

Whytes Gully Landfill Extension Project

## Annual Environmental Management Report 2025

DPHI Project Approval No 11-0094

Wollongong City Council- Waste Services



*May 2025*



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## Document Information

Prepared for      New South Wales  
Department of Planning and  
Environment

Project Name      Whytes Gully Landfill  
Extension Project

Date

Version Number    2

Date Approved    10/06/2025

Date Approved    10/06/2025

# Whytes Gully Landfill Extension Project

## Annual Environmental Management Report 2025

### 1 Introduction

#### 1.1 Background

WOLLONGONG City Council (the Council) own and operate the Wollongong Waste and Resource Recovery Park (Whytes Gully) located at the base of the Illawarra Escarpment on Reddalls Road, Kembla Grange New South Wales (NSW) (Figure 1 and 2). The facility is licensed by the NSW Environmental Protection Agency (EPA) under the *Protection of the Environment Operations Act 1997* (POEO Act), Environmental Protection License (EPL) number 5862 (EPL 5862).

In addition to this, as part of the proposed expansion of the facility which included the construction of new landfill cells and leachate ponds under *Section 75J* of the *Environmental Planning and Assessment Act 1979*, Project Approval (Approval No.11-0094) was granted by the Minister for Planning and Infrastructure on 3 April 2013. The approval was subject to conditions stipulated in Schedules 2-5, which, among other things, requires an Annual Environmental Management Review (AEMR) report to be prepared on an annual basis detailing the following:

- (a) Operations that were carried out in the past calendar year;
- (b) Monitoring results and complaint records of the project over the past year, which includes a comparison of these results against the:
  - a. Relevant statutory requirements, limits or performance measures/criteria;
  - b. Monitoring results of previous years; and
  - c. Relevant predictions in the Environmental Assessment (EA)
- (c) Details of any non-compliance over the last year, and description of what actions were (or are being) taken to ensure compliance;
- (d) Trends in the monitoring data over the life of the project; and
- (e) Actions proposed to be implemented over the following year to improve the environmental performance of the project (including a timeline for completion of each action).

In addition to the above, item (f) states that the Council is required to publish the report on the Council's website within two weeks of its completion.

Two modifications to Project Approval No.11\_0094 were also submitted and approved for the new landfill cell, these include:

- Modification 1 (MP 11\_0994 MOD1): Modification of operating hours. Approved on 11 April 2018; and

- Modification 2 (MP11\_0094 MOD 2): Modification of eastern gully drainage channel alignment to be predominantly outside the landfill footprint. Approved on 29 May 2018.

Modification 3 (MP11\_0094) has been accepted for submission to the Department in this reporting period and the Environmental Impact Statement is currently being prepared (due date 1<sup>st</sup> October 2025).

Construction of Cell 2B-2 commenced on the 29<sup>th</sup> January 2024 with works continuing throughout this reporting period and an expected completion date in August 2025.

**Figure 1** Locality Plan

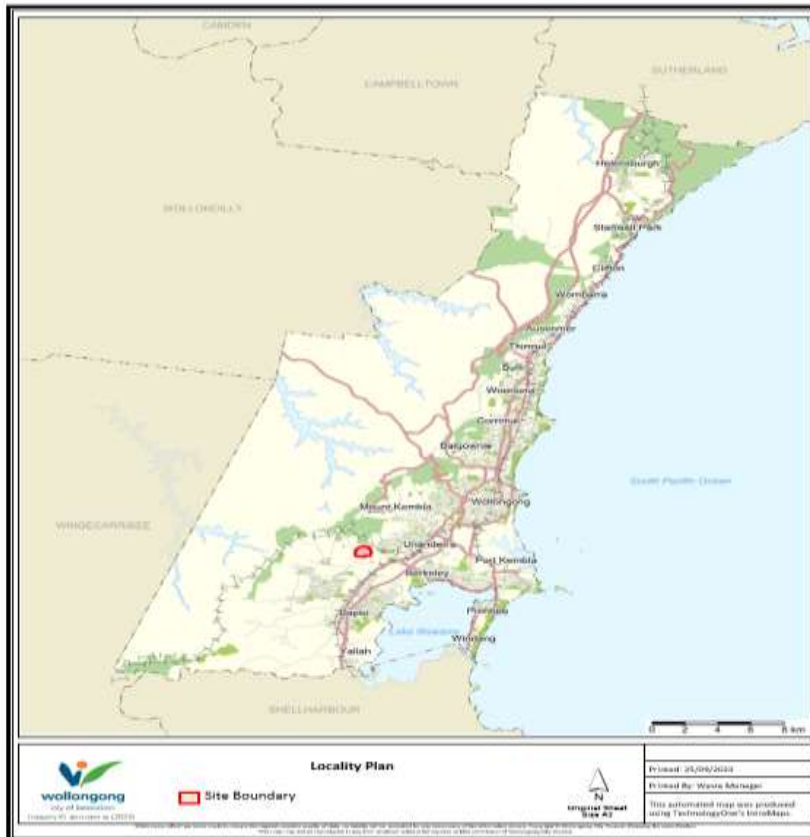
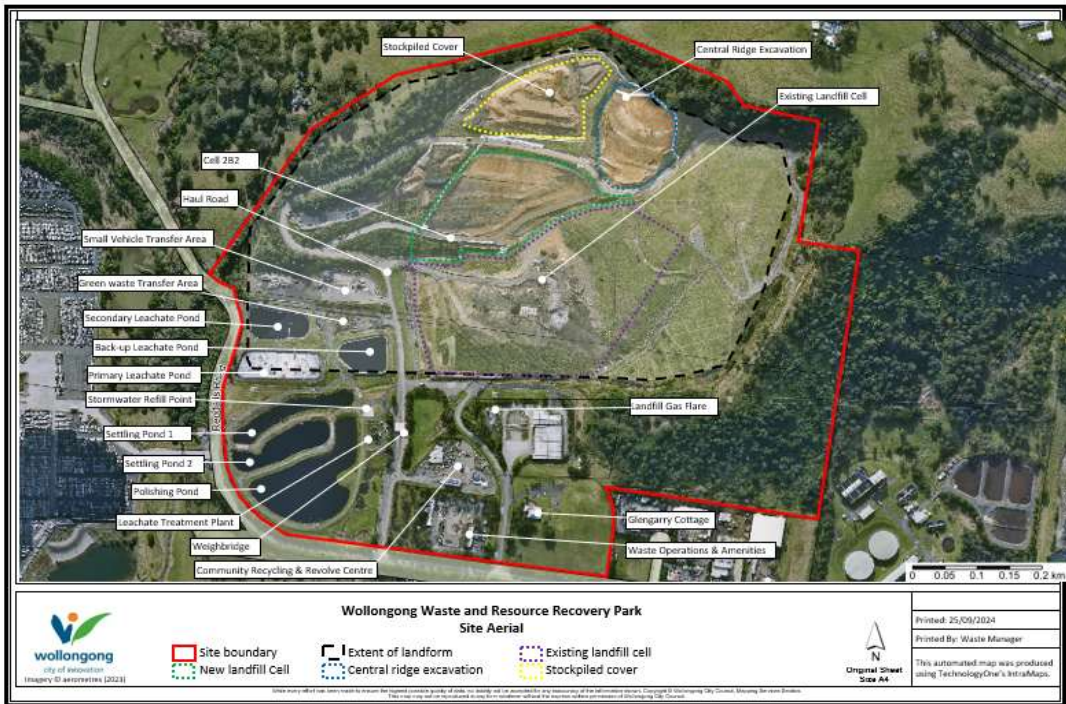


Figure 2 Site Aerial Photograph



## 1.2 Objectives

The objectives of this AEMR report are to satisfy the Council’s Project approval obligations for the 2024/2025 annual reporting period, which will cover 2 March 2024 to 1 March 2025. The compiled monitoring data presented in this AEMR report addresses all aspects stipulated in Section 1.1 (items (a) through to (e)).

Data collected at the site’s weather station data rainfall in this reporting period was recorded at 1357.2 mm (with the majority falling in April, May and June 2024). This resulted in a number of stormwater overflow events during these three months, as construction works temporarily increased catchment size and subsequent ‘contaminated’ flow.



### 1.3 Purpose of this Report

The purpose of this Annual Review is to provide the DPE with a report of the site’s environmental performance over the last year, actions taken in relation to environmental control and compliance with Development Consent Project Approval MP11\_0094, and two modifications to this consent (MP11\_0094 MOD 1 and MP11\_0094 MOD 2). Condition 5 of Schedule 5 of the Project Approval outlines the requirement for WCC to prepare an annual report.

Table 1.1 outlines the content included in this report to address the requirements of Condition 5 of Schedule 5 of the Project Approval.

Table1.1 Condition 5 of Schedule 5 Requirements and Annual Review section.

Condition	Requirement	Annual Review Section/Response
5	One year after the commencement of operation, and annually thereafter, the Proponent shall review the environmental performance to the satisfaction of the Director-General. This review must:	This document has been prepared in response to the requirements of Schedule 5, Condition 5. The report covers the reporting period between the 2 <sup>nd</sup> March 2024 to 1 <sup>st</sup> March 2025.
(a)	Describe the operations that were carried out in the past year;	See Section 2
(b)	Analyse the monitoring results and complaints records over the past year, which includes a comparison of these results against the: <ul style="list-style-type: none"> <li>• Relevant statutory requirements, limits or performance measures/criteria</li> <li>• Monitoring results of the previous years</li> <li>• Relevant predictions in the Environmental Assessment</li> </ul>	See Section 3 for monitoring results, analysis and comparison against relevant criteria.  See Section 4 for complaints results, analysis and comparison against relevant criteria.
(c)	Identify any non-compliance over the last year and describe what actions were (or are being) taken to ensure compliance;	See Section 5.
(d)	Identify any trends in the monitoring data over the life of the project;	See Section 3 for environmental components. See Section 4 for complaints.
(e)	Describe what actions will be implemented over the next year to improve the environmental performance of the project (including a timeline for completion of each action); and	See Section 5.
(f)	Be placed on Council’s website within 2 weeks of completion.	This Report will be submitted to the Department of Planning and will be made available to the public via WCC’s website.

## 1.4 Consideration of Compliance

### 1.4.1 Assessment of Compliance

Consideration of site compliance with the Project Approval and modifications is provided in this document. Consideration of site compliance with the Landfill and Construction Environmental Plans and associated subplans is also discussed in this document. Cumulative actions during this reporting period were measured against the last Independent Environmental Audit (November 2020) Results to measure progress. This Annual Environmental Management Review identifies the relevant environmental monitoring environment requirements as identified in the Approval, EPL licence, Sydney Water Trade Waste Agreement and management programs and plans. A discussion of requirements and results is provided in Section 3.

The next Independent Environmental Audit is due this year. Quotations are currently being sought from suitable consultants and evidence is being collated in preparation. This audit is expected to be more complex, with active cell construction to be included and requiring additional site inspections and compliance review.

The compliance status of each requirement or commitment in the Consent will be determined according to the definitions in the Compliance Reporting: *Post Approval Requirements (DPIE-May 2020)*. A summary of non-compliances for the reviewed conditions are provided in Section 5.

### 1.4.2 Non-compliance

The following non-compliances were recorded during this reporting period. These were reported in accordance with DPE and EPA requirements. More than half related to non-compliant stormwater overflow parameters, 2 to surface gas emissions, 18 odour complaints and 4 incidents (a fire in the construction area) and 3 leachate overflow events. A summary of these is provided below.

