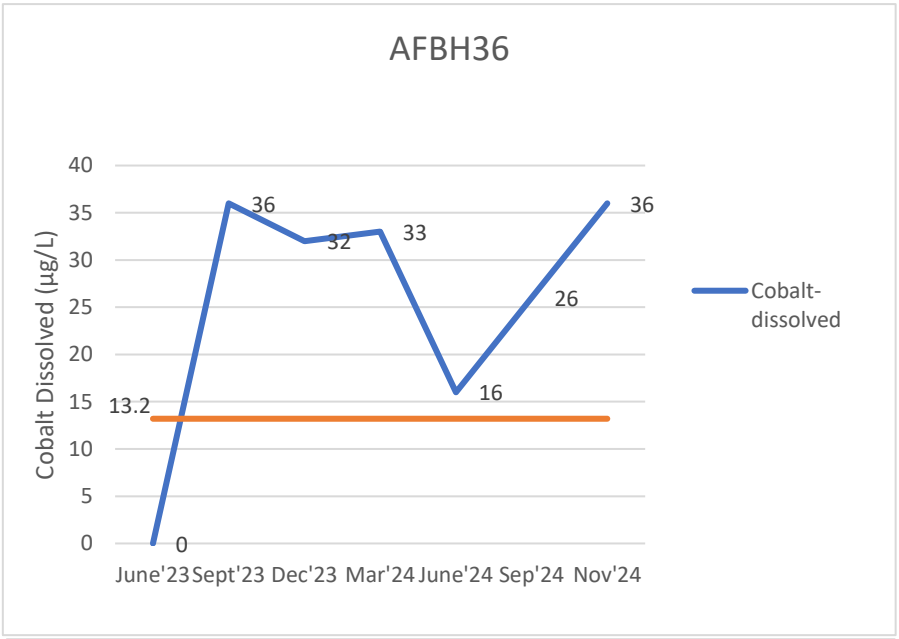
Sydney Olympic Park

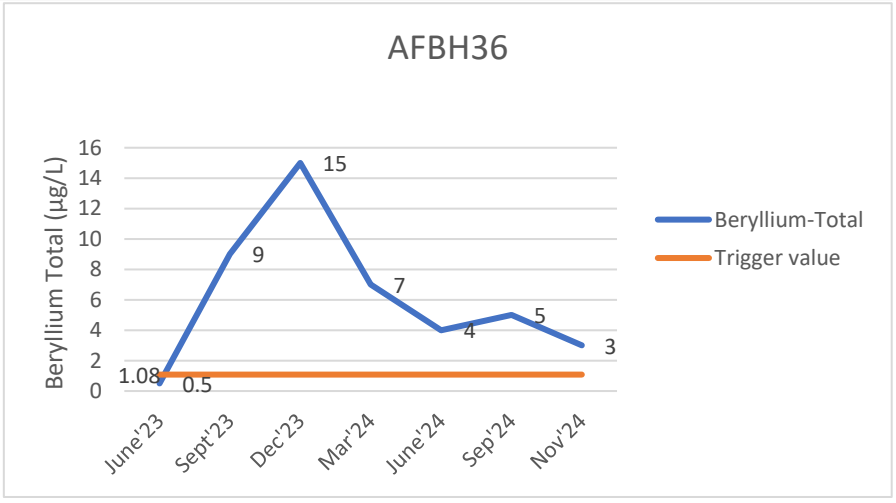


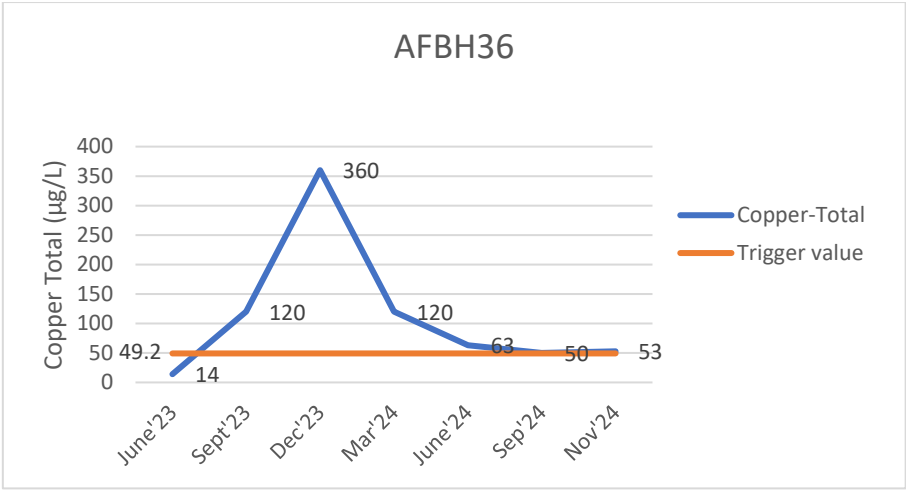


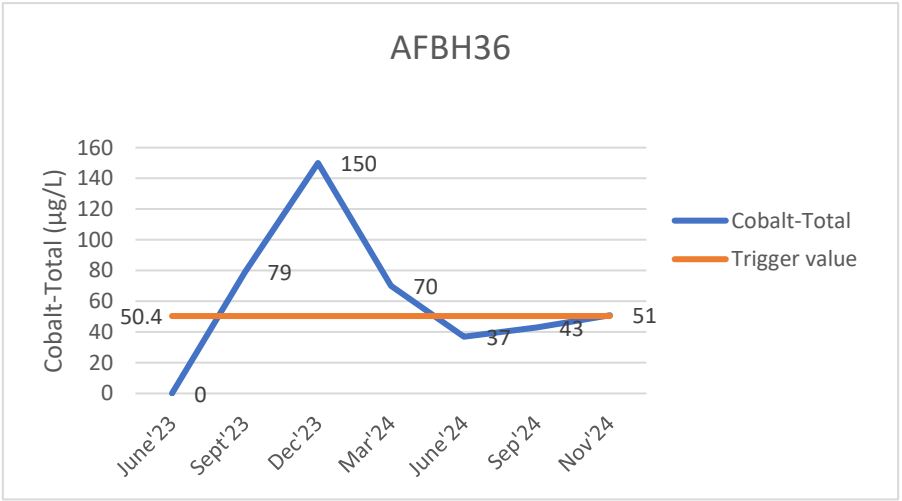


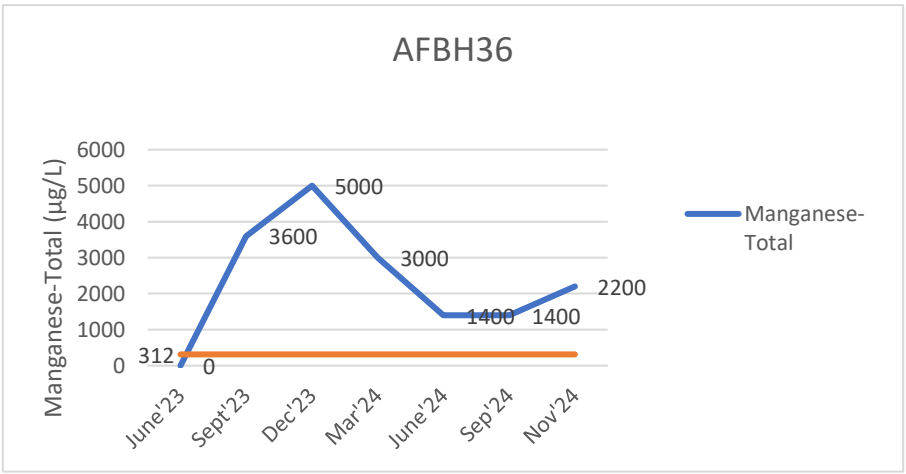

AFBH36
Manganese-Dissolved (µg/L)
2500
2000
1500
1000
500
0
357.6
0
1800
1600
2000
680
1000
1800
45078
45170
45261
Mar-24
Jun-24
Sep'24
Nov'24
Manganese-Dissolved
Trigger value

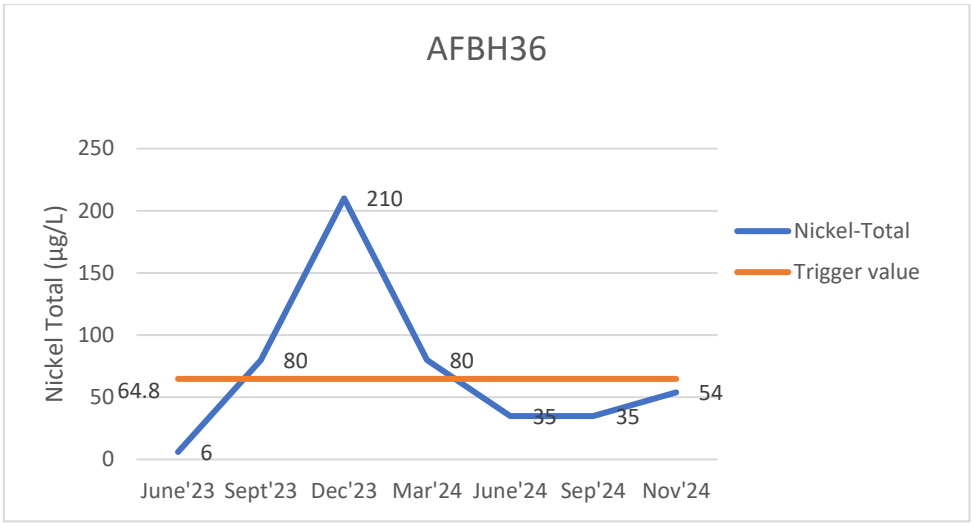

AFBH36
Cobalt Dissolved (µg/L)
40
35
30
25
20
15
10
5
0
13.2
0
36
32
33
16
26
36
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Cobalt-dissolved

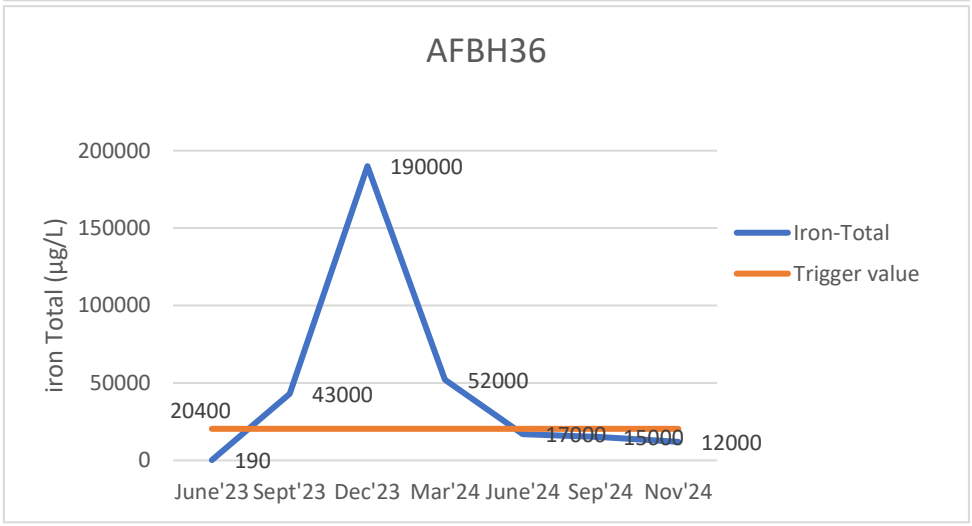

AFBH36
Beryllium Total (µg/L)
16
14
12
10
8
6
4
2
0
1.08
0.5
9
15
7
4
5
3
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Beryllium-Total
Trigger value


AFBH36
Copper Total (µg/L)
400
350
300
250
200
150
100
50
0
360
120
120
63
50
53
49.2
14
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Copper-Total
Trigger value

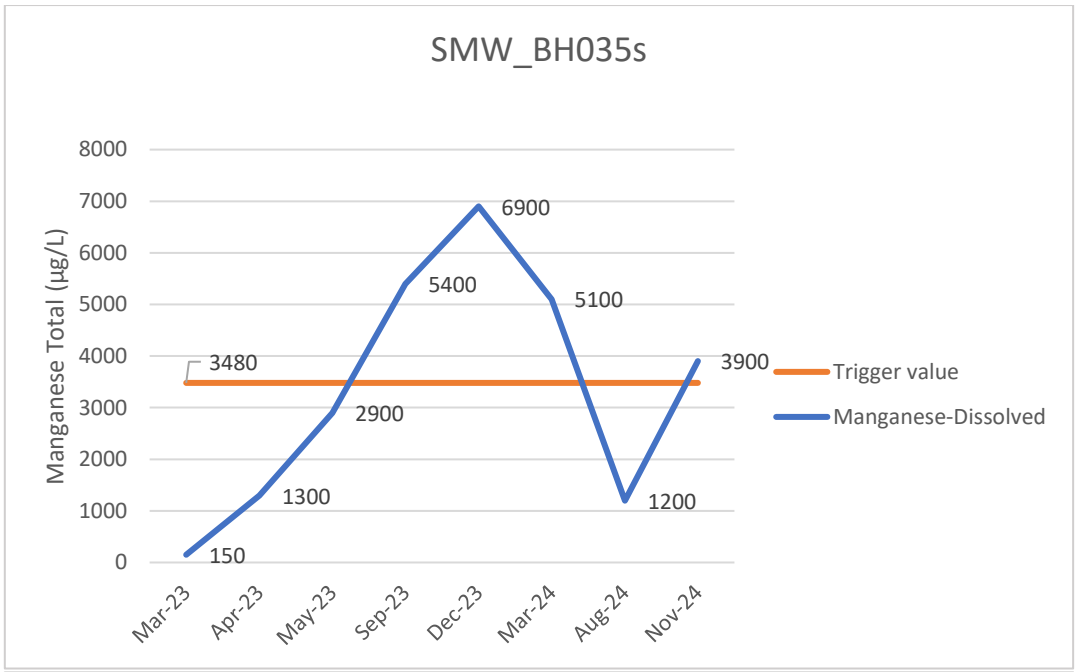

AFBH36
Cobalt-Total (µg/L)
160
140
120
100
80
60
40
20
0
150
79
70
37
43
51
50.4
0
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Cobalt-Total
Trigger value

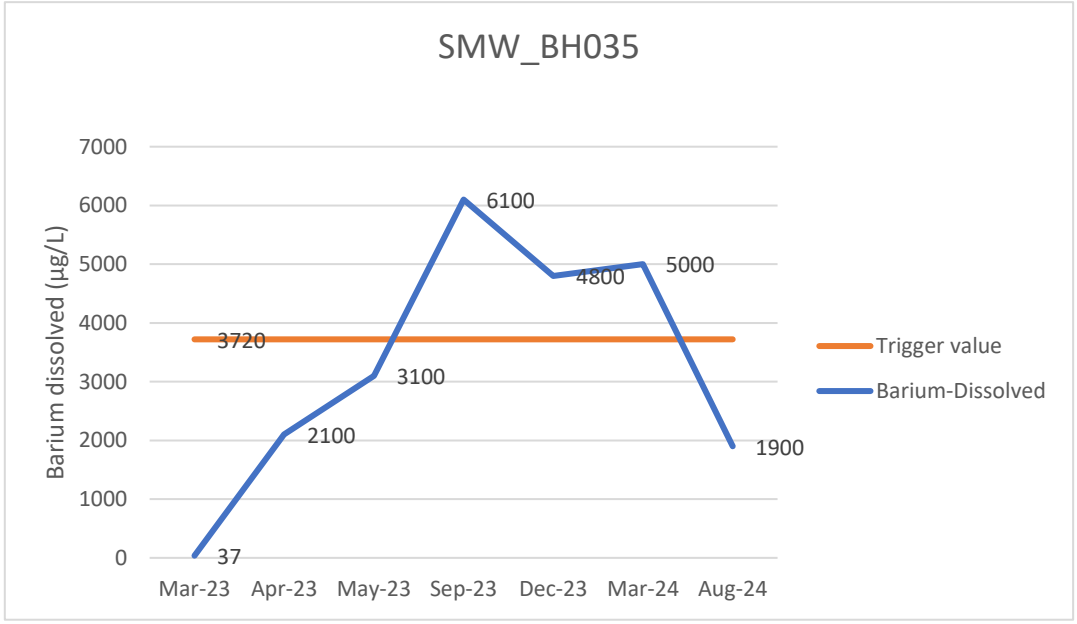

AFBH36
Manganese-Total (µg/L)
6000
5000
4000
3000
2000
1000
0
5000
3600
3000
1400
1400
2200
312
0
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Manganese-Total

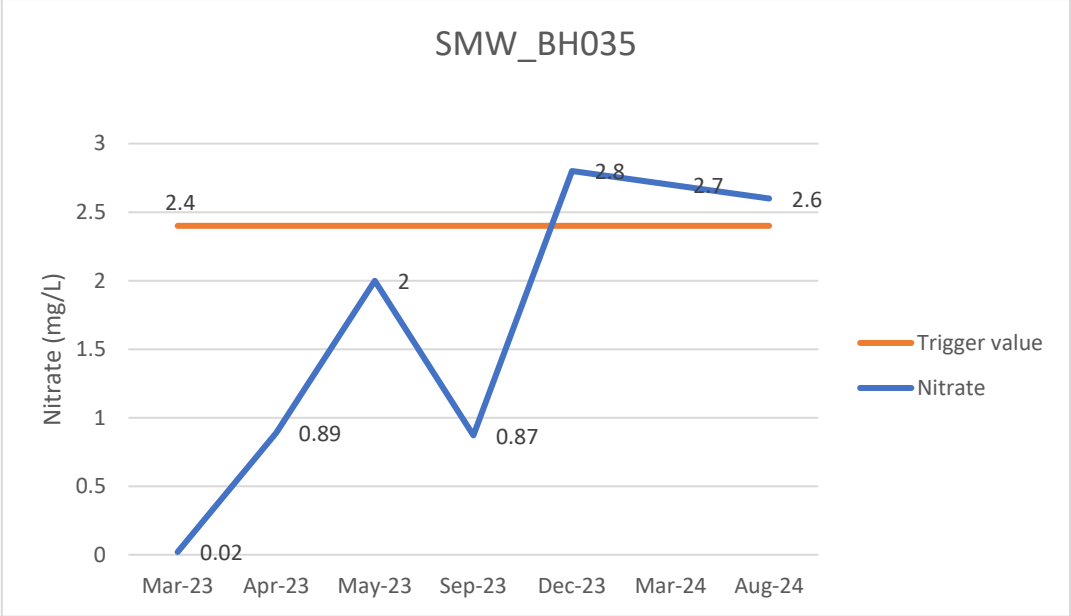

AFBH36
Nickel Total (µg/L)
250
200
150
100
50
0
210
80
80
64.8
54
35
35
6
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Nickel-Total
Trigger value

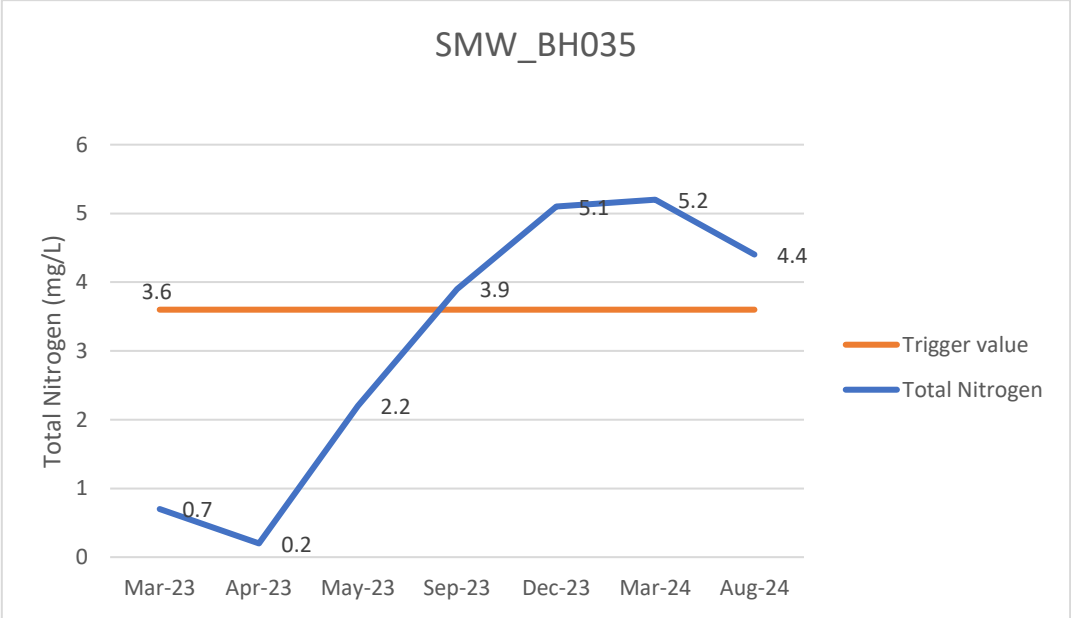

AFBH36
iron Total (µg/L)
200000
150000
100000
50000
0
190000
52000
43000
20400
17000
15000
12000
190
June'23
Sept'23
Dec'23
Mar'24
June'24
Sep'24
Nov'24
Iron-Total
Trigger value

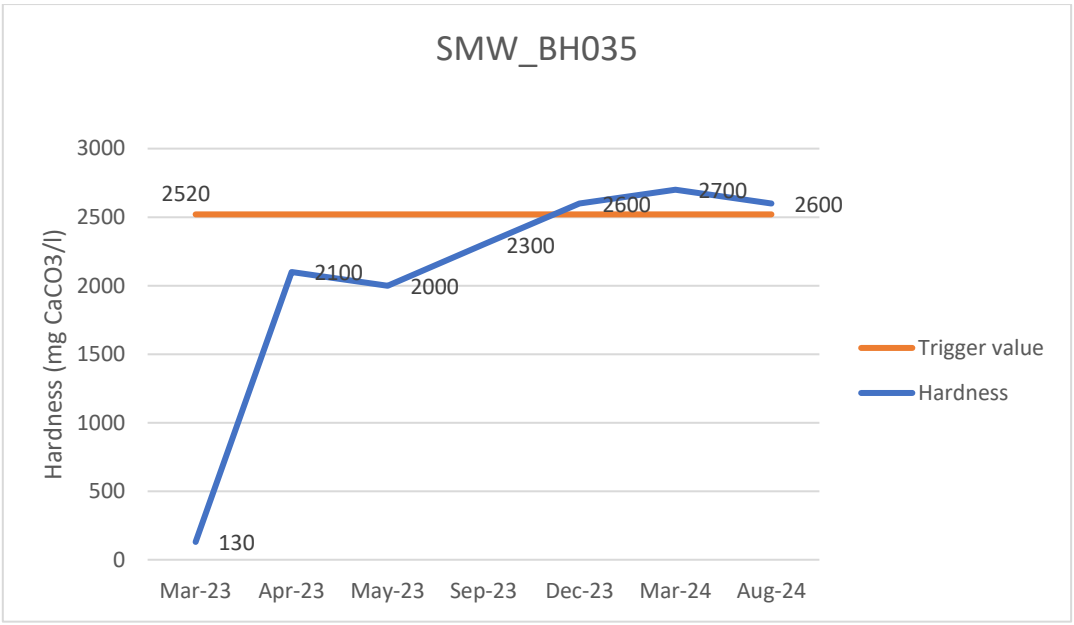
North Strathfield



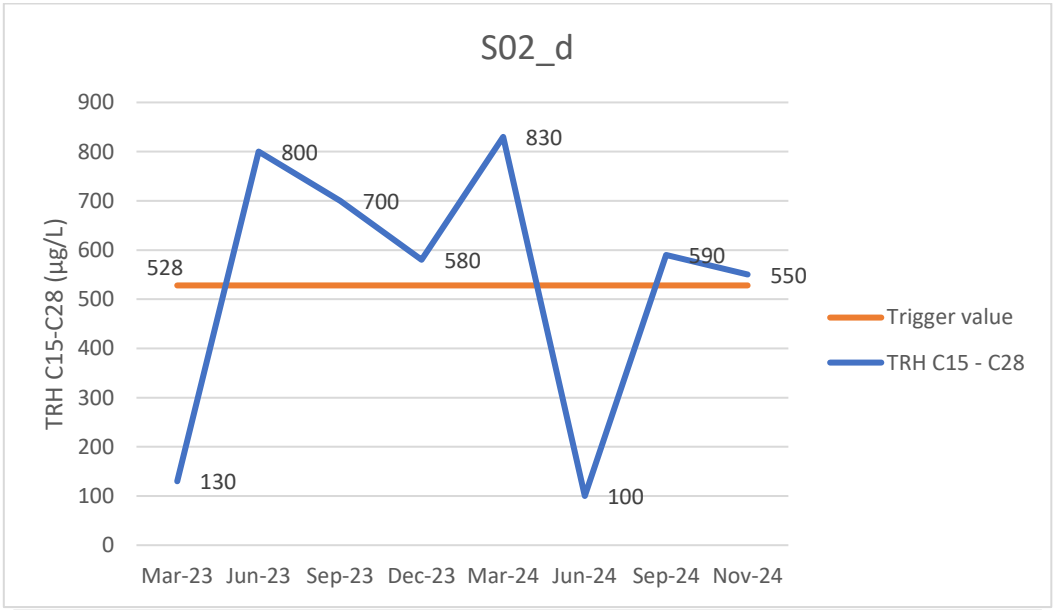


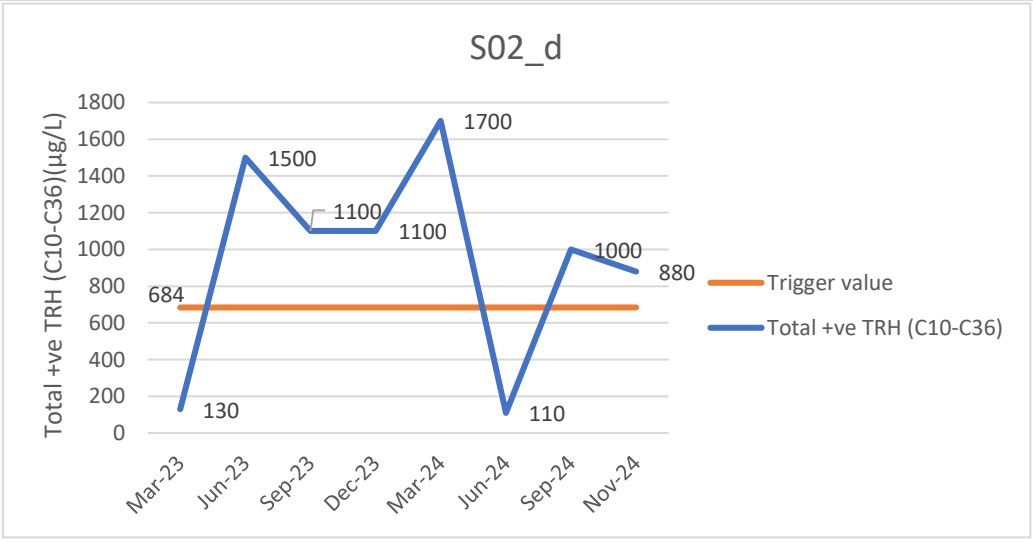

SMW_BH035
Nitrate (mg/L)
3
2.5
2
1.5
1
0.5
0
2.4
0.02
0.89
2
0.87
2.8
2.7
2.6
Mar-23
Apr-23
May-23
Sep-23
Dec-23
Mar-24
Aug-24
Trigger value
Nitrate

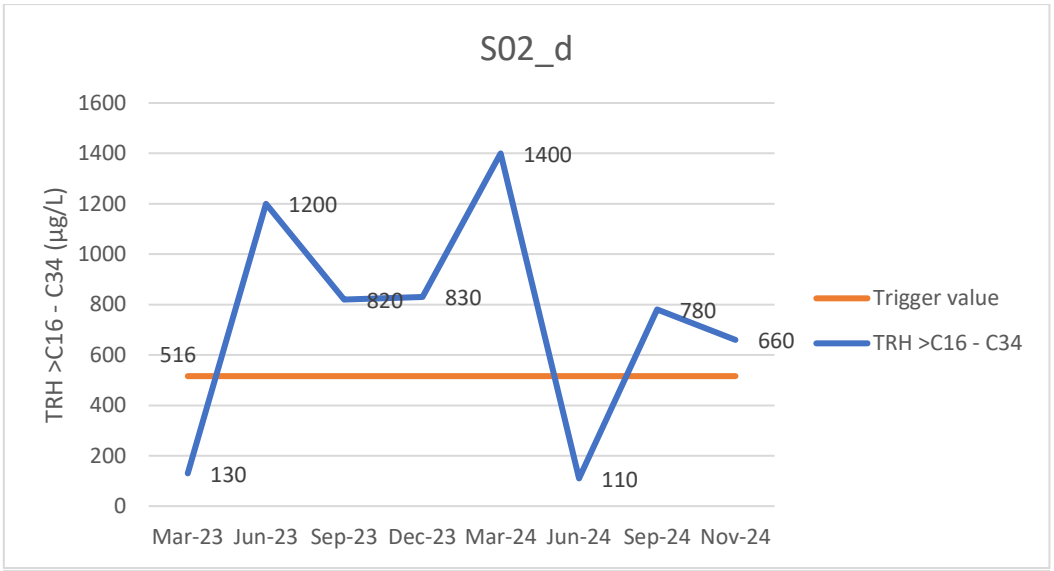

SMW_BH035
Total Nitrogen (mg/L)
6
5
4
3
2
1
0
3.6
0.7
0.2
2.2
3.9
5.1
5.2
4.4
Mar-23
Apr-23
May-23
Sep-23
Dec-23
Mar-24
Aug-24
Trigger value
Total Nitrogen

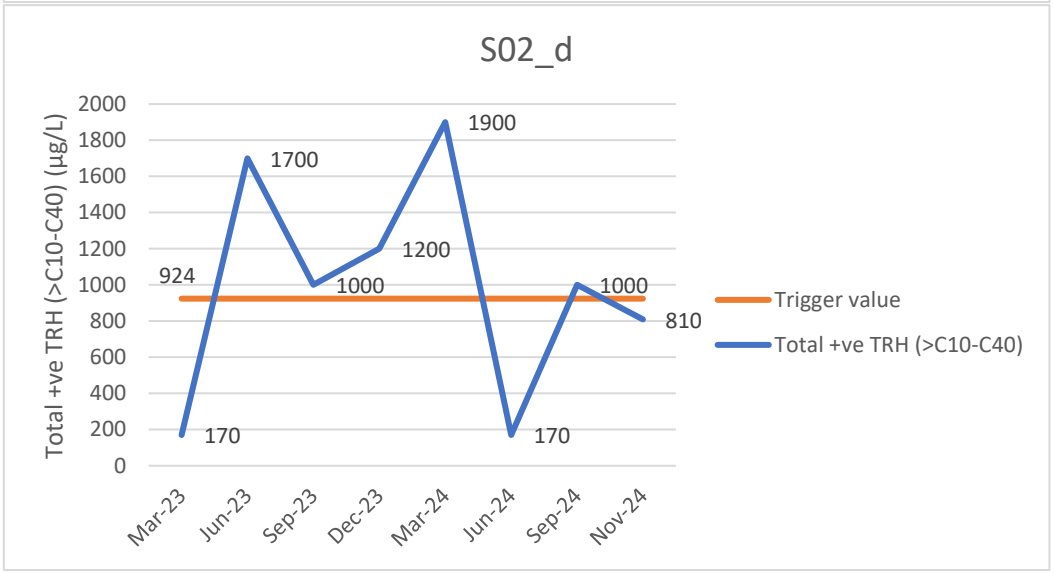

SMW_BH035
Hardness (mg CaCO3/l)
3000
2500
2000
1500
1000
500
0
2520
2520
2520
2520
2520
2520
2520
2100
2000
2300
2600
2700
2600
130
Mar-23
Apr-23
May-23
Sep-23
Dec-23
Mar-24
Aug-24
Trigger value
Hardness

The Bays


S02_d
TRH C15-C28 (µg/L)
900
800
700
600
500
400
300
200
100
0
528
528
528
528
528
528
528
800
700
580
830
590
550
130
100
Mar-23
Jun-23
Sep-23
Dec-23
Mar-24
Jun-24
Sep-24
Nov-24
Trigger value
TRH C15 - C28


S02_d
Total +ve TRH (C10-C36)(µg/L)
1800
1600
1400
1200
1000
800
600
400
200
0
684
684
684
684
684
684
684
1500
1100
1100
1700
1000
880
130
110
Mar-23
Jun-23
Sep-23
Dec-23
Mar-24
Jun-24
Sep-24
Nov-24
Trigger value
Total +ve TRH (C10-C36)


S02_d
TRH >C16 - C34 (µg/L)
1600
1400
1200
1000
800
600
400
200
0
516
130
1200
820
830
1400
110
780
660
Mar-23
Jun-23
Sep-23
Dec-23
Mar-24
Jun-24
Sep-24
Nov-24
Trigger value
TRH >C16 - C34


S02_d
Total +ve TRH (>C10-C40) (µg/L)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
924
170
1700
1000
1200
1900
170
1000
810
Mar-23
Jun-23
Sep-23
Dec-23
Mar-24
Jun-24
Sep-24
Nov-24
Trigger value
Total +ve TRH (>C10-C40)

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customerservice@envirolab.com.au
www.envirolab.com.au

CERTIFICATE OF ANALYSIS 359072

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**CTP Groundwater Monitoring**
Number of Samples	2 Water
Date samples received	13/08/2024
Date completed instructions received	13/08/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	20/08/2024
Date of Issue	20/08/2024

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[redacted]

VOCs in water			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date Extracted	-	14/08/2024	14/08/2024
Date Analysed	-	15/08/2024	15/08/2024
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<10	<10
Bromomethane	µg/L	<10	<10
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	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1

VOCs in water			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
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
1,4-dichlorobenzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
n-butyl benzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	99	99
Surrogate Toluene-d8	%	96	96
Surrogate 4-Bromofluorobenzene	%	95	94

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	359072-1	359072-2
Your Reference		BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date extracted	-	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024
TRH C_6 - C_9	µg/L	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	99	99
Surrogate Toluene-d8	%	96	96
Surrogate 4-Bromofluorobenzene	%	95	94

svTRH (C10-C40) in Water			
Our Reference	UNITS	359072-1	359072-2
Your Reference		BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date extracted	-	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024
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	<50
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	%	100	100

PAHs in Water			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date extracted	-	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024
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	<0.1
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	%	99	96

All metals in water-dissolved			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	15/08/2024	15/08/2024
Date analysed	-	15/08/2024	15/08/2024
Arsenic-Dissolved	µg/L	3	<1
Boron-Dissolved	µg/L	70	50
Barium-Dissolved	µg/L	31	28
Beryllium-Dissolved	µg/L	<0.5	<0.5
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	79	15
Cobalt-Dissolved	µg/L	16	2
Mercury-Dissolved	µg/L	<0.05	<0.05
Manganese-Dissolved	µg/L	290	680
Molybdenum-Dissolved	µg/L	8	1
Nickel-Dissolved	µg/L	40	3
Lead-Dissolved	µg/L	<1	<1
Antimony-Dissolved	µg/L	1	<1
Selenium-Dissolved	µg/L	2	<1
Tin-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	4	33
Iron-Dissolved	µg/L	<10	50

All metals in water - total			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	14/08/2024	14/08/2024
Date analysed	-	16/08/2024	16/08/2024
Arsenic-Total	µg/L	27	<1
Boron-Total	µg/L	100	80
Barium-Total	µg/L	170	31
Beryllium-Total	µg/L	3	<0.5
Cadmium-Total	µg/L	0.2	<0.1
Chromium-Total	µg/L	17	2
Copper-Total	µg/L	1,600	20
Cobalt-Total	µg/L	39	14
Mercury-Total	µg/L	<0.05	<0.05
Manganese-Total	µg/L	750	5,100
Molybdenum-Total	µg/L	10	1
Nickel-Total	µg/L	80	11
Lead-Total	µg/L	30	<1
Antimony-Total	µg/L	1	<1
Selenium-Total	µg/L	2	<1
Tin-Total	µg/L	<1	<1
Zinc-Total	µg/L	120	63
Iron-Total	µg/L	19,000	640

Metals in Waters - Total			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	14/08/2024	14/08/2024
Date analysed	-	15/08/2024	15/08/2024
Phosphorus - Total	mg/L	0.3	0.4

Miscellaneous Inorganics			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	13/08/2024	13/08/2024
Date analysed	-	13/08/2024	13/08/2024
Ammonia as N in water	mg/L	0.006	5.8
Nitrate as N in water	mg/L	0.81	6.4
Total Nitrogen in water	mg/L	1.0	14

Ion Balance			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	13/08/2024	13/08/2024
Date analysed	-	13/08/2024	13/08/2024
Calcium - Dissolved	mg/L	88	29
Potassium - Dissolved	mg/L	24	5.7
Sodium - Dissolved	mg/L	1,100	95
Magnesium - Dissolved	mg/L	130	5
Hardness (calc) equivalent $CaCO_3$	mg/L	740	94
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	700	110
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	700	110
Sulphate, SO4	mg/L	420	120
Chloride, Cl	mg/L	1,700	72
Ionic Balance	%	-4.0	-5.0

PFAS in Waters Extended			
Our Reference	UNITS	359072-1	359072-2
Your Reference		BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	14/08/2024	14/08/2024
Date analysed	-	14/08/2024	14/08/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01
8:2 FTS	µg/L	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	102	103
Surrogate $^{13}C_2$ *PFOA*	%	99	99
Extracted ISTD $^{13}C_3$ *PFBS*	%	101	92
Extracted ISTD $^{18}O_2$ *PFHxS*	%	99	96
Extracted ISTD $^{13}C_4$ *PFOS*	%	93	91
Extracted ISTD $^{13}C_4$ *PFBA*	%	87	83

PFAS in Waters Extended			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	93	100
Extracted ISTD $^{13}C_2$ *PFHxA*	%	100	104
Extracted ISTD $^{13}C_4$ *PFHpA*	%	98	104
Extracted ISTD $^{13}C_4$ *PFOA*	%	95	100
Extracted ISTD $^{13}C_5$ *PFNA*	%	98	99
Extracted ISTD $^{13}C_2$ *PFDA*	%	101	108
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	99	105
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	93	101
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	69	71
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	74	119
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	68	119
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	86	132
Extracted ISTD $^{13}C_8$ *FOSA*	%	105	100
Extracted ISTD d_3 *N MeFOSA*	%	95	95
Extracted ISTD d_5 *N EtFOSA*	%	93	92
Extracted ISTD d_7 *N MeFOSE*	%	97	98
Extracted ISTD d_9 *N EtFOSE*	%	91	89
Extracted ISTD d_3 *N MeFOSAA*	%	84	101
Extracted ISTD d_5 *N EtFOSAA*	%	90	112
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01
Total Positive PFAS	µg/L	<0.01	<0.01

Dissolved Gases in Water			
Our Reference		359072-1	359072-2
Your Reference	UNITS	BH046R	BH051
Date Sampled		12/08/2024	12/08/2024
Type of sample		Water	Water
Date prepared	-	16/08/2024	16/08/2024
Date analysed	-	16/08/2024	16/08/2024
Methane	µg/L	<5	<5

Method ID	Methodology Summary
AT-006	Dissolved gases determined by GC-FID based on draft method USEPA SOP RSK175
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
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-055/062/127	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-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.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date Analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	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]	108	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[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]	108	[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]	113	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[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]	109	[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]	108	[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]	108	[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]	109	[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]	111	[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]	111	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	[NT]	[NT]	[NT]	[NT]	101	[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	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			15/08/2024	[NT]	[NT]	[NT]	[NT]	15/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	110	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	[NT]	[NT]	[NT]	[NT]	101	[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	-			14/08/2024	1	14/08/2024	14/08/2024		14/08/2024	[NT]
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	118	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	115	[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	118	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	115	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	114	[NT]
Surrogate o-Terphenyl	%		Org-020	88	1	100	113	12	84	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	359072-2
Date extracted	-			14/08/2024	1	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	15/08/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	65	84
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	75	83
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	72	88
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	77	90
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	76	90
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	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	75	75
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	84
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	77	1	99	100	1	82	110

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	[NT]
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	3	[NT]		94	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	1	70	[NT]		102	[NT]
Barium-Dissolved	µg/L	1	Metals-022	<1	1	31	[NT]		104	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	[NT]		102	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		102	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		102	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	79	[NT]		99	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	16	[NT]		100	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	118	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	290	[NT]		102	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	8	[NT]		99	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	40	[NT]		101	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		98	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	1	[NT]		93	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	2	[NT]		95	[NT]
Tin-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		107	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	4	[NT]		101	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	<10	[NT]		98	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	[NT]
Date prepared	-			14/08/2024	1	14/08/2024	14/08/2024		14/08/2024	[NT]
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	1	27	[NT]		96	[NT]
Boron-Total	µg/L	20	Metals-022	<20	1	100	[NT]		118	[NT]
Barium-Total	µg/L	1	Metals-022	<1	1	170	[NT]		99	[NT]
Beryllium-Total	µg/L	0.5	Metals-022	<0.5	1	3	[NT]		108	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	0.2	[NT]		98	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	17	[NT]		112	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	1600	[NT]		110	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	1	39	[NT]		107	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	118	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	750	[NT]		105	[NT]
Molybdenum-Total	µg/L	1	Metals-022	<1	1	10	[NT]		103	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	80	[NT]		110	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	30	[NT]		104	[NT]
Antimony-Total	µg/L	1	Metals-022	<1	1	1	[NT]		109	[NT]
Selenium-Total	µg/L	1	Metals-022	<1	1	2	[NT]		98	[NT]
Tin-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		98	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	120	[NT]		106	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	19000	[NT]		110	[NT]

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359072-2
Date prepared	-			14/08/2024	1	14/08/2024	14/08/2024		14/08/2024	14/08/2024
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	15/08/2024
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.3	0.2	40	100	123

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Date analysed	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.006	[NT]		97	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.81	[NT]		93	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.0	1.0	0	113	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359072-1
Date prepared	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	13/08/2024
Date analysed	-			13/08/2024	1	13/08/2024	13/08/2024		13/08/2024	13/08/2024
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	88	86	2	113	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	24	24	0	103	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	1100	1200	9	93	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	130	120	8	113	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	740	720	3	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	700	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	700	[NT]		116	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	420	[NT]		114	#
Chloride, Cl	mg/L	1	Inorg-081	<1	1	1700	[NT]		107	#
Ionic Balance	%		Inorg-040	[NT]	1	-4.0	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Date analysed	-			14/08/2024	[NT]	[NT]	[NT]	[NT]	14/08/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	99	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	104	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	108	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluoroheptanoic acid	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]	101	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	93	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	124	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	100	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	[NT]	[NT]	[NT]	[NT]	106	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	112	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	117	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	104	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	[NT]	[NT]	[NT]	[NT]	109	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	[NT]	[NT]	[NT]	[NT]	104	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	109	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	[NT]	[NT]	[NT]	[NT]	103	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	100	[NT]	[NT]	[NT]	[NT]	102	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	102	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	106	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	105	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	105	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	110	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	103	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	125	[NT]	[NT]	[NT]	[NT]	122	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	128	[NT]	[NT]	[NT]	[NT]	120	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	102	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	83	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	119	[NT]	[NT]	[NT]	[NT]	107	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	108	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	133	[NT]	[NT]	[NT]	[NT]	115	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	108	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	107	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: PFAS in Waters Extended					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	100	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	109	[NT]	[NT]	[NT]	[NT]	110	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	118	[NT]	[NT]	[NT]	[NT]	117	[NT]

QUALITY CONTROL: Dissolved Gases in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Methane	µg/L	5	AT-006	<5	1	<5	<5	0	89	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

ION_BALANCE:# 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.

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.

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CERTIFICATE OF ANALYSIS 359252

Client Details

Client	[redacted]
Attention	
Address	

Sample Details

Your Reference	**CTP Groundwater Monitoring**
Number of Samples	5 Water
Date samples received	14/08/2024
Date completed instructions received	15/08/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	22/08/2024
Date of Issue	22/08/2024

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Accredited for compliance with ISO/IEC 17025 - Testing. **Tests not covered by NATA are denoted with ***

[redacted]

VOCs in water						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date Extracted	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Date Analysed	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
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		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
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
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	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	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	104	99	98	101	97
Surrogate Toluene-d8	%	95	99	99	98	95
Surrogate 4-Bromofluorobenzene	%	94	94	95	96	91

vTRH(C6-C10)/BTEXN in Water						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Date analysed	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	104	99	98	101	97
Surrogate Toluene-d8	%	95	99	99	98	95
Surrogate 4-Bromofluorobenzene	%	94	94	95	96	91

svTRH (C10-C40) in Water						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Date analysed	-	17/08/2024	17/08/2024	17/08/2024	17/08/2024	17/08/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	160	<100	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	150	<100	<100	<100	110
Total +ve TRH (C10-C36)	µg/L	320	<50	<50	<50	110
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	290	<100	<100	<100	170
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	290	<50	<50	<50	170
Surrogate o-Terphenyl	%	75	88	89	80	89

PAHs in Water						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Date analysed	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.8	<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	0.3	<0.1	<0.1	<0.1	<0.1
Anthracene	µg/L	0.4	<0.1	<0.1	<0.1	<0.1
Fluoranthene	µg/L	1.7	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	1.8	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	1.2	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	1.0	<0.1	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	3.8	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	3.0	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	2.0	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	0.6	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	3.0	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	4.4	<0.5	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	20	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	69	76	75	72	73

All metals in water-dissolved						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Date analysed	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Boron-Dissolved	µg/L	50	<20	60	80	90
Barium-Dissolved	µg/L	23	40	1,900	16	60
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	0.6	<0.5
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	0.2	0.2
Chromium-Dissolved	µg/L	2	1	<1	<1	<1
Copper-Dissolved	µg/L	6	3	2	4	3
Cobalt-Dissolved	µg/L	<1	<1	1	20	52
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	<5	<5	190	1,200	3,400
Molybdenum-Dissolved	µg/L	3	2	1	<1	<1
Nickel-Dissolved	µg/L	<1	<1	6	19	24
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Antimony-Dissolved	µg/L	<1	1	<1	<1	<1
Selenium-Dissolved	µg/L	<1	<1	<1	<1	<1
Tin-Dissolved	µg/L	<1	<1	1	<1	<1
Zinc-Dissolved	µg/L	4	<1	10	210	57
Iron-Dissolved	µg/L	<10	<10	<10	300	<10

All metals in water - total						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Date analysed	-	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Arsenic-Total	µg/L	<1	<1	<1	6	14
Boron-Total	µg/L	50	<20	60	70	80
Barium-Total	µg/L	30	49	2,800	120	1,800
Beryllium-Total	µg/L	<0.5	<0.5	<0.5	6	4
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	0.3	0.9
Chromium-Total	µg/L	4	2	28	15	20
Copper-Total	µg/L	15	4	5	87	120
Cobalt-Total	µg/L	<1	<1	1	32	180
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	0.3
Manganese-Total	µg/L	22	9	200	1,300	6,000
Molybdenum-Total	µg/L	4	3	3	<1	1
Nickel-Total	µg/L	3	2	17	37	63
Lead-Total	µg/L	3	<1	1	20	52
Antimony-Total	µg/L	1	2	<1	<1	<1
Selenium-Total	µg/L	<1	<1	<1	<1	1
Tin-Total	µg/L	1	<1	1	1	1
Zinc-Total	µg/L	25	7	17	390	470
Iron-Total	µg/L	590	150	860	20,000	26,000

Metals in Waters - Total						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Date analysed	-	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024
Phosphorus - Total	mg/L	0.08	<0.05	<0.05	0.73	0.95

Miscellaneous Inorganics						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Date analysed	-	15/08/2024	15/08/2024	15/08/2024	15/08/2024	15/08/2024
Ammonia as N in water	mg/L	<0.005	<0.005	1.4	0.065	0.071
Nitrate as N in water	mg/L	0.42	0.61	2.6	0.02	0.11
Total Nitrogen in water	mg/L	0.7	0.7	4.4	0.4	0.7

Ion Balance						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Date analysed	-	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024
Calcium - Dissolved	mg/L	82	110	480	13	76
Potassium - Dissolved	mg/L	4	3	43	5	6.7
Sodium - Dissolved	mg/L	41	19	1,900	440	140
Magnesium - Dissolved	mg/L	3	2	340	15	22
Hardness (calc) equivalent $CaCO_3$	mg/L	220	280	2,600	93	280
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	68	42	600	61	110
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	68	42	600	61	110
Sulphate, SO4	mg/L	180	220	33	350	210
Chloride, Cl	mg/L	48	33	4,400	390	170
Ionic Balance	%	-1.0	2.0	-1.0	4.0	2.0

PFAS in Waters Extended						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Date analysed	-	16/08/2024	16/08/2024	16/08/2024	16/08/2024	16/08/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01	0.03	0.03
Perfluoroheptanesulfonic acid	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
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	0.02
Perfluoroheptanoic acid	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	0.04
Perfluorononanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	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
10:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	106	105	100	102	103
Surrogate $^{13}C_2$ *PFOA*	%	102	98	96	104	97
Extracted ISTD $^{13}C_3$ *PFBS*	%	94	108	109	104	103
Extracted ISTD $^{18}O_2$ *PFHxS*	%	87	88	104	106	104
Extracted ISTD $^{13}C_4$ *PFOS*	%	83	91	110	106	105
Extracted ISTD $^{13}C_4$ *PFBA*	%	85	96	99	65	94

PFAS in Waters Extended						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	111	112	102	102	102
Extracted ISTD $^{13}C_2$ *PFHxA*	%	110	116	107	104	103
Extracted ISTD $^{13}C_4$ *PFHpA*	%	91	100	105	107	105
Extracted ISTD $^{13}C_4$ *PFOA*	%	98	103	113	110	110
Extracted ISTD $^{13}C_5$ *PFNA*	%	99	105	114	110	110
Extracted ISTD $^{13}C_2$ *PFDA*	%	92	98	110	112	108
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	115	120	117	122	117
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	93	98	110	112	109
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	87	85	89	92	96
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	120	123	84	103	103
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	120	122	94	113	108
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	121	116	103	123	114
Extracted ISTD $^{13}C_8$ *FOSA*	%	93	100	111	113	109
Extracted ISTD d_3 *N MeFOSA*	%	98	101	107	107	108
Extracted ISTD d_5 *N EtFOSA*	%	91	95	101	105	102
Extracted ISTD d_7 *N MeFOSE*	%	91	86	85	95	88
Extracted ISTD d_9 *N EtFOSE*	%	96	103	102	106	106
Extracted ISTD d_3 *N MeFOSAA*	%	114	120	108	120	112
Extracted ISTD d_5 *N EtFOSAA*	%	105	111	103	113	110
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	<0.01	0.05	0.04
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01	<0.01	0.03	0.05
Total Positive PFAS	µg/L	<0.01	<0.01	<0.01	0.06	0.14

Dissolved Gases in Water						
Our Reference		359252-1	359252-2	359252-3	359252-4	359252-5
Your Reference	UNITS	BH044	BH038	BH035d	BH035s	BH009s
Date Sampled		13/08/2024	13/08/2024	13/08/2024	13/08/2024	13/08/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024
Date analysed	-	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024
Methane	µg/L	<5	<5	180	<5	120

Method ID	Methodology Summary
AT-006	Dissolved gases determined by GC-FID based on draft method USEPA SOP RSK175
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
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-055/062/127	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-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.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-022/025	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS/GC-MSMS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Method ID	Methodology Summary
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: VOCs in water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date Extracted	-			15/08/2024	1	15/08/2024	16/08/2024		15/08/2024	[NT]
Date Analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	1	<10	<10	0	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	96	[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	96	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	94	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	92	[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	97	[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	95	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	1	<1	<1	0	89	[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	96	[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	99	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	1	<1	<1	0	95	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[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	99	[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	98	[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	98	1	104	95	9	100	[NT]
Surrogate Toluene-d8	%		Org-023	96	1	95	102	7	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	1	94	96	2	102	[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	-			15/08/2024	1	15/08/2024	16/08/2024		15/08/2024	[NT]
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	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	97	[NT]
Toluene	µg/L	1	Org-023	<1	1	<1	<1	0	96	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	99	[NT]
o-xylene	µg/L	1	Org-023	<1	1	<1	<1	0	98	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	98	1	104	95	9	100	[NT]
Surrogate Toluene-d8	%		Org-023	96	1	95	102	7	98	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	1	94	96	2	102	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-2
Date extracted	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Date analysed	-			17/08/2024	1	17/08/2024	17/08/2024		17/08/2024	17/08/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	98	111
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	160	210	27	98	115
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	150	200	29	86	108
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	98	111
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	290	370	24	98	115
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	86	108
Surrogate o-Terphenyl	%		Org-020	85	1	75	87	15	99	116

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-2
Date extracted	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	73	76
Acenaphthylene	µg/L	0.1	Org-022/025	<0.1	1	0.8	1.2	40	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	74
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	80
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	0.3	0.4	29	71	74
Anthracene	µg/L	0.1	Org-022/025	<0.1	1	0.4	0.5	22	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-022/025	<0.1	1	1.7	2.3	30	65	70
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	1.8	2.3	24	60	67
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	1	1.2	1.6	29	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	1	1.0	1.4	33	65	69
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	3.8	5.4	35	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	3.0	4.3	36	66	86
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-022/025	<0.1	1	2.0	2.8	33	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-022/025	<0.1	1	0.6	0.8	29	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-022/025	<0.1	1	3.0	4.0	29	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-022/025	82	1	69	74	7	79	74

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	359252-3
Date prepared	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		99	100
Boron-Dissolved	µg/L	20	Metals-022	<20	1	50	[NT]		103	99
Barium-Dissolved	µg/L	1	Metals-022	<1	1	23	[NT]		103	#
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	[NT]		101	97
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		98	101
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	2	[NT]		106	107
Copper-Dissolved	µg/L	1	Metals-022	<1	1	6	[NT]		103	101
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		102	105
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	117	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	<5	[NT]		106	100
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	3	[NT]		98	106
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		103	104
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		108	92
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		98	83
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		111	94
Tin-Dissolved	µg/L	1	Metals-022	<1	1	<1	[NT]		100	106
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	4	[NT]		104	98
Iron-Dissolved	µg/L	10	Metals-022	<10	1	<10	[NT]		100	105

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	2	16/08/2024	16/08/2024		[NT]	[NT]
Date analysed	-			[NT]	2	16/08/2024	16/08/2024		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Boron-Dissolved	µg/L	20	Metals-022	[NT]	2	<20	<20	0	[NT]	[NT]
Barium-Dissolved	µg/L	1	Metals-022	[NT]	2	40	43	7	[NT]	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	[NT]	2	<0.5	<0.5	0	[NT]	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	2	<0.1	<0.1	0	[NT]	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	2	1	1	0	[NT]	[NT]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	2	3	3	0	[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	2	<0.05	[NT]		[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	2	<5	<5	0	[NT]	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	[NT]	2	2	2	0	[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	[NT]	2	1	1	0	[NT]	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Tin-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	2	<10	<10	0	[NT]	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-3
Date prepared	-			19/08/2024	1	19/08/2024	19/08/2024		19/08/2024	19/08/2024
Date analysed	-			19/08/2024	1	19/08/2024	19/08/2024		20/08/2024	19/08/2024
Arsenic-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	97	97
Boron-Total	µg/L	20	Metals-022	<20	1	50	50	0	93	85
Barium-Total	µg/L	1	Metals-022	<1	1	30	29	3	99	#
Beryllium-Total	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	90	92
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	96	100
Chromium-Total	µg/L	1	Metals-022	<1	1	4	4	0	98	90
Copper-Total	µg/L	1	Metals-022	<1	1	15	15	0	104	102
Cobalt-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	99	106
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	100	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	22	21	5	96	89
Molybdenum-Total	µg/L	1	Metals-022	<1	1	4	3	29	96	103
Nickel-Total	µg/L	1	Metals-022	<1	1	3	3	0	97	88
Lead-Total	µg/L	1	Metals-022	<1	1	3	3	0	99	93
Antimony-Total	µg/L	1	Metals-022	<1	1	1	1	0	96	102
Selenium-Total	µg/L	1	Metals-022	<1	1	<1	<1	0	93	88
Tin-Total	µg/L	1	Metals-022	<1	1	1	1	0	99	106
Zinc-Total	µg/L	1	Metals-022	<1	1	25	25	0	99	101
Iron-Total	µg/L	10	Metals-022	<10	1	590	590	0	95	#

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-2
Date prepared	-			19/08/2024	1	19/08/2024	19/08/2024		19/08/2024	19/08/2024
Date analysed	-			20/08/2024	1	20/08/2024	20/08/2024		20/08/2024	20/08/2024
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.08	0.09	12	107	103

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	[NT]
Date analysed	-			15/08/2024	1	15/08/2024	15/08/2024		15/08/2024	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	<0.005	<0.005	0	89	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.42	0.42	0	96	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.7	0.7	0	112	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/08/2024	1	19/08/2024	19/08/2024		19/08/2024	[NT]
Date analysed	-			19/08/2024	1	19/08/2024	19/08/2024		19/08/2024	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	82	[NT]		101	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	4	[NT]		95	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	41	[NT]		85	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	3	[NT]		101	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	220	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	68	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	1	68	[NT]		104	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	180	170	6	115	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	1	48	48	0	98	[NT]
Ionic Balance	%		Inorg-040	[NT]	1	-1.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	2	19/08/2024	19/08/2024		[NT]	[NT]
Date analysed	-			[NT]	2	19/08/2024	19/08/2024		[NT]	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	110	110	0	[NT]	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	3	3	0	[NT]	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	19	18	5	[NT]	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	2	3	40	[NT]	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	2	280	290	4	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	42	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	42	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	2	220	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	2	33	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	2	2.0	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-2
Date prepared	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Date analysed	-			16/08/2024	1	16/08/2024	16/08/2024		16/08/2024	16/08/2024
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	105	101
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	114	105
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	108	108
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	113	116
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	101	100
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	113	95
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	106	97
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	99	100
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	95	99
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	107	110
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	105	100
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	110	104
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	122	115
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	109	104
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	101	107
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	100	73
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	113	118
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	105	108
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	102	103
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	99	109
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	108	102
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	105	102
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	112	106
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	105	106
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	118	137
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	96	109
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	110	120
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	102	111
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	101	1	106	102	4	100	104
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	100	1	102	107	5	106	100

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-2
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	103	1	94	98	4	108	104
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	91	1	87	86	1	94	95
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	90	1	83	88	6	91	100
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	108	1	85	87	2	105	94
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	120	1	111	111	0	117	105
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	116	1	110	113	3	119	115
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	100	1	91	95	4	97	100
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	104	1	98	100	2	101	108
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	104	1	99	103	4	103	108
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	99	1	92	97	5	95	101
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	119	1	115	118	3	110	119
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	107	1	93	97	4	103	102
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	107	1	87	86	1	106	88
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	109	1	120	127	6	103	117
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	105	1	120	116	3	109	125
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	125	1	121	113	7	126	120
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	101	1	93	95	2	95	101
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	108	1	98	98	0	102	100
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	106	1	91	91	0	102	94
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	109	1	91	97	6	102	86

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359252-2
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	113	1	96	100	4	109	107
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	122	1	114	113	1	114	110
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	116	1	105	110	5	117	109

QUALITY CONTROL: Dissolved Gases in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			20/08/2024	1	20/08/2024	20/08/2024		20/08/2024	[NT]
Date analysed	-			20/08/2024	1	20/08/2024	20/08/2024		20/08/2024	[NT]
Methane	µg/L	5	AT-006	<5	1	<5	<5	0	96	[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.

Total Metals: The preserved sample provided was not identified as either total or dissolved, therefore the analysis was conducted from the unpreserved sample.
Note: there is a possibility some elements may be underestimated

All metals in water-dissolved
- # Percent recovery is not applicable due to the high concentration of the element in the sample. However an acceptable recovery was obtained for the LCS.