Non-compliance	Relevant Condition	Corrective Actions
Methane surface gas readings non-compliant on 2 occasions	Schedule 4 Condition 29	Elevated levels were detected twice at Transect 8 on 19/9/2024. Rainfall checks indicated that this event was not associated with heavy rainfall.  Investigation revealed that the manifold connections had been closed as a precaution for construction/relocation works. Once opened, no further elevated levels were detected.

<p>18 Odour complaints received via the EPA</p>	<p>Schedule 4 Condition 23</p>	<ul style="list-style-type: none"> <li>• Insitu deodoriser system expanded at the tip face.</li> <li>• 2 mobile deodorisers on site</li> <li>• Waste exhumation works undertaken expeditiously with odour control on standby</li> <li>• Small working tip face area</li> <li>• Daily cover &amp; lids applied</li> <li>• Regular odour surveys undertaken by operations staff</li> <li>• Monthly odour reporting to EPA &amp; regular EPA site inspections</li> </ul> <p>It is important to note that the EPA shares odour complaint notifications to several businesses in the Kembla Grange Industrial Precinct.</p>
<p>6 Stormwater Overflow Events</p> <ul style="list-style-type: none"> <li>• 06/04/24 – 12/04/24</li> <li>• 06/05/24 – 25/05/24 (intermittently)</li> <li>• 07/06/24 – 12/06/24</li> <li>• 04/07/25 – 09/07/25 (intermittently)</li> <li>• 02/12/24 – 06/12/24</li> <li>• 16/01/25 – 23/01/25 (intermittently)</li> </ul>	<p>Schedule 4 Condition 14</p>	<p>There were two NSW Government Natural Disaster Declarations in this time:</p> <ul style="list-style-type: none"> <li>• 01/04/24 onwards (East Coast flooding) AGRN 1119</li> <li>• 04/06/24 onwards (severe weather warning) AGRN 1129</li> </ul>
<p>3 Leachate Overflow Events</p> <ul style="list-style-type: none"> <li>• 06/04/24 – 08/04/24</li> <li>• 06/05/24 – 17/05/24 (intermittently)</li> <li>• 06/06/24 – 09/06/24</li> </ul>	<p>Schedule 4 Condition 18</p>	<p>These overflow events link to the weather events listed above an increased infiltration during construction works.</p> <p>Transfer of leachate between ponds to manage levels. Controlled discharge to sewer undertaken until minimum levels were reached.</p>
<p>Stormwater discharge not within compliance limits for pH and/or Total Suspended Solids (TSS) on 36 occasions.</p>	<p>Schedule 4 Condition 14</p>	<ul style="list-style-type: none"> <li>• Testing undertaken every 24 hours.</li> <li>• Discharge of water (when compliant) to ensure adequate freeboard during rainfall events.</li> <li>• Water recirculation installed into the stormwater system to manage water quality and quantity.</li> </ul>

1 fire in the Construction Area	Schedule 4 Condition 46	This fire was caused by a gas torch igniting the newly laid geosynthetic liner during welding works. The water cart was used to put the fire out promptly. The gas torch was removed off site (Not the correct tool to perform the works). Gas monitors and heat gun were used to continuously monitor the area throughout the day- to ensure the temperature decreasing and there was no reignition of the fire.
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The Pollution Incident Response Management Plan (PIRMP) was activated in a timely manner and mitigation measures were put in place in accordance with the approved management plans. These non-compliances will be discussed in the following sections.

## 2 General Facility Operations

### 2.1 Construction Works

During the reporting period of 2024-2025, three major works projects were commenced at Whytes Gully Landfill. The Central Ridge Stage 2A Excavation Works started in late March 2024 and the following activities were undertaken in this reporting period:

- Vegetation stripping and clearing
- Topsoil stripping
- Bulk excavation earthworks
- Stockpiling of excavated materials (topsoil, vegetation, sandstone)
- Detailed excavation of benches and final levels
- Construction of stormwater chutes and drains
- Partial hydroseeding of excavated areas

It is expected this project will be completed during the next reporting period as rain delayed practical completion this year. In March 2024, construction Landfill Cell Stage 28-2 began, and the following milestones were completed:

- Vegetation stripping and clearing
- Topsoil stripping
- Detailed excavation to final floor levels
- Placement of subgrade layer and proof rolling to ensure suitable surface and slope stability
- Placement of sub-surface landfill gas capture infrastructure
- Placement of base layer and a sandwiched geonet
- Construction of anchor trench at top of work area – 60% completion
- Installation of protection geotextile – 60% completion
- Installation of geosynthetic clay liner – 60% completion
- Installation of linear low-density polyethylene geomembrane – 60% completion
- Installation of drainage geocomposite – 60% completion
- Installation of protection layer material – 30% completion

This project is also expected to be completed during the next reporting period (August 2025) and a completion report prepared for submission to the EPA for approval.

The third project is based on Underfill Area Rectification Works in the former landfill area. A Waste Exhumation Management Plan and design documentation were prepared and submitted to the EPA during this reporting period and Approval was subsequently received on the 11 March 2025. Works will be completed in the next reporting period.

## 2.2 Operations

Operations during the 2024/25 reporting period were as *'normal'*, in accordance with EPL 5862 and Project Approval No. 11\_ 0094. The operating hours were Monday – Friday 0730 to 1630, and Saturday, Sunday and public holidays (0800 to 1600). Details on waste streams and volumes received are provided in Section 6.

The different areas of operations undertaken in this reporting period are outlined below:

- Weighbridge and gatehouse
- Landfill working area (not accessible to the public)
- Community Recycling Centre
- Small Vehicle Transfer Station
- Leachate and stormwater management; and associated monitoring
- Monitoring Areas – landfill gas, groundwater, noise and air quality
- Green Waste Transfer Area
- Landfill gas flare & associated collection infrastructure
- Stockpiling areas
- Environmental controls
- Weed Control and Revegetation works

- Weather Station

The site runs 364 days a year (closed Christmas Day).

## 2.3 Leachate Management System

JPG Engineering has been contracted by Council to operate and maintain process plant and equipment associated with the Leachate Management System at Whytes Gully Landfill (the 'Site') since August 2020. A summary of upgrades and process modifications completed from March 2024 to March 2025 is provided below.

### Leachate Collection, Storage and Transfer Systems

- a) Repair and installation of an additional surface aeration in the Leachate Primary Pond to improve ammonia oxidation rates.
- b) Automation of the four Surface Aerators located in the Primary Pond.

These aerators are now programmed to operate automatically based on the real time pH measurement in the Pond. This automation has improved the efficiency of ammonia reduction in the ponds while still maintaining a neutral pH value for compliant discharge off-site. Previously the aerators were operated manually based on weekly laboratory analysis.

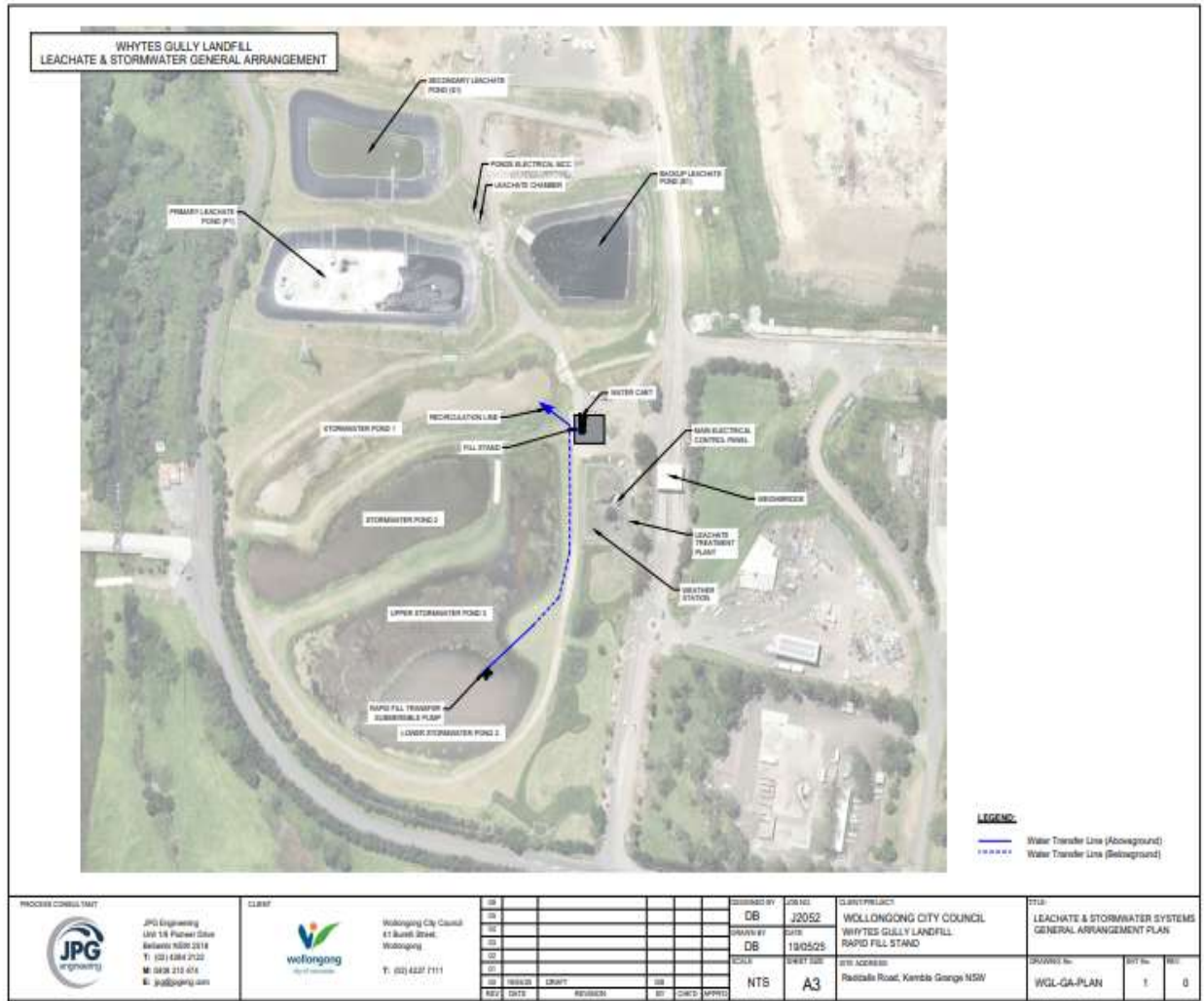
### Leachate Treatment Plant

Fabrication and supply of a spare aspirating aerator for the Sequencing Batch Reactor (SBR) to allow for contingency of the standby aeration system in the SBR. Repairs were also completed to the SBR during the reporting period to allow freeboard for foam created during the oxidation process.

Other repairs included:

- Repair of the Trade Waste Sewer Discharge Flowmeter that was damaged during a power surge (electrical storm).
- Replacement of faulty Sewer Discharge Pump variable speed drive.
- Modifications to the Site's private rising sewer main to allow for pressure testing and backflushing of the line. Tank. This has allowed for increases in the discharge flow offsite.
- Damaged pipework repaired on the Sewer Discharge Pump outlet.

A schematic of the Leachate Management System (including stormwater reuse and recirculation) is provided below.



## 2.4 Resource Recovery Projects

### Wollongong City Council Waste and Resource Recovery Strategy (2024 – 2034)

The Strategic Plan was formally adopted by Council on the 12<sup>th</sup> of August 2024 and provides a guiding document for waste management and resource recovery in the Wollongong area. Four key areas were identified:

1. Reduce Waste to Landfill
2. Transition to a Circular Economy
3. Reduce Waste Related Emissions
4. Improve Council’s Waste Management

The Strategy can be found at [Wollongong-Waste-and-Resource-Recovery-Strategy-2024-2034.pdf](#)

### Food Organics Garden Organics (FOGO) Program

Wollongong City Council continued rolling out their Food Organics Garden Organics (FOGO) Program in partnership with a local organics processing facility (Soilco). Similar to last year, 32 600 tonnes of material was processed, with almost all households now having access to the kerbside collection system.

### Household Chemical Collection

Two household Chemical Collection days were held over this reporting period as follows:

- 24th of March 2024 (Fred Finch Carpark, Berkeley).  
514 people attended and 19,197.50kg of materials collected.
- 1<sup>st</sup> of September 2024 (Fairy Meadow Surf Club Carpark).  
722 people attended and 21,105.00kg of materials collected.

### Garden Waste Collection

Three Garden Waste Community Drop off events were held in Helensburgh, Corrimal and Berkeley in October and November 2024. The aim of these events is to provide the community with an opportunity to drop off excess green waste material (in preparation for bushfire season) that may not fit in the weekly FOGO collection. In total, 20.48 tonnes of green waste was collected for processing by Soilco. This was an increase from the previous reporting period of approximately 20 %.

### Cardboard Collection

Three Cardboard Recycling and Soft Plastic Drop off events were held in Helensburgh, Corrimal and Berkeley in December 2024. The aim of these events is to provide the community with an opportunity to dispose of excess recycling and cardboard material generated over the Christmas period; and to trial the collection of soft plastics for recycling.

In total, 871 drop offs were collected across the 3 events, with 8.27 tonnes of cardboard and 814kg of soft plastics collected. This was an increase of almost half a tonne of cardboard from the previous reporting period.

### Community Recycling Initiatives

A number of initiatives were commenced this reporting period at the Community Recycling Centre (CRC). Firstly, Polystyrene is now being collected and processed on site. Members of the community are able to drop this off at the CRC for processing where it is then baled and sent for recycling.

Embedded batteries are now able to be collected at the centre. This includes both large and small items with embedded batteries, (e.g vapes, portable speakers etc). Further information is available at [Embedded batteries | EPA](#).

### Educational Activities

Community education & support programs continued with the following activities undertaken within the reporting period:

- Increased focus on FOGO in Multi Unit Dwellings through posters, surveys, letters and meetings.
- Improvements to the website, including videos for FOGO and to the recycling page.
- New bin stickers created as well as an updated waste services guide.
- Numerous educational pop ups at supermarkets, Bunnings and community events.
- Numerous workshops, e.g., composting, cloth nappies.
- Soilco (Kembla Grange) FOGO tours, open to the community
- Promotion of the Household Chemical Clean Outs.
- Media commercials to promote FOGO.

## 3 Water Monitoring – Surface Water

Surface water (stormwater) monitoring is undertaken in accordance with Approval No.11\_0094 Schedule 4, conditions pertaining to ‘Soil and Water’. The findings for the 2024-2025 reporting period are provided in the sections below.

### 3.1 Overview

Surface water monitoring was undertaken by ALS Environmental (on behalf of Council) at the monitoring locations shown in Figure 3. A summary of the monitoring requirements is detailed in Table 3-1 below:

Table 3-1: Surface Water Monitoring

Activity	Description
Purpose	Detect excess sediment loads& pH changes in stormwater leaving the site and/or potential cross contamination of stormwater with landfill leachate.
Frequency	<b>Surface Water Monitoring Points:</b> Quarterly or as required during breaches. <b>Polishing Pond:</b> During controlled release.
Location	Sampling locations were those listed in EPL 5862, and included the following: <ul style="list-style-type: none"> <li>• Monitoring Point 1 – outlet at Reddalls Road (onsite)</li> <li>• Monitoring Point 33 – Downstream monitoring point; and</li> </ul>

	<ul style="list-style-type: none"> <li>Monitoring Point 34 – Upstream Monitoring point</li> </ul> <p>The final 'Polishing Pond' is also monitored by Council during any controlled release event or overflow.</p>		
Methodology	<p>Samples were collected using a 'scoop'; and Field parameters were recorded using a calibrated water quality meter.</p> <p style="text-align: center;">Annually</p>		
Analytes/Field Parameters	Alkalinity	Calcium	Conductivity (EC)
	Filterable Iron	Magnesium	pH
	Sodium	Temperature	Total phenolics
	Ammonia	Chloride	Dissolved Oxygen
	Fluoride	Nitrate	Potassium
	Sulfate	Total Organic Carbon	Total Suspended Solids
<p>In addition, the 'Polishing Pond' was subject to regular analysis for pH and turbidity to ensure the water is suitable for release.</p>			

**Figure 3** Surface Water Sampling Locations



### 3.2 Performance Criteria

The performance criteria for surface water monitoring are detailed in the table below:

Table 3.2 Surface Water Performance Criteria

Description	Performance Criteria	Reference Document
Stormwater Discharge	No discharge of contaminated stormwater to water under dry weather conditions ( <i>less than 10 mm of rainfall within a 24 hour period</i> ).	EPL 5862
	No discharge of contaminated stormwater to water during a storm event of less than 1:10 year, 24 hour recurrence interval ( <i>less than 297.4 mm of rain within 24 hours</i> ).	
	pH: 6.5 – 8.5 Turbidity: 30 NTU (approximate correlation)	
Monitoring Point 1	pH: 6.5 to 8.5 TSS: 50 mg/L	Section 3 (I2) of EPL 5862

Rainfall total at the site for this period was recorded at 1357.2 mm with over half falling in the three months between April and June (755m).

### 3.3 Results - Monitoring Points 1, 33 and 34

Surface water was monitored throughout overflow events and annually during this period.

In total, there were 58 overflow days with 36 events constituting non-compliances based on the license constraints for pH and TSS.

Significant rainfall events occurred in April 2024, May 2024, June 2024, November 2024 and January 2025 which constituted 80 % of total rainfall. The full set of tabulated surface water results are provided in Appendix A, with a summary of the key results presented in the sections below.

### 3.3.1 pH and Total Suspended Solids (TSS)

During this period, pH levels at Point 1 fluctuated between 7.5 and 8.9. There were 14 non-compliant pH results ranging between 8.6 (14<sup>th</sup> May 2024, 18<sup>th</sup>- 21<sup>st</sup> May 2024, 4<sup>th</sup>- 5<sup>th</sup> July 2024), 8.7 (17<sup>th</sup> May 2024, 23<sup>rd</sup> May 2024, 16<sup>th</sup> January 2025), 8.8 (15<sup>th</sup> May 2024, 22<sup>nd</sup> May 2024, 9<sup>th</sup> July 2024) and 8.9 (13<sup>th</sup> May 2024), most likely influenced by leachate overflows and construction stormwater sediment loads captured in the surface pond network.

On 33 occasions at Point 1, TSS values were recorded at or over 50 mg/L. Values ranged between 6 (21<sup>st</sup> March 2024, 11<sup>th</sup> and 12<sup>th</sup> February 2025) – 986 mg/L (6<sup>th</sup> April 2024) fluctuating greatly throughout rain events. Sediment loads increased greatly due to construction run off compared to previously years under operating conditions only.

Upstream and downstream results showed some fluctuation during rain events, however were more stable than Point 1 results.

Table 3.3 Surface Water Quality Monitoring Results

Site Name			Point 1	Point 33	Point 34
Sample Date	Chemical Name	Units			
20/03/2024	pH	pH	8.1	7.7	7.8
21/03/2024	pH	pH	8.1	7.1	7.6
22/03/2024	pH	pH	8.2	7.2	7.3
05/04/2024	pH	pH	8.2	7.4	7.7
06/04/2024	pH	pH	7.8	7.2	7.1
07/04/2024	pH	pH	7.6	7.5	7.4
08/04/2024	pH	pH	7.5	7.3	7.3
09/04/2024	pH	pH	7.7	7.6	7.7
10/04/2024	pH	pH	7.9	7.3	7.6
11/04/2024	pH	pH	7.6	7.3	7.4
12/04/2024	pH	pH	7.7	7.4	7.4
06/05/2024	pH	pH	8.0	7.6	7.6
07/05/2024	pH	pH	8.1	7.0	7.2
08/05/2024	pH	pH	8.0	7.2	7.5
09/05/2024	pH	pH	7.7	7.1	7.2
10/05/2024	pH	pH	7.7	7.0	7.5
11/05/2024	pH	pH	7.4	7.2	7.3
12/05/2024	pH	pH	8.4	7.0	7.3
13/05/2024	pH	pH	8.9	7.9	8.2

14/05/2024	pH	pH	8.6	7.8	7.4
15/05/2024	pH	pH	8.8	7.7	7.8
16/05/2024	pH	pH	8.8	7.4	7.5
17/05/2024	pH	pH	8.7	7.2	7.5
18/05/2024	pH	pH	8.6	7.6	7.6
19/05/2024	pH	pH	8.6	7.3	7.5
20/05/2024	pH	pH	8.6	7.4	7.6
21/05/2024	pH	pH	8.6	7.4	7.4
22/05/2024	pH	pH	8.8	7.7	8.0
23/05/2024	pH	pH	8.7	7.6	7.8
07/06/2024	pH	pH	7.8	7.3	7.4
08/06/2024	pH	pH	7.7	7.3	7.6
09/06/2024	pH	pH	8.0	7.4	7.6
10/06/2024	pH	pH	8.2	7.5	7.7
11/06/2024	pH	pH	8.1	7.4	7.7
12/06/2024	pH	pH	8.1	7.6	7.7
04/07/2024	pH	pH	8.6	7.6	8.0
05/07/2024	pH	pH	8.6	7.4	7.7
09/07/2024	pH	pH	8.8	7.5	7.8
10/07/2024	pH	pH	7.8	7.6	8.0
02/12/2024	pH	pH	8.3	7.5	7.4
03/12/2024	pH	pH	8.4	7.4	7.5
04/12/2024	pH	pH	8.4	7.4	7.6
05/12/2024	pH	pH	8.5	7.4	7.5
06/12/2024	pH	pH	8.2	7.3	7.3
16/01/2025	pH	pH	8.7	7.5	7.6
17/01/2025	pH	pH	8.4	7.4	7.6
18/01/2025	pH	pH	8.2	7.2	7.5
19/01/2025	pH	pH	8.3	7.4	7.7
20/01/2025	pH	pH	8.2	7.2	7.5
21/01/2025	pH	pH	8.3	7.3	7.4
23/01/2025	pH	pH	8.4	7.3	7.4
24/01/2025	pH	pH	8.4	7.3	7.6
29/01/2025	pH	pH	8.2	7.3	7.4
30/01/2025	pH	pH	8.2	7.6	7.2
31/01/2025	pH	pH	8.2	7.4	7.2
11/02/2025	pH	pH	8.4	7.5	7.7
12/02/2025	pH	pH	8.4	7.2	7.3
17/02/2025	pH	pH	8.3	7.4	7.7