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INTERIM REPORT 361506

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**CTP Groundwater Monitoring**
Number of Samples	8 Water
Date samples received	11/09/2024
Date completed instructions received	11/09/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	18/09/2024
Interim Report Date	18/09/2024

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VOCs in water						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date Extracted	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date Analysed	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
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	6	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		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
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
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	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	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	104	104	106	104	104
Surrogate Toluene-d8	%	99	100	99	97	100
Surrogate 4-Bromofluorobenzene	%	91	91	91	83	91

VOCs in water				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date Extracted	-	12/09/2024	12/09/2024	12/09/2024
Date Analysed	-	13/09/2024	13/09/2024	13/09/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	9	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	82	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	31	<1	<1
Ethylbenzene	µg/L	<1	<1	<1

VOCs in water				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	3	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	3	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	107	106	106
Surrogate Toluene-d8	%	102	96	98
Surrogate 4-Bromofluorobenzene	%	93	76	66

vTRH(C6-C10)/BTEXN in Water						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
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	%	104	104	106	104	104
Surrogate Toluene-d8	%	99	100	99	97	100
Surrogate 4-Bromofluorobenzene	%	91	91	91	83	91

vTRH(C6-C10)/BTEXN in Water				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date extracted	-	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024
TRH C_6 - C_9	µg/L	210	<10	<10
TRH C_6 - C_{10}	µg/L	240	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	160	<10	<10
Benzene	µg/L	82	<1	<1
Toluene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
o-xylene	µg/L	<1	<1	<1
Naphthalene	µg/L	13	<1	<1
Surrogate Dibromofluoromethane	%	107	106	106
Surrogate Toluene-d8	%	102	96	98
Surrogate 4-Bromofluorobenzene	%	93	76	66

svTRH (C10-C40) in Water						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
TRH C_{10} - C_{14}	µg/L	95	<50	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	590	150	<100	<100	<100
TRH C_{29} - C_{36}	µg/L	320	110	<100	<100	<100
Total +ve TRH (C10-C36)	µg/L	1,000	250	<50	<50	<50
TRH >C_{10} - C_{16}	µg/L	140	<50	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	140	<50	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	780	210	<100	<100	110
TRH >C_{34} - C_{40}	µg/L	110	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	1,000	210	<50	<50	110
Surrogate o-Terphenyl	%	86	92	83	85	77

svTRH (C10-C40) in Water				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date extracted	-	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024
TRH C_{10} - C_{14}	µg/L	580	<100	<50
TRH C_{15} - C_{28}	µg/L	1,200	<200	130
TRH C_{29} - C_{36}	µg/L	190	<200	110
Total +ve TRH (C10-C36)	µg/L	1,900	<100	240
TRH >C_{10} - C_{16}	µg/L	740	<100	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	720	<100	<50
TRH >C_{16} - C_{34}	µg/L	1,100	<200	200
TRH >C_{34} - C_{40}	µg/L	<100	<200	<100
Total +ve TRH (>C10-C40)	µg/L	1,900	<100	200
Surrogate o-Terphenyl	%	105	#	74

PAHs in Water						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	16/09/2024	16/09/2024	16/09/2024	16/09/2024	16/09/2024
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	%	91	100	97	99	76

PAHs in Water				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date extracted	-	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	16/09/2024	16/09/2024	16/09/2024
Naphthalene	µg/L	12	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	0.2	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	12	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	97	#	81

All metals in water-dissolved						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
Arsenic-Dissolved	µg/L	<1	1	<1	1	3
Boron-Dissolved	µg/L	200	850	90	90	30
Barium-Dissolved	µg/L	54	78	52	140	81
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
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	5	1	4	<1	2
Cobalt-Dissolved	µg/L	<1	<1	19	7	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	140	44	360	1,100	58
Molybdenum-Dissolved	µg/L	8	15	2	9	1
Nickel-Dissolved	µg/L	2	<1	36	25	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Antimony-Dissolved	µg/L	1	<1	<1	<1	<1
Selenium-Dissolved	µg/L	<1	<1	<1	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	38	2	18	7	3
Iron-Dissolved	µg/L	20	30	<10	210	550

All metals in water-dissolved				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-	13/09/2024	13/09/2024	13/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024
Arsenic-Dissolved	µg/L	3	1	3
Boron-Dissolved	µg/L	1,600	220	30
Barium-Dissolved	µg/L	1,300	9	30
Beryllium-Dissolved	µg/L	<0.5	2	<0.5
Cadmium-Dissolved	µg/L	<0.1	0.1	<0.1
Chromium-Dissolved	µg/L	17	<1	<1
Copper-Dissolved	µg/L	2	5	3
Cobalt-Dissolved	µg/L	10	26	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	87	1,000	64
Molybdenum-Dissolved	µg/L	4	<1	1
Nickel-Dissolved	µg/L	39	19	1
Lead-Dissolved	µg/L	<1	<1	<1
Antimony-Dissolved	µg/L	<1	<1	<1
Selenium-Dissolved	µg/L	<1	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1
Zinc-Dissolved	µg/L	9	70	6
Iron-Dissolved	µg/L	560	30	470

All metals in water - total						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
Arsenic-Total	µg/L	6	5	<1	1	2
Boron-Total	µg/L	200	800	80	100	30
Barium-Total	µg/L	180	180	93	150	3,600
Beryllium-Total	µg/L	0.7	0.5	<0.5	<0.5	<0.5
Cadmium-Total	µg/L	<0.1	0.2	<0.1	<0.1	<0.1
Chromium-Total	µg/L	15	23	9	3	1
Copper-Total	µg/L	51	38	16	4	7
Cobalt-Total	µg/L	7	5	18	8	<1
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	310	200	300	1,000	82
Molybdenum-Total	µg/L	8	9	2	8	<1
Nickel-Total	µg/L	11	10	37	24	2
Lead-Total	µg/L	17	37	5	<1	2
Antimony-Total	µg/L	3	1	<1	<1	<1
Selenium-Total	µg/L	<1	<1	<1	<1	<1
Tin-Total	µg/L	1	<1	<1	1	<1
Zinc-Total	µg/L	340	170	33	16	21
Iron-Total	µg/L	14,000	22,000	2,200	1,900	2,300

All metals in water - total				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024
Arsenic-Total	µg/L	5	4	4
Boron-Total	µg/L	1,700	200	<20
Barium-Total	µg/L	1,500	83	61
Beryllium-Total	µg/L	<0.5	5	<0.5
Cadmium-Total	µg/L	0.2	0.1	<0.1
Chromium-Total	µg/L	27	11	2
Copper-Total	µg/L	17	50	30
Cobalt-Total	µg/L	17	43	1
Mercury-Total	µg/L	<0.05	0.07	<0.05
Manganese-Total	µg/L	140	1,400	100
Molybdenum-Total	µg/L	3	<1	2
Nickel-Total	µg/L	40	35	4
Lead-Total	µg/L	26	32	3
Antimony-Total	µg/L	<1	<1	3
Selenium-Total	µg/L	<1	1	<1
Tin-Total	µg/L	1	<1	<1
Zinc-Total	µg/L	110	170	44
Iron-Total	µg/L	8,600	15,000	2,000

Metals in Waters - Total						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024	13/09/2024	13/09/2024
Phosphorus - Total	mg/L	13	3.1	1.1	1.7	8.8

Metals in Waters - Total				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	13/09/2024	13/09/2024	13/09/2024
Phosphorus - Total	mg/L	3.7	24	12

Miscellaneous Inorganics						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	11/09/2024	11/09/2024	11/09/2024	11/09/2024	11/09/2024
Date analysed	-	11/09/2024	11/09/2024	11/09/2024	11/09/2024	11/09/2024
Ammonia as N in water	mg/L	1.5	1.3	1.0	0.35	0.47
Nitrate as N in water	mg/L	0.077	0.02	0.46	0.47	<0.005
Total Nitrogen in water	mg/L	5.2	4.9	1.8	1.3	3.2
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		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-	11/09/2024	11/09/2024	11/09/2024
Date analysed	-	11/09/2024	11/09/2024	11/09/2024
Ammonia as N in water	mg/L	270	0.042	0.42
Nitrate as N in water	mg/L	0.28	0.24	0.02
Total Nitrogen in water	mg/L	320	1.2	2.0
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	0.02	<0.005	<0.005

Ion Balance						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	11/09/2024	11/09/2024	11/09/2024	11/09/2024	11/09/2024
Date analysed	-	11/09/2024	11/09/2024	11/09/2024	11/09/2024	11/09/2024
Calcium - Dissolved	mg/L	110	43	210	180	13
Potassium - Dissolved	mg/L	12	27	48	50	5.1
Sodium - Dissolved	mg/L	88	130	3,000	2,500	63
Magnesium - Dissolved	mg/L	18	28	460	280	5
Hardness (calc) equivalent $CaCO_3$	mg/L	350	220	2,400	1,600	52
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	280	460	670	470	67
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	280	460	670	470	67
Sulphate, SO4	mg/L	69	20	560	490	14
Chloride, Cl	mg/L	200	78	5,800	4,100	95
Ionic Balance	%	-6.0	-5.0	-2.0	3.0	-5.0

Ion Balance				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-	17/09/2024	11/09/2024	11/09/2024
Date analysed	-	17/09/2024	11/09/2024	11/09/2024
Calcium - Dissolved	mg/L	38	1	13
Potassium - Dissolved	mg/L	340	6.5	5.2
Sodium - Dissolved	mg/L	1,900	360	60
Magnesium - Dissolved	mg/L	86	7.1	4
Hardness (calc) equivalent $CaCO_3$	mg/L	450	33	50
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	1,600	37	70
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	1,600	37	70
Sulphate, SO4	mg/L	2	270	14
Chloride, Cl	mg/L	3,000	310	84
Ionic Balance	%	-7.0	4.0	-4.0

PFAS in Waters Extended						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	12/09/2024	12/09/2024	12/09/2024	12/09/2024	12/09/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	0.05	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	0.07	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	0.53	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	0.03	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	0.74	<0.01	<0.01	<0.01
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	0.03	<0.02	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	0.10	<0.01	0.02	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	0.01	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	0.03	<0.01	<0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.05	<0.05	<0.01
6:2 FTS	µg/L	<0.01	<0.01	<0.05	<0.05	0.01
8:2 FTS	µg/L	<0.02	<0.02	<0.1	<0.1	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.1	<0.1	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	101	101	98	107	102
Surrogate $^{13}C_2$ *PFOA*	%	97	100	94	96	96
Extracted ISTD $^{13}C_3$ *PFBS*	%	101	106	97	98	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	105	103	86	88	92
Extracted ISTD $^{13}C_4$ *PFOS*	%	96	91	77	81	75
Extracted ISTD $^{13}C_4$ *PFBA*	%	85	95	73	71	92

PFAS in Waters Extended						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	102	104	82	88	98
Extracted ISTD $^{13}C_2$ *PFHxA*	%	112	110	83	93	105
Extracted ISTD $^{13}C_4$ *PFHpA*	%	114	111	84	89	96
Extracted ISTD $^{13}C_4$ *PFOA*	%	106	102	83	87	93
Extracted ISTD $^{13}C_5$ *PFNA*	%	102	99	72	81	77
Extracted ISTD $^{13}C_2$ *PFDA*	%	95	83	65	68	64
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	92	78	62	63	53
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	90	78	68	66	50
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	83	75	66	58	50
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	98	92	23	32	74
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	81	85	27	32	71
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	82	76	31	33	58
Extracted ISTD $^{13}C_8$ *FOSA*	%	103	95	76	76	65
Extracted ISTD d_3 *N MeFOSA*	%	89	85	78	75	63
Extracted ISTD d_5 *N EtFOSA*	%	93	84	82	77	61
Extracted ISTD d_7 *N MeFOSE*	%	96	87	82	79	57
Extracted ISTD d_9 *N EtFOSE*	%	106	92	90	86	67
Extracted ISTD d_3 *N MeFOSAA*	%	96	91	52	54	62
Extracted ISTD d_5 *N EtFOSAA*	%	89	75	47	47	47
Total Positive PFHxS & PFOS	µg/L	<0.01	1.3	<0.01	<0.01	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	0.77	<0.01	<0.01	<0.01
Total Positive PFAS	µg/L	<0.01	1.6	<0.01	0.02	0.01

PFAS in Waters Extended				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-	12/09/2024	12/09/2024	12/09/2024
Date analysed	-	12/09/2024	12/09/2024	12/09/2024
Perfluorobutanesulfonic acid	µg/L	0.59	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	0.07	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.10	<0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	0.09	<0.01	0.02
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	0.68	<0.02	<0.02
Perfluoropentanoic acid	µg/L	0.03	<0.02	<0.02
Perfluorohexanoic acid	µg/L	0.28	<0.01	<0.01
Perfluoroheptanoic acid	µg/L	0.07	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	0.22	<0.01	<0.01
Perfluorononanoic acid	µg/L	0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	0.03
8:2 FTS	µg/L	<0.02	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.05	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	96	98	107
Surrogate $^{13}C_2$ *PFOA*	%	93	94	94
Extracted ISTD $^{13}C_3$ *PFBS*	%	109	101	105
Extracted ISTD $^{18}O_2$ *PFHxS*	%	104	96	97
Extracted ISTD $^{13}C_4$ *PFOS*	%	105	86	84
Extracted ISTD $^{13}C_4$ *PFBA*	%	48	76	96

PFAS in Waters Extended				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	81	106	108
Extracted ISTD $^{13}C_2$ *PFHxA*	%	103	108	107
Extracted ISTD $^{13}C_4$ *PFHpA*	%	116	108	106
Extracted ISTD $^{13}C_4$ *PFOA*	%	110	99	100
Extracted ISTD $^{13}C_5$ *PFNA*	%	110	95	93
Extracted ISTD $^{13}C_2$ *PFDA*	%	92	76	78
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	98	72	65
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	85	78	72
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	63	65	66
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	106	71	87
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	92	72	81
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	92	66	72
Extracted ISTD $^{13}C_8$ *FOSA*	%	105	86	81
Extracted ISTD d_3 *N MeFOSA*	%	84	80	78
Extracted ISTD d_5 *N EtFOSA*	%	81	76	79
Extracted ISTD d_7 *N MeFOSE*	%	91	81	79
Extracted ISTD d_9 *N EtFOSE*	%	100	85	87
Extracted ISTD d_3 *N MeFOSAA*	%	80	76	79
Extracted ISTD d_5 *N EtFOSAA*	%	80	66	64
Total Positive PFHxS & PFOS	µg/L	0.20	<0.01	0.02
Total Positive PFOA & PFOS	µg/L	0.31	<0.01	0.02
Total Positive PFAS	µg/L	2.2	<0.01	0.04

Dissolved Gases in Water						
Our Reference		361506-1	361506-2	361506-3	361506-4	361506-5
Your Reference	UNITS	S02d	S06	BH120	BH715b	BH019
Date Sampled		10/09/2024	10/09/2024	10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-					
Date analysed	-					
Methane	µg/L					

Dissolved Gases in Water				
Our Reference		361506-6	361506-7	361506-8
Your Reference	UNITS	B126	BH36	DS1
Date Sampled		10/09/2024	10/09/2024	11/09/2024
Type of sample		Water	Water	Water
Date prepared	-			
Date analysed	-			
Methane	µg/L			

Method ID	Methodology Summary
AT-006	Dissolved gases determined by GC-FID based on draft method USEPA SOP RSK175
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
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-055/062/127	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-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-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

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: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date Extracted	-			16/09/2024	[NT]	[NT]	[NT]	[NT]	12/09/2024	[NT]
Date Analysed	-			17/09/2024	[NT]	[NT]	[NT]	[NT]	13/09/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[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]	106	[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]	104	[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]	103	[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]	115	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	105	[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]	104	[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]	102	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[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]	100	[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]	101	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	105	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	84	[NT]	[NT]	[NT]	[NT]	99	[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	-			16/09/2024	[NT]	[NT]	[NT]	[NT]	12/09/2024	[NT]
Date analysed	-			17/09/2024	[NT]	[NT]	[NT]	[NT]	13/09/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	102	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	102	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	101	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	105	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	84	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	361506-2
Date extracted	-			16/09/2024	1	12/09/2024	12/09/2024		12/09/2024	12/09/2024
Date analysed	-			16/09/2024	1	13/09/2024	13/09/2024		12/09/2024	13/09/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	95	91	4	99	106
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	590	570	3	107	106
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	320	320	0	100	106
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	140	140	0	99	106
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	780	740	5	107	106
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	110	170	43	100	106
Surrogate o-Terphenyl	%		Org-020	81	1	86	84	2	116	81

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-2
Date extracted	-			12/09/2024	1	12/09/2024	12/09/2024		12/09/2024	12/09/2024
Date analysed	-			16/09/2024	1	16/09/2024	16/09/2024		16/09/2024	16/09/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	75	107
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	68	104
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	80	109
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	82	111
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	74	112
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	78	111
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	69	104
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	1	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	70	102
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	100	1	91	88	3	95	119

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	361506-2
Date prepared	-			13/09/2024	2	13/09/2024	13/09/2024		13/09/2024	13/09/2024
Date analysed	-			13/09/2024	2	13/09/2024	13/09/2024		13/09/2024	13/09/2024
Arsenic-Dissolved	µg/L	1	Metals-022	<1	2	1	1	0	98	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	2	850	860	1	90	[NT]
Barium-Dissolved	µg/L	1	Metals-022	<1	2	78	77	1	91	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	2	<0.5	<0.5	0	91	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	106	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	2	1	<1	0	103	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	98	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	2	<0.05	[NT]		95	77
Manganese-Dissolved	µg/L	5	Metals-022	<5	2	44	42	5	104	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	2	15	14	7	97	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	103	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	105	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	97	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	99	[NT]
Tin-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	97	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	2	2	2	0	101	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	2	30	30	0	104	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	361506-3
Date prepared	-			[NT]	4	13/09/2024	13/09/2024		[NT]	13/09/2024
Date analysed	-			[NT]	4	13/09/2024	13/09/2024		[NT]	13/09/2024
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	4	1	[NT]		[NT]	97
Boron-Dissolved	µg/L	20	Metals-022	[NT]	4	90	[NT]		[NT]	98
Barium-Dissolved	µg/L	1	Metals-022	[NT]	4	140	[NT]		[NT]	90
Beryllium-Dissolved	µg/L	0.5	Metals-022	[NT]	4	<0.5	[NT]		[NT]	81
Cadmium-Dissolved	µg/L	0.1	Metals-022	[NT]	4	<0.1	[NT]		[NT]	98
Chromium-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	125
Copper-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	107
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	4	7	[NT]		[NT]	109
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	4	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	4	1100	[NT]		[NT]	#
Molybdenum-Dissolved	µg/L	1	Metals-022	[NT]	4	9	[NT]		[NT]	109
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	4	25	[NT]		[NT]	111
Lead-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	88
Antimony-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	94
Selenium-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	97
Tin-Dissolved	µg/L	1	Metals-022	[NT]	4	<1	[NT]		[NT]	95
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	4	7	[NT]		[NT]	118
Iron-Dissolved	µg/L	10	Metals-022	[NT]	4	210	[NT]		[NT]	112

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-4
Date prepared	-			16/09/2024	1	12/09/2024	12/09/2024		16/09/2024	16/09/2024
Date analysed	-			16/09/2024	1	13/09/2024	13/09/2024		16/09/2024	16/09/2024
Arsenic-Total	µg/L	1	Metals-022	<1	1	6	[NT]		93	[NT]
Boron-Total	µg/L	20	Metals-022	<20	1	200	[NT]		83	[NT]
Barium-Total	µg/L	1	Metals-022	<1	1	180	[NT]		92	[NT]
Beryllium-Total	µg/L	0.5	Metals-022	<0.5	1	0.7	[NT]		83	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		93	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	15	[NT]		83	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	51	[NT]		91	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	1	7	[NT]		86	[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	310	[NT]		86	[NT]
Molybdenum-Total	µg/L	1	Metals-022	<1	1	8	[NT]		89	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	11	[NT]		86	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	17	[NT]		94	[NT]
Antimony-Total	µg/L	1	Metals-022	<1	1	3	[NT]		93	[NT]
Selenium-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		93	[NT]
Tin-Total	µg/L	1	Metals-022	<1	1	1	[NT]		95	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	340	[NT]		88	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	14000	[NT]		85	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	361506-5
Date prepared	-			[NT]	4	12/09/2024	12/09/2024		[NT]	16/09/2024
Date analysed	-			[NT]	4	13/09/2024	13/09/2024		[NT]	16/09/2024
Arsenic-Total	µg/L	1	Metals-022	[NT]	4	1	1	0	[NT]	93
Boron-Total	µg/L	20	Metals-022	[NT]	4	100	100	0	[NT]	72
Barium-Total	µg/L	1	Metals-022	[NT]	4	150	150	0	[NT]	#
Beryllium-Total	µg/L	0.5	Metals-022	[NT]	4	<0.5	<0.5	0	[NT]	92
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	4	<0.1	<0.1	0	[NT]	96
Chromium-Total	µg/L	1	Metals-022	[NT]	4	3	2	40	[NT]	92
Copper-Total	µg/L	1	Metals-022	[NT]	4	4	3	29	[NT]	91
Cobalt-Total	µg/L	1	Metals-022	[NT]	4	8	8	0	[NT]	92
Mercury-Total	µg/L	0.05	Metals-021	[NT]	4	<0.05	[NT]		[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	4	1000	1000	0	[NT]	86
Molybdenum-Total	µg/L	1	Metals-022	[NT]	4	8	8	0	[NT]	95
Nickel-Total	µg/L	1	Metals-022	[NT]	4	24	23	4	[NT]	94
Lead-Total	µg/L	1	Metals-022	[NT]	4	<1	<1	0	[NT]	88
Antimony-Total	µg/L	1	Metals-022	[NT]	4	<1	<1	0	[NT]	89
Selenium-Total	µg/L	1	Metals-022	[NT]	4	<1	<1	0	[NT]	92
Tin-Total	µg/L	1	Metals-022	[NT]	4	1	1	0	[NT]	88
Zinc-Total	µg/L	1	Metals-022	[NT]	4	16	17	6	[NT]	96
Iron-Total	µg/L	10	Metals-022	[NT]	4	1900	1900	0	[NT]	#

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			12/09/2024	4	12/09/2024	12/09/2024		12/09/2024	[NT]
Date analysed	-			13/09/2024	4	13/09/2024	13/09/2024		13/09/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	4	1.7	1.6	6	111	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-2
Date prepared	-			11/09/2024	1	11/09/2024	11/09/2024		11/09/2024	11/09/2024
Date analysed	-			11/09/2024	1	11/09/2024	11/09/2024		11/09/2024	11/09/2024
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	1.5	1.6	6	100	72
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.077	0.076	1	105	111
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	5.2	4.5	14	113	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	99	96
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-2
Date prepared	-			11/09/2024	1	11/09/2024	11/09/2024		11/09/2024	11/09/2024
Date analysed	-			11/09/2024	1	11/09/2024	11/09/2024		11/09/2024	11/09/2024
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	110	110	0	111	124
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	12	12	0	93	96
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	88	90	2	102	#
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	18	18	0	111	118
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	350	360	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	250	11	[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	250	11	112	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	69	70	1	116	106
Chloride, Cl	mg/L	1	Inorg-081	<1	1	200	210	5	106	#
Ionic Balance	%		Inorg-040	[NT]	1	-6.0	-5.0	-18	[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-2
Date prepared	-			12/09/2024	1	12/09/2024	12/09/2024		12/09/2024	12/09/2024
Date analysed	-			12/09/2024	1	12/09/2024	12/09/2024		12/09/2024	12/09/2024
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	99
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	95	97
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	105	106
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	107	103
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	112	105
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	82	84
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	102	100
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	101	103
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	105
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	101	103
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	104	104
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	99	99
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	106	107
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	107	102
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	106	102
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	108	104
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	105	99
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	104
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	109	112
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	108	103
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	98	129
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	103	100
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	107	103
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	103	101
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	112	104
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	111	98
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	104	109
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	103	105
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	102	1	101	100	1	112	98
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	98	1	97	97	0	96	99

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-2
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	99	1	101	108	7	96	105
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	97	1	105	104	1	89	105
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	83	1	96	96	0	73	90
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	103	1	85	87	2	98	95
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	101	1	102	103	1	99	103
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	96	1	112	114	2	94	112
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	100	1	114	115	1	94	112
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	96	1	106	106	0	89	102
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	88	1	102	100	2	79	94
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	76	1	95	90	5	69	84
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	67	1	92	81	13	58	76
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	67	1	90	81	11	59	78
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	71	1	83	75	10	59	73
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	79	1	98	98	0	87	101
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	84	1	81	84	4	86	93
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	75	1	82	84	2	72	82
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	86	1	103	94	9	80	94
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	78	1	89	85	5	76	84
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	78	1	93	88	6	77	86
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	75	1	96	88	9	68	88

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361506-2
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	80	1	106	100	6	70	91
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	84	1	96	92	4	72	85
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	71	1	89	79	12	60	75

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

ION_BALANCE: # 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 Metals: The preserved sample provided for #2, 3 & 6 was not identified as either total or dissolved, therefore the analysis was conducted from the unpreserved sample.
Note: there is a possibility some elements may be underestimated

Dissolved Metals: For the determination of dissolved metals, the unpreserved sample was filtered through 0.45um filter at the lab due to the appearance
of colloids and/or sediment in the supplied HNO3 bottle (it appears the sample has not been field filtered).
Note: there is a possibility some elements may be underestimated.

TRH Water(C10-C40) NEPM - # Percent recovery for the surrogate/matrix spike is not possible to report due to interference from analytes (other than those being tested) in sample 361506-7.
The PQL has been raised due to interferences from analytes (other than those being tested) in sample 361506-7.

All metals in water-dissolved - # Percent recovery is not applicable due to the high concentration of the element in the sample. However an acceptable recovery was obtained for the LCS.

PAHs in Water - # Percent recovery for the surrogate is not possible to report due to interference from analytes (other than those being tested) in sample 361506-7.

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.

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CERTIFICATE OF ANALYSIS 366179

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**CTP Groundwater Monitoring**
Number of Samples	7 Water
Date samples received	12/11/2024
Date completed instructions received	12/11/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	20/11/2024
Date of Issue	20/11/2024

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[redacted]

VOCs in water						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date Extracted	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Date Analysed	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
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	6	<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	4	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1

VOCs in water						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
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
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	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	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	99	97	94	98
Surrogate Toluene-d8	%	98	98	97	99	99
Surrogate 4-Bromofluorobenzene	%	103	102	98	93	101

VOCs in water			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date Extracted	-	19/11/2024	19/11/2024
Date Analysed	-	19/11/2024	19/11/2024
Dichlorodifluoromethane	µg/L	<10	<10
Chloromethane	µg/L	<10	<10
Vinyl Chloride	µg/L	<10	<10
Bromomethane	µg/L	<10	<10
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	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1
Chlorobenzene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1

VOCs in water			
Our Reference	UNITS	366179-6	366179-7
Your Reference		S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
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
1,4-dichlorobenzene	µg/L	<1	<1
4-isopropyl toluene	µg/L	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1
n-butyl benzene	µg/L	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1
Hexachlorobutadiene	µg/L	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	98	99
Surrogate Toluene-d8	%	99	98
Surrogate 4-Bromofluorobenzene	%	104	103

vTRH(C6-C10)/BTEXN in Water						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Date analysed	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
TRH C_6 - C_9	µg/L	<10	<10	12	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	13	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	6	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	99	97	94	98
Surrogate Toluene-d8	%	98	98	97	99	99
Surrogate 4-Bromofluorobenzene	%	103	102	98	93	101

vTRH(C6-C10)/BTEXN in Water			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date extracted	-	19/11/2024	19/11/2024
Date analysed	-	19/11/2024	19/11/2024
TRH C_6 - C_9	µg/L	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	98	99
Surrogate Toluene-d8	%	99	98
Surrogate 4-Bromofluorobenzene	%	104	103

svTRH (C10-C40) in Water						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	67	<50	<50
TRH C_{15} - C_{28}	µg/L	<100	<100	180	290	220
TRH C_{29} - C_{36}	µg/L	<100	<100	<100	250	130
Total +ve TRH (C10-C36)	µg/L	<50	<50	250	540	350
TRH >C_{10} - C_{16}	µg/L	<50	<50	89	51	53
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	89	51	53
TRH >C_{16} - C_{34}	µg/L	<100	<100	170	450	310
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100	170	<100
Total +ve TRH (>C10-C40)	µg/L	<50	<50	260	670	360
Surrogate o-Terphenyl	%	92	89	94	85	90

svTRH (C10-C40) in Water			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date extracted	-	13/11/2024	13/11/2024
Date analysed	-	14/11/2024	14/11/2024
TRH C_{10} - C_{14}	µg/L	91	<50
TRH C_{15} - C_{28}	µg/L	550	<100
TRH C_{29} - C_{36}	µg/L	240	<100
Total +ve TRH (C10-C36)	µg/L	880	<50
TRH >C_{10} - C_{16}	µg/L	150	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	150	<50
TRH >C_{16} - C_{34}	µg/L	660	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100
Total +ve TRH (>C10-C40)	µg/L	810	<50
Surrogate o-Terphenyl	%	102	91

PAHs in Water						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	14/11/2024	14/11/2024	14/11/2024	14/11/2024	14/11/2024
Naphthalene	µg/L	<0.1	<0.1	0.3	<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	0.27	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	93	101	78	78	83

PAHs in Water			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date extracted	-	13/11/2024	13/11/2024
Date analysed	-	14/11/2024	14/11/2024
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	<0.1
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	%	94	86

All metals in water-dissolved						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Iron-Dissolved	µg/L	<10	<10	1,200	<10	10
Arsenic-Dissolved	µg/L	<1	<1	1	<1	1
Boron-Dissolved	µg/L	80	50	540	500	80
Barium-Dissolved	µg/L	65	33	330	130	72
Beryllium-Dissolved	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium-Dissolved	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1	6	<1	<1
Copper-Dissolved	µg/L	3	110	5	<1	<1
Cobalt-Dissolved	µg/L	19	8	3	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	240	320	33	100	200
Molybdenum-Dissolved	µg/L	3	4	3	26	23
Nickel-Dissolved	µg/L	26	34	18	2	4
Lead-Dissolved	µg/L	<1	<1	1	<1	<1
Antimony-Dissolved	µg/L	1	<1	<1	3	2
Selenium-Dissolved	µg/L	<1	1	<1	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	10	13	24	4	2

All metals in water-dissolved			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024
Iron-Dissolved	µg/L	<10	<10
Arsenic-Dissolved	µg/L	1	<1
Boron-Dissolved	µg/L	200	50
Barium-Dissolved	µg/L	39	39
Beryllium-Dissolved	µg/L	<0.5	<0.5
Cadmium-Dissolved	µg/L	<0.1	2.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	2	10
Cobalt-Dissolved	µg/L	<1	59
Mercury-Dissolved	µg/L	<0.05	<0.05
Manganese-Dissolved	µg/L	110	1,300
Molybdenum-Dissolved	µg/L	34	1
Nickel-Dissolved	µg/L	<1	72
Lead-Dissolved	µg/L	<1	<1
Antimony-Dissolved	µg/L	2	1
Selenium-Dissolved	µg/L	<1	<1
Tin-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	2	590