Site Name		(Point 1)	(Point 33)	(Point 34)	
Sample Date	Chemical Name	Units			
20/03/2024	Total suspended solids	mg/L	14	<5	<5
21/03/2024	Total suspended solids	mg/L	6	<5	<5
22/03/2024	Total suspended solids	mg/L	18	<5	<5
05/04/2024	Total suspended solids	mg/L	14	31	48
06/04/2024	Total suspended solids	mg/L	986	437	169
07/04/2024	Total suspended solids	mg/L	504	52	25
08/04/2024	Total suspended solids	mg/L	242	19	6
09/04/2024	Total suspended solids	mg/L	131	16	<5
10/04/2024	Total suspended solids	mg/L	142	11	<5
11/04/2024	Total suspended solids	mg/L	148	7	<5
12/04/2024	Total suspended solids	mg/L	106	8	<5
06/05/2024	Total suspended solids	mg/L	57	145	154
07/05/2024	Total suspended solids	mg/L	79	36	16
08/05/2024	Total suspended solids	mg/L	42	12	42
09/05/2024	Total suspended solids	mg/L	50	31	22
10/05/2024	Total suspended solids	mg/L	75	14	12
11/05/2024	Total suspended solids	mg/L	20	86	229
12/05/2024	Total suspended solids	mg/L	201	78	39
13/05/2024	Total suspended solids	mg/L	124	31	30
14/05/2024	Total suspended solids	mg/L	90	22	18
15/05/2024	Total suspended solids	mg/L	57	6	17
16/05/2024	Total suspended solids	mg/L	38	<5	<5
17/05/2024	Total suspended solids	mg/L	55	16	11
18/05/2024	Total suspended solids	mg/L	33	10	8
19/05/2024	Total suspended solids	mg/L	25	11	<5
20/05/2024	Total suspended solids	mg/L	15	5	5
21/05/2024	Total suspended solids	mg/L	10	<5	<5
22/05/2024	Total suspended solids	mg/L	16	<5	<5
23/05/2024	Total suspended solids	mg/L	24	<5	<5
07/06/2024	Total suspended solids	mg/L	235	122	92
08/06/2024	Total suspended solids	mg/L	228	31	20
09/06/2024	Total suspended solids	mg/L	186	22	11
10/06/2024	Total suspended solids	mg/L	104	11	9
11/06/2024	Total suspended solids	mg/L	77	10	6
12/06/2024	Total suspended solids	mg/L	68	13	<5
04/07/2024	Total suspended solids	mg/L	12	12	16
05/07/2024	Total suspended solids	mg/L	11	31	29

09/07/2024	Total suspended solids	mg/L	21	7	6
10/07/2024	Total suspended solids	mg/L	24	6	<5
02/12/2024	Total suspended solids	mg/L	78	6	<5
03/12/2024	Total suspended solids	mg/L	56	8	<5
04/12/2024	Total suspended solids	mg/L	70	8	<5
05/12/2024	Total suspended solids	mg/L	91	13	8
06/12/2024	Total suspended solids	mg/L	84	13	8
16/01/2025	Total suspended solids	mg/L	52	24	18
17/01/2025	Total suspended solids	mg/L	97	14	14
18/01/2025	Total suspended solids	mg/L	121	12	<5
19/01/2025	Total suspended solids	mg/L	92	8	<5
20/01/2025	Total suspended solids	mg/L	96	6	<5
21/01/2025	Total suspended solids	mg/L	104	11	<5
23/01/2025	Total suspended solids	mg/L	67	9	6
24/01/2025	Total suspended solids	mg/L	20	6	8
29/01/2025	Total suspended solids	mg/L	22	6	<5
30/01/2025	Total suspended solids	mg/L	18	14	<5
31/01/2025	Total suspended solids	mg/L	13	23	<5
11/02/2025	Total suspended solids	mg/L	10	5	<5
12/02/2025	Total suspended solids	mg/L	6	<5	53
17/02/2025	Total suspended solids	mg/L	6	<5	<5

Rainfall during this period disrupted the construction of Cell 2B-2 causing time delays and washout of material on several occasions. Stormwater management in the construction area proved to be challenging due to topography, limited space for collection and treatment infrastructure and continual heavy rainfall events.

In April 2024, the Construction Stormwater Management Plan was modified to utilise the existing drainage infrastructure at Whytes Gully. This included creating a series of detention ponds in the eastern drain and using the first two stormwater ponds (in the series of three) for sediment settling. Flocculation was undertaken as required.

Month	Rainfall over the Reporting Period
March 2024	69.5 mm
April 2024	264.5 mm
May 2024	285.5 mm
June 2024	216 mm
July 2024	42.8 mm
August 2024	18.4 mm
September 2024	48 mm
October 2024	41.2 mm
November 2024	153.2 mm
December 2024	7 mm

January 2025	162.5 mm
February 2025	48.6 mm
<b>TOTAL</b>	<b>1357.2 mm</b>

### 3.3.2 All Other Parameters

#### 3.3.2.1 Nutrients and Total Organic Carbon (TOC)

Trigger values used in this AEMR are derived from the ANZECC & ARMCANZ (2000) Water Quality Guideline for Aquatic Ecosystems as stipulated in the NSW EPA Environmental Guidelines: Solid Waste Landfills (Second Edition:2016).

The trigger value for nitrate is estimated at 1.0 mg/L for this aquatic ecosystem on the south-east coast that is moderately disturbed. Increased nitrate concentrations correlated closely with the heavy rainfall events at all Points (1, 33, 34). However, Point 1 results were significantly higher with nitrate levels peaking at 11.0 mg/L on the 10<sup>th</sup> July 2025 and results recorded over 1.0 mg/L on 8 other occasions. Upstream and downstream results recorded remained under 1.0 mg/L.

Ammonia, which is a compound commonly associated with leachate, has a trigger value of 0.9 mg/L. At Point 1, ammonia was detected above this level on 35 occasions with the highest recorded level at 18.7 mg/L on the 9<sup>th</sup> July 2024.

Point 33 (downstream) sampling exceeded the trigger value on 5 occasions with the highest recorded value being 2.52 mg/L on the 10<sup>th</sup> July 2024. No exceedances were recorded at Point 34 (upstream).

TOC, which can be used as a general water quality indicator to detect the presence of organic pollutants (no trigger value specified) had higher concentrations at Discharge Monitoring Point 1, with lower concentrations reported at both the upstream and downstream Monitoring Points (34 and 33).

The highest level of TOC recorded at Point 1 was 40 mg/L on 9<sup>th</sup> July 2024. At Point 33 (downstream) 42 mg/L was the highest level recorded on the 13<sup>th</sup> May 2025, however all other values were equal to or under 10 mg/L. This value appears anomalous as results on the days prior and after were 8 and 6 mg/L respectively.

Values at Point 34 (upstream) were equal to, or under 10 mg/L.

In general, TOC and nutrient concentrations were lowest at the upstream sampling point (Monitoring Point 34). Concentrations increase at the discharge sampling point (Monitoring Point 1), then slightly decrease at the downstream sampling point (Monitoring Point 33), to concentrations similar to the upstream monitoring location.

### 3.3.2.2 Major Anions and Cations

No trigger values are specified in the ANZAST (2018) for anions and cations, but their inclusion allows for an understanding of water characteristics and whether these characteristics are changing between monitoring points.

Overall, concentrations of some anions and cations at Discharge Monitoring Point 1 were elevated after rainfall events throughout the reporting period. Chloride, fluoride, sodium, sulphate and alkalinity levels were all higher than at Point 33 (downstream) and Point 34 (upstream). However, calcium, magnesium and potassium remained at similar levels at all three sampling points.

### 3.3.2.3 Electrical Conductivity (EC)

No trigger values are specified in ANZAST (2018), though its inclusion allows for an understanding of water quality and possible impacts to this quality.

The measured EC varied across the three locations with increased spikes after rain events. The highest level was 909  $\mu\text{S/L}$  at Point 1 which occurred on the 12<sup>th</sup> June 2024 in after a storm event. Point 33 (downstream) peaked at 432  $\mu\text{S/L}$  on the 21<sup>st</sup> March 2024 and 584  $\mu\text{S/L}$  was the highest recording at Point 34 (upstream) during the same heavy rain event.

### 3.3.2.4 Filterable Iron

No trigger values are specified in the ANZAST (2018) for filterable iron.

At Point 1, the highest level of filterable iron detected was 0.24 mg/l on the 9<sup>th</sup> June 2024 after a heavy rain event. Interestingly, upstream and downstream results were higher than Point 1 this reporting period, with Point 33 (downstream) recording 0.36 mg/L on the 6<sup>th</sup> April 2024 and Point 34 (upstream) recording 0.38 mg/L on the 11<sup>th</sup> May 2024.

### 3.3.2.5 Dissolved Oxygen (DO) and Temperature

Reported DO concentrations ranged between 5.52 mg/L (14<sup>th</sup> May 2024) and 24 mg/L (16<sup>th</sup> January 2025) at Point 1. Ideally, DO levels should not drop below 3 mg/L to ensure a healthy water column (ANZWQG 2000). Values at Point 1, 33 and 34 were above this level throughout this reporting period, for the second year in a row.

Upstream and downstream waterways remained at healthy DO levels throughout the reporting period with temperatures fluctuating across all three monitoring points (6.8°C – 26.1°C).

#### 3.3.2.6 *Total Phenolics*

Total phenolics (phenols) were reported below the laboratory practical quantification limits (PQLs) at all Monitoring points (1, 33 and 34) during all sampling events. No graph is provided for these parameters for this reason.

### 3.4 Results – Polishing Pond

The Polishing Pond is subjected to testing for pH and turbidity prior to, and during all controlled release events. Controlled release is undertaken to allow the stormwater management system to be maintained to increase storage of stormwater during rainfall events.

During this reporting period, the preceding two ponds were used for sediment collection from construction runoff. This affected water quality in the polishing pond and limited controlled release. Table 3.3 provides data for all overflow events, indicating increased non-compliance in water quality parameters (specifically pH and TSS).

### 3.5 Non-Conformances

In reference to surface water monitoring, the facility had 36 non-conformances during the 2024/25 reporting period as described in Section 3.3.

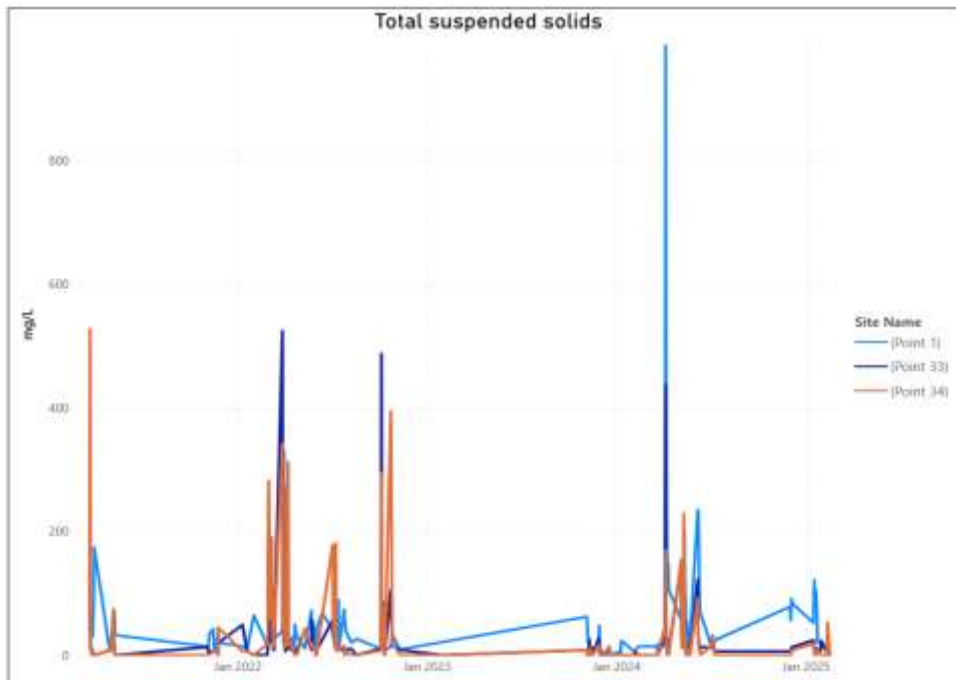
### 3.6 Monitoring Trends

The graphed TSS and pH values for the last 5 years (2020-2025) are provided below, while the other analytes subject to monitoring during the same period are provided in Appendix A. A summary of the observable trends is provided below.

### 3.6.1 TSS Trends

As shown in the graph below, TSS concentrations increased this reporting period to coincide with construction 2B-2 and declared severe weather events. On 33 occasions, results recorded were over 50 mg/L. The previous reporting period showed a return to relative stability after the 2021 and 2022 periods of Natural Disasters, however unstable weather conditions again affected the site.

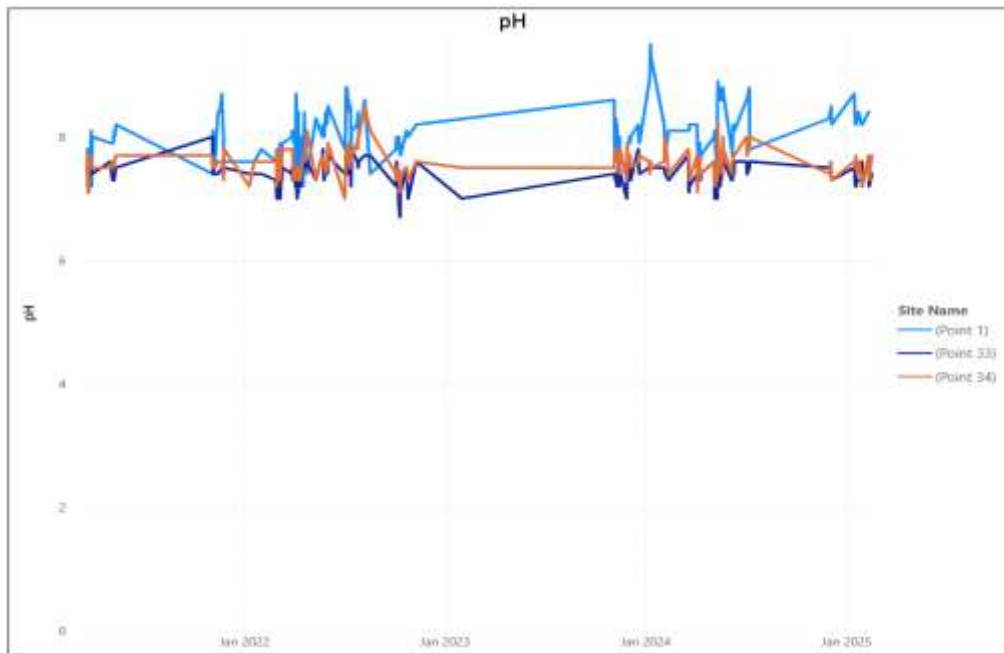
**Graph 1: TSS Trends - Total Suspended Solids**



### 3.6.2 pH Trends

Fourteen breaches over pH 8.5 occurred during this reporting period attributable to severe weather events and ongoing cell construction. Downstream and upstream results remained between 6.5-8.5 as per the previous reporting periods.

**Graph 2: pH Trends**



### 3.6.3 All Other Parameters

In relation to other parameters monitored, trend graphs are provided in Appendix A. Monitoring results generally fluctuated with rainfall events (including upstream and downstream results to a lesser extent).

Continual fluctuations of water quality is most likely due to the large volume of water passing through the catchment over the last few years, mobilising contaminants and flushing them through the water column downstream.

Of interest, is the changing nature of the catchment. Until the last five years, the surrounding land use was predominantly rural residential land use. Whilst upstream remains relatively stable with limited to no development, adjacent land use has become predominantly light industrial (e.g. vehicle storage, bitumen plants, commercial composting) and now, increasingly residential. This will undoubtedly impact surrounding water quality.

### 3.7 EA Predictions

The EA did not provide predictions relating to surface water. However, Condition 5(d) of MP 11\_0094 MOD2 instrument requires that this soil, water and leachate management plan is updated to incorporate the final detailed design specifications for stormwater management and collection at the site, including the stormwater upgrade drainage works. Also, within Schedule 3 of the Planning Approval, Council is required to prepare and implement a Soil, Water and Leachate Management Plan. This was submitted to DPE in November 2021 and was subsequently approved on the 29/06/2022.

This report will be updated in the next reporting period now that an updated Water Balance has been completed.

The table below summarises the s75W Instrument of Modification Conditions (MOD2). The report approved is in accordance with Condition 3 in Schedule 5.

Table 3-5 Instrument of Modification (s75W)

<b>Requirement</b>	<b>Condition Actions</b>	<b>Relevant Section</b>
Site Water Balance	<p>Identifies the source of water collected or stored on site, including rainfall, stormwater and groundwater.</p> <p>Includes details of all water use on site and any discharges.</p> <p>Describes the measures that will be implemented to minimize water use on site.</p>	<p>Whytes Gully Landfill Site Water Balance (GHD 2021).</p> <p>A review was commenced this reporting period and the report was finalised in April 2025.</p>
Erosion and Sediment Control Plan	<p>Is consistent with the requirements in the latest version of the Blue Book.</p> <p>Identifies the activities on site that could cause soil erosion and generate sediment.</p> <p>Describes the measures that will be implemented to minimise soil erosion and transport of sediment and stockpiles are managed.</p>	<p>Construction Quality Assurance Plan (2025)</p>
Leachate Management Plan	<p>Includes final details of leachate management and collection on site.</p> <p>Includes a remedial action plan.</p>	<p>Whytes Gully Landfill - Leachate Management Systems Update (JPG Engineering 2025)</p>
Stormwater Management Plan	<p>Is consistent with the Wollongong DCP.</p> <p>Includes detailed design for the stormwater management and collection system.</p>	<p>Whytes Gully: Soil, Water and Leachate Management Plan (2022)</p>

	<p>Demonstrates how the requirements of Condition 15 of the schedule has been addressed.</p> <p>Is updated to the satisfaction of the Secretary prior to the construction of works.</p>	
An Ongoing Monitoring Program	<p>Includes baseline data.</p> <p>A combined surface and groundwater monitoring program.</p> <p>Includes surface and groundwater impact assessment criteria.</p>	Whytes Gully: Soil, Water and Leachate Management Plan (2022)

## 4 Water Monitoring- Groundwater

Groundwater monitoring was completed in order to satisfy Approval No. 11\_0094 Schedule 4, conditions pertaining to ‘Soil and Water’. The findings for the 2024 -2025 annual reporting period are provided in the sections below.

### 4.1 Overview

Groundwater monitoring was undertaken by ALS Environmental (on behalf of Council) with monitoring locations shown in Figure 4. A summary of the monitoring requirements are detailed below:

Table 4-1: Groundwater Monitoring

Activity	Description		
Purpose	Detect if groundwater is impacted by leachate.		
Frequency	Quarterly in accordance with EPL 5862. Monitoring was completed in: <ul style="list-style-type: none"> <li>• May 2024</li> <li>• August 2024</li> <li>• November 2024</li> <li>• February 2025</li> </ul>		
Locations	Sampling locations were in accordance with EPL 5862, and included the following monitoring points: 5,9,10,11,12,13,14,15,16,17,18,19 and 20.		
Methodology	Prior to sampling, the sampling the standing water levels (SWLs) were measured using a water level meter; Groundwater samples were collected using a bailer; Field parameters were recorded using a calibrated water quality meter prior to sampling.		
	The analysis schedule was in accordance with M2.3 of EPL 5862 and included:  <b>Table 4-2: Groundwater Parameters</b>		
Analytes/Field Parameters	<table border="1"> <tr> <td>Annually</td> <td>Quarterly</td> </tr> </table>	Annually	Quarterly
Annually	Quarterly		

Metals: aluminium, arsenic, barium, cadmium, chromium (hexavalent and total), cobalt, copper, lead, manganese, mercury, zinc	Alkalinity
Benzene, toluene, ethylbenzene, xylene (BTEX)	Major anions and cations: Calcium, magnesium, potassium, sodium, chloride, sulfate
Fluoride	pH and EC
Nitrate and nitrite	SWLs
Organochlorine and organophosphate (OC and OP pesticides)	Total dissolved solids (TDS)
Polycyclic aromatic hydrocarbons (PAH)	TOC
Total Petroleum Hydrocarbons (TRH)	Nitrogen – (ammonia)
Total phenolics	

**Figure 4:** Groundwater sampling locations



## 4.2 Performance Criteria

Consistent with the surface water monitoring performance criteria, Section 7.4 of the LEMP (Draft Golder 2020) states that all groundwater results are to be assessed against the relevant ANZWQ (2000) guidelines.

## 4.3 Results

### 4.3.1 Depth to Water Table

Groundwater flows in a south westerly direction through the site. The minimum and maximum recorded SWLs (metres below top of casing (m b ToC) were as follows:

Table 4-3: Standing Water Levels

Monitoring Event	Minimum Depth (m bToC)	Maximum Depth (m bToC)
15/05/2024	1.67 (Point 15)	7.41 (Point 13)
20/08/2024	1.76(Point 15)	10.04 (Point 12)
20/11/2024	2.05 (Point 15)	11.00(Point 12)
17/02/2025	2.02 (Point 15)	11.0 0(Point 12)

#### 4.3.1.1 pH and EC

Groundwater pH was reported to fluctuate from acidic to neutral ranging between 5.4 to 7.3 for the reporting period.

Electrical Conductivity varied greatly across the site with the lowest value recorded being 175  $\mu\text{S/L}$  at Point 12 (MW105) on the 15/05/2024 and the highest value recorded being 4100  $\mu\text{S/L}$  at Point 5 (GABHO2) also on 15/05/2024.

All bores being remained active across the site during this reporting period.

### 4.3.1 Laboratory Analysis Results

Tabulated analysis results for the 2024/25 annual reporting period are provided in Appendix B, with a summary of the results presented in the following sections.

#### 4.3.1.1 Metals

Metals were detected in groundwater at all sampling locations, with concentrations of arsenic, barium and mercury below the ANZWQG (2000) criteria for freshwater. However, the following metal exceedances were reported:

Table 4-4 Metals Exceedances

Metals	Monitoring Point	Exceedance (mg/L)	Assessment Criteria ANZAST (2018)
Aluminium	5	4.81 (17/02/25)	0.055
	9	4.69 (17/02/25)	
	10	1.7 (17/02/25)	
	11	5.15 (17/02/25)	
	12	2.31 (17/02/25)	
	14	2.39 (17/02/25)	
	15	8.85(17/02/25)	
	16	7.05 (17/02/25)	
	17	0.8 (17/02/25)	
	18	24.9 (17/02/25)	
	19	0.3 (17/02/25)	
20	1.11 (17/02/25)		
Cadmium	16	0.0003 (17/02/25)	0.0002
Chromium	9	0.011 (17/02/25)	0.0033
	15	0.006 (17/02/25)	
	16	0.011 (17/02/25)	
	18	0.013 (17/02/25)	
Copper	9	0.016 (17/02/25)	0.014
	15	0.025 (17/02/25)	
	16	0.031 (17/02/25)	
	18	0.033 (17/02/25)	
Cobalt	5	0.003 (17/02/25)	0.0028
	9	0.008 (17/02/25)	
	10	0.003 (17/02/25)	
	11	0.004 (17/02/25)	
	14	0.004(17/02/25)	
	15	0.012 (17/02/25)	
	16	0.039 (17/02/25)	
	18	0.012 (17/02/25)	
	20	0.012 (17/02/25)	
Lead	9	0.008 (17/02/25)	0.0034
	10	0.004 (17/02/25)	
	15	0.008 (17/02/25)	
	16	0.013 (17/02/25)	
	18	0.017 (17/02/25)	
	20	0.004 (17/02/25)	

Manganese	16 20	4.71 (17/02/25) 2.36 (17/02/25)	1.9
Zinc	9 16 18	0.055 (17/02/25) 0.05 (17/02/25) 0.068 (17/02/25)	0.0416

#### 4.3.1.2 Hydrocarbons

Concentrations of BTEX, TRH, PAH and total phenolics were reported below the laboratory PQLs and below the adopted assessment criteria. Graphs of these values have not been included and the Results Table in Appendix B has shown them as a 0 value.