All metals in water - total						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Iron-Total	µg/L	1,700	5,900	2,300	66,000	13,000
Arsenic-Total	µg/L	<1	8	2	13	7
Boron-Total	µg/L	80	50	420	580	80
Barium-Total	µg/L	100	100	260	1,000	180
Beryllium-Total	µg/L	<0.5	0.9	<0.5	3	1
Cadmium-Total	µg/L	<0.1	<0.1	<0.1	0.4	0.2
Chromium-Total	µg/L	5	8	9	52	23
Copper-Total	µg/L	29	310	21	180	67
Cobalt-Total	µg/L	21	21	5	25	9
Mercury-Total	µg/L	<0.05	<0.2	<0.05	<0.05	0.06
Manganese-Total	µg/L	310	500	51	1,500	460
Molybdenum-Total	µg/L	5	4	3	23	20
Nickel-Total	µg/L	44	40	19	38	22
Lead-Total	µg/L	3	9	5	63	40
Antimony-Total	µg/L	2	<1	2	6	4
Selenium-Total	µg/L	<1	1	<1	<1	<1
Tin-Total	µg/L	2	<1	2	3	2
Zinc-Total	µg/L	46	53	81	910	570

All metals in water - total			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024
Iron-Total	µg/L	20,000	21,000
Arsenic-Total	µg/L	10	8
Boron-Total	µg/L	200	50
Barium-Total	µg/L	190	210
Beryllium-Total	µg/L	1	2
Cadmium-Total	µg/L	0.1	3.4
Chromium-Total	µg/L	25	28
Copper-Total	µg/L	59	190
Cobalt-Total	µg/L	8	160
Mercury-Total	µg/L	<0.05	<0.05
Manganese-Total	µg/L	500	1,600
Molybdenum-Total	µg/L	31	2
Nickel-Total	µg/L	13	140
Lead-Total	µg/L	22	34
Antimony-Total	µg/L	6	1
Selenium-Total	µg/L	<1	1
Tin-Total	µg/L	2	16
Zinc-Total	µg/L	540	1,500

Metals in Waters - Total						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Phosphorus - Total	mg/L	0.07	0.1	0.2	0.90	0.5

Metals in Waters - Total			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024
Phosphorus - Total	mg/L	2.0	1.0

Miscellaneous Inorganics						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Ammonia as N in water	mg/L	1.0	0.013	76	1.1	2.5
Nitrate as N in water	mg/L	0.70	0.20	2.8	0.98	0.008
Total Nitrogen in water	mg/L	1.8	0.3	100	2.3	2.5
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	0.006	<0.005	<0.005

Miscellaneous Inorganics			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024
Ammonia as N in water	mg/L	11	1.3
Nitrate as N in water	mg/L	0.098	<0.005
Total Nitrogen in water	mg/L	24	1.4
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005

Ion Balance						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Calcium - Dissolved	mg/L	200	97	24	48	88
Potassium - Dissolved	mg/L	49	22	120	44	56
Sodium - Dissolved	mg/L	3,000	1,100	600	120	180
Magnesium - Dissolved	mg/L	420	120	24	17	7.2
Hardness (calc) equivalent $CaCO_3$	mg/L	2,200	750	160	190	250
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	660	810	510	330	230
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	660	810	510	330	230
Sulphate, SO4	mg/L	630	370	4	33	60
Chloride, Cl	mg/L	6,600	1,700	1,100	150	310
Ionic Balance	%	-9.0	-5.0	-10	-6.0	-2.0

Ion Balance			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024
Calcium - Dissolved	mg/L	77	160
Potassium - Dissolved	mg/L	13	37
Sodium - Dissolved	mg/L	110	4,500
Magnesium - Dissolved	mg/L	13	530
Hardness (calc) equivalent $CaCO_3$	mg/L	240	2,600
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	210	590
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	210	590
Sulphate, SO4	mg/L	75	760
Chloride, Cl	mg/L	220	9,800
Ionic Balance	%	-8.0	-10

PFAS in Waters Extended						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01	0.05	0.04	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01	0.03	0.05	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	0.04	0.34	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01	<0.01	0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	0.05	0.45	0.03
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02	0.22	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	<0.01	0.11	0.06	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	<0.01	0.03	0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	0.08	0.02	0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01	0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	0.01	0.03	0.02
8:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	101	101	100	98	99
Surrogate $^{13}C_2$ *PFOA*	%	104	103	101	102	102
Extracted ISTD $^{13}C_3$ *PFBS*	%	100	103	103	108	106
Extracted ISTD $^{18}O_2$ *PFHxS*	%	102	101	104	107	104
Extracted ISTD $^{13}C_4$ *PFOS*	%	98	97	102	104	101
Extracted ISTD $^{13}C_4$ *PFBA*	%	46	76	54	90	85

PFAS in Waters Extended						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	75	92	89	96	97
Extracted ISTD $^{13}C_2$ *PFHxA*	%	89	98	95	102	99
Extracted ISTD $^{13}C_4$ *PFHpA*	%	87	97	102	105	104
Extracted ISTD $^{13}C_4$ *PFOA*	%	83	93	102	103	103
Extracted ISTD $^{13}C_5$ *PFNA*	%	92	94	105	105	102
Extracted ISTD $^{13}C_2$ *PFDA*	%	93	97	108	103	103
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	98	98	117	106	108
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	99	101	113	99	114
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	104	96	107	100	107
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	37	61	90	105	98
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	37	53	93	103	100
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	48	65	92	105	113
Extracted ISTD $^{13}C_8$ *FOSA*	%	85	95	104	106	103
Extracted ISTD d_3 *N MeFOSA*	%	99	97	104	96	100
Extracted ISTD d_5 *N EtFOSA*	%	103	98	101	99	100
Extracted ISTD d_7 *N MeFOSE*	%	104	103	113	101	100
Extracted ISTD d_9 *N EtFOSE*	%	95	100	101	96	99
Extracted ISTD d_3 *N MeFOSAA*	%	71	74	96	101	106
Extracted ISTD d_5 *N EtFOSAA*	%	75	79	99	108	112
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	0.09	0.79	0.03
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01	0.13	0.47	0.04
Total Positive PFAS	µg/L	<0.01	<0.01	0.63	1.0	0.06

PFAS in Waters Extended			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.1
Perfluoropentanoic acid	µg/L	<0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.05
6:2 FTS	µg/L	0.04	<0.05
8:2 FTS	µg/L	<0.02	<0.04
10:2 FTS	µg/L	<0.02	<0.04
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	96	100
Surrogate $^{13}C_2$ *PFOA*	%	107	104
Extracted ISTD $^{13}C_3$ *PFBS*	%	104	101
Extracted ISTD $^{18}O_2$ *PFHxS*	%	98	96
Extracted ISTD $^{13}C_4$ *PFOS*	%	103	95
Extracted ISTD $^{13}C_4$ *PFBA*	%	78	38

PFAS in Waters Extended			
Our Reference	UNITS	366179-6	366179-7
Your Reference		S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	92	69
Extracted ISTD $^{13}C_2$ *PFHxA*	%	102	82
Extracted ISTD $^{13}C_4$ *PFHpA*	%	98	80
Extracted ISTD $^{13}C_4$ *PFOA*	%	101	80
Extracted ISTD $^{13}C_5$ *PFNA*	%	100	83
Extracted ISTD $^{13}C_2$ *PFDA*	%	101	86
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	108	90
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	111	98
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	103	91
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	111	32
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	120	33
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	123	44
Extracted ISTD $^{13}C_8$ *FOSA*	%	103	81
Extracted ISTD d_3 *N MeFOSA*	%	100	100
Extracted ISTD d_5 *N EtFOSA*	%	102	100
Extracted ISTD d_7 *N MeFOSE*	%	101	101
Extracted ISTD d_9 *N EtFOSE*	%	99	93
Extracted ISTD d_3 *N MeFOSAA*	%	112	68
Extracted ISTD d_5 *N EtFOSAA*	%	112	70
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01
Total Positive PFAS	µg/L	0.04	<0.01

Dissolved Gases in Water						
Our Reference		366179-1	366179-2	366179-3	366179-4	366179-5
Your Reference	UNITS	BH120	BH046R	BH126	S06	S02_s
Date Sampled		12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	15/11/2024	15/11/2024	15/11/2024	15/11/2024	15/11/2024
Date analysed	-	15/11/2024	15/11/2024	15/11/2024	15/11/2024	15/11/2024
Methane	µg/L	<5	<5	400	1,800	<5

Dissolved Gases in Water			
Our Reference		366179-6	366179-7
Your Reference	UNITS	S02_d	BH715B
Date Sampled		12/11/2024	12/11/2024
Type of sample		Water	Water
Date prepared	-	15/11/2024	15/11/2024
Date analysed	-	15/11/2024	15/11/2024
Methane	µg/L	15	<5

Method ID	Methodology Summary
AT-006	Dissolved gases determined by GC-FID based on draft method USEPA SOP RSK175
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
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-055/062/127	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-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-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

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: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date Extracted	-			19/11/2024	[NT]	[NT]	[NT]	[NT]	19/11/2024	[NT]
Date Analysed	-			19/11/2024	[NT]	[NT]	[NT]	[NT]	19/11/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	102	[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]	102	[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]	100	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	99	[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]	101	[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]	111	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[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]	101	[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]	90	[NT]
1,2-dibromoethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tetrachloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Bromoform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			19/11/2024	[NT]	[NT]	[NT]	[NT]	19/11/2024	[NT]
Date analysed	-			19/11/2024	[NT]	[NT]	[NT]	[NT]	19/11/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	101	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate Toluene-d8	%		Org-023	98	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366179-2
Date extracted	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Date analysed	-			13/11/2024	1	13/11/2024	14/11/2024		13/11/2024	14/11/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	[NT]	1	<50	<50	0	108	108
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	<100	<100	0	111	109
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	<100	<100	0	114	98
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	108	108
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	<100	<100	0	111	109
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	114	98
Surrogate o-Terphenyl	%		Org-020	79	1	92	96	4	113	115

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	366179-2
Date extracted	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Date analysed	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	14/11/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	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	96	98
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	98	93
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	96	93
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	98	95
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	100	96
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	81
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	112	112
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	93	96	3	88	98

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	[NT]
Date analysed	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	95	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	93	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	1	80	80	0	102	[NT]
Barium-Dissolved	µg/L	1	Metals-022	<1	1	65	65	0	98	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	102	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	92	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	116	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	19	19	0	91	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	98	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	240	250	4	101	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	3	3	0	101	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	26	26	0	119	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	90	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	90	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	89	[NT]
Tin-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	94	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	10	10	0	93	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	366179-3
Date prepared	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Date analysed	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Iron-Total	µg/L	10	Metals-022	<10	1	1700	[NT]		99	#
Arsenic-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		94	93
Boron-Total	µg/L	20	Metals-022	<20	1	80	[NT]		91	112
Barium-Total	µg/L	1	Metals-022	<1	1	100	[NT]		96	#
Beryllium-Total	µg/L	0.5	Metals-022	<0.5	1	<0.5	[NT]		101	106
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		98	100
Chromium-Total	µg/L	1	Metals-022	<1	1	5	[NT]		99	106
Copper-Total	µg/L	1	Metals-022	<1	1	29	[NT]		98	95
Cobalt-Total	µg/L	1	Metals-022	<1	1	21	[NT]		99	104
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	96	##
Manganese-Total	µg/L	5	Metals-022	<5	1	310	[NT]		100	107
Molybdenum-Total	µg/L	1	Metals-022	<1	1	5	[NT]		98	101
Nickel-Total	µg/L	1	Metals-022	<1	1	44	[NT]		97	100
Lead-Total	µg/L	1	Metals-022	<1	1	3	[NT]		96	87
Antimony-Total	µg/L	1	Metals-022	<1	1	2	[NT]		99	91
Selenium-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		95	91
Tin-Total	µg/L	1	Metals-022	<1	1	2	[NT]		105	87
Zinc-Total	µg/L	1	Metals-022	<1	1	46	[NT]		107	97

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	2	13/11/2024	13/11/2024		[NT]	[NT]
Date analysed	-			[NT]	2	13/11/2024	13/11/2024		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	2	5900	5900	0	[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	2	8	8	0	[NT]	[NT]
Boron-Total	µg/L	20	Metals-022	[NT]	2	50	50	0	[NT]	[NT]
Barium-Total	µg/L	1	Metals-022	[NT]	2	100	100	0	[NT]	[NT]
Beryllium-Total	µg/L	0.5	Metals-022	[NT]	2	0.9	0.9	0	[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	2	<0.1	<0.1	0	[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	2	8	8	0	[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	2	310	310	0	[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	2	21	21	0	[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	2	<0.2	[NT]		[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	2	500	490	2	[NT]	[NT]
Molybdenum-Total	µg/L	1	Metals-022	[NT]	2	4	4	0	[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	2	40	39	3	[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	2	9	9	0	[NT]	[NT]
Antimony-Total	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Selenium-Total	µg/L	1	Metals-022	[NT]	2	1	1	0	[NT]	[NT]
Tin-Total	µg/L	1	Metals-022	[NT]	2	<1	<1	0	[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	2	53	55	4	[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	[NT]
Date analysed	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	1	0.07	0.08	13	97	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366179-2
Date prepared	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Date analysed	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	1.0	1.0	0	96	111
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.70	0.72	3	97	104
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	1.8	[NT]		89	82
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	101	95
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	1	<0.005	<0.005	0	[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366179-2
Date prepared	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Date analysed	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	200	[NT]		95	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	49	[NT]		89	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	3000	[NT]		98	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	420	[NT]		97	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	1	2200	[NT]		[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	660	660	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	660	660	0	114	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	1	630	600	5	115	#
Chloride, Cl	mg/L	1	Inorg-081	<1	1	6600	6400	3	109	#
Ionic Balance	%		Inorg-040	[NT]	1	-9.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	2	13/11/2024	13/11/2024		[NT]	[NT]
Date analysed	-			[NT]	2	13/11/2024	13/11/2024		[NT]	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	97	95	2	[NT]	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	22	22	0	[NT]	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	1100	1100	0	[NT]	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	2	120	120	0	[NT]	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	2	750	730	3	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	810	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	2	810	[NT]		[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	2	370	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	2	1700	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	2	-5.0	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366179-2
Date prepared	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Date analysed	-			13/11/2024	1	13/11/2024	13/11/2024		13/11/2024	13/11/2024
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	98	99
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	97
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	99	97
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	95	97
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	101	95
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	100	94
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	96	95
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	95	97
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	94	93
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	96	95
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	102	103
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	96	98
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	94	98
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	96	97
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	97	99
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	88	89
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	86	85
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	99
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	94	97
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	95	97
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	99	118
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	102	101
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	99	96
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	98	94
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	98	103
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	103	100
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	101	97
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	94	92
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	98	1	101	96	5	102	98
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	104	1	104	107	3	100	106

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366179-2
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	104	1	100	100	0	103	103
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	107	1	102	99	3	106	104
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	105	1	98	100	2	98	103
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	104	1	46	46	0	104	74
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	105	1	75	74	1	104	90
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	106	1	89	86	3	104	98
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	105	1	87	86	1	101	97
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	101	1	83	83	0	101	89
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	108	1	92	89	3	103	94
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	104	1	93	94	1	104	97
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	109	1	98	93	5	107	101
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	112	1	99	102	3	103	95
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	105	1	104	100	4	101	94
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	108	1	37	37	0	104	58
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	109	1	37	37	0	107	51
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	110	1	48	50	4	114	63
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	112	1	85	84	1	104	94
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	104	1	99	100	1	100	101
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	102	1	103	100	3	101	102
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	105	1	104	95	9	105	101

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366179-2
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	97	1	95	95	0	101	99
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	110	1	71	72	1	104	76
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	107	1	75	73	3	107	81

QUALITY CONTROL: Dissolved Gases in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			15/11/2024	1	15/11/2024	15/11/2024		15/11/2024	[NT]
Date analysed	-			15/11/2024	1	15/11/2024	15/11/2024		15/11/2024	[NT]
Methane	µg/L	5	AT-006	<5	1	<5	<5	0	90	[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.
- ## Spike recovery for this analyte was <20%, therefore the result is questionable (high uncertainty), possibly due to the sample matrix. The corresponding LCS recovery was with acceptance limits.
- The PQL for 366179-2 has been raised for Hg due to the low spike recovery/recoveries. This may reflect other samples where similar in matrix and similar analytical interferences occur.

ION_BALANCE:# 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.

All metals in wate - 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.

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CERTIFICATE OF ANALYSIS 366302

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**CTP Groundwater Monitoring**
Number of Samples	3 Water
Date samples received	13/11/2024
Date completed instructions received	13/11/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	20/11/2024
Date of Issue	20/11/2024

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[redacted]

VOCs in water				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date Extracted	-	18/11/2024	18/11/2024	18/11/2024
Date Analysed	-	19/11/2024	19/11/2024	19/11/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10
Chloroethane	µg/L	<10	<10	<10
Trichlorofluoromethane	µg/L	<10	<10	<10
1,1-Dichloroethene	µg/L	<1	<1	<1
Trans-1,2-dichloroethene	µg/L	<1	<1	<1
1,1-dichloroethane	µg/L	<1	<1	<1
Cis-1,2-dichloroethene	µg/L	<1	<1	<1
Bromochloromethane	µg/L	<1	<1	<1
Chloroform	µg/L	<1	<1	<1
2,2-dichloropropane	µg/L	<1	<1	<1
1,2-dichloroethane	µg/L	<1	<1	<1
1,1,1-trichloroethane	µg/L	<1	<1	<1
1,1-dichloropropene	µg/L	<1	<1	<1
Cyclohexane	µg/L	<1	<1	<1
Carbon tetrachloride	µg/L	<1	<1	<1
Benzene	µg/L	<1	<1	<1
Dibromomethane	µg/L	<1	<1	<1
1,2-dichloropropane	µg/L	<1	<1	<1
Trichloroethene	µg/L	<1	<1	<1
Bromodichloromethane	µg/L	<1	<1	<1
trans-1,3-dichloropropene	µg/L	<1	<1	<1
cis-1,3-dichloropropene	µg/L	<1	<1	<1
1,1,2-trichloroethane	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
1,3-dichloropropane	µg/L	<1	<1	<1
Dibromochloromethane	µg/L	<1	<1	<1
1,2-dibromoethane	µg/L	<1	<1	<1
Tetrachloroethene	µg/L	<1	<1	<1
1,1,1,2-tetrachloroethane	µg/L	<1	<1	<1
Chlorobenzene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1

VOCs in water				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Bromoform	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
Styrene	µg/L	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	<1	<1	<1
o-xylene	µg/L	<1	<1	<1
1,2,3-trichloropropane	µg/L	<1	<1	<1
Isopropylbenzene	µg/L	<1	<1	<1
Bromobenzene	µg/L	<1	<1	<1
n-propyl benzene	µg/L	<1	<1	<1
2-chlorotoluene	µg/L	<1	<1	<1
4-chlorotoluene	µg/L	<1	<1	<1
1,3,5-trimethyl benzene	µg/L	<1	<1	<1
Tert-butyl benzene	µg/L	<1	<1	<1
1,2,4-trimethyl benzene	µg/L	<1	<1	<1
1,3-dichlorobenzene	µg/L	<1	<1	<1
Sec-butyl benzene	µg/L	<1	<1	<1
1,4-dichlorobenzene	µg/L	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1
n-butyl benzene	µg/L	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	<1	<1	<1
1,2,4-trichlorobenzene	µg/L	<1	<1	<1
Hexachlorobutadiene	µg/L	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	98	98
Surrogate Toluene-d8	%	106	105	105
Surrogate 4-Bromofluorobenzene	%	112	111	113

vTRH(C6-C10)/BTEXN in Water				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date extracted	-	18/11/2024	18/11/2024	18/11/2024
Date analysed	-	19/11/2024	19/11/2024	19/11/2024
TRH C_6 - C_9	µg/L	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10
Benzene	µg/L	<1	<1	<1
Toluene	µg/L	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2
o-xylene	µg/L	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	98	98
Surrogate Toluene-d8	%	106	105	105
Surrogate 4-Bromofluorobenzene	%	112	111	113

svTRH (C10-C40) in Water				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date extracted	-	14/11/2024	14/11/2024	14/11/2024
Date analysed	-	15/11/2024	15/11/2024	15/11/2024
TRH C_{10} - C_{14}	µg/L	<50	<50	<50
TRH C_{15} - C_{28}	µg/L	250	<100	<100
TRH C_{29} - C_{36}	µg/L	140	<100	<100
Total +ve TRH (C10-C36)	µg/L	390	<50	<50
TRH >C_{10} - C_{16}	µg/L	<50	<50	<50
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	<50	<50	<50
TRH >C_{16} - C_{34}	µg/L	340	<100	<100
TRH >C_{34} - C_{40}	µg/L	<100	<100	<100
Total +ve TRH (>C10-C40)	µg/L	340	<50	<50
Surrogate o-Terphenyl	%	87	81	81

PAHs in Water				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date extracted	-	14/11/2024	14/11/2024	14/11/2024
Date analysed	-	15/11/2024	15/11/2024	15/11/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d14	%	83	85	77

All metals in water-dissolved				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	14/11/2024	14/11/2024	14/11/2024
Date analysed	-	14/11/2024	14/11/2024	14/11/2024
Iron-Dissolved	µg/L	30	20	350
Arsenic-Dissolved	µg/L	<1	<1	3
Boron-Dissolved	µg/L	50	210	30
Barium-Dissolved	µg/L	32	12	71
Beryllium-Dissolved	µg/L	<0.5	1	<0.5
Cadmium-Dissolved	µg/L	<0.1	0.2	<0.1
Chromium-Dissolved	µg/L	<1	<1	<1
Copper-Dissolved	µg/L	12	29	1
Cobalt-Dissolved	µg/L	5	36	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	1,700	1,800	70
Molybdenum-Dissolved	µg/L	1	<1	4
Nickel-Dissolved	µg/L	5	36	1
Lead-Dissolved	µg/L	<1	<1	<1
Antimony-Dissolved	µg/L	1	<1	<1
Selenium-Dissolved	µg/L	<1	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1
Zinc-Dissolved	µg/L	91	82	4

All metals in water - total				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	14/11/2024	14/11/2024	14/11/2024
Date analysed	-	14/11/2024	14/11/2024	14/11/2024
Iron-Total	µg/L	1,000	12,000	670
Arsenic-Total	µg/L	<1	4	3
Boron-Total	µg/L	70	220	50
Barium-Total	µg/L	35	73	82
Beryllium-Total	µg/L	<0.5	3	<0.5
Cadmium-Total	µg/L	<0.1	0.3	<0.1
Chromium-Total	µg/L	<1	10	<1
Copper-Total	µg/L	13	53	6
Cobalt-Total	µg/L	10	51	<1
Mercury-Total	µg/L	<0.05	<0.05	<0.05
Manganese-Total	µg/L	3,300	2,200	72
Molybdenum-Total	µg/L	1	<1	4
Nickel-Total	µg/L	8	54	2
Lead-Total	µg/L	1	24	<1
Antimony-Total	µg/L	1	<1	<1
Selenium-Total	µg/L	<1	<1	<1
Tin-Total	µg/L	<1	1	<1
Zinc-Total	µg/L	93	160	8

Metals in Waters - Total				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	14/11/2024	14/11/2024	14/11/2024
Date analysed	-	14/11/2024	14/11/2024	14/11/2024
Phosphorus - Total	mg/L	0.1	1.4	1.3

Miscellaneous Inorganics				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024
Ammonia as N in water	mg/L	0.51	0.055	0.45
Nitrate as N in water	mg/L	0.40	0.18	0.01
Total Nitrogen in water	mg/L	1.3	0.6	1.1
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	<0.005	<0.005	<0.005
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005

Ion Balance				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	13/11/2024	13/11/2024	13/11/2024
Date analysed	-	13/11/2024	13/11/2024	13/11/2024
Calcium - Dissolved	mg/L	26	2	19
Potassium - Dissolved	mg/L	5.8	8.0	9.0
Sodium - Dissolved	mg/L	110	390	140
Magnesium - Dissolved	mg/L	5.6	12	6.1
Hardness (calc) equivalent $CaCO_3$	mg/L	87	53	73
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	120	100	100
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	120	100	100
Sulphate, SO4	mg/L	98	450	37
Chloride, Cl	mg/L	100	340	190
Ionic Balance	%	-3.0	-7.0	-2.0

PFAS in Waters Extended				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	14/11/2024	14/11/2024	14/11/2024
Date analysed	-	14/11/2024	14/11/2024	14/11/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	<0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	0.01
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02	<0.02
Perfluorohexanoic acid	µg/L	0.01	<0.01	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	<0.01	<0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5
4:2 FTS	µg/L	<0.01	<0.01	<0.01
6:2 FTS	µg/L	<0.01	<0.01	0.02
8:2 FTS	µg/L	<0.02	<0.02	<0.02
10:2 FTS	µg/L	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	99	98	96
Surrogate $^{13}C_2$ *PFOA*	%	103	101	101
Extracted ISTD $^{13}C_3$ *PFBS*	%	106	104	102
Extracted ISTD $^{18}O_2$ *PFHxS*	%	110	106	105
Extracted ISTD $^{13}C_4$ *PFOS*	%	107	106	110
Extracted ISTD $^{13}C_4$ *PFBA*	%	83	58	92

PFAS in Waters Extended				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	103	101	103
Extracted ISTD $^{13}C_2$ *PFHxA*	%	105	102	101
Extracted ISTD $^{13}C_4$ *PFHpA*	%	108	108	106
Extracted ISTD $^{13}C_4$ *PFOA*	%	108	103	106
Extracted ISTD $^{13}C_5$ *PFNA*	%	111	106	106
Extracted ISTD $^{13}C_2$ *PFDA*	%	110	106	108
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	114	107	113
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	111	106	107
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	105	96	108
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	111	90	102
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	112	85	96
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	115	92	102
Extracted ISTD $^{13}C_8$ *FOSA*	%	109	105	109
Extracted ISTD d_3 *N MeFOSA*	%	103	102	105
Extracted ISTD d_5 *N EtFOSA*	%	103	101	107
Extracted ISTD d_7 *N MeFOSE*	%	113	106	112
Extracted ISTD d_9 *N EtFOSE*	%	106	102	103
Extracted ISTD d_3 *N MeFOSAA*	%	112	98	103
Extracted ISTD d_5 *N EtFOSAA*	%	113	98	105
Total Positive PFHxS & PFOS	µg/L	<0.01	<0.01	0.01
Total Positive PFOA & PFOS	µg/L	<0.01	<0.01	0.01
Total Positive PFAS	µg/L	0.01	<0.01	0.03

Dissolved Gases in Water				
Our Reference		366302-1	366302-2	366302-3
Your Reference	UNITS	BH51	BH36	BH019
Date Sampled		13/11/2024	13/11/2024	13/11/2024
Type of sample		Water	Water	Water
Date prepared	-	19/11/2024	19/11/2024	19/11/2024
Date analysed	-	19/11/2024	19/11/2024	19/11/2024
Methane	µg/L	<5	<5	320

Method ID	Methodology Summary
AT-006	Dissolved gases determined by GC-FID based on draft method USEPA SOP RSK175
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
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-055/062/127	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-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-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

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: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date Extracted	-			18/11/2024	[NT]	[NT]	[NT]	[NT]	18/11/2024	[NT]
Date Analysed	-			19/11/2024	[NT]	[NT]	[NT]	[NT]	19/11/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromochloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroform	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[NT]
2,2-dichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	90	[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]	88	[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]	94	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	82	[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]	96	[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]	80	[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]	94	[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]	100	[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]	105	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	111	[NT]	[NT]	[NT]	[NT]	109	[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	-			18/11/2024	[NT]	[NT]	[NT]	[NT]	18/11/2024	[NT]
Date analysed	-			19/11/2024	[NT]	[NT]	[NT]	[NT]	19/11/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	105	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	99	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate Toluene-d8	%		Org-023	106	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	111	[NT]	[NT]	[NT]	[NT]	109	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	366302-2
Date extracted	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	14/11/2024
Date analysed	-			14/11/2024	1	15/11/2024	15/11/2024		14/11/2024	15/11/2024
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	1	<50	<50	0	94	119
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	1	250	240	4	98	98
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	1	140	130	7	86	124
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	1	<50	<50	0	94	119
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	1	340	340	0	98	98
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	1	<100	<100	0	86	124
Surrogate o-Terphenyl	%		Org-020	76	1	87	92	6	94	95

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366302-2
Date extracted	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	14/11/2024
Date analysed	-			15/11/2024	1	15/11/2024	15/11/2024		15/11/2024	15/11/2024
Naphthalene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	101	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	95	89
Fluorene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	94	91
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	95	91
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	96	98
Pyrene	µg/L	0.1	Org-022/025	<0.1	1	<0.1	<0.1	0	93	96
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	103	92
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	93	87
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	88	1	83	94	12	93	99

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date prepared	-			14/11/2024	[NT]	[NT]	[NT]	[NT]	14/11/2024	[NT]
Date analysed	-			14/11/2024	[NT]	[NT]	[NT]	[NT]	14/11/2024	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Boron-Dissolved	µg/L	20	Metals-022	<20	[NT]	[NT]	[NT]	[NT]	89	[NT]
Barium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	[NT]	[NT]	[NT]	[NT]	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	96	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	98	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Tin-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date prepared	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	[NT]
Date analysed	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	[NT]
Iron-Total	µg/L	10	Metals-022	<10	1	1000	[NT]		112	[NT]
Arsenic-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		97	[NT]
Boron-Total	µg/L	20	Metals-022	<20	1	70	[NT]		107	[NT]
Barium-Total	µg/L	1	Metals-022	<1	1	35	[NT]		117	[NT]
Beryllium-Total	µg/L	0.5	Metals-022	<0.5	1	<0.5	[NT]		103	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	1	<0.1	[NT]		97	[NT]
Chromium-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		120	[NT]
Copper-Total	µg/L	1	Metals-022	<1	1	13	[NT]		115	[NT]
Cobalt-Total	µg/L	1	Metals-022	<1	1	10	[NT]		120	[NT]
Mercury-Total	µg/L	0.05	Metals-021	<0.05	1	<0.05	<0.05	0	99	[NT]
Manganese-Total	µg/L	5	Metals-022	<5	1	3300	[NT]		113	[NT]
Molybdenum-Total	µg/L	1	Metals-022	<1	1	1	[NT]		105	[NT]
Nickel-Total	µg/L	1	Metals-022	<1	1	8	[NT]		115	[NT]
Lead-Total	µg/L	1	Metals-022	<1	1	1	[NT]		104	[NT]
Antimony-Total	µg/L	1	Metals-022	<1	1	1	[NT]		103	[NT]
Selenium-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		95	[NT]
Tin-Total	µg/L	1	Metals-022	<1	1	<1	[NT]		110	[NT]
Zinc-Total	µg/L	1	Metals-022	<1	1	93	[NT]		116	[NT]

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			14/11/2024	[NT]	[NT]	[NT]	[NT]	14/11/2024	[NT]
Date analysed	-			14/11/2024	[NT]	[NT]	[NT]	[NT]	14/11/2024	[NT]
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	[NT]	[NT]	[NT]	[NT]	108	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2024	[NT]	[NT]	[NT]	[NT]	13/11/2024	[NT]
Date analysed	-			13/11/2024	[NT]	[NT]	[NT]	[NT]	13/11/2024	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	[NT]	[NT]	[NT]	[NT]	100	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	[NT]	[NT]	[NT]	[NT]	104	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Hexavalent Chromium, Cr^{6+} (dissolved)	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	109	[NT]
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	<0.005	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: Ion Balance					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			13/11/2024	[NT]	[NT]	[NT]	[NT]	13/11/2024	[NT]
Date analysed	-			13/11/2024	[NT]	[NT]	[NT]	[NT]	13/11/2024	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	100	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	93	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	99	[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]	108	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Chloride, Cl	mg/L	1	Inorg-081	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366302-2
Date prepared	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	14/11/2024
Date analysed	-			14/11/2024	1	14/11/2024	14/11/2024		14/11/2024	14/11/2024
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	96
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	104	100
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	102	100
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	96
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	94	97
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	96	98
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	96	96
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	97	99
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	0.01	0.01	0	95	95
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	96	93
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	93	91
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	101
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	96	102
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	98	97
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	96	104
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	92	94
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	91	90
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	90	97
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	98	95
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	95	90
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	99	104
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	97	101
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	94	95
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	89	91
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	102	109
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	98	99
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	102	101
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	93	101
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	100	1	99	99	0	97	101
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	102	1	103	101	2	103	101

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366302-2
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	101	1	106	102	4	96	103
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	109	1	110	105	5	100	107
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	103	1	107	107	0	103	103
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	104	1	83	82	1	105	58
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	104	1	103	101	2	103	97
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	106	1	105	101	4	101	103
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	105	1	108	106	2	103	105
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	106	1	108	109	1	105	104
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	107	1	111	111	0	104	102
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	103	1	110	107	3	107	100
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	105	1	114	112	2	106	106
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	105	1	111	109	2	102	95
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	96	1	105	109	4	101	96
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	111	1	111	111	0	109	86
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	108	1	112	118	5	103	81
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	113	1	115	113	2	111	95
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	108	1	109	109	0	105	99
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	104	1	103	106	3	102	101
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	104	1	103	104	1	104	100
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	106	1	113	104	8	103	99

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366302-2
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	102	1	106	104	2	103	102
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	108	1	112	111	1	105	96
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	107	1	113	115	2	110	96

QUALITY CONTROL: Dissolved Gases in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			19/11/2024	1	19/11/2024	19/11/2024		19/11/2024	[NT]
Date analysed	-			19/11/2024	1	19/11/2024	19/11/2024		19/11/2024	[NT]
Methane	µg/L	5	AT-006	<5	1	<5	<5	0	100	[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.