#### 4.3.1.3 Major Anions and Cations

Concentrations of calcium, magnesium, potassium, chloride, fluoride, sulfate and sodium varied across the groundwater network. It does appear that groundwater is dominated by calcium, sodium and chloride ions, with all groundwater wells exhibiting higher concentrations of these ions compared to others.

Groundwater within the site is generally described as very hard to extremely hard. Monitoring Point 5 recorded the highest CaCO<sub>3</sub> concentrations during the reporting period, with levels peaking at 1020 mg/L (17/02/2025).

Monitoring Point 12 had the lowest concentrations ranging between 16 mg/L (15/05/2024) and 40 mg/L (17/02/2025).

#### 4.3.1.4 Total Dissolved Solids (TDS)

Groundwater across the site was reported to be 'fresh' to 'brackish', with TDS concentrations ranging between 175 mg/L at Point 12 (15/05/2024) and 3890 mg/L at Monitoring Point 5 (17/02/2025). Concentrations fluctuated significantly throughout the site and appear to be linked to the rainfall events during the reporting period. TDS levels were consistent with the last reporting period, most likely due to dilution factors from the volume of rainfall received at the site in the previous 24 months.

#### 4.3.1.5 Total Organic Carbon (TOC)

No trigger values were adopted for TOC as none were available in the ANZWQ (2000) guidelines. Concentrations across the site range from below the laboratory PQL (<1 mg/L) through to 32 mg/L (Point 16) on the 15/05/2024.

#### 4.3.1.6 OC and OP Pesticides

OC and OP pesticides were reported below the laboratory PQLs during the reporting period. It is noted however, that several PQLs were higher than the ANZWQ (2000) guideline values, and as such some exceedances may be masked.

#### 4.3.1.7 Nutrients

Nutrient concentrations tested include nitrate, nitrite and ammonia-N concentrations. This reporting period, an elevated level of 6.28mg/L Nitrate at Monitoring Point 17 on the 17/02/2025 was recorded.

Nitrite levels remained low (under 1 mg/L) this reporting period.

Ammonia levels (which generally remained compliant under 0.09 mg/L last reporting period) fluctuated greatly with values recorded between < 0.01 mg/L to 0.69 mg/L at Point 16 on the 20/08/24 as rainfall travelled through the aquifer network.

## 4.4 Conformances

In relation to groundwater, the monitoring schedule was in conformance with during the 2024/25 reporting period, with repairs to the bore at Point 5 completed.

In relation to concentrations of contaminants of potential concern (COPs) in groundwater, the following non-conformances were noted:

- Raised OC/OP PQLs which may potentially mask exceedances in the adopted criteria.
- Continued metal exceedance (aluminium, cobalt, manganese chromium, copper and lead) at several locations. The EPA has requested an investigation be undertaken into metal levels in catchment surface waters and this will be undertaken over the next reporting period. A summary will be provided in the next AEMR.

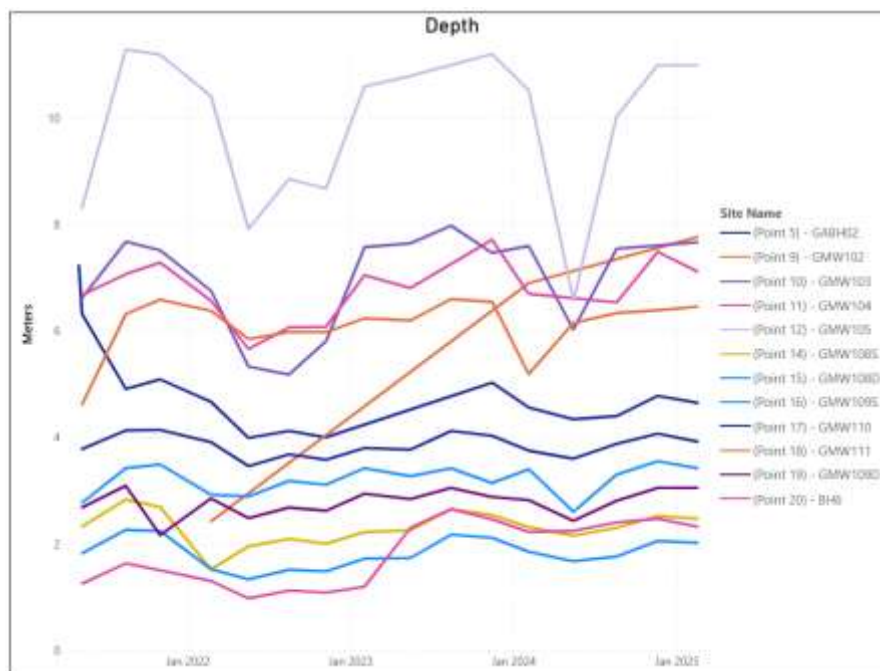
## 4.5 Monitoring Trends

The graphed monitoring trends for groundwater depth, TOC, ammonia-N and metals including aluminium, arsenic, copper, cadmium and zinc for the period 2019-2024 are provided below. The full suite of graphed trends is provided in Appendix B, with a summary of observable trends provided below.

### 4.5.1 Depth to Water Table

Water table levels remained elevated from continual heavy rainfall. All bores continued to flow and were able to be measured.

**Graph 3-** Depth to Water Table

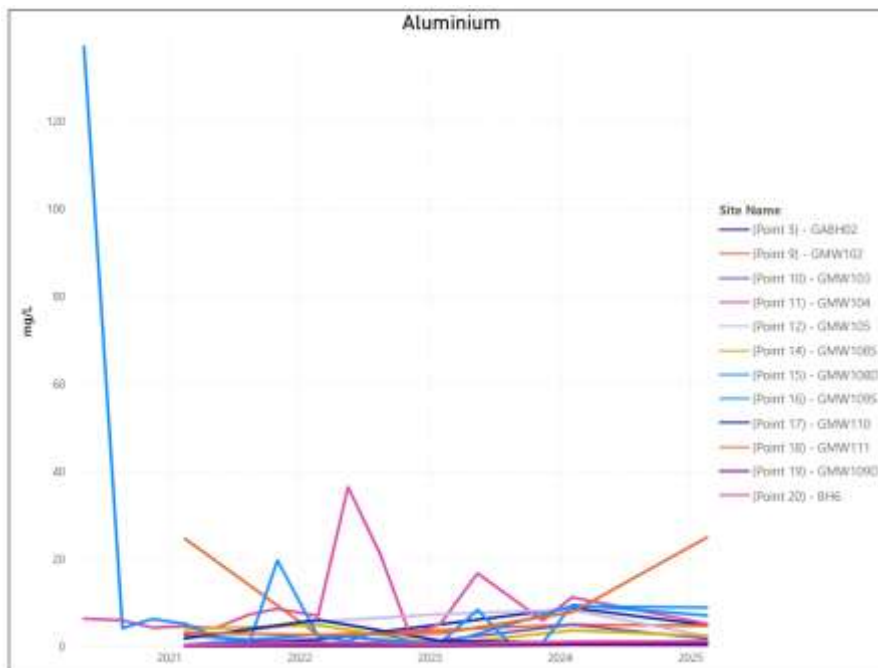


## 4.5.2 Metals

### Aluminium

As shown in the graph below, aluminium concentrations continued to remain stable after peaking in 2020 (after a heavy rainfall event broke drought conditions). The previous ongoing heavy rainfall events mobilised metals in the groundwater system, however concentrations of aluminium in the water column dropped but still exceeded the adopted assessment criteria (0.055 mg/L).

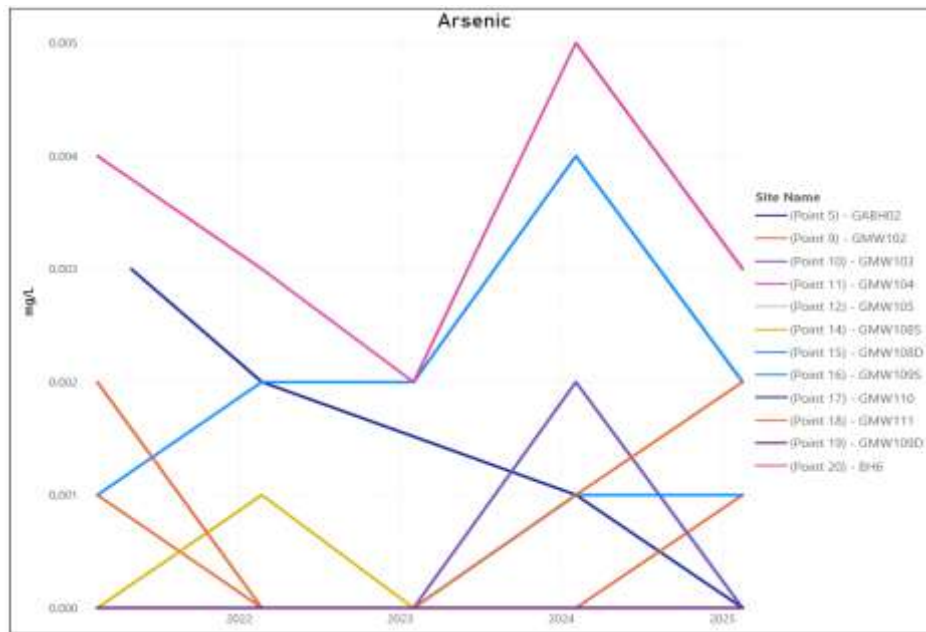
**Graph 4 – Aluminium Trends**



### Arsenic

As shown in the following graph, arsenic concentrations have fluctuated over the period of the project but have generally stayed below the adopted guideline value of 0.013 mg/L. Even with increased levels peaking at Monitoring Points 5, 15 and 20, in the previous reporting period, arsenic mobility in groundwater was below the guideline value.