VOCs in water - Sample 366302-3 was received with headspace, analytical results may be affected.
vTRH & BTEXN in Water NEPM - Sample 366302-3 was received with headspace, analytical results may be affected.

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CERTIFICATE OF ANALYSIS 366754

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**CTP Groundwater Monitoring**
Number of Samples	5 Water
Date samples received	19/11/2024
Date completed instructions received	19/11/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	27/11/2024
Date of Issue	27/11/2024

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[redacted]

VOCs in water						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date Extracted	-	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024
Date Analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Dichlorodifluoromethane	µg/L	<10	<10	<10	<10	<10
Chloromethane	µg/L	<10	<10	<10	<10	<10
Vinyl Chloride	µg/L	<10	<10	<10	<10	<10
Bromomethane	µg/L	<10	<10	<10	<10	<10
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		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
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
1,4-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
4-isopropyl toluene	µg/L	<1	<1	<1	<1	<1
1,2-dichlorobenzene	µg/L	<1	<1	<1	<1	<1
n-butyl benzene	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	<1	<1	<1	<1	<1
1,2,3-trichlorobenzene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	99	96	96	95
Surrogate Toluene-d8	%	98	98	97	98	96
Surrogate 4-Bromofluorobenzene	%	101	97	93	91	87

vTRH(C6-C10)/BTEXN in Water						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	20/11/2024	20/11/2024	20/11/2024	20/11/2024	20/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
TRH C_6 - C_9	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10}	µg/L	<10	<10	<10	<10	<10
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	<10	<10	<10	<10
Benzene	µg/L	<1	<1	<1	<1	<1
Toluene	µg/L	<1	<1	<1	<1	<1
Ethylbenzene	µg/L	<1	<1	<1	<1	<1
m+p-xylene	µg/L	<2	<2	<2	<2	<2
o-xylene	µg/L	<1	<1	<1	<1	<1
Naphthalene	µg/L	<1	<1	<1	<1	<1
Surrogate Dibromofluoromethane	%	98	99	96	96	95
Surrogate Toluene-d8	%	98	98	97	98	96
Surrogate 4-Bromofluorobenzene	%	101	97	93	91	87

svTRH (C10-C40) in Water						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
TRH C_{10} - C_{14}	µg/L	54	<50	<50	<50	63
TRH C_{15} - C_{28}	µg/L	380	<100	<100	<100	1,300
TRH C_{29} - C_{36}	µg/L	350	<100	<100	<100	1,400
Total +ve TRH (C10-C36)	µg/L	790	<50	<50	<50	2,800
TRH >C_{10} - C_{16}	µg/L	72	<50	<50	<50	110
TRH >C_{10} - C_{16} less Naphthalene (F2)	µg/L	72	<50	<50	<50	110
TRH >C_{16} - C_{34}	µg/L	640	<100	<100	<100	2,400
TRH >C_{34} - C_{40}	µg/L	120	<100	<100	<100	880
Total +ve TRH (>C10-C40)	µg/L	830	<50	<50	<50	3,300
Surrogate o-Terphenyl	%	89	80	82	92	104

PAHs in Water						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date extracted	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	22/11/2024	22/11/2024	22/11/2024	22/11/2024	22/11/2024
Naphthalene	µg/L	<0.1	<0.1	<0.1	<0.1	0.7
Acenaphthylene	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1	<0.1	<0.1	0.2
Fluorene	µg/L	<0.1	<0.1	<0.1	<0.1	0.6
Phenanthrene	µg/L	<0.1	<0.1	<0.1	<0.1	4.0
Anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	2.7
Fluoranthene	µg/L	<0.1	<0.1	<0.1	<0.1	18
Pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	25
Benzo(a)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	9.4
Chrysene	µg/L	<0.1	<0.1	<0.1	<0.1	13
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2	<0.2	<0.2	34
Benzo(a)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	27
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1	<0.1	<0.1	14
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1	<0.1	<0.1	4.9
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1	<0.1	<0.1	15
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5	<0.5	<0.5	38
Total +ve PAH's	µg/L	<0.1	<0.1	<0.1	<0.1	170
Surrogate p-Terphenyl-d14	%	75	77	76	80	69

All metals in water-dissolved						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Arsenic-Dissolved	µg/L	<1	<1	<1	<1	<1
Boron-Dissolved	µg/L	80	50	90	20	30
Barium-Dissolved	µg/L	370	24	35	41	21
Beryllium-Dissolved	µg/L	<0.5	2	<0.5	<0.5	<0.5
Cadmium-Dissolved	µg/L	<0.1	0.3	0.1	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	1	<1	2	<1
Copper-Dissolved	µg/L	2	3	3	6	8
Cobalt-Dissolved	µg/L	<1	67	32	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Dissolved	µg/L	22	3,900	3,100	<5	<5
Molybdenum-Dissolved	µg/L	<1	<1	<1	2	1
Nickel-Dissolved	µg/L	1	65	28	<1	1
Lead-Dissolved	µg/L	<1	<1	<1	<1	<1
Antimony-Dissolved	µg/L	<1	<1	<1	2	<1
Selenium-Dissolved	µg/L	<1	<1	<1	<1	<1
Tin-Dissolved	µg/L	<1	<1	<1	<1	<1
Zinc-Dissolved	µg/L	32	470	69	3	6
Iron-Dissolved	µg/L	<10	4,400	<10	<10	20

All metals in water - total						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Arsenic-Total	µg/L	3	6	8	<1	<1
Boron-Total	µg/L	90	40	90	20	30
Barium-Total	µg/L	590	210	1,200	49	38
Beryllium-Total	µg/L	0.7	11	4	<0.5	<0.5
Cadmium-Total	µg/L	<0.1	0.5	0.7	<0.1	<0.1
Chromium-Total	µg/L	5	23	14	3	4
Copper-Total	µg/L	26	130	80	12	25
Cobalt-Total	µg/L	2	79	240	<1	1
Mercury-Total	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Manganese-Total	µg/L	89	4,300	8,600	17	30
Molybdenum-Total	µg/L	<1	<1	<1	2	1
Nickel-Total	µg/L	3	87	68	2	6
Lead-Total	µg/L	13	24	31	1	10
Antimony-Total	µg/L	1	<1	<1	2	1
Selenium-Total	µg/L	<1	3	3	<1	<1
Tin-Total	µg/L	<1	<1	<1	<1	1
Zinc-Total	µg/L	78	750	340	13	46
Iron-Total	µg/L	15,000	33,000	17,000	360	1,800

Metals in Waters - Total						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Phosphorus - Total	mg/L	0.2	0.90	0.71	0.06	0.2

Miscellaneous Inorganics						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Date analysed	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Ammonia as N in water	mg/L	0.039	0.18	0.085	0.011	0.009
Nitrate as N in water	mg/L	0.40	0.007	0.008	0.87	0.55
Total Nitrogen in water	mg/L	0.4	0.5	0.3	1.0	1.2
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Trivalent Chromium, Cr^{3+}	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005

Ion Balance						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Date analysed	-	19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Calcium - Dissolved	mg/L	46	22	45	110	21
Potassium - Dissolved	mg/L	5.4	6.6	5.0	4	4
Sodium - Dissolved	mg/L	25	550	85	20	25
Magnesium - Dissolved	mg/L	3	29	11	3	2
Hardness (calc) equivalent $CaCO_3$	mg/L	120	180	160	290	62
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Bicarbonate Alkalinity as $CaCO_3$	mg/L	190	36	120	68	68
Carbonate Alkalinity as $CaCO_3$	mg/L	<5	<5	<5	<5	<5
Total Alkalinity as $CaCO_3$	mg/L	190	36	120	68	68
Sulphate, SO4	mg/L	15	440	140	220	25
Chloride, Cl	mg/L	14	730	81	42	39
Ionic Balance	%	-10	-5.0	-4.0	-3.0	-10

PFAS in Waters Extended						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Perfluorobutanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluoropentanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.01	0.03	0.03	<0.01	<0.01
Perfluoroheptanesulfonic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorooctanesulfonic acid PFOS	µg/L	<0.01	<0.01	0.02	<0.01	<0.01
Perfluorodecanesulfonic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorobutanoic acid	µg/L	<0.02	<0.04	<0.02	<0.02	<0.02
Perfluoropentanoic acid	µg/L	<0.02	<0.02	<0.02	0.02	<0.02
Perfluorohexanoic acid	µg/L	<0.01	<0.01	0.01	0.01	<0.01
Perfluoroheptanoic acid	µg/L	<0.01	<0.01	0.01	<0.01	<0.01
Perfluorooctanoic acid PFOA	µg/L	0.01	<0.01	0.04	<0.01	<0.01
Perfluorononanoic acid	µg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Perfluorodecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluoroundecanoic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorododecanoic acid	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
Perfluorotridecanoic acid	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
Perfluorotetradecanoic acid	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
4:2 FTS	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
10:2 FTS	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Perfluorooctane sulfonamide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Methyl perfluorooctane sulfonamide	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Ethyl perfluorooctanesulfon amide	µg/L	<0.1	<0.1	<0.1	<0.1	<0.1
N-Me perfluorooctanesulfonamid oethanol	µg/L	<0.05	<0.05	<0.05	<0.05	<0.05
N-Et perfluorooctanesulfonamid oethanol	µg/L	<0.5	<0.5	<0.5	<0.5	<0.5
MePerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
EtPerfluorooctanesulf- amid oacetic acid	µg/L	<0.02	<0.02	<0.02	<0.02	<0.02
Surrogate $^{13}C_8$ *PFOS*	%	105	97	104	98	102
Surrogate $^{13}C_2$ *PFOA*	%	103	102	105	112	88
Extracted ISTD $^{13}C_3$ *PFBS*	%	101	83	95	87	97
Extracted ISTD $^{18}O_2$ *PFHxS*	%	100	100	97	94	101
Extracted ISTD $^{13}C_4$ *PFOS*	%	93	98	97	97	100
Extracted ISTD $^{13}C_4$ *PFBA*	%	115	48	101	102	107

PFAS in Waters Extended						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Extracted ISTD $^{13}C_3$ *PFPeA*	%	111	100	107	108	109
Extracted ISTD $^{13}C_2$ *PFHxA*	%	101	100	101	97	101
Extracted ISTD $^{13}C_4$ *PFHpA*	%	104	105	105	107	106
Extracted ISTD $^{13}C_4$ *PFOA*	%	81	78	82	81	86
Extracted ISTD $^{13}C_5$ *PFNA*	%	95	91	95	96	99
Extracted ISTD $^{13}C_2$ *PFDA*	%	103	99	106	106	108
Extracted ISTD $^{13}C_2$ *PFUnDA*	%	98	96	100	100	103
Extracted ISTD $^{13}C_2$ *PFDoDA*	%	90	88	88	92	87
Extracted ISTD $^{13}C_2$ *PFTeDA*	%	77	81	83	73	84
Extracted ISTD $^{13}C_2$ *4:2FTS*	%	100	76	102	112	107
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	103	92	113	113	113
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	115	76	105	108	115
Extracted ISTD $^{13}C_8$ *FOSA*	%	108	99	102	100	106
Extracted ISTD d_3 *N MeFOSA*	%	111	110	109	109	109
Extracted ISTD d_5 *N EtFOSA*	%	104	97	99	97	99
Extracted ISTD d_7 *N MeFOSE*	%	116	115	114	112	116
Extracted ISTD d_9 *N EtFOSE*	%	93	91	90	88	93
Extracted ISTD d_3 *N MeFOSAA*	%	85	76	85	84	90
Extracted ISTD d_5 *N EtFOSAA*	%	97	88	95	98	101
Total Positive PFHxS & PFOS	µg/L	<0.01	0.03	0.04	<0.01	<0.01
Total Positive PFOA & PFOS	µg/L	0.01	<0.01	0.05	<0.01	<0.01
Total Positive PFAS	µg/L	0.01	0.03	0.10	0.03	0.01

Dissolved Gases in Water						
Our Reference		366754-1	366754-2	366754-3	366754-4	366754-5
Your Reference	UNITS	BH050s	BH035s	BH009s	BH038	BH044
Date Sampled		19/11/2024	19/11/2024	19/11/2024	19/11/2024	19/11/2024
Type of sample		Water	Water	Water	Water	Water
Date prepared	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Date analysed	-	21/11/2024	21/11/2024	21/11/2024	21/11/2024	21/11/2024
Methane	µg/L	<5	11	54	<5	<5

Method ID	Methodology Summary
AT-006	Dissolved gases determined by GC-FID based on draft method USEPA SOP RSK175
Inorg-006	Alkalinity - determined titrimetrically in accordance with APHA latest edition, 2320-B.
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-055/062/127	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-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-118	Hexavalent Chromium (Cr6+) - determined firstly by separation using ion chromatography followed by the colourimetric analytical finish. Water samples are ideally field filtered into alkali preserved containers prior to receipt for dissolved Cr6+ analysis. Unfiltered water samples into alkali preserved containers (or pH adjusted to pH 8-9 on receipt) can be classified as Total (unfiltered) Cr6+. Please note, for 'Total/Unfiltered' Trivalent Chromium in waters [calculated], these results may be exaggerated due to the digestive limitation of 'Total/Unfiltered' Hexavalent Chromium in NaOH at pH 8-9 compared to more comprehensive digestion for Total Chromium using the mineral acids HNO3 and HCl. Solid (includes soils, filters, paints, swabs for example) samples are extracted in a buffered catalysed solution prior to the analytical finish above. Water extractable options are available (e.g. as an option for filters) on request. Impingers may need pH adjusting to pH 8-9 prior to IC-colourimetric analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.

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: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date Extracted	-			20/11/2024	[NT]	[NT]	[NT]	[NT]	20/11/2024	[NT]
Date Analysed	-			21/11/2024	[NT]	[NT]	[NT]	[NT]	21/11/2024	[NT]
Dichlorodifluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Vinyl Chloride	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromomethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chloroethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trichlorofluoromethane	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-Dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1-dichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[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]	114	[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]	116	[NT]
1,1,1-trichloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	113	[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]	110	[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]	109	[NT]
Bromodichloromethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	107	[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]	113	[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]	99	[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]	117	[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]	110	[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]	111	[NT]
Styrene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]

QUALITY CONTROL: VOCs in water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
1,2,3-trichloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Isopropylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-propyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
2-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-chlorotoluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Tert-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,3-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Sec-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,4-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
4-isopropyl toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
n-butyl benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Hexachlorobutadiene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate Toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	120	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date extracted	-			20/11/2024	[NT]	[NT]	[NT]	[NT]	20/11/2024	[NT]
Date analysed	-			21/11/2024	[NT]	[NT]	[NT]	[NT]	21/11/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	111	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	112	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate Toluene-d8	%		Org-023	100	[NT]	[NT]	[NT]	[NT]	99	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	120	[NT]	[NT]	[NT]	[NT]	97	[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	-			21/11/2024	[NT]	[NT]	[NT]	[NT]	21/11/2024	[NT]
Date analysed	-			21/11/2024	[NT]	[NT]	[NT]	[NT]	21/11/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	76	[NT]	[NT]	[NT]	[NT]	119	[NT]

QUALITY CONTROL: PAHs in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			21/11/2024	[NT]	[NT]	[NT]	[NT]	21/11/2024	[NT]
Date analysed	-			22/11/2024	[NT]	[NT]	[NT]	[NT]	22/11/2024	[NT]
Naphthalene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	64	[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]	62	[NT]
Fluorene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	68	[NT]
Phenanthrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	71	[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]	70	[NT]
Pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	71	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-022/025	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-022/025	<0.1	[NT]	[NT]	[NT]	[NT]	70	[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	72	[NT]	[NT]	[NT]	[NT]	69	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	366754-4
Date prepared	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Date analysed	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	88	91
Boron-Dissolved	µg/L	20	Metals-022	<20	1	80	80	0	95	76
Barium-Dissolved	µg/L	1	Metals-022	<1	1	370	370	0	92	87
Beryllium-Dissolved	µg/L	0.5	Metals-022	<0.5	1	<0.5	<0.5	0	97	94
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	89	91
Chromium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	104
Copper-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	98	98
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	97	101
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	1	<0.05	[NT]		107	94
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	22	22	0	98	107
Molybdenum-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	94	96
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	1	1	0	96	99
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	88	84
Antimony-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	88	84
Selenium-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	88	90
Tin-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	93	91
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	32	33	3	97	101
Iron-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	96	100

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	21/11/2024	21/11/2024		[NT]	[NT]
Date analysed	-			[NT]	3	21/11/2024	21/11/2024		[NT]	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Boron-Dissolved	µg/L	20	Metals-022	[NT]	3	90	[NT]		[NT]	[NT]
Barium-Dissolved	µg/L	1	Metals-022	[NT]	3	35	[NT]		[NT]	[NT]
Beryllium-Dissolved	µg/L	0.5	Metals-022	[NT]	3	<0.5	[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]
Copper-Dissolved	µg/L	1	Metals-022	[NT]	3	3	[NT]		[NT]	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	[NT]	3	32	[NT]		[NT]	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	[NT]	3	<0.05	<0.05	0	[NT]	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	[NT]	3	3100	[NT]		[NT]	[NT]
Molybdenum-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	[NT]	3	28	[NT]		[NT]	[NT]
Lead-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Antimony-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Selenium-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Tin-Dissolved	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	[NT]	3	69	[NT]		[NT]	[NT]
Iron-Dissolved	µg/L	10	Metals-022	[NT]	3	<10	[NT]		[NT]	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W5	366754-4
Date prepared	-			21/11/2024	2	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Date analysed	-			21/11/2024	2	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Arsenic-Total	µg/L	1	Metals-022	<1	2	6	6	0	86	92
Boron-Total	µg/L	20	Metals-022	<20	2	40	40	0	89	87
Barium-Total	µg/L	1	Metals-022	<1	2	210	230	9	90	87
Beryllium-Total	µg/L	0.5	Metals-022	<0.5	2	11	12	9	98	99
Cadmium-Total	µg/L	0.1	Metals-022	<0.1	2	0.5	0.5	0	92	92
Chromium-Total	µg/L	1	Metals-022	<1	2	23	22	4	94	94
Copper-Total	µg/L	1	Metals-022	<1	2	130	130	0	94	93
Cobalt-Total	µg/L	1	Metals-022	<1	2	79	79	0	94	94
Mercury-Total	µg/L	0.05	Metals-021	<0.05	2	<0.05	[NT]		112	97
Manganese-Total	µg/L	5	Metals-022	<5	2	4300	4400	2	95	96
Molybdenum-Total	µg/L	1	Metals-022	<1	2	<1	<1	0	93	94
Nickel-Total	µg/L	1	Metals-022	<1	2	87	88	1	93	92
Lead-Total	µg/L	1	Metals-022	<1	2	24	24	0	89	84
Antimony-Total	µg/L	1	Metals-022	<1	2	<1	<1	0	93	88
Selenium-Total	µg/L	1	Metals-022	<1	2	3	3	0	90	89
Tin-Total	µg/L	1	Metals-022	<1	2	<1	<1	0	96	93
Zinc-Total	µg/L	1	Metals-022	<1	2	750	750	0	93	99
Iron-Total	µg/L	10	Metals-022	<10	2	33000	31000	6	94	#

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	3	21/11/2024	21/11/2024		[NT]	[NT]
Date analysed	-			[NT]	3	21/11/2024	21/11/2024		[NT]	[NT]
Arsenic-Total	µg/L	1	Metals-022	[NT]	3	8	[NT]		[NT]	[NT]
Boron-Total	µg/L	20	Metals-022	[NT]	3	90	[NT]		[NT]	[NT]
Barium-Total	µg/L	1	Metals-022	[NT]	3	1200	[NT]		[NT]	[NT]
Beryllium-Total	µg/L	0.5	Metals-022	[NT]	3	4	[NT]		[NT]	[NT]
Cadmium-Total	µg/L	0.1	Metals-022	[NT]	3	0.7	[NT]		[NT]	[NT]
Chromium-Total	µg/L	1	Metals-022	[NT]	3	14	[NT]		[NT]	[NT]
Copper-Total	µg/L	1	Metals-022	[NT]	3	80	[NT]		[NT]	[NT]
Cobalt-Total	µg/L	1	Metals-022	[NT]	3	240	[NT]		[NT]	[NT]
Mercury-Total	µg/L	0.05	Metals-021	[NT]	3	<0.05	<0.05	0	[NT]	[NT]
Manganese-Total	µg/L	5	Metals-022	[NT]	3	8600	[NT]		[NT]	[NT]
Molybdenum-Total	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Nickel-Total	µg/L	1	Metals-022	[NT]	3	68	[NT]		[NT]	[NT]
Lead-Total	µg/L	1	Metals-022	[NT]	3	31	[NT]		[NT]	[NT]
Antimony-Total	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Selenium-Total	µg/L	1	Metals-022	[NT]	3	3	[NT]		[NT]	[NT]
Tin-Total	µg/L	1	Metals-022	[NT]	3	<1	[NT]		[NT]	[NT]
Zinc-Total	µg/L	1	Metals-022	[NT]	3	340	[NT]		[NT]	[NT]
Iron-Total	µg/L	10	Metals-022	[NT]	3	17000	[NT]		[NT]	[NT]

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366754-3
Date prepared	-			21/11/2024	2	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Date analysed	-			21/11/2024	2	21/11/2024	21/11/2024		21/11/2024	21/11/2024
Phosphorus - Total	mg/L	0.05	Metals-020	<0.05	2	0.90	0.87	3	82	90

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366754-1
Date prepared	-			19/11/2024	1	19/11/2024	19/11/2024		19/11/2024	19/11/2024
Date analysed	-			19/11/2024	1	19/11/2024	19/11/2024		19/11/2024	19/11/2024
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.039	[NT]		105	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.40	[NT]		101	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	0.4	[NT]		112	106
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	<0.001	<0.001	0	97	[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]	366754-5
Date prepared	-			[NT]	4	19/11/2024	19/11/2024		[NT]	19/11/2024
Date analysed	-			[NT]	4	19/11/2024	19/11/2024		[NT]	19/11/2024
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	4	0.011	0.011	0	[NT]	125
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	4	0.87	0.85	2	[NT]	108
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	4	1.0	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	4	<0.001	[NT]		[NT]	92
Trivalent Chromium, Cr^{3+}	mg/L	0.005	Inorg-118	[NT]	4	<0.005	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	366754-3
Date prepared	-			19/11/2024	2	19/11/2024	19/11/2024		19/11/2024	19/11/2024
Date analysed	-			19/11/2024	2	19/11/2024	19/11/2024		19/11/2024	19/11/2024
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	22	[NT]		104	[NT]
Potassium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	6.6	[NT]		92	[NT]
Sodium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	550	[NT]		96	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	2	29	[NT]		99	[NT]
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	2	180	[NT]		[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	<5	2	<5	[NT]		[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	2	36	[NT]		[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	2	<5	[NT]		[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	<5	2	36	[NT]		101	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	<1	2	440	440	0	109	#
Chloride, Cl	mg/L	1	Inorg-081	<1	2	730	730	0	108	83
Ionic Balance	%		Inorg-040	[NT]	2	-5.0	[NT]		[NT]	[NT]

QUALITY CONTROL: Ion Balance						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	366754-5
Date prepared	-			[NT]	4	19/11/2024	19/11/2024		[NT]	19/11/2024
Date analysed	-			[NT]	4	19/11/2024	19/11/2024		[NT]	19/11/2024
Calcium - Dissolved	mg/L	0.5	Metals-020	[NT]	4	110	110	0	[NT]	108
Potassium - Dissolved	mg/L	0.5	Metals-020	[NT]	4	4	4	0	[NT]	91
Sodium - Dissolved	mg/L	0.5	Metals-020	[NT]	4	20	20	0	[NT]	81
Magnesium - Dissolved	mg/L	0.5	Metals-020	[NT]	4	3	3	0	[NT]	103
Hardness (calc) equivalent $CaCO_3$	mg/L	3	Metals-020	[NT]	4	290	290	0	[NT]	[NT]
Hydroxide Alkalinity (OH^-) as $CaCO_3$	mg/L	5	Inorg-006	[NT]	4	<5	<5	0	[NT]	[NT]
Bicarbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	4	68	72	6	[NT]	[NT]
Carbonate Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	4	<5	<5	0	[NT]	[NT]
Total Alkalinity as $CaCO_3$	mg/L	5	Inorg-006	[NT]	4	68	72	6	[NT]	[NT]
Sulphate, SO4	mg/L	1	Inorg-081	[NT]	4	220	[NT]		[NT]	[NT]
Chloride, Cl	mg/L	1	Inorg-081	[NT]	4	42	[NT]		[NT]	[NT]
Ionic Balance	%		Inorg-040	[NT]	4	-3.0	[NT]		[NT]	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	[NT]
Date analysed	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	[NT]
Perfluoropentanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	100	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	86	[NT]
Perfluoroheptanesulfonic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	111	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	93	[NT]
Perfluorodecanesulfonic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	92	[NT]
Perfluorobutanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	94	[NT]
Perfluoropentanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	93	[NT]
Perfluorohexanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	89	[NT]
Perfluoroheptanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	90	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.01	Org-029	<0.01	1	0.01	<0.01	0	101	[NT]
Perfluorononanoic acid	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	103	[NT]
Perfluorodecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	86	[NT]
Perfluoroundecanoic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	83	[NT]
Perfluorododecanoic acid	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	101	[NT]
Perfluorotridecanoic acid	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	108	[NT]
Perfluorotetradecanoic acid	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	82	[NT]
4:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	87	[NT]
6:2 FTS	µg/L	0.01	Org-029	<0.01	1	<0.01	<0.01	0	97	[NT]
8:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	94	[NT]
10:2 FTS	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	138	[NT]
Perfluorooctane sulfonamide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	90	[NT]
N-Methyl perfluorooctane sulfonamide	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	99	[NT]
N-Ethyl perfluorooctanesulfon amide	µg/L	0.1	Org-029	<0.1	1	<0.1	<0.1	0	106	[NT]
N-Me perfluorooctanesulfonamid oethanol	µg/L	0.05	Org-029	<0.05	1	<0.05	<0.05	0	86	[NT]
N-Et perfluorooctanesulfonamid oethanol	µg/L	0.5	Org-029	<0.5	1	<0.5	<0.5	0	104	[NT]
MePerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	118	[NT]
EtPerfluorooctanesulf- amid oacetic acid	µg/L	0.02	Org-029	<0.02	1	<0.02	<0.02	0	90	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	98	1	105	99	6	97	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	107	1	103	98	5	105	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	105	1	101	102	1	106	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	110	1	100	102	2	105	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	99	1	93	98	5	100	[NT]
Extracted ISTD $^{13}C_4$ *PFBA*	%		Org-029	126	1	115	114	1	121	[NT]
Extracted ISTD $^{13}C_3$ *PFPeA*	%		Org-029	128	1	111	109	2	123	[NT]
Extracted ISTD $^{13}C_2$ *PFHxA*	%		Org-029	107	1	101	101	0	107	[NT]
Extracted ISTD $^{13}C_4$ *PFHpA*	%		Org-029	114	1	104	110	6	114	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	84	1	81	85	5	82	[NT]
Extracted ISTD $^{13}C_5$ *PFNA*	%		Org-029	101	1	95	99	4	95	[NT]
Extracted ISTD $^{13}C_2$ *PFDA*	%		Org-029	110	1	103	101	2	115	[NT]
Extracted ISTD $^{13}C_2$ *PFUnDA*	%		Org-029	109	1	98	95	3	105	[NT]
Extracted ISTD $^{13}C_2$ *PFDoDA*	%		Org-029	97	1	90	85	6	88	[NT]
Extracted ISTD $^{13}C_2$ *PFTeDA*	%		Org-029	96	1	77	76	1	88	[NT]
Extracted ISTD $^{13}C_2$ *4:2FTS*	%		Org-029	120	1	100	104	4	113	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	131	1	103	108	5	119	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	128	1	115	113	2	119	[NT]
Extracted ISTD $^{13}C_8$ *FOSA*	%		Org-029	116	1	108	103	5	111	[NT]
Extracted ISTD d_3 *N MeFOSA*	%		Org-029	117	1	111	109	2	115	[NT]
Extracted ISTD d_5 *N EtFOSA*	%		Org-029	99	1	104	100	4	98	[NT]
Extracted ISTD d_7 *N MeFOSE*	%		Org-029	116	1	116	109	6	123	[NT]

QUALITY CONTROL: PFAS in Waters Extended						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Extracted ISTD d_9 *N EtFOSE*	%		Org-029	91	1	93	90	3	91	[NT]
Extracted ISTD d_3 *N MeFOSAA*	%		Org-029	89	1	85	86	1	90	[NT]
Extracted ISTD d_5 *N EtFOSAA*	%		Org-029	110	1	97	98	1	113	[NT]

QUALITY CONTROL: Dissolved Gases in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	[NT]
Date analysed	-			21/11/2024	1	21/11/2024	21/11/2024		21/11/2024	[NT]
Methane	µg/L	5	AT-006	<5	1	<5	<5	0	99	[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

ION_BALANCE: # 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.

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 in the sample. However an acceptable recovery was obtained for the LCS.

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH-46R

afJV

Project No : CR AEJV

Project Name :

Gauging

Date 12/08/24 Performed By : [redacted]

Gauging Method : IS Well Diameter :

Time : 9:28 Bore Depth : 17.63m TOC LNAPL Present : Y / N

SWL : 15.16m TOC Depth to LNAPL : (If yes, thickness) :

Comments : DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required : Visual confirmation with bailer : Y / N

Equipmnet: Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :

Purge Method :

Time Started : SWL (start) : Volume Removed : Bore Depth (start) :

Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :

Comments : NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date : 12/8/24 Performed By : HC Well Diameter :

Sampling Method :

Time Started : 9:28. Sampling Depth :

Time Stopped : SWL (start) :

Tubing Type : SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? Y / N Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:34	1L	5913	6.52	18.8	113.8	95.2 %		15.16	13.7 NTU A BIT TURBID
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

17.63 m (-) 15.16 (=) 2.47

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

2.47 (X) 1.96 (=) 4.84 L

afJV

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No SMW-RK051

Project No : CGCAFJV   Project Name :

Gauging

Date : 12/08/24   Performed By : [redacted]   Well Diameter :

Gauging Method :

Time : 9:50   Bore Depth : 10.66mTOC   LNAPL Present : Y / N

SWL : 4.26 m   Depth to LNAPL :   (If yes, thickness) :

Comments :   DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required :   Visual confirmation with bailer : Y / N

Equipmnet: Rainfall past 24 hrs(mm):

Purging / Development

Date :   Performed By :   Well Diameter :

Purge Method :

Time Started :   SWL (start) :   Volume Removed :   Bore Depth (start) :

Time Stopped :   SWL (end) :   Discharge Rate :   Bore Depth (end) :

Comments :   NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date :   Performed By :   Well Diameter :

Sampling Method :

Time Started :   Sampling Depth :

Time Stopped :   SWL (start) :

Tubing Type :   SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? Y / N   Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:59	1L	898	6.54	18.6	86.7	91.1	%	4.26	clear water 3.70 NTU
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) WATER COLUMN

10.66 m (-) 4.26 (=) 6.04

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

6.4 (X) 1.96 (=) 12.544 L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH038

afJV

Project No : _____ Project Name : _____

Gauging

Date : 13/08/2014 Performed By : [redacted] Well Diameter : _____

Gauging Method : _____

Time : 11:00am Bore Depth : 20.12mTOC LNAPL Present : Y / N

SWL : 12.38mTOC Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
12:30pm		612	7.77	19.9	99.7		6.1		clear, coal dy, no odour.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) WATER COLUMN

20.12 m (-) 12.35 (=) 7.77

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

7.77 (X) 1.96 (=) 15.22 L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : SMW BH05 1S

afJV

Project No : CTRAFJV Project Name : _____

Gauging

Date : 12/08/2024 Performed By : [redacted]

Gauging Method : _____ Well Diameter : _____

Time : _____ Bore Depth : _____ LNAPL Present : Y / N

SWL : _____ Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
NO	WATER			TO		SAMPLE			
DRY				WELL					
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter: 300mm

Conversion Factor: 196.3

25mm	50mm	100mm	125mm	150mm	200mm	250mm	
0.98	1.96	7.85	31.4	49.1	70.7	125.7	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH044w afJV

Project No : CTS AfJV Project Name : _____

Gauging

Date : 13/08/24 Performed By : [redacted] Dip meter : _____

Gauging Method : _____

Time : 9:11 Bore Depth : 32mTOC LNAPL Present : Y / N

SWL : 15.7m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:17 AM	2L	812	7.45	19.5	92.9	63.9	%	15.7m	39 NTU Clear water. Rainy day.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter

Conversion Factor		25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
		0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) 15.7 (=) 16.3

32.

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

16.3 (X) 1.96 (=) 31.948 L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH050d · afJV

Project No : _____ Project Name : CLP

Gauging

Date : 13/08/2024 Performed By : [redacted] Well Diameter : _____

Gauging Method : _____

Time : 11:30am Bore Depth : 25.89m TOC LNAPL Present : Y / N

SWL : 20.57m TOC Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
Dry well, not sufficient water to sample.									
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH0505

afJV

Project No : _____ Project Name : CTP

Gauging

Date : 13/08/2024 Performed By : [redacted] Well Diameter : _____

Gauging Method : _____

Time : 11:30am Bore Depth : _____ LNAPL Present : Y / N

SWL : 1.2m TOC. Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
Dry well, not sufficient water to sample.									
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter

Conversion Factor	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH009-S

afJV

Project No : CRAESV-

Project Name : _____

Gauging

Date : 13/8/24 Performed By : [redacted] Well Diameter : _____

Gauging Method : _____

Time : 12:21 Bore Depth : 5m LNAPL Present : Y / N

SWL : 4.26 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : 13/08/24 Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, - odours, sheen etc)
12:27	2L	1363	6.35	20.2	124.5	61.3%			116 NTU. mild turbid water.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter

Conversion Factor

25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

5 m (-) 4.26 (=) 0.74

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

0.74 (X) 1.96 (=) 1.4504 L

afJV

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH_09.d

Project No : CTP AFJV Project Name :

Gauging

Date : 13/08/24 Performed By : [redacted] Well Diameter :
Gauging Method : i/p
Time : 12:35. Bore Depth : LNAPL Present : Y / N
SWL : 20.44 m Depth to LNAPL : (If yes, thickness) :
Comments : DNAPL Present : Y / N
(If yes, thickness) :
Maintainance required : Visual confirmation with bailer : Y / N
Equipmnet : Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :
Purge Method :
Time Started : SWL (start) : Volume Removed : Bore Depth (start) :
Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :
Comments : NAPL Present : Y / N
(If yes, thickness) :

Sampling

Date : Performed By : Well Diameter :
Sampling Method :
Time Started : Sampling Depth :
Time Stopped : SWL (start) :
Tubing Type : SWL (end) :
Comments :
Equipment :
Duplicate Sample Collected? Y / N Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
BH inaccessible due to bladder pump being stuck at the bottom of the well.									
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*
_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME
_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : B40315 afJV

Project No : _____ Project Name : CTP

Gauging

Date : 13/08/2024 Performed By : [redacted] eter :

Gauging Method : _____

Time : _____ Bore Depth : 2.7mTOC - LNAPL Present : Y / N

SWL : 1.5mTOC Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet : _____ Rainfall past 24 hrs(mm):

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
		2161	5.33		92.4		60.8		
				18.8					
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

2.7 m (-) 1.5 (=) 1.2

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

1.2 (X) 1.96 (=) 2.352 L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH038d

afJV

Project No : _____ Project Name : _____

Gauging

Date : 13/08/2024 Performed By : [redacted]

Gauging Method : _____ ter : _____

Time : _____ Bore Depth : 50.83m TOC NAPL Present : Y / N

SWL : 35.42m TOC Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

_____ (If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
		1245	6.14	19.1	1143		60.2		
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

50.85 m (-) 35.42 (=) 15.43

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

15.43 (X) 1.96 (=) 30.24 L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH715B

afJV

Project No : CTP **Project Name :**

Gauging

Date: 10/09 Performed By: [redacted]

Gauging Method: Well Diameter:

Time: Bore Depth: LNAPL Present: Y / N

SWL: 13.25m TOC Depth to LNAPL: (If yes, thickness):

Comments: DNAPL Present: Y / N

(If yes, thickness):

Maintainance required: Visual confirmation with bailer: Y / N

Equipmnet:

Rainfall past 24 hrs(mm):

Purging / Development

Date: Performed By: Well Diameter:

Purge Method:

Time Started: SWL (start): Volume Removed: Bore Depth (start):

Time Stopped: SWL (end): Discharge Rate: Bore Depth (end):

Comments: NAPL Present: Y / N

(If yes, thickness):

Sampling

Date: 10/9/24 Performed By: Well Diameter:

Sampling Method: BAILER

Time Started: 14:28 Sampling Depth:

Time Stopped: SWL (start):

Tubing Type: SWL (end):

Comments:

Equipment:

Duplicate Sample Collected? Y / N Duplicate Sample ID:

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
14:30	2L	6490	7.25	19.9	-124.1	30.1 %		13.25	Clear water
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

______ m (-) ______ (=) ______

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

______ (X) ______ (=) ______ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : AFBH36

afJV

Project No : CTP

Project Name :

Gauging

Date : 10/09 Performed By : [redacted]

Gauging Method : Diameter :

Time : 14:00 Bore Depth : LNAPL Present : Y / N

SWL : 4.98mTOC Depth to LNAPL : (If yes, thickness) :

Comments : DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required : Visual confirmation with bailer : Y / N

Equipmnet:

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :

Purge Method :

Time Started : SWL (start) : Volume Removed : Bore Depth (start) :

Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :

Comments : NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date : 10/09 Performed By : AC Well Diameter :

Sampling Method : BAILER

Time Started : Sampling Depth :

Time Stopped : SWL (start) :

Tubing Type : SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? Y / (N) Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
14:02	22	1804	5.58	18.6	60.4	30.6%		4.98	Turbid water.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH126

afJV

Project No : CTP

Project Name :

Gauging

Date : 10/09 Performed By : [redacted]

Gauging Method : Well Diameter :

Time : 1:48pm Bore Depth : LNAPL Present : Y / N

SWL : 4.15m TOC Depth to LNAPL : (If yes, thickness) :

Comments : DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required : Visual confirmation with bailer : Y / N

Equipmnet:

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :

Purge Method :

Time Started : SWL (start) : Volume Removed : Bore Depth (start) :

Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :

Comments : NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date : Performed By : Well Diameter :

Sampling Method :

Time Started : Sampling Depth :

Time Stopped : SWL (start) :

Tubing Type : SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? Y / N Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
		14108	7.78	20.9	-107	19.4			
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH120.

Project No : CTP

Project Name :

Gauging

Date : 10/09 Performed By : [redacted]

Gauging Method : Meter :

Time : 11:20 am Bore Depth : LNAPL Present : Y / N

SWL : 21.84m TOC Depth to LNAPL : (If yes, thickness) :

Comments : DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required : Visual confirmation with bailer : Y / N

Equipmnet: Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :

Purge Method :

Time Started : SWL (start) : Volume Removed : Bore Depth (start) :

Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :

Comments : NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date : Performed By : Well Diameter :

Sampling Method :

Time Started : Sampling Depth :

Time Stopped : SWL (start) :

Tubing Type : SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? Y / N Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm) % (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
11:30am		17372	6.58	21.8°C 23.0		37.9		clear coarse, no odour
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%		

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH619

afJV

Project No : CGP **Project Name :** GC Monitoring

Gauging

Date : 11/09/24 Performed By : [redacted]

Gauging Method : IP Well Diameter :

Time : 8:53 Bore Depth : LNAPL Present : Y / N

SWL : 16.63 m Depth to LNAPL : (If yes, thickness) :

Comments : DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required : Visual confirmation with bailer : Y / N

Equipmnet: Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :

Purge Method :

Time Started : SWL (start) : Volume Removed : Bore Depth (start) :

Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :

Comments : NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date : 11/9/24 Performed By : AC Well Diameter :

Sampling Method : BAILER

Time Started : 9:00 Sampling Depth :

Time Stopped : 9:25 SWL (start) :

Tubing Type : SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? (YES) NO Duplicate Sample ID : DS1

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:05	2L	438.9	6.86	19	-178	20.7 %			Clear with sediments
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter 300mm

Conversion Factor 196.3

25mm	50mm	100mm	125mm	150mm	200mm	250mm	
0.98	1.96	7.85	31.4	49.1	70.7	125.7	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH715B

afJV

Project No : _____ Project Name : GW CTP.

Gauging

Date : 12/11/24 Performed By : [redacted]

Gauging Method : IP Well Diameter : _____

Time : 12:19 Bore Depth : 27.1 m LNAPL Present : Y / N

SWL : 23.5 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

_____ (If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
12:28	2L	21813	6.44	20.6	17.8	41.1	%	23.5	Light turbidity.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH046R

afJV

Project No : _____ Project Name : GW CTP.

Gauging

Date : 12/6/22 Performed By : [redacted]

Gauging Method : IR. Well Diameter : _____

Time : 12:56 pm Bore Depth : 17 m LNAPL Present : Y / N

SWL : 15 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
12:58	2L	6749	6.48	20.3	72.5	23.6%			
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter		25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor		0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH120

afJV

Project No : _____ Project Name : GW CTR

Gauging

Date : 12/11/2024 Performed By : [redacted]

Gauging Method : ip Well Diameter : _____

Time : 1:36 PM Bore Depth : 26 m LNAPL Present : Y / N

SWL : 21.8 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth :

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
1:45pm	9L	18277	6.49	22.1	17.3	29.8%		21.8	Very light turbidity.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH126

afJV

Project No : _____ Project Name : 6W CTP

Gauging

Date : 12/11/24 Performed By : [redacted]

Gauging Method : 11:55 AM (IT) Well Diameter : _____

Time : _____ Bore Depth : 12.4m LNAPL Present : Y / N

SWL : 4.3m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
12:00	2L	3095	7.18	20.3	-64.4	31.3	n/a	4.3m	Clear with light turbidity. Bottom eggs smell.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : S06

afJV

Project No : _____ Project Name : 6W CTP

Gauging

Date : 12/4/2024 Performed By : _____

Gauging Method : _____ Well Diameter : _____

Time : 10:13 Bore Depth : 20 m. LNAPL Present : Y / N

SWL : 4.4 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : mud everywhere DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

_____ (If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
10:18	3L	971	7.19	20.2	-99.5	19.9	%	4.4m	High Turbidity. Mud around Tree casing.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : SO2_S

afJV

Project No : _____ Project Name : GW_CTP

Gauging

Date : 12/11/24 Performed By : _____

Gauging Method : IP Well Diameter : _____

Time : 9:53 am Bore Depth : _____ LNAPL Present : Y / N

SWL : 3.7 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm): _____

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:59	12	1084	6.79	20.8	-120.5	18.6 %		3.7m	High Turbidity.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter: 300mm

Conversion Factor: 196.3

	25mm	50mm	100mm	125mm	150mm	200mm	250mm	
	0.98	1.96	7.85	31.4	49.1	70.7	125.7	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : SO2-d

afJV

Project No : _____ Project Name : GW CTP.

Gauging

Date : 12/11/24 Performed By : RN

Gauging Method : IP Well Diameter : _____

Time : 9:38 am Bore Depth : 16 m LNAPL Present : Y / N

SWL : 4.35 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:44	3L	1125	7.73	20.7	-124.8	20.2	%	4.35	High Turbidity.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BHSL5

afJV

Project No : _____ Project Name : 6W CTP.

Gauging

Date : 13/11/24 Performed By : [redacted]

Gauging Method : _____ Well Diameter : _____

Time : 10:33 AM Bore Depth : 1.8 m LNAPL Present : Y / N

SWL : 1.8 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm): _____

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
No	water	to	sample	-	Dry	Well			
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH5L

afJV

Project No : _____ Project Name : 6U CTP

Gauging

Date : 13/11/24 Performed By : [redacted]

Gauging Method : IP Well Diameter : _____

Time : 10:22 AM Bore Depth : 10.4 m LNAPL Present : Y / N

SWL : 3.8 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

_____ (If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
10:27	2L	773	6.48	20.2	46.8	21.5%		3.8m	B: Light Brownish colour, clear water Thin.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH 36

afJV

Project No : _____ Project Name : _____

Gauging

Date : 13/11/24 Performed By : [redacted]

Gauging Method : _____ Well Diameter : _____

Time : _____ Bore Depth : 7 m LNAPL Present : Y / N

SWL : 5.6 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
9:29	5L	2339	5.75	18.2	177.3	36.5 %			Light Turbid. Some sediments present in the water.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter 300mm

Conversion Factor 196.3

	25mm	50mm	100mm	125mm	150mm	200mm	250mm	
	0.98	1.96	7.85	31.4	49.1	70.7	125.7	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH018

afJV

Project No : _____ Project Name : GW ETC.

Gauging

Date : 13/11/24 Performed By : [redacted]

Gauging Method : IP Well Diameter : _____

Time : 8:54 AM Bore Depth : 25.5m LNAPL Present : Y / N

SWL : 16.72 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
8:59 AM	5L	906	7.03	20.1	-159.3	2.0	%	16.72	Clear water with slight sediment contents.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter		25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor		0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH05S03

afJV

Project No : _____ Project Name : 6W CTP

Gauging

Date : 19/11/24 Performed By : [redacted]

Gauging Method : IP Well Diameter : _____

Time : 1.05 pm Bore Depth : 1.2 m LNAPL Present : Y / N

SWL : 0.3 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnel: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : 19/11/24 Performed By : _____ Well Diameter : _____

Sampling Method : BAILER

Time Started : _____ Sampling Depth :

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
13:10		445.2	5.55	22.5	101.3	54.3%		0.3m	Light Turbid Brown
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH050

afJV

Project No : _____ Project Name : GW CTP

Gauging

Date : 18/11/24 Performed By : [redacted]

Gauging Method : IP Well Diameter : _____

Time : 1.00 pm Bore Depth : 26 m LNAPL Present : Y / N

SWL : 25.6 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____ Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : 18/11/24 Performed By : _____ Well Diameter : _____

Sampling Method : BAILER

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
1.30pm									
NO	WATER	IN		WELL.					
DRY	WELL								
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm	
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH0355

afJV

Project No : _____ Project Name : _____

Gauging

Date : 19/10/24 Performed By : [redacted]

Gauging Method : IP Well Diameter : _____

Time : 11:35 AM Bore Depth : 2.6 m LNAPL Present : Y / N

SWL : 1.9 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : 19/10/24 Performed By : LW Well Diameter : _____

Sampling Method : BAILER

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
11:35	1L	3618	5.25	21.9	53.9	29.6	%		Very Turbid Sediments Light Brown Colour.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter 300mm

Conversion Factor 196.3

25mm	50mm	100mm	125mm	150mm	200mm	250mm	
0.98	1.96	7.85	31.4	49.1	70.7	125.7	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH035

afJV

Project No : _____ Project Name : GW CTP

Gauging

Date : 18/11/24 Performed By : [redacted]

Gauging Method : IP l Diameter : _____

Time : 11:30 AM Bore Depth : _____ LNAPL Present : Y / N

SWL : _____ Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

_____ (If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
NO	WATER	TO	SAMPLE		WELL	SEEMS	DRY,		
OR	EQUIPMT		NOT	LONG	ENOUGH	TO	REACH.		
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH60?S

Project No : ____________ Project Name : CW CFP

Gauging

Date : 18/4/24 Performed By : [redacted] Well Diameter :

Gauging Method :

Time : 11:00 AM Bore Depth : 5 m LNAPL Present : Y / N

SWL : 3.4 m Depth to LNAPL : (If yes, thickness) :

Comments : DNAPL Present : Y / N

(If yes, thickness) :

Maintainance required : Visual confirmation with bailer : Y / N

Equipmnet:

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter :

Purge Method :

Time Started : SWL (start) : Volume Removed : Bore Depth (start) :

Time Stopped : SWL (end) : Discharge Rate : Bore Depth (end) :

Comments : NAPL Present : Y / N

(If yes, thickness) :

Sampling

Date : 18/4/24 Performed By : Well Diameter :

Sampling Method : Bailer

Time Started : Sampling Depth :

Time Stopped : SWL (start) :

Tubing Type : SWL (end) :

Comments :

Equipment:

Duplicate Sample Collected? Y / N Duplicate Sample ID :

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
11:0?	2L	800	6.43	[illegible]		31.5%			Turbid with [illegible] sediment
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

__________ m (-) __________ (=) __________

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

__________ (X) __________ (=) __________ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH09

afJV

Project No : _____ Project Name : COW CCP

Gauging

Date : 13/11/24 Performed By : [redacted]

Gauging Method : ID Well Diameter : _____

Time : 10:56 AM Bore Depth : _____ LNAPL Present : Y / N

SWL : _____ Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : _____ Performed By : _____ Well Diameter : _____

Sampling Method : _____

Time Started : _____ Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
NO WATER ABOVE 30 metres									
Not possible To sample as bladder pump is									
stucked At the Bottom									
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH038

afJV

Project No : _____ Project Name : GW CS

Gauging

Date : 18/11/24 Performed By : [redacted]

Gauging Method : IC Diameter : _____

Time : 10:30 Bore Depth : 21 m LNAPL Present : Y / N

SWL : 4.5 mm Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm):

Purging / Development

Date : Performed By : Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : 18/11/24 Performed By : AN Well Diameter : _____

Sampling Method : BAILER

Time Started : 10:40 Sampling Depth : _____

Time Stopped : _____ SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
10:40	3L	698	6.98	20.1	81.4	27.3	%	3m	Clear water.
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter	25mm	50mm	100mm	125mm	150mm	200mm	250mm	300mm
Conversion Factor	0.98	1.96	7.85	31.4	49.1	70.7	125.7	196.3

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

WELL DEVELOPMENT, GAUGING AND SAMPLING DATA SHEET

WELL No : BH 44

Project No : _____ Project Name : GW CTR

Gauging

Date : 19/11/24 Performed By : RP

Gauging Method : IP Well Diameter : _____

Time : 10:02 AM Bore Depth : +30 m LNAPL Present : Y / N

SWL : 15.30 m Depth to LNAPL : _____ (If yes, thickness) : _____

Comments : _____ DNAPL Present : Y / N

(If yes, thickness) : _____

Maintainance required : _____ Visual confirmation with bailer : Y / N

Equipmnet: _____

Rainfall past 24 hrs(mm): _____

Purging / Development

Date : _____ Performed By : _____ Well Diameter : _____

Purge Method : _____

Time Started : _____ SWL (start) : _____ Volume Removed : _____ Bore Depth (start) : _____

Time Stopped : _____ SWL (end) : _____ Discharge Rate : _____ Bore Depth (end) : _____

Comments : _____ NAPL Present : Y / N

(If yes, thickness) : _____

Sampling

Date : 19/11/24 Performed By : [redacted] Well Diameter : _____

Sampling Method : Bailer

Time Started : 10:10 Sampling Depth : _____

Time Stopped : 10:15 SWL (start) : _____

Tubing Type : _____ SWL (end) : _____

Comments : _____

Equipment: _____

Duplicate Sample Collected? Y / N Duplicate Sample ID : _____

Field Analyses

Time	Volume Removed (L)	EC (uS/cm)	pH	Temp (C)	Redox (mV)	Dissolved Oxygen (ppm)	Dissolved Oxygen (mg/L)	SWL (m)	Comments (colour, turbidity, odours, sheen etc)
10:15 AM	4L	3134	6.77	20°C	28.1	26.7%		4	Turbid with sediments in water
Stabilisation Criteria		+/- 3%	+/- 0.05		+/- 10mV	+/- 10%			

Well Volume Calculations

Casing Diameter 300mm

Conversion Factor 196.3

	25mm	50mm	100mm	125mm	150mm	200mm	250mm	
	0.98	1.96	7.85	31.4	49.1	70.7	125.7	

TOTAL WELL DEPTH (-) WATER LEVEL (=) *WATER COLUMN*

_____ m (-) _____ (=) _____

WATER COLUMN (X) CONVERSION FACTOR (=) LITRES PER WELL VOLUME

_____ (X) _____ (=) _____ L

APPENDIX E – WTP SAMPLING AND DISCHARGE REGISTER

The Bays WTP Sampling and Discharge Summary

Sample Date	Site / WTP	Source Water	Lab ID	Notes		pH	Turbidity	Oil and Grease	Hydrocarbons TRH (C6-C9)	Aluminium	Arsenic	Cadmium	Chromium (VI) Compounds	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Zinc	Ammonia	Nitrate + nitrite (oxidised nitrogen)	Nitrogen (total)	Perfluorooctane sulphonate (PFOS)	Phosphorus (total)
					Sampling	Lab	TSS (Lab)	Visual	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab
					UoM	pH units	mg/L	Y/N	ug/L	ug/l	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
					WPIA Criteria	6.5-8.5			100	250			20					1900				600	1720	0.00023	140
					EPL Criteria	6.5-8.5	15	N	100	55	None	0.7	4.4	1	1.3	300	4.4	80	7	8	910	200	300	0.00023	30
11/07/2024	TBY C-WTP	Untreated	356313		Month 13	8.6	1200	N	<10	<10	<1	<0.1	8	<1	<1	20	<1	19	<1	2	1400	760	6800	0.0031	300
11/07/2024	TBY C-WTP	Treated	356313		Month 13	7.5	10	N	47	10	<1	<0.1	4	<1	<1	30	<1	10	<1	2	110	200	800	<0.0002	310
20/08/2024	TBY C-WTP	Untreated	359609		Month 14	10.8	17000	N	22	110	2	<0.1	67	<1	1	10	<1	<5	<1	1	990	510	2200	0.002	50
20/08/2024	TBY C-WTP	Treated	359609		Month 14	8.1	<5	N	70	100	2	<0.1	13	<1	1	<10	<1	<5	<1	2	51	100	700	0.0002	30
9/09/2024	TBY C-WTP	Untreated	361256		Month 15	9.3	11000	N	<10	<10	15	<0.1	44	<1	1	<10	<1	<5	<1	<1	1900	500	3700	0.0034	240
9/09/2024	TBY C-WTP	Treated	361256		Month 15	7.8	<5	N	64	<10	2	<0.1	11	<1	<1	30	<1	<5	<1	3	360	60	1100	0.0007	50
10/10/2024	TBY C-WTP	Untreated	363656		Month 16	9.9	3300	N	<10	70	<1	<0.1	77	<1	1	<10	<1	<5	1	<1	1800	680	3800	0.0089	50
10/10/2024	TBY C-WTP	Treated	363656		Month 16	7.7	<5	N	68	20	<1	<0.1	<1	<1	<1	<10	<1	<5	1	<1	180	8	700	<0.0002	40
7/11/2024	TBY C-WTP	Untreated	365822		Month 17	10.9	13000	N	<10	360	<1	<0.1	66	<1	2	20	<1	<5	1	<1	840	560	3100	0.002	30
7/11/2024	TBY C-WTP	Treated	365822		Month 17	7.5	<5	N	28	<10	<1	<0.1	<1	<1	<1	10	<1	11	<1	1	590	6	900	<0.0002	40

VARIATION OF LICENCE NO. 21610 - RENEWED DISCHARGE CRITERIA - 05.12.2024 (Conditional formatting = UPDATED)

Sample Date	Site / WTP	Source Water	Lab ID	Notes		pH	Turbidity	Oil and Grease	Hydrocarbons TRH (C6-C9)	Aluminium	Arsenic	Cadmium	Chromium (VI) Compounds	Cobalt	Copper	Iron	Lead	Manganese	Nickel	Zinc	Ammonia	Nitrate + nitrite (oxidised nitrogen)	Nitrogen (total)	Perfluorooctane sulphonate (PFOS)	Phosphorus (total)
					Sampling	Lab	TSS (Lab)	Visual	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab	Lab
					UoM	pH units	mg/L	Y/N	ug/L	ug/l	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
					EPL Criteria Variation (05.12.2024)	6.5-8.5	15	N	None	55	N/A	0.7	15	1	1.3	300	4.4	80	7	8	910	300	1210	0.13	140
3/12/2024	TBY C-WTP	Untreated	367995		Month 18	9.3	7400	N	<10	10	1	<0.1	21	<1	3	<10	<1	<5	2	2	660	650	2700	0.0032	390
3/12/2024	TBY C-WTP	Treated	367995		Month 18	7.6	<5	N	11	<10	<1	<0.1	<1	<1	<1	<10	<1	9	<10	1	570	20	1000	<0.0002	40

The Bays WTP Sampling and Discharge Summary

		Turbidity/TSS	Oil and Grease	TBY Daily discharge volume	TBY Cumulative discharge volume
	Probe	Probe (correlation)	Visual	(Daily report)	(Daily report)
	pH units	NTU	Y/N	L	KL
Discharge Date	6.5-8.5	18	Not visible		
1/07/2024	7.1	1.2	N	1504000	293243.2
2/07/2024	7.1	0.9	N	1915300	295158.5
3/07/2024	7.1	0.3	N	2140900	297299.4
4/07/2024	7	0.7	N	2016700	299316.1
5/07/2024	6.9	3.3	N	1486700	300802.8
6/07/2024	6.9	1.2	N	939600	301742.4
7/07/2024	6.9	1	N	1156700	302899.1
8/07/2024	7	1.6	N	1621300	304520.4
9/07/2024	7.1	2.3	N		304520.4
10/07/2024	6.9	0.7	N	1494700	306015.1
11/07/2024	6.9	0.7	N	1448700	307463.8
12/07/2024	7	1	N	1749900	309213.7
13/07/2024	7	0.6	N	884000	310097.7
14/07/2024	7	1.2	N	945000	311042.7
15/07/2024	7	1.3	N	1062600	312105.3
16/07/2024	7	0.8	N	997500	313102.8
17/07/2024	7	0.2	N	1038800	314141.6
18/07/2024	6.9	0.7	N	1197600	315339.2
19/07/2024	6.8	0.6	N	1135700	316474.9
20/07/2024	7	0.4	N	749000	317223.9
21/07/2024	7	0.4	N	860600	318084.5
22/07/2024	7.1	0.2	N	1225800	319310.3
23/07/2024	7	0.2	N	1367900	320678.2
24/07/2024	7	0.3	N	1466100	322144.3
25/07/2024	7	0.3	N	1354600	323498.9
26/07/2024	7	0.5	N	1283700	324782.6
27/07/2024	7	0.5	N	1097100	325879.7
28/07/2024	6.9	0.3	N	950400	326830.1
29/07/2024	7	0.6	N	1186300	328016.4
30/07/2024	7	0.5	N	1296800	329313.2
31/07/2024	7	0.7	N	1228600	330541.8
1/08/2024	7	2	N	1339300	331881.1
2/08/2024	7	0.8	N	1511900	333393
3/08/2024	6.9	0.2	N	991100	334384.1
4/08/2024	6.9	1.3	N	860200	335244.3
5/08/2024	7	1.3	N	1495400	336739.7
6/08/2024	7	0.6	N	1719300	338459
7/08/2024	7.1	1	N	1943000	340402
8/08/2024	7.1	2.3	N	1719900	342121.9
9/08/2024	7.1	1	N	2024800	344146.7
10/08/2024	7	1.1	N	1307100	345453.8
11/08/2024	7	1	N	763700	346217.5
12/08/2024	7	1.3	N	1702600	347920.1
13/08/2024	7	1.9	N	1942800	349862.9
14/08/2024	7.1	1.8	N	1957400	351820.3
15/08/2024	7	1.9	N	2080900	353901.2
16/08/2024	7	2	N	1960800	355862
17/08/2024	7	0.8	N	1447400	357309.4
18/08/2024	6.9	1.6	N	906700	358216.1
19/08/2024	7	1.8	N	1654500	359870.6
20/08/2024	7	1.4	N	1769300	361639.9
21/08/2024	6.9	1	N	1721700	363361.6
22/08/2024	6.9	0.9	N	1828300	365189.9
23/08/2024	7	1	N	1634300	366824.2
24/08/2024	7	0.6	N	1182200	368006.4
25/08/2024	7	0.3	N	771000	368777.4
26/08/2024	7.1	0.4	N	1422400	370199.8
27/08/2024	7	0.9	N	2036800	372236.6
28/08/2024	7.1	1.6	N	1872800	374109.4
29/08/2024	7.1	0.9	N	1749000	375858.4
30/08/2024	7	0.6	N	1663000	377521.4
31/08/2024	7	0.8	N	1452300	378973.7
1/09/2024	6.9	0.7	N	925700	379899.4