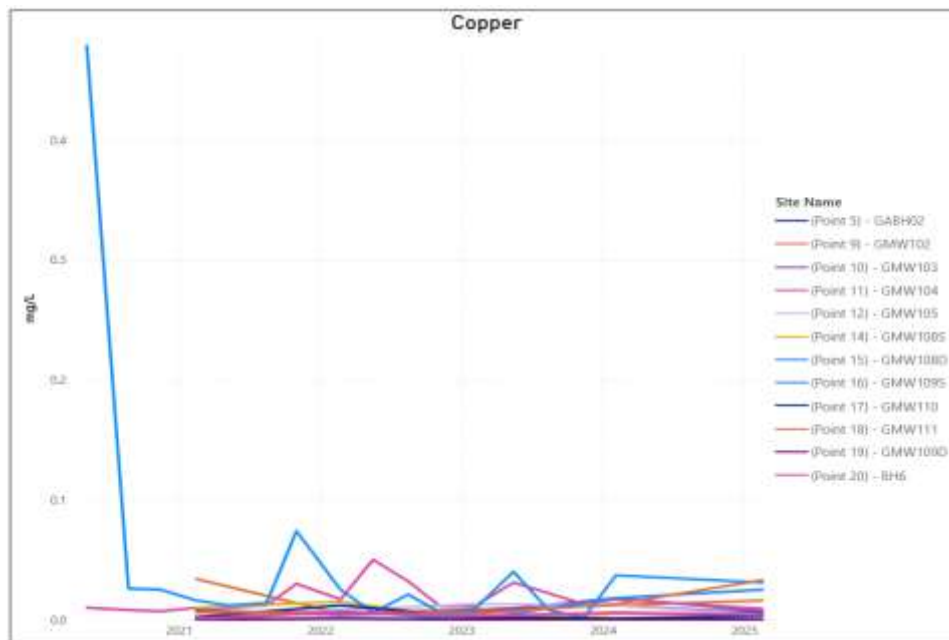
**Graph 5: Arsenic Trends**



**Copper**

As shown in the graph below, copper concentrations exceeded the adopted assessment criteria of 0.0014 mg/L this reporting period.

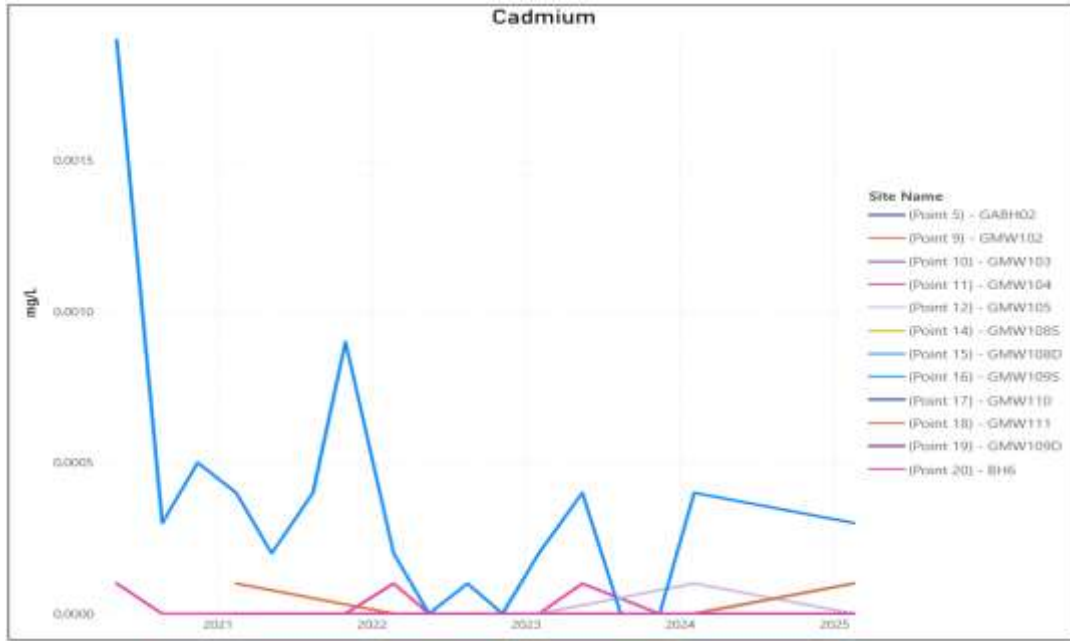
**Graph 6: Copper Trends**



## Cadmium

The guideline values for cadmium were corrected to account for water hardness. As shown in the graph below, cadmium concentrations have been stable and below 0.0005 mg/L this reporting period.

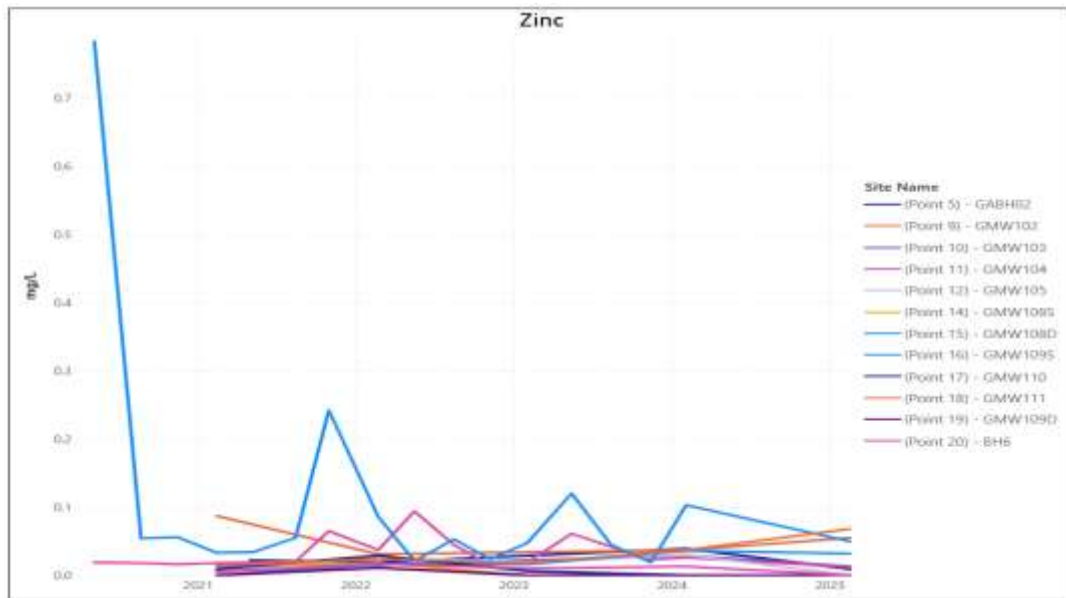
**Graph 7** Cadmium Trends



## Zinc

The monitoring values were corrected for hardness, with results under the threshold value 0.0416 mg/L.

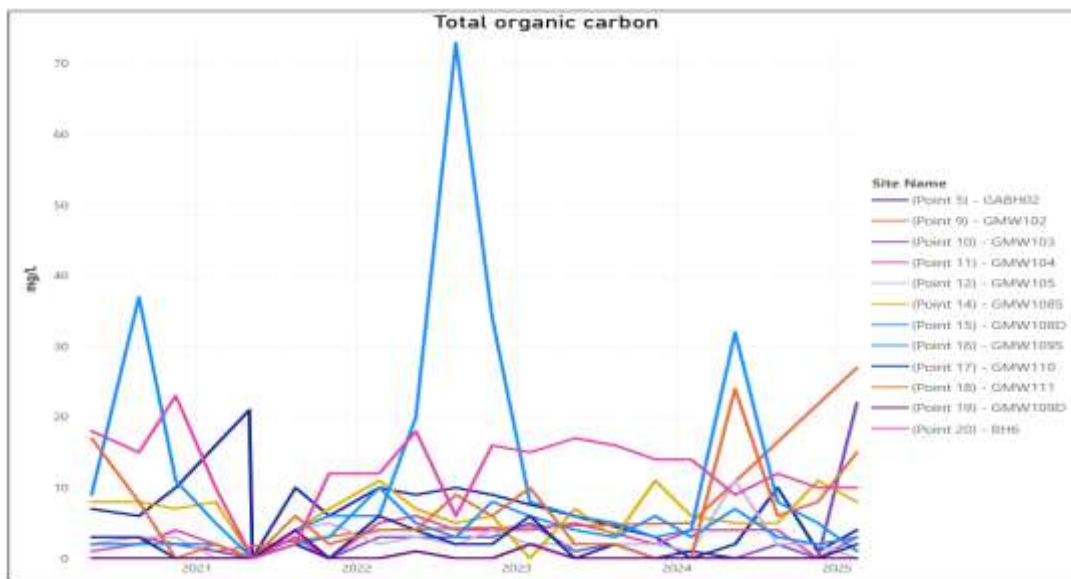
**Graph 8** Zinc Trends



### 4.5.3 Total Organic Carbon (TOC)

As shown in the graph below, TOC concentrations have varied significantly over time with overall increases during this reporting period. This can most likely be attributed to continual water flow from previous rainfall events that have mobilised solutes within the groundwater system.

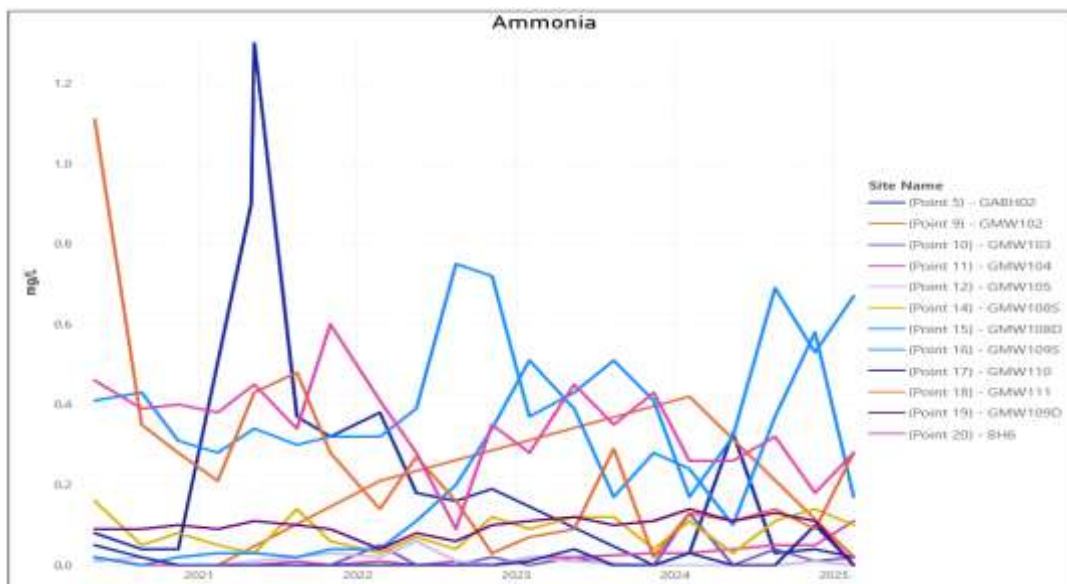
**Graph 9 -TOC Trends**



4.5.4 Ammonia-N

As shown in the graph below, ammonia-N was reported below the threshold level of 0.95 mg/L throughout the reporting period. With the groundwater network continuing to flow, ammonia levels have stabilised within the site.

**Graph 10: Ammonia- N Trends**



#### 4.5.5 Other Analytes

The full suite of graphed trends for the same period are provided in Appendix B, with a summary of observable trends provided below. Concentrations have generally stabilised as the groundwater network continues to flow.

Major anions and cations, total dissolved solids, nutrients, pH and electrical conductivity were all heavily influenced by rainfall events during the 2024/25 period as solutes were mobilised in the water column. There is an overall trend of stabilisation during this reporting period compared to the previous two years, however a slight increase in levels has been noted.

OC and OP Pesticides, PAH, BTEX and Total Phenolic concentrations were all reported below the laboratory PQLs during all monitoring events.

#### 4.6 EA Predictions

The EA predictions were that leachate migration into groundwater would be controlled via the permeability of the landfill liner. Additionally, no high value groundwater dependent ecosystems are located within the vicinity of the facility, and the landfill would present a relatively low risk if leachate did migrate into groundwater.