2/09/2024	7	0.9	N	1663900	381563.3
3/09/2024	7	1	N	1767000	383330.3
4/09/2024	7	0.9	N	1764200	385094.5
5/09/2024	7.1	1.9	N	1866600	386961.1
6/09/2024	6.8	1.6	N	1396900	388358
7/09/2024	7	1.5	N	1388500	389746.5
8/09/2024	7	1.5	N	931500	390678
9/09/2024	7.2	1.6	N	1590300	392268.3
10/09/2024	7	1.3	N	1842900	394111.2
11/09/2024	7.1	1.9	N	2155400	396266.6
12/09/2024	7	2	N	2304400	398571
13/09/2024	7	2.5	N	2113600	400684.6
14/09/2024	7	2.9	N	1627300	402311.9
15/09/2024	7	3.3	N	755400	403067.3
16/09/2024	7.1	2	N	1515800	404583.1
17/09/2024	7.1	1.9	N	1854600	406437.7
18/09/2024	7	2.7	N	2088400	408526.1
19/09/2024	7.1	1.3	N	1903100	410429.2
20/09/2024	7.1	1.7	N	2002300	412431.5
21/09/2024	6.9	1.3	N	1555800	413987.3
22/09/2024	7	0.6	N	1031100	415018.4
23/09/2024	7	0.7	N	1587400	416605.8
24/09/2024	7	0.8	N	1983300	418589.1
25/09/2024	7.1	0.9	N	2125400	420714.5
26/09/2024	7	1.8	N	2194900	422909.4
27/09/2024	7.1	1.3	N	2197700	425107.1
28/09/2024	7	1.1	N	1544700	426651.8
29/09/2024	6.9	2.8	N	997000	427648.8
30/09/2024	7	2.6	N	1854600	429503.4
1/10/2024	7.1	2.9	N	1586900	431090.3
2/10/2024	6.9	2.4	N	1403600	432493.9
3/10/2024	7	2.3	N	1192700	433686.6
4/10/2024	7	2.5	N	1226500	434913.1
5/10/2024	6.9	1.5	N	770900	435684
6/10/2024	6.9	1.5	N	852600	436536.6
7/10/2024	6.9	1.5	N	865100	437401.7
8/10/2024	7	1.2	N	878000	438279.7
9/10/2024	7	2.6	N	944800	439224.5
10/10/2024	7	1.3	N	871600	440096.1
11/10/2024	7	2.4	N	976900	441073
12/10/2024	7	1.2	N	649200	441722.2
13/10/2024	7	1.5	N	727900	442450.1
14/10/2024	7	1.2	N	1199500	443649.6
15/10/2024	6.9	0.7	N	1284200	444933.8
16/10/2024	6.9	0.6	N	968400	445902.2
17/10/2024	6.9	0.7	N	904800	446807
18/10/2024	7	0.4	N	813000	447620
19/10/2024	7	0.8	N	639800	448259.8
20/10/2024	7	0.4	N	690200	448950
21/10/2024	7	0.6	N	820200	449770.2
22/10/2024	6.9	0.7	N	1005200	450775.4
23/10/2024	6.9	1.4	N	913600	451689
24/10/2024	6.9	1	N	828400	452517.4
25/10/2024	6.9	2	N	736500	453253.9
26/10/2024	6.9	2	N	498400	453752.3
27/10/2024	6.9	1.6	N	425200	454177.5
28/10/2024	6.9	1.2	N	613600	454791.1
29/10/2024	6.9	0.8	N	761200	455552.3
30/10/2024	6.9	0.6	N	760300	456312.6
31/10/2024	6.9	0.8	N	968500	457281.1
1/11/2024	6.9	1.5	N	846300	458127.4
2/11/2024	6.9	2.4	N	649900	458777.3
3/11/2024	7.1	1.8	N	373300	459150.6
4/11/2024	7.2	1.3	N	650100	459800.7
5/11/2024	6.9	1.4	N	754200	460554.9
6/11/2024	7	2.2	N	778700	461333.6
7/11/2024	7.2	1.8	N	511800	461845.4
8/11/2024	7.2	1.5	N	656200	462501.6
9/11/2024	7.1	2	N	289300	462790.9
10/11/2024	7	0.8	N	411600	463202.5
11/11/2024	6.9	0.7	N	933200	464135.7
12/11/2024	6.9	0.7	N	725800	464861.5
13/11/2024	7.1	1.6	N	949500	465811
14/11/2024	6.9	1.4	N	688100	466499.1
15/11/2024	6.9	2.5	N	665100	467164.2

16/11/2024	7	1.6	N	644200	467808.4
17/11/2024	7	0.7	N	611500	468419.9
18/11/2024	7	2.9	N	982800	469402.7
19/11/2024	7	3.2	N	817400	470220.1
20/11/2024	6.9	0.6	N	648500	470868.6
21/11/2024	6.9	0.3	N	666600	471535.2
22/11/2024	7.1	0.9	N	394300	471929.5
23/11/2024	6.9	1	N	459400	472388.9
24/11/2024	6.9	0.7	N	421200	472810.1
25/11/2024	6.9	0.9	N	861500	473671.6
26/11/2024	7	0.5	N	654500	474326.1
27/11/2024	7	4.7	N	548300	474874.4
28/11/2024	6.9	3	N	941200	475815.6
29/11/2024	7.2	3.8	N	916500	476732.1
30/11/2024	7	0.2	N	1040800	477772.9
1/12/2024	6.9	1.5	N	768800	478541.7
2/12/2024	7	2.7	N	569300	479111
3/12/2024	7	2	N	456000	479567
4/12/2024	7	1	N	605700	480172.7
5/12/2024	7	2.1	N	522300	480695
6/12/2024	6.9	2.1	N	609600	481304.6
7/12/2024	7	1.8	N	845400	482150
8/12/2024	7	1.2	N	512000	482662
9/12/2024	7	1.3	N	806200	483468.2
10/12/2024	7.1	1.4	N	588300	484056.5
11/12/2024	6.8	1.5	N	171300	484227.8
12/12/2024	7.2	2.6	N	506500	484734.3
13/12/2024	7	3.3	N	602900	485337.2
14/12/2024	6.9	5.8	N	489300	485826.5
15/12/2024	7	9.8	N	507200	486333.7
16/12/2024	7.1	6.5	N	475200	486808.9
17/12/2024	7.1	8.4	N	580000	487388.9
18/12/2024	7.1	7.2	N	496500	487885.4
19/12/2024	7.2	6	N	437400	488322.8
20/12/2024	7.1	1.9	N	333200	488656
21/12/2024	7	2	N	387900	489043.9
22/12/2024	7	2.6	N	347900	489391.8
23/12/2024	7	2.1	N	303700	489695.5
24/12/2024	7	1.9	N	337200	490032.7
25/12/2024	7	1.7	N	159600	490192.3
26/12/2024	7	1.7	N	127800	490320.1
27/12/2024	7	1.7	N	428200	490748.3
28/12/2024	7	1.8	N	592900	491341.2
29/12/2024	7	2	N	386900	491728.1
30/12/2024	7	2.1	N	358600	492086.7
31/12/2024	7	1.7	N	326100	492412.8

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CERTIFICATE OF ANALYSIS 365822

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**TBY - WTP**
Number of Samples	2 Water
Date samples received	07/11/2024
Date completed instructions received	07/11/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	12/11/2024
Date of Issue	12/11/2024

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[redacted]

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	365822-1	365822-2
Your Reference		UNTRD	TRD
Date Sampled		07/11/2024	07/11/2024
Type of sample		Water	Water
Date extracted	-	08/11/2024	08/11/2024
Date analysed	-	11/11/2024	11/11/2024
TRH C_6 - C_9	µg/L	<10	28
TRH C_6 - C_{10}	µg/L	33	31
TRH C_6 - C_{10} less BTEX (F1)	µg/L	30	31
Benzene	µg/L	<1	<1
Toluene	µg/L	2	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	1	<1
Naphthalene	µg/L	1	<1
Surrogate Dibromofluoromethane	%	101	101
Surrogate Toluene-d8	%	100	100
Surrogate 4-Bromofluorobenzene	%	101	99

svTRH (C10-C40) in Water			
Our Reference		365822-1	365822-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		07/11/2024	07/11/2024
Type of sample		Water	Water
Date extracted	-	08/11/2024	08/11/2024
Date analysed	-	09/11/2024	09/11/2024
TRH C_{10} - C_{14}	µg/L	2,400	320
TRH C_{15} - C_{28}	µg/L	8,400	220
TRH C_{29} - C_{36}	µg/L	3,400	<100
Total +ve TRH (C10-C36)	µg/L	14,000	540
TRH >C_{10} - C_{16}	µg/L	4,200	490
TRH >C_{16} - C_{34}	µg/L	9,300	<100
TRH >C_{34} - C_{40}	µg/L	1,700	<100
Total +ve TRH (>C10-C40)	µg/L	15,000	490
Surrogate o-Terphenyl	%	#	94

PFAS in Water TRACE Short			
Our Reference		365822-1	365822-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		07/11/2024	07/11/2024
Type of sample		Water	Water
Date prepared	-	08/11/2024	08/11/2024
Date analysed	-	08/11/2024	08/11/2024
Perfluorobutanesulfonic acid	µg/L	0.0044	<0.002
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0092	<0.0002
Perfluorooctanesulfonic acid PFOS	µg/L	0.002	<0.0002
Perfluorooctanoic acid PFOA	µg/L	0.001	<0.0002
6:2 FTS	µg/L	0.002	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	68	76
Surrogate $^{13}C_2$ *PFOA*	%	98	96
Extracted ISTD $^{13}C_3$ *PFBS*	%	65	34
Extracted ISTD $^{18}O_2$ *PFHxS*	%	85	85
Extracted ISTD $^{13}C_4$ *PFOS*	%	93	82
Extracted ISTD $^{13}C_4$ *PFOA*	%	74	77
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	107	93
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	110	96
Total Positive PFHxS & PFOS	µg/L	0.011	<0.0002
Total Positive PFOS & PFOA	µg/L	0.0033	<0.0002
Total Positive PFAS	µg/L	0.019	<0.0002

All metals in water-dissolved			
Our Reference	UNITS	365822-1	365822-2
Your Reference		UNTRD	TRD
Date Sampled		07/11/2024	07/11/2024
Type of sample		Water	Water
Date prepared	-	08/11/2024	08/11/2024
Date analysed	-	08/11/2024	08/11/2024
Copper-Dissolved	µg/L	2	<1
Zinc-Dissolved	µg/L	<1	1
Nickel-Dissolved	µg/L	1	<1
Iron-Dissolved	µg/L	20	10
Cadmium-Dissolved	µg/L	<0.1	<0.1
Arsenic-Dissolved	µg/L	<1	<1
Manganese-Dissolved	µg/L	<5	11
Cobalt-Dissolved	µg/L	<1	<1
Aluminium-Dissolved	µg/L	360	<10
Lead-Dissolved	µg/L	<1	<1

Cations in water Dissolved			
Our Reference		365822-1	365822-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		07/11/2024	07/11/2024
Type of sample		Water	Water
Date digested	-	08/11/2024	08/11/2024
Date analysed	-	08/11/2024	08/11/2024
Magnesium - Dissolved	mg/L	<0.5	96

Miscellaneous Inorganics			
Our Reference	UNITS	365822-1	365822-2
Your Reference		UNTRD	TRD
Date Sampled		07/11/2024	07/11/2024
Type of sample		Water	Water
Date prepared	-	07/11/2024	07/11/2024
Date analysed	-	07/11/2024	07/11/2024
pH	pH Units	10.9	7.5
Turbidity	NTU	[NT]	0.3
Total Suspended Solids	mg/L	13,000	<5
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.066	<0.001
Ammonia as N in water	mg/L	0.84	0.59
Nitrate as N in water	mg/L	0.34	<0.005
Nitrite as N in water	mg/L	0.22	<0.005
NOx as N in water	mg/L	0.56	0.006
Total Nitrogen in water	mg/L	3.1	0.9
Phosphate as P in water	mg/L	<0.005	0.006
TKN in water	mg/L	2.6	0.9
Organic Nitrogen as N	mg/L	1.8	0.3
Electrical Conductivity	µS/cm	15,000	14,000
Total Dissolved Solids (grav)	mg/L	10,000	9,400
Total Phosphorus	mg/L	0.03	0.04

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-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-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).

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-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-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	-			08/11/2024	1	08/11/2024	11/11/2024		08/11/2024	[NT]
Date analysed	-			11/11/2024	1	11/11/2024	12/11/2024		11/11/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	1	<10	<10	0	100	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	1	33	40	19	100	[NT]
Benzene	µg/L	1	Org-023	<1	1	<1	<1	0	102	[NT]
Toluene	µg/L	1	Org-023	<1	1	2	2	0	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	1	<1	<1	0	100	[NT]
m+p-xylene	µg/L	2	Org-023	<2	1	<2	<2	0	99	[NT]
o-xylene	µg/L	1	Org-023	<1	1	1	1	0	100	[NT]
Naphthalene	µg/L	1	Org-023	<1	1	1	1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	100	1	101	101	0	101	[NT]
Surrogate Toluene-d8	%		Org-023	100	1	100	101	1	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	99	1	101	103	2	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Date analysed	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	117	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	120	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	96	[NT]	[NT]	[NT]	[NT]	110	[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	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Date analysed	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	95	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	101	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	96	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	95	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	101	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	95	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	106	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	77	[NT]	[NT]	[NT]	[NT]	86	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	73	[NT]	[NT]	[NT]	[NT]	86	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	79	[NT]	[NT]	[NT]	[NT]	84	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	84	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	91	[NT]	[NT]	[NT]	[NT]	119	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	116	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Date analysed	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	81	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	96	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	83	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	84	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]

QUALITY CONTROL: Cations in water Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Date analysed	-			08/11/2024	[NT]	[NT]	[NT]	[NT]	08/11/2024	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[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	-			07/11/2024	1	07/11/2024	07/11/2024		07/11/2024	[NT]
Date analysed	-			07/11/2024	1	07/11/2024	07/11/2024		07/11/2024	[NT]
pH	pH Units		Inorg-001	[NT]	1	10.9	[NT]		100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	[NT]	[NT]		99	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	13000	[NT]		102	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	0.066	[NT]		101	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.84	[NT]		93	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.34	[NT]		90	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.22	[NT]		85	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.56	[NT]		89	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	3.1	[NT]		89	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	[NT]		89	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	2.6	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	1.8	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	15000	[NT]		96	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	10000	[NT]		104	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	1	0.03	0.03	0	114	[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).

TRH Water(C10-C40) NEPM - # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in sample 365822-1 have caused interference.

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CERTIFICATE OF ANALYSIS 367995

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**TBY - WTP**
Number of Samples	2 Water
Date samples received	03/12/2024
Date completed instructions received	03/12/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	10/12/2024
Date of Issue	10/12/2024

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[redacted]

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	367995-1	367995-2
Your Reference		UNTRD	TRD
Date Sampled		03/12/2024	03/12/2024
Type of sample		Water	Water
Date extracted	-	05/12/2024	05/12/2024
Date analysed	-	06/12/2024	06/12/2024
TRH C_6 - C_9	µg/L	<10	11
TRH C_6 - C_{10}	µg/L	<10	14
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	14
Benzene	µg/L	<1	<1
Toluene	µg/L	3	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	98	103
Surrogate Toluene-d8	%	92	102
Surrogate 4-Bromofluorobenzene	%	101	96

svTRH (C10-C40) in Water			
Our Reference		367995-1	367995-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		03/12/2024	03/12/2024
Type of sample		Water	Water
Date extracted	-	04/12/2024	04/12/2024
Date analysed	-	05/12/2024	04/12/2024
TRH C_{10} - C_{14}	µg/L	400	110
TRH C_{15} - C_{28}	µg/L	7,400	<100
TRH C_{29} - C_{36}	µg/L	6,700	<100
Total +ve TRH (C10-C36)	µg/L	14,000	110
TRH >C_{10} - C_{16}	µg/L	850	140
TRH >C_{16} - C_{34}	µg/L	12,000	<100
TRH >C_{34} - C_{40}	µg/L	3,200	<100
Total +ve TRH (>C10-C40)	µg/L	16,000	140
Surrogate o-Terphenyl	%	#	90

PFAS in Water TRACE Short			
Our Reference		367995-1	367995-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		03/12/2024	03/12/2024
Type of sample		Water	Water
Date prepared	-	06/12/2024	06/12/2024
Date analysed	-	06/12/2024	06/12/2024
Perfluorobutanesulfonic acid	µg/L	0.0047	<0.0004
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.011	<0.0002
Perfluorooctanesulfonic acid PFOS	µg/L	0.0083	<0.0002
Perfluorooctanoic acid PFOA	µg/L	0.0032	<0.0002
6:2 FTS	µg/L	0.0006	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	108	104
Surrogate $^{13}C_2$ *PFOA*	%	101	106
Extracted ISTD $^{13}C_3$ *PFBS*	%	83	56
Extracted ISTD $^{18}O_2$ *PFHxS*	%	106	107
Extracted ISTD $^{13}C_4$ *PFOS*	%	84	99
Extracted ISTD $^{13}C_4$ *PFOA*	%	77	86
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	106	110
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	136	134
Total Positive PFHxS & PFOS	µg/L	0.019	<0.0002
Total Positive PFOS & PFOA	µg/L	0.012	<0.0002
Total Positive PFAS	µg/L	0.028	<0.0002

All metals in water-dissolved			
Our Reference		367995-1	367995-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		03/12/2024	03/12/2024
Type of sample		Water	Water
Date prepared	-	04/12/2024	04/12/2024
Date analysed	-	04/12/2024	04/12/2024
Copper-Dissolved	µg/L	3	<1
Zinc-Dissolved	µg/L	2	1
Nickel-Dissolved	µg/L	2	<1
Iron-Dissolved	µg/L	<10	<10
Cadmium-Dissolved	µg/L	<0.1	<0.1
Arsenic-Dissolved	µg/L	1	<1
Manganese-Dissolved	µg/L	<5	9
Cobalt-Dissolved	µg/L	<1	<1
Aluminium-Dissolved	µg/L	10	<10
Lead-Dissolved	µg/L	<1	<1

Cations in water Dissolved			
Our Reference		367995-1	367995-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		03/12/2024	03/12/2024
Type of sample		Water	Water
Date digested	-	04/12/2024	04/12/2024
Date analysed	-	06/12/2024	06/12/2024
Magnesium - Dissolved	mg/L	73	130

Miscellaneous Inorganics			
Our Reference	UNITS	367995-1	367995-2
Your Reference		UNTRD	TRD
Date Sampled		03/12/2024	03/12/2024
Type of sample		Water	Water
Date prepared	-	03/12/2024	03/12/2024
Date analysed	-	03/12/2024	03/12/2024
pH	pH Units	9.3	7.6
Turbidity	NTU	NT	1.2
Total Suspended Solids	mg/L	7,400	<5
Total Dissolved Solids (grav)	mg/L	6,900	8,600
Electrical Conductivity	µS/cm	11,000	13,000
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.021	<0.001
Ammonia as N in water	mg/L	0.66	0.57
Nitrate as N in water	mg/L	0.27	0.02
Nitrite as N in water	mg/L	0.38	<0.005
NOx as N in water	mg/L	0.65	0.02
Total Nitrogen in water	mg/L	2.7	1.0
TKN in water	mg/L	2.0	1
Phosphate as P in water	mg/L	0.069	0.04
Organic Nitrogen as N	mg/L	1.3	0.4
Total Phosphorus	mg/L	0.39	0.04

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-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-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).

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-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-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	-			05/12/2024	[NT]	[NT]	[NT]	[NT]	05/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	99	[NT]
Benzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	88	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	96	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	107	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	102	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate Toluene-d8	%		Org-023	97	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	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	-			04/12/2024	[NT]	[NT]	[NT]	[NT]	04/12/2024	[NT]
Date analysed	-			04/12/2024	[NT]	[NT]	[NT]	[NT]	04/12/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	116	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	90	[NT]	[NT]	[NT]	[NT]	118	[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	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Perfluorobutanesulfonic acid	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	113	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	115	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	108	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	105	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	98	[NT]
Extracted ISTD $^{13}C_3$ *PFBS*	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	86	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	92	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	90	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	84	[NT]	[NT]	[NT]	[NT]	86	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	87	[NT]	[NT]	[NT]	[NT]	113	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	127	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			04/12/2024	[NT]	[NT]	[NT]	[NT]	04/12/2024	[NT]
Date analysed	-			04/12/2024	[NT]	[NT]	[NT]	[NT]	04/12/2024	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	96	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	106	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]

QUALITY CONTROL: Cations in water Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			04/12/2024	[NT]	[NT]	[NT]	[NT]	04/12/2024	[NT]
Date analysed	-			06/12/2024	[NT]	[NT]	[NT]	[NT]	06/12/2024	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	98	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	367995-2
Date prepared	-			03/12/2024	1	03/12/2024	03/12/2024		03/12/2024	03/12/2024
Date analysed	-			03/12/2024	1	03/12/2024	03/12/2024		03/12/2024	03/12/2024
pH	pH Units		Inorg-001	[NT]	1	9.3	[NT]		100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	NT	[NT]		89	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	7400	[NT]		82	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	6900	[NT]		103	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	11000	[NT]		94	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	0.021	[NT]		97	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.66	[NT]		97	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.27	[NT]		101	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.38	[NT]		89	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.65	[NT]		100	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	2.7	[NT]		87	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	2.0	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.069	[NT]		91	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	1.3	[NT]		[NT]	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	1	0.39	0.40	3	115	95

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	2	03/12/2024	03/12/2024		[NT]	[NT]
Date analysed	-			[NT]	2	03/12/2024	03/12/2024		[NT]	[NT]
pH	pH Units		Inorg-001	[NT]	2	7.6	[NT]		[NT]	[NT]
Turbidity	NTU	0.1	Inorg-022	[NT]	2	1.2	1.1	9	[NT]	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	[NT]	2	<5	[NT]		[NT]	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	[NT]	2	8600	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	[NT]	2	13000	[NT]		[NT]	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	[NT]	2	<0.001	<0.001	0	[NT]	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	[NT]	2	0.57	[NT]		[NT]	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.02	[NT]		[NT]	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	[NT]	2	<0.005	[NT]		[NT]	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	[NT]	2	0.02	[NT]		[NT]	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	[NT]	2	1.0	[NT]		[NT]	[NT]
TKN in water	mg/L	0.1	Inorg-062	[NT]	2	1	[NT]		[NT]	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	[NT]	2	0.04	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	[NT]	2	0.4	[NT]		[NT]	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	[NT]	2	0.04	[NT]		[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

TRH Water(C10-C40) NEPM - # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in sample 367995-1 have caused interference.

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.

Turbidity: Denotes analysis could not be performed due to high sediment level present in the sample.

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CERTIFICATE OF ANALYSIS 363656

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**TBY - WTP**
Number of Samples	2 Water
Date samples received	10/10/2024
Date completed instructions received	10/10/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	15/10/2024
Date of Issue	15/10/2024

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[redacted]

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	363656-1	363656-2
Your Reference		UNTRD	TRD
Date Sampled		10/10/2024	10/10/2024
Type of sample		Water	Water
Date extracted	-	11/10/2024	11/10/2024
Date analysed	-	14/10/2024	14/10/2024
TRH C_6 - C_9	µg/L	<10	68
TRH C_6 - C_{10}	µg/L	<10	70
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	70
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	106	107
Surrogate Toluene-d8	%	98	97
Surrogate 4-Bromofluorobenzene	%	96	81

svTRH (C10-C40) in Water			
Our Reference		363656-1	363656-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		10/10/2024	10/10/2024
Type of sample		Water	Water
Date extracted	-	11/10/2024	11/10/2024
Date analysed	-	12/10/2024	12/10/2024
TRH C_{10} - C_{14}	µg/L	220	<50
TRH C_{15} - C_{28}	µg/L	1,700	<100
TRH C_{29} - C_{36}	µg/L	850	<100
Total +ve TRH (C10-C36)	µg/L	2,800	<50
TRH >C_{10} - C_{16}	µg/L	450	<50
TRH >C_{16} - C_{34}	µg/L	2,100	<100
TRH >C_{34} - C_{40}	µg/L	380	<100
Total +ve TRH (>C10-C40)	µg/L	3,000	<50
Surrogate o-Terphenyl	%	#	115

PFAS in Water TRACE Short			
Our Reference		363656-1	363656-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		10/10/2024	10/10/2024
Type of sample		Water	Water
Date prepared	-	11/10/2024	11/10/2024
Date analysed	-	11/10/2024	11/10/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	<0.0002	<0.0002
Perfluorooctanesulfonic acid PFOS	µg/L	0.0089	<0.0002
Perfluorooctanoic acid PFOA	µg/L	0.0021	<0.0002
6:2 FTS	µg/L	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	108	99
Surrogate $^{13}C_2$ *PFOA*	%	119	108
Extracted ISTD $^{18}O_2$ *PFHxS*	%	123	113
Extracted ISTD $^{13}C_4$ *PFOS*	%	78	82
Extracted ISTD $^{13}C_4$ *PFOA*	%	75	72
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	#	#
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	#	194
Total Positive PFHxS & PFOS	µg/L	0.0089	<0.0002
Total Positive PFOS & PFOA	µg/L	0.011	<0.0002
Total Positive PFAS	µg/L	0.011	<0.0002

All metals in water-dissolved			
Our Reference	UNITS	363656-1	363656-2
Your Reference		UNTRD	TRD
Date Sampled		10/10/2024	10/10/2024
Type of sample		Water	Water
Date prepared	-	11/10/2024	11/10/2024
Date analysed	-	11/10/2024	11/10/2024
Copper-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	<1	<1
Nickel-Dissolved	µg/L	1	1
Iron-Dissolved	µg/L	<10	<10
Cadmium-Dissolved	µg/L	<0.1	<0.1
Arsenic-Dissolved	µg/L	<1	<1
Manganese-Dissolved	µg/L	<5	<5
Cobalt-Dissolved	µg/L	<1	<1
Aluminium-Dissolved	µg/L	70	20
Lead-Dissolved	µg/L	<1	<1

Cations in water Dissolved			
Our Reference		363656-1	363656-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		10/10/2024	10/10/2024
Type of sample		Water	Water
Date digested	-	11/10/2024	11/10/2024
Date analysed	-	11/10/2024	11/10/2024
Magnesium - Dissolved	mg/L	91	200

Miscellaneous Inorganics			
Our Reference	UNITS	363656-1	363656-2
Your Reference		UNTRD	TRD
Date Sampled		10/10/2024	10/10/2024
Type of sample		Water	Water
Date prepared	-	10/10/2024	10/10/2024
Date analysed	-	10/10/2024	10/10/2024
pH	pH Units	9.9	7.7
Turbidity	NTU	NT	0.8
Total Suspended Solids	mg/L	3,300	<5
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.077	<0.001
Ammonia as N in water	mg/L	1.8	0.18
Nitrate as N in water	mg/L	0.51	0.007
Nitrite as N in water	mg/L	0.17	<0.005
NOx as N in water	mg/L	0.68	0.008
Total Nitrogen in water	mg/L	3.8	0.7
Phosphate as P in water	mg/L	<0.005	<0.005
TKN in water	mg/L	3.1	0.7
Organic Nitrogen as N	mg/L	1.3	0.5
Electrical Conductivity	µS/cm	19,000	18,000
Total Dissolved Solids (grav)	mg/L	13,000	12,000
Total Phosphorus	mg/L	0.05	0.04

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-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-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).

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-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-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	-			11/10/2024	2	11/10/2024	14/10/2024		11/10/2024	[NT]
Date analysed	-			14/10/2024	2	14/10/2024	14/10/2024		14/10/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	2	68	74	8	97	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	2	70	83	17	97	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	97	[NT]
Toluene	µg/L	1	Org-023	<1	2	<1	<1	0	101	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	95	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	97	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	96	[NT]
Naphthalene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	106	2	107	99	8	106	[NT]
Surrogate Toluene-d8	%		Org-023	98	2	97	99	2	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	86	2	81	108	29	100	[NT]

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Date analysed	-			12/10/2024	[NT]	[NT]	[NT]	[NT]	12/10/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	93	[NT]	[NT]	[NT]	[NT]	119	[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	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Date analysed	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	86	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	94	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	98	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	91	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	97	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	111	[NT]	[NT]	[NT]	[NT]	116	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	88	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	72	[NT]	[NT]	[NT]	[NT]	76	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	75	[NT]	[NT]	[NT]	[NT]	77	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	139	[NT]	[NT]	[NT]	[NT]	130	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	127	[NT]	[NT]	[NT]	[NT]	134	[NT]

QUALITY CONTROL: All metals in water-dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W4	[NT]
Date prepared	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Date analysed	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	93	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	109	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	98	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: Cations in water Dissolved					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Date analysed	-			11/10/2024	[NT]	[NT]	[NT]	[NT]	11/10/2024	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	107	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			10/10/2024	2	10/10/2024	10/10/2024		10/10/2024	[NT]
Date analysed	-			10/10/2024	2	10/10/2024	10/10/2024		10/10/2024	[NT]
pH	pH Units		Inorg-001	[NT]	2	7.7	[NT]		100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	2	0.8	0.8	0	102	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	2	<5	[NT]		96	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	2	<0.001	[NT]		108	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	2	0.18	[NT]		93	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	2	0.007	[NT]		104	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	2	<0.005	[NT]		90	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	2	0.008	[NT]		104	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	2	0.7	[NT]		99	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	2	<0.005	[NT]		104	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	2	0.7	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	2	0.5	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	2	18000	[NT]		98	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	2	12000	[NT]		105	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	2	0.04	0.04	0	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

TRH Water(C10-C40) NEPM - # Percent recovery for the surrogate is not possible to report as the high concentration of analytes in sample 363656-1 have caused interference.

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).

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.

Turbidity: Sample could not be analysed due to the high content of solid matter.

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CERTIFICATE OF ANALYSIS 361256

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**TBY - WTP**
Number of Samples	2 Water
Date samples received	09/09/2024
Date completed instructions received	09/09/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	12/09/2024
Date of Issue	12/09/2024

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[redacted]

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	361256-1	361256-2
Your Reference		UNTRD	TRD
Date Sampled		9/09/2024	9/09/2024
Type of sample		Water	Water
Date extracted	-	10/09/2024	10/09/2024
Date analysed	-	11/09/2024	11/09/2024
TRH C_6 - C_9	µg/L	<10	64
TRH C_6 - C_{10}	µg/L	<10	67
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	67
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	101	100
Surrogate Toluene-d8	%	100	99
Surrogate 4-Bromofluorobenzene	%	96	96

svTRH (C10-C40) in Water			
Our Reference	UNITS	361256-1	361256-2
Your Reference		UNTRD	TRD
Date Sampled		9/09/2024	9/09/2024
Type of sample		Water	Water
Date extracted	-	09/09/2024	09/09/2024
Date analysed	-	12/09/2024	12/09/2024
TRH C_{10} - C_{14}	µg/L	210	<50
TRH C_{15} - C_{28}	µg/L	2,600	<100
TRH C_{29} - C_{36}	µg/L	2,500	<100
Total +ve TRH (C10-C36)	µg/L	5,300	<50
TRH >C_{10} - C_{16}	µg/L	380	<50
TRH >C_{16} - C_{34}	µg/L	4,200	<100
TRH >C_{34} - C_{40}	µg/L	1,900	<100
Total +ve TRH (>C10-C40)	µg/L	6,500	<50
Surrogate o-Terphenyl	%	113	77

PFAS in Water TRACE Short			
Our Reference		361256-1	361256-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		9/09/2024	9/09/2024
Type of sample		Water	Water
Date prepared	-	10/09/2024	10/09/2024
Date analysed	-	10/09/2024	10/09/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0080	0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.0034	0.0007
Perfluorooctanoic acid PFOA	µg/L	0.0009	<0.0002
6:2 FTS	µg/L	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	101	87
Surrogate $^{13}C_2$ *PFOA*	%	104	97
Extracted ISTD $^{18}O_2$ *PFHxS*	%	56	68
Extracted ISTD $^{13}C_4$ *PFOS*	%	86	71
Extracted ISTD $^{13}C_4$ *PFOA*	%	101	91
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	158	124
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	105	92
Total Positive PFHxS & PFOS	µg/L	0.011	0.002
Total Positive PFOS & PFOA	µg/L	0.0043	0.0007
Total Positive PFAS	µg/L	0.012	0.002

All metals in water-dissolved			
Our Reference	UNITS	361256-1	361256-2
Your Reference		UNTRD	TRD
Date Sampled		9/09/2024	9/09/2024
Type of sample		Water	Water
Date prepared	-	11/09/2024	11/09/2024
Date analysed	-	11/09/2024	11/09/2024
Copper-Dissolved	µg/L	1	<1
Zinc-Dissolved	µg/L	<1	3
Nickel-Dissolved	µg/L	<1	<1
Iron-Dissolved	µg/L	<10	30
Cadmium-Dissolved	µg/L	<0.1	<0.1
Arsenic-Dissolved	µg/L	15	2
Manganese-Dissolved	µg/L	<5	<5
Cobalt-Dissolved	µg/L	<1	<1
Aluminium-Dissolved	µg/L	<10	<10
Lead-Dissolved	µg/L	<1	<1

Cations in water Dissolved			
Our Reference		361256-1	361256-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		9/09/2024	9/09/2024
Type of sample		Water	Water
Date digested	-	11/09/2024	11/09/2024
Date analysed	-	11/09/2024	11/09/2024
Magnesium - Dissolved	mg/L	62	130

Miscellaneous Inorganics			
Our Reference	UNITS	361256-1	361256-2
Your Reference		UNTRD	TRD
Date Sampled		9/09/2024	9/09/2024
Type of sample		Water	Water
Date prepared	-	09/09/2024	09/09/2024
Date analysed	-	09/09/2024	09/09/2024
pH	pH Units	9.3	7.8
Turbidity	NTU	[NT]	0.5
Total Suspended Solids	mg/L	11,000	<5
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.044	0.011
Ammonia as N in water	mg/L	1.9	0.36
Nitrate as N in water	mg/L	0.36	0.05
Nitrite as N in water	mg/L	0.12	0.010
NOx as N in water	mg/L	0.5	0.06
Total Nitrogen in water	mg/L	3.7	1.1
Phosphate as P in water	mg/L	0.01	0.01
TKN in water	mg/L	3.2	1.1
Organic Nitrogen as N	mg/L	1.3	0.7
Electrical Conductivity	µS/cm	13,000	17,000
Total Dissolved Solids (grav)	mg/L	7,900	11,000
Total Phosphorus	mg/L	0.24	0.05

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-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-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).

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-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-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	-			10/09/2024	2	10/09/2024	11/09/2024		10/09/2024	[NT]
Date analysed	-			11/09/2024	2	11/09/2024	12/09/2024		11/09/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	2	64	62	3	99	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	2	67	65	3	99	[NT]
Benzene	µg/L	1	Org-023	<1	2	<1	<1	0	99	[NT]
Toluene	µg/L	1	Org-023	<1	2	<1	<1	0	100	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	2	<1	<1	0	98	[NT]
m+p-xylene	µg/L	2	Org-023	<2	2	<2	<2	0	99	[NT]
o-xylene	µg/L	1	Org-023	<1	2	<1	<1	0	99	[NT]
Naphthalene	µg/L	1	Org-023	<1	2	<1	<1	0	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	100	2	100	103	3	102	[NT]
Surrogate Toluene-d8	%		Org-023	99	2	99	100	1	102	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	2	96	96	0	104	[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	-			09/09/2024	[NT]	[NT]	[NT]	[NT]	09/09/2024	[NT]
Date analysed	-			11/09/2024	[NT]	[NT]	[NT]	[NT]	11/09/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	84	[NT]	[NT]	[NT]	[NT]	112	[NT]

QUALITY CONTROL: PFAS in Water TRACE Short						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			10/09/2024	[NT]	[NT]	[NT]	[NT]	10/09/2024	[NT]
Date analysed	-			10/09/2024	[NT]	[NT]	[NT]	[NT]	10/09/2024	[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]	100	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	102	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	102	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	98	[NT]	[NT]	[NT]	[NT]	96	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	99	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	77	[NT]	[NT]	[NT]	[NT]	89	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	73	[NT]	[NT]	[NT]	[NT]	81	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	78	[NT]	[NT]	[NT]	[NT]	87	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	71	[NT]	[NT]	[NT]	[NT]	96	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	85	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date prepared	-			11/09/2024	[NT]	[NT]	[NT]	[NT]	11/09/2024	[NT]
Date analysed	-			11/09/2024	[NT]	[NT]	[NT]	[NT]	11/09/2024	[NT]
Copper-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]	99	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	94	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	[NT]	[NT]	[NT]	[NT]	96	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	[NT]	[NT]	[NT]	[NT]	93	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	97	[NT]

QUALITY CONTROL: Cations in water Dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361256-2
Date digested	-			11/09/2024	1	11/09/2024	11/09/2024		11/09/2024	11/09/2024
Date analysed	-			11/09/2024	1	11/09/2024	11/09/2024		11/09/2024	11/09/2024
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	62	61	2	97	102

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	361256-2
Date prepared	-			09/09/2024	1	09/09/2024	09/09/2024		09/09/2024	09/09/2024
Date analysed	-			09/09/2024	1	09/09/2024	09/09/2024		09/09/2024	09/09/2024
pH	pH Units		Inorg-001	[NT]	1	9.3	9.3	0	100	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	[NT]	[NT]		102	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	11000	10000	10	86	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	0.044	0.045	2	101	98
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	1.9	1.8	5	120	107
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.36	0.36	0	107	110
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.12	0.12	0	102	114
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.5	0.5	0	107	110
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	3.7	[NT]		117	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	0.01	0.01	0	101	107
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	3.2	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	1.3	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	13000	13000	0	103	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	7900	7800	1	93	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	1	0.24	0.24	0	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

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).

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.

Turbidity: Sample #1 was not analysed due to high solid content.

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CERTIFICATE OF ANALYSIS 359609

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**TBY - WTP**
Number of Samples	2 Water
Date samples received	20/08/2024
Date completed instructions received	20/08/2024

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	21/08/2024
Date of Issue	21/08/2024

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[redacted]

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	359609-1	359609-2
Your Reference		UNTRD	TRD
Date Sampled		20/08/2024	20/08/2024
Type of sample		Water	Water
Date extracted	-	20/08/2024	20/08/2024
Date analysed	-	21/08/2024	21/08/2024
TRH C_6 - C_9	µg/L	22	70
TRH C_6 - C_{10}	µg/L	31	78
TRH C_6 - C_{10} less BTEX (F1)	µg/L	31	78
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	110	109
Surrogate Toluene-d8	%	102	101
Surrogate 4-Bromofluorobenzene	%	94	96

svTRH (C10-C40) in Water			
Our Reference		359609-1	359609-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		20/08/2024	20/08/2024
Type of sample		Water	Water
Date extracted	-	21/08/2024	21/08/2024
Date analysed	-	21/08/2024	21/08/2024
TRH C_{10} - C_{14}	µg/L	330	<50
TRH C_{15} - C_{28}	µg/L	1,800	<100
TRH C_{29} - C_{36}	µg/L	1,200	<100
Total +ve TRH (C10-C36)	µg/L	3,300	<50
TRH >C_{10} - C_{16}	µg/L	600	<50
TRH >C_{16} - C_{34}	µg/L	2,400	<100
TRH >C_{34} - C_{40}	µg/L	840	<100
Total +ve TRH (>C10-C40)	µg/L	3,800	<50
Surrogate o-Terphenyl	%	83	79

PFAS in Water TRACE Short			
Our Reference		359609-1	359609-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		20/08/2024	20/08/2024
Type of sample		Water	Water
Date prepared	-	21/08/2024	21/08/2024
Date analysed	-	21/08/2024	21/08/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0041	0.001
Perfluorooctanesulfonic acid PFOS	µg/L	0.002	0.0002
Perfluorooctanoic acid PFOA	µg/L	0.0009	0.0002
6:2 FTS	µg/L	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	107	100
Surrogate $^{13}C_2$ *PFOA*	%	100	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	67	70
Extracted ISTD $^{13}C_4$ *PFOS*	%	56	71
Extracted ISTD $^{13}C_4$ *PFOA*	%	73	80
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	122	131
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	104	139
Total Positive PFHxS & PFOS	µg/L	0.0058	0.002
Total Positive PFOS & PFOA	µg/L	0.0026	0.0004
Total Positive PFAS	µg/L	0.0067	0.002

All metals in water-dissolved			
Our Reference	UNITS	359609-1	359609-2
Your Reference		UNTRD	TRD
Date Sampled		20/08/2024	20/08/2024
Type of sample		Water	Water
Date prepared	-	21/08/2024	21/08/2024
Date analysed	-	21/08/2024	21/08/2024
Iron-Dissolved	µg/L	10	<10
Copper-Dissolved	µg/L	1	1
Nickel-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	1	2
Cadmium-Dissolved	µg/L	<0.1	<0.1
Aluminium-Dissolved	µg/L	110	100
Manganese-Dissolved	µg/L	<5	<5
Cobalt-Dissolved	µg/L	<1	<1
Arsenic-Dissolved	µg/L	2	2
Lead-Dissolved	µg/L	<1	<1

Cations in water Dissolved			
Our Reference		359609-1	359609-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		20/08/2024	20/08/2024
Type of sample		Water	Water
Date digested	-	21/08/2024	21/08/2024
Date analysed	-	21/08/2024	21/08/2024
Magnesium - Dissolved	mg/L	3	79

Miscellaneous Inorganics			
Our Reference	UNITS	359609-1	359609-2
Your Reference		UNTRD	TRD
Date Sampled		20/08/2024	20/08/2024
Type of sample		Water	Water
Date prepared	-	20/08/2024	20/08/2024
Date analysed	-	20/08/2024	20/08/2024
pH	pH Units	10.8	8.1
Turbidity	NTU	NT	0.2
Total Suspended Solids	mg/L	17,000	<5
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.067	0.013
Ammonia as N in water	mg/L	0.99	0.051
Nitrate as N in water	mg/L	0.36	0.096
Nitrite as N in water	mg/L	0.16	0.017
NOx as N in water	mg/L	0.51	0.1
Total Nitrogen in water	mg/L	2.2	0.7
Phosphate as P in water	mg/L	<0.005	<0.005
TKN in water	mg/L	1.7	0.5
Organic Nitrogen as N	mg/L	0.7	0.5
Electrical Conductivity	µS/cm	7,800	8,700
Total Dissolved Solids (grav)	mg/L	5,400	5,700
Total Phosphorus	mg/L	0.05	0.03

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-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-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).

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-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			20/08/2024	[NT]	[NT]	[NT]	[NT]	20/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	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]	102	[NT]
Toluene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	104	[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]	112	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate Toluene-d8	%		Org-023	101	[NT]	[NT]	[NT]	[NT]	94	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	95	[NT]	[NT]	[NT]	[NT]	101	[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	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	83	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	88	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	83	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
Surrogate o-Terphenyl	%		Org-020	78	[NT]	[NT]	[NT]	[NT]	90	[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	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	107	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	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]	108	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	95	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	103	[NT]	[NT]	[NT]	[NT]	101	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	97	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	66	[NT]	[NT]	[NT]	[NT]	59	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	60	[NT]	[NT]	[NT]	[NT]	60	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	71	[NT]	[NT]	[NT]	[NT]	63	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	94	[NT]	[NT]	[NT]	[NT]	79	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	99	[NT]	[NT]	[NT]	[NT]	99	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			21/08/2024	2	21/08/2024	21/08/2024		21/08/2024	[NT]
Date analysed	-			21/08/2024	2	21/08/2024	21/08/2024		21/08/2024	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	2	<10	<10	0	104	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	2	1	<1	0	103	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	104	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	2	2	2	0	105	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	2	<0.1	<0.1	0	104	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	2	100	100	0	114	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	2	<5	<5	0	104	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	101	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	2	2	2	0	104	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	2	<1	<1	0	106	[NT]

QUALITY CONTROL: Cations in water Dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date digested	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Date analysed	-			21/08/2024	[NT]	[NT]	[NT]	[NT]	21/08/2024	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	359609-2
Date prepared	-			20/08/2024	1	20/08/2024	20/08/2024		20/08/2024	20/08/2024
Date analysed	-			20/08/2024	1	20/08/2024	20/08/2024		20/08/2024	20/08/2024
pH	pH Units		Inorg-001	[NT]	1	10.8	10.9	1	101	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	NT	[NT]		98	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	17000	[NT]		96	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	0.067	[NT]		96	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	0.99	0.89	11	87	87
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.36	0.35	3	102	101
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.16	0.16	0	98	97
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.51	0.51	0	102	101
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	2.2	[NT]		108	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	<0.005	0	102	98
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	1.7	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	0.7	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	7800	7800	0	100	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	5400	[NT]		92	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	1	0.05	[NT]		112	[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.

vTRH & BTEXN in Water NEPM - TRH C6-C9/C6-C10 Results are positive (or in part positive) due to the presence of THMs within the sample.

359609-1 Turbidity: Sample could not be analysed due to the high concentration of solid matter.

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CERTIFICATE OF ANALYSIS 356313

Client Details

Client	CTP AFJV
Attention	[redacted]
Address	

Sample Details

Your Reference	**TBY - WTP**
Number of Samples	2 Water
Date samples received	11/07/2024
Date completed instructions received	11/07/2024

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	12/07/2024
Date of Issue	12/07/2024

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[redacted]

vTRH(C6-C10)/BTEXN in Water			
Our Reference	UNITS	356313-1	356313-2
Your Reference		UNTRD	TRD
Date Sampled		11/07/2024	11/07/2024
Type of sample		Water	Water
Date extracted	-	11/07/2024	11/07/2024
Date analysed	-	12/07/2024	12/07/2024
TRH C_6 - C_9	µg/L	<10	47
TRH C_6 - C_{10}	µg/L	<10	51
TRH C_6 - C_{10} less BTEX (F1)	µg/L	<10	51
Benzene	µg/L	<1	<1
Toluene	µg/L	<1	<1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	117	114
Surrogate Toluene-d8	%	104	104
Surrogate 4-Bromofluorobenzene	%	84	87

svTRH (C10-C40) in Water			
Our Reference		356313-1	356313-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		11/07/2024	11/07/2024
Type of sample		Water	Water
Date extracted	-	11/07/2024	11/07/2024
Date analysed	-	11/07/2024	11/07/2024
TRH C_{10} - C_{14}	µg/L	170	<50
TRH C_{15} - C_{28}	µg/L	1,500	230
TRH C_{29} - C_{36}	µg/L	700	150
Total +ve TRH (C10-C36)	µg/L	2,400	380
TRH >C_{10} - C_{16}	µg/L	360	<50
TRH >C_{16} - C_{34}	µg/L	1,900	340
TRH >C_{34} - C_{40}	µg/L	470	110
Total +ve TRH (>C10-C40)	µg/L	2,700	450
Surrogate o-Terphenyl	%	75	81

PFAS in Water TRACE Short			
Our Reference		356313-1	356313-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		11/07/2024	11/07/2024
Type of sample		Water	Water
Date prepared	-	11/07/2024	11/07/2024
Date analysed	-	11/07/2024	11/07/2024
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0086	0.0005
Perfluorooctanesulfonic acid PFOS	µg/L	0.0058	<0.0002
Perfluorooctanoic acid PFOA	µg/L	0.0031	<0.0002
6:2 FTS	µg/L	<0.0004	<0.0004
8:2 FTS	µg/L	<0.0004	<0.0004
Surrogate $^{13}C_8$ *PFOS*	%	106	103
Surrogate $^{13}C_2$ *PFOA*	%	97	98
Extracted ISTD $^{18}O_2$ *PFHxS*	%	83	89
Extracted ISTD $^{13}C_4$ *PFOS*	%	73	80
Extracted ISTD $^{13}C_4$ *PFOA*	%	93	107
Extracted ISTD $^{13}C_2$ *6:2FTS*	%	157	154
Extracted ISTD $^{13}C_2$ *8:2FTS*	%	149	141
Total Positive PFHxS & PFOS	µg/L	0.014	0.0005
Total Positive PFOS & PFOA	µg/L	0.0089	<0.0002
Total Positive PFAS	µg/L	0.018	0.0005

All metals in water-dissolved			
Our Reference		356313-1	356313-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		11/07/2024	11/07/2024
Type of sample		Water	Water
Date prepared	-	12/07/2024	12/07/2024
Date analysed	-	12/07/2024	12/07/2024
Iron-Dissolved	µg/L	20	30
Copper-Dissolved	µg/L	<1	<1
Nickel-Dissolved	µg/L	<1	<1
Zinc-Dissolved	µg/L	2	2
Cadmium-Dissolved	µg/L	<0.1	<0.1
Aluminium-Dissolved	µg/L	<10	10
Manganese-Dissolved	µg/L	19	10
Cobalt-Dissolved	µg/L	<1	<1
Arsenic-Dissolved	µg/L	<1	<1
Lead-Dissolved	µg/L	<1	<1

Cations in water Dissolved			
Our Reference		356313-1	356313-2
Your Reference	UNITS	UNTRD	TRD
Date Sampled		11/07/2024	11/07/2024
Type of sample		Water	Water
Date digested	-	12/07/2024	12/07/2024
Date analysed	-	12/07/2024	12/07/2024
Magnesium - Dissolved	mg/L	240	110

Miscellaneous Inorganics			
Our Reference	UNITS	356313-1	356313-2
Your Reference		UNTRD	TRD
Date Sampled		11/07/2024	11/07/2024
Type of sample		Water	Water
Date prepared	-	11/07/2024	11/07/2024
Date analysed	-	11/07/2024	11/07/2024
pH	pH Units	8.6	7.5
Turbidity	NTU	NT	0.4
Total Suspended Solids	mg/L	1,200	10
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.008	0.004
Ammonia as N in water	mg/L	1.4	0.11
Nitrate as N in water	mg/L	0.58	0.20
Nitrite as N in water	mg/L	0.19	0.007
NOx as N in water	mg/L	0.76	0.2
Total Nitrogen in water	mg/L	6.8	0.8
Phosphate as P in water	mg/L	<0.005	<0.005
TKN in water	mg/L	6.1	0.5
Organic Nitrogen as N	mg/L	4.7	0.4
Electrical Conductivity	µS/cm	13,000	9,200
Total Dissolved Solids (grav)	mg/L	7,800	6,100
Total Phosphorus	mg/L	0.30	0.31

Method ID	Methodology Summary
Inorg-001	pH - Measured using pH meter and electrode. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-002	Conductivity and Salinity - measured using a conductivity cell.
Inorg-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-019	Suspended Solids - determined gravimetricially by filtration of the sample. The samples are dried at 104+/-5°C.
Inorg-022	Turbidity - measured nephelometrically using a turbidimeter, in accordance with APHA latest edition, 2130-B.
Inorg-055	Nitrate - determined colourimetrically. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055	Nitrite - determined colourimetrically based on APHA latest edition NO2- B. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-055/062/127	Total Nitrogen - Calculation sum of TKN and oxidised Nitrogen. Alternatively analysed by combustion and chemiluminescence.
Inorg-057	Ammonia - determined colourimetrically, based on APHA latest edition 4500-NH3 F. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a KCl extraction.
Inorg-060	Phosphate determined colourimetrically based on EPA365.1 and APHA latest edition 4500 P E. Waters samples are filtered on receipt prior to analysis. Soils are analysed following a water extraction.
Inorg-060	Total Phosphorus determined after persulphate digestion followed by colourimetric analysis.
Inorg-062	TKN - determined colourimetrically based on APHA latest edition 4500 Norg. Alternatively, TKN can be derived from calculation (Total N - NOx).

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-022	Determination of various metals by ICP-MS. Please note for Bromine and Iodine, any forms of these elements that are present are included together in the one result reported for each of these two elements. Salt forms (e.g. FeO, PbO, ZnO) are determined stoichiometrically from the base metal concentration.
Org-020	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-023	Water samples are analysed directly by purge and trap GC-MS.
Org-023	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-029	Soil samples are extracted with basified Methanol. Waters and soil extracts are directly injected and/or concentrated/extracted using SPE. TCLPs/ASLP leachates are centrifuged, the supernatant is then analysed (including amendment with solvent) - as per the option in AS4439.3. Analysis is undertaken with LC-MS/MS. PFAS results include the sum of branched and linear isomers where applicable. Please note that PFAS results are corrected for Extracted Internal Standards (QSM 5.4 Table B-15 terminology), which are mass labelled analytes added prior to sample preparation to assess matrix effects and verify processing of the sample. PFAS analytes without a commercially available mass labelled analogue are corrected vs a closely eluting mass labelled PFAS compound. Surrogates are also reported, in this context they are mass labelled PFAS compounds added prior to extraction but are used as monitoring compounds only (not used for result correction). Envicarb (or similar) is used discretionally to remove interfering matrix components. Please contact the laboratory if estimates of Measurement Uncertainty are required as per WA DER.

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date extracted	-			11/07/2024	[NT]	[NT]	[NT]	[NT]	11/07/2024	[NT]
Date analysed	-			12/07/2024	[NT]	[NT]	[NT]	[NT]	12/07/2024	[NT]
TRH C_6 - C_9	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C_6 - C_{10}	µg/L	10	Org-023	<10	[NT]	[NT]	[NT]	[NT]	111	[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]	118	[NT]
Ethylbenzene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
m+p-xylene	µg/L	2	Org-023	<2	[NT]	[NT]	[NT]	[NT]	109	[NT]
o-xylene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Naphthalene	µg/L	1	Org-023	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-023	107	[NT]	[NT]	[NT]	[NT]	106	[NT]
Surrogate Toluene-d8	%		Org-023	105	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate 4-Bromofluorobenzene	%		Org-023	84	[NT]	[NT]	[NT]	[NT]	104	[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	-			11/07/2024	[NT]	[NT]	[NT]	[NT]	11/07/2024	[NT]
Date analysed	-			11/07/2024	[NT]	[NT]	[NT]	[NT]	11/07/2024	[NT]
TRH C_{10} - C_{14}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH C_{15} - C_{28}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH C_{29} - C_{36}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C_{10} - C_{16}	µg/L	50	Org-020	<50	[NT]	[NT]	[NT]	[NT]	97	[NT]
TRH >C_{16} - C_{34}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	105	[NT]
TRH >C_{34} - C_{40}	µg/L	100	Org-020	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
Surrogate o-Terphenyl	%		Org-020	92	[NT]	[NT]	[NT]	[NT]	91	[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	-			11/07/2024	[NT]	[NT]	[NT]	[NT]	11/07/2024	[NT]
Date analysed	-			11/07/2024	[NT]	[NT]	[NT]	[NT]	11/07/2024	[NT]
Perfluorohexanesulfonic acid - PFHxS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	98	[NT]
Perfluorooctanesulfonic acid PFOS	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	102	[NT]
Perfluorooctanoic acid PFOA	µg/L	0.0002	Org-029	<0.0002	[NT]	[NT]	[NT]	[NT]	93	[NT]
6:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	94	[NT]
8:2 FTS	µg/L	0.0004	Org-029	<0.0004	[NT]	[NT]	[NT]	[NT]	91	[NT]
Surrogate $^{13}C_8$ *PFOS*	%		Org-029	95	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate $^{13}C_2$ *PFOA*	%		Org-029	101	[NT]	[NT]	[NT]	[NT]	101	[NT]
Extracted ISTD $^{18}O_2$ *PFHxS*	%		Org-029	80	[NT]	[NT]	[NT]	[NT]	83	[NT]
Extracted ISTD $^{13}C_4$ *PFOS*	%		Org-029	70	[NT]	[NT]	[NT]	[NT]	70	[NT]
Extracted ISTD $^{13}C_4$ *PFOA*	%		Org-029	96	[NT]	[NT]	[NT]	[NT]	94	[NT]
Extracted ISTD $^{13}C_2$ *6:2FTS*	%		Org-029	118	[NT]	[NT]	[NT]	[NT]	132	[NT]
Extracted ISTD $^{13}C_2$ *8:2FTS*	%		Org-029	141	[NT]	[NT]	[NT]	[NT]	126	[NT]

QUALITY CONTROL: All metals in water-dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			12/07/2024	1	12/07/2024	12/07/2024		12/07/2024	[NT]
Date analysed	-			12/07/2024	1	12/07/2024	12/07/2024		12/07/2024	[NT]
Iron-Dissolved	µg/L	10	Metals-022	<10	1	20	20	0	97	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	99	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	1	2	2	0	97	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	1	<0.1	<0.1	0	97	[NT]
Aluminium-Dissolved	µg/L	10	Metals-022	<10	1	<10	<10	0	95	[NT]
Manganese-Dissolved	µg/L	5	Metals-022	<5	1	19	19	0	95	[NT]
Cobalt-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	98	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	1	<1	1	0	93	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	1	<1	<1	0	101	[NT]

QUALITY CONTROL: Cations in water Dissolved						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	356313-2
Date digested	-			12/07/2024	1	12/07/2024	12/07/2024		12/07/2024	12/07/2024
Date analysed	-			12/07/2024	1	12/07/2024	12/07/2024		12/07/2024	12/07/2024
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	1	240	250	4	102	98

QUALITY CONTROL: Miscellaneous Inorganics						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date prepared	-			11/07/2024	1	11/07/2024	11/07/2024		11/07/2024	[NT]
Date analysed	-			11/07/2024	1	11/07/2024	11/07/2024		11/07/2024	[NT]
pH	pH Units		Inorg-001	[NT]	1	8.6	[NT]		99	[NT]
Turbidity	NTU	0.1	Inorg-022	<0.1	1	NT	[NT]		99	[NT]
Total Suspended Solids	mg/L	5	Inorg-019	<5	1	1200	1100	9	106	[NT]
Hexavalent Chromium, Cr^{6+} Low Level	mg/L	0.001	Inorg-118	<0.001	1	0.008	[NT]		103	[NT]
Ammonia as N in water	mg/L	0.005	Inorg-057	<0.005	1	1.4	[NT]		98	[NT]
Nitrate as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.58	[NT]		116	[NT]
Nitrite as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.19	[NT]		110	[NT]
NOx as N in water	mg/L	0.005	Inorg-055	<0.005	1	0.76	[NT]		116	[NT]
Total Nitrogen in water	mg/L	0.1	Inorg-055/062/127	<0.1	1	6.8	[NT]		86	[NT]
Phosphate as P in water	mg/L	0.005	Inorg-060	<0.005	1	<0.005	[NT]		109	[NT]
TKN in water	mg/L	0.1	Inorg-062	<0.1	1	6.1	[NT]		[NT]	[NT]
Organic Nitrogen as N	mg/L	0.2	Inorg-055/062/127	<0.2	1	4.7	[NT]		[NT]	[NT]
Electrical Conductivity	µS/cm	1	Inorg-002	<1	1	13000	[NT]		98	[NT]
Total Dissolved Solids (grav)	mg/L	5	Inorg-018	<5	1	7800	8500	9	86	[NT]
Total Phosphorus	mg/L	0.01	Inorg-060	<0.01	1	0.30	[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, 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).

MISC_INORG:356313-1 Turbidity cannot be done due to high amount of sediments present in the sample.