Based on the overall groundwater assessment, results have generally confirmed the EA predictions in the groundwater system underlying the facility. The Water Balance Analysis (GHD 2025) utilised the same baseline groundwater and the summary remains unchanged:

*Water level measurements are taken quarterly from the landfill monitoring bores. The monitoring bore hydrographs are shown below and have been presented to characterise the seasonal groundwater response. The hydrographs have been presented over two reduced groundwater level ranges, as there is a considerable difference in elevation between the northern, elevated part of the site, and the flatter topographies to the south.*

*The water level monitoring data was received from Council and there are multiple monitoring anomalies, as water levels can change by over 6 m in some instances. In general terms, most monitoring bores show very limited seasonal fluctuation, i.e., generally less than 1 m variation. In unconfined or water table aquifers, with relatively shallow water tables, increases in rainfall tend to result in a corresponding increase in groundwater levels. Such a response has not been obviously identified in the monitoring bore hydrographs. The relatively stable response in the hydrographs could be due to artificial recharge. In some parts of the site, groundwater levels in monitoring bores may be being recharged by near site features e.g. leaking lagoons, stormwater channels or leaking buried services.*

## 5 Waste Monitoring – Trade Waste and Leachate

Sampling of trade wastewater and leachate was undertaken in order to satisfy Approval No. 11\_0094 Schedule 4, conditions pertaining to ‘Waste’. The findings for the 2024/2025 reporting period are provided in the sections below.

### 5.1 Overview

Trade wastewater and leachate sampling was undertaken by ALS Environmental in accordance with the *Consent to Discharge Industrial Trade Wastewater* (Sydney Water 2023). The monitoring locations are shown in Figure 5. A summary of the monitoring requirements is detailed in the table below.

Table 5-1: Trade Waste Monitoring Requirements

Activity	Description		
Purpose	<b>Trade Wastewater:</b> Confirm quality of wastewater discharged from the facility. <b>Leachate:</b> Chemically characterise the leachate to allow assessment of potential environmental harm and impacts.		
Frequency	<b>Trade Wastewater:</b> Monthly in accordance with EPL 5862. Monitoring was completed in: On 13 <sup>th</sup> March 2024 and every 22 days thereafter. If trade wastewater was not discharged on a scheduled day, then sampling was taken the next day when trade wastewater was discharged. <b>Leachate:</b> On 3 March 2023 and every week thereafter.		
Locations	Sampling locations were in accordance with Sydney Water 2023, and included the Eastern Arm Collection Well, Balance Tank and Trade Wastewater (locations are depicted as Leachate Treatment Plant in Figure 5). In addition, sampling was also undertaken at Leachate Ponds P1 and S1.		
Methodology	<b>Trade Wastewater:</b> Composite samples were collected over a 24 hour period using a composite autosampler, while grab samples were collected pre and post monitoring; The composite samples were collected over one full production day by combining equal volumes taken over 30 minute intervals. The volumes collected were at least 5L over the full day; and Readings of the flowmeter were obtained at the start and end of each sampling day. <b>Leachate:</b> The ponds were sampled using a ‘scoop’ whereas the Balance Tank samples are directly collected from the tap, and the Eastern Arm Collection well is sampled using a bailer. Samples were subject to laboratory analysis for the following:		
Analytes/Field Parameters	<b>Table 5-2: Trade Wastewater and Leachate Parameters</b>		
	<b>Trade Wastewater</b>		
	<b>Leachate (CW-East, Balance Tank and Pond P1 and S1)</b>		
	EC		
	Ammonia-N	TDS, TSS	
	Biological Oxygen Demand (BOD)	TSS	pH
	TDS	EC	Ammonia-N

	pH	Temperature	Temperature
Discrete samples were tested for pH, EC and temperature using a calibrated water quality meter at the start and finish of each day.			

**Figure 6:** Wastewater and Leachate Sampling Locations



## 5.2 Performance Criteria

On the 29<sup>th</sup> March 2023, a trade waste agreement was signed that lowered the levels of some discharge parameters. This expired on the 29<sup>th</sup> March 2025 and Council is currently in negotiations with Sydney Water to maintain or increase some discharge to sewer levels; and also upgrade the existing private sewer line.

The current performance criteria for trade wastewater discharged from the facility to the sewer is provided in the table below:

Acceptance Standard	Performance Criteria	Guidance Document
Volume Discharged	605 kL/day	Sydney Water 2023
Concentrations	Start and finish: pH 7-10 Ammonia – N: 100 mg/L TSS: 600 mg/L TDS: 10 000 mg/L Temperature: < 38°C	
Maximum Daily Mass	Ammonia: 28.3 kg/day TSS: 150 kg/day TDS: 2500 kg/day BOD: 50 kg/day Ammonia: 100 mg/L	

Section 4, Condition O7.2 of EPL 5862 states that the ‘*licensee must maintain a leachate management system to collect and direct all leachate to a point for treatment and disposal to sewer*’. The leachate is treated at the facility and is discharged as Trade Wastewater.

The performance criteria for leachate contained at the facility is provided in the table below:

Acceptance Standard	Performance Criteria	Guidance Document
Leachate	No discharge of leachate to waters under dry weather conditions (<10 mm of rainfall in 24 hours) or stormwater events of less than 1:25 year, 24 hour recurrence interval (< 371.5 mm rainfall in 24 hours)	Section 3 L1.3 of EPL 5862

Note: Discharge of leachate from the pond caused by a 1:25 year, 24 hour recurrence interval storm event or greater does not constitute a breach of EPL 5862.

Consistent with the surface water monitoring performance criteria, Section 7.4 of the LEMP (Draft Golder 2020) for the facility states that all leachate results are to be assessed against the relevant water quality guidelines, specifically the ANZWQG (2000).

## 5.3 Results

### 5.3.1 Trade Wastewater Discharged

The full tabulated trade wastewater results for the 2024-2025 reporting period are provided in Appendix C.

The volumes discharged and the analyte concentrations, including maximum daily mass and long-term average daily mass concentrations, were all reported below the trigger values specified in the performance criteria, with pH also reported within the recommended range. The maximum and minimum concentrations reported were as follows:

Table 5.3: Trade Waste Concentrations

Analyte	Minimum	Maximum	Performance Criteria
Volume Discharged	19/02/2024 151 kL	9/10/2024 335 kL	605 kL/day
pH start	7.3	8.2	pH 7-10
pH finish	7.2	8.1	
Ammonia-N Concentrations	4.2 mg/L	66.6 mg/L	100 mg/L
Ammonia -N Maximum Daily Mass	0.0 kg/day	12.194 kg/day	Maximum Daily Mass: 21 kg/day Long Term Average: 3.98 kg/day
TSS	22 mg/L	118 mg/L	600 mg/L
TDS	2460 mg/L	5920 mg/L	10 000mg/L
Temperature	12° C	36 ° C	< 38° mg/L

## 5.4 Conformances

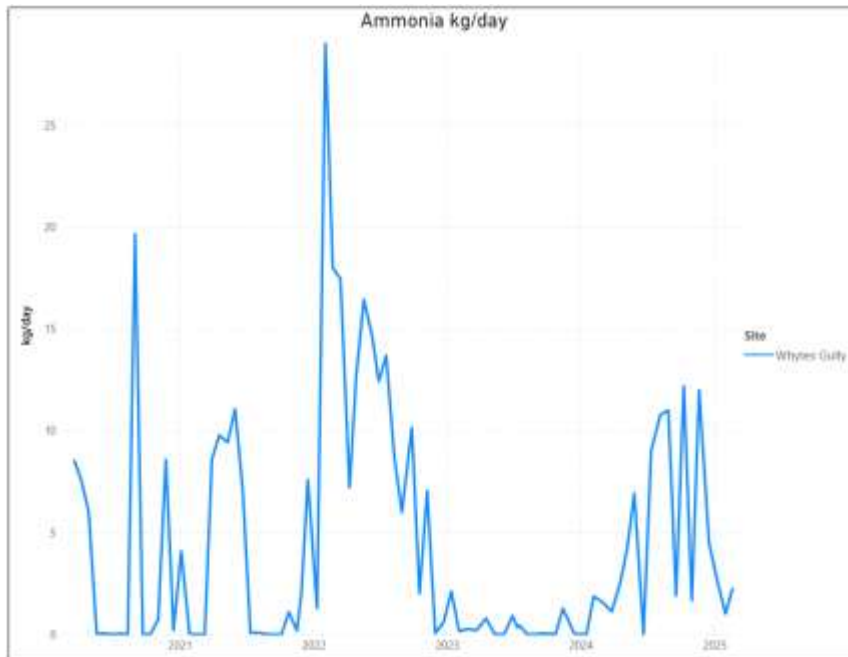
Based on the monitoring data over the reporting period, there were no breaches with the Sydney Water Trade Waste Agreement (2023).

## 5.5 Monitoring Trends

### 5.5.1 Ammonia

Ammonia fluctuated significantly during this reporting period compared to the previous 12 months. This can be attributed to heavy rainfall events returning to the catchment, however the performance criterion of 21.0 kg/day was not exceeded.

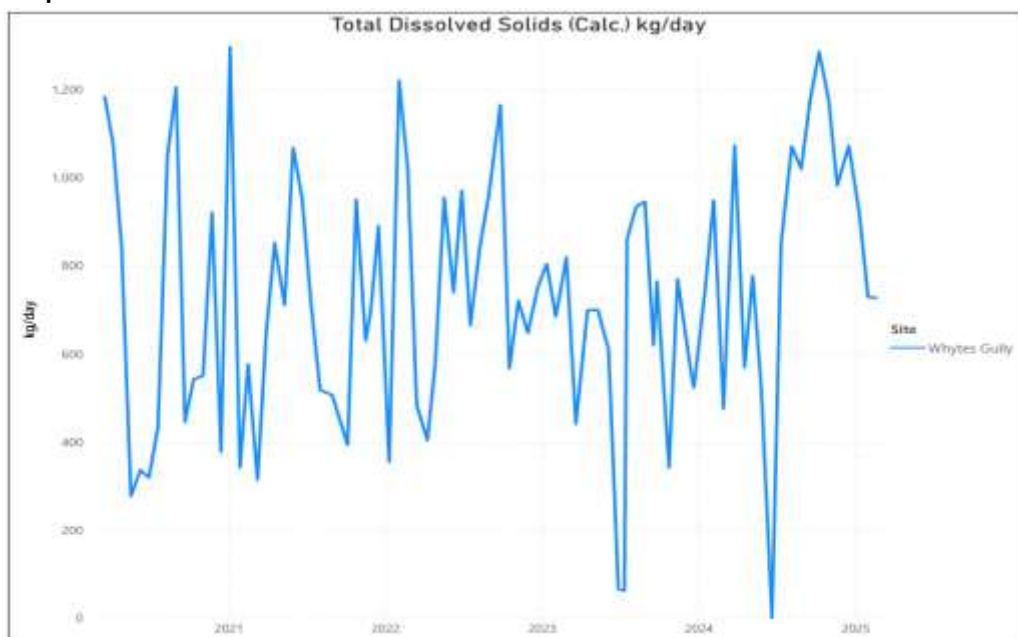
**Graph 11:** Ammonia Trends



### 5.5.2 TDS

As shown in the following graph, TDS concentrations have been subject to fluctuations influenced by sporadic rainfall events. Nonetheless, concentrations have been reported well below the performance criterion of 2500 kg/day over the life of the project (with exception of initial plant commissioning).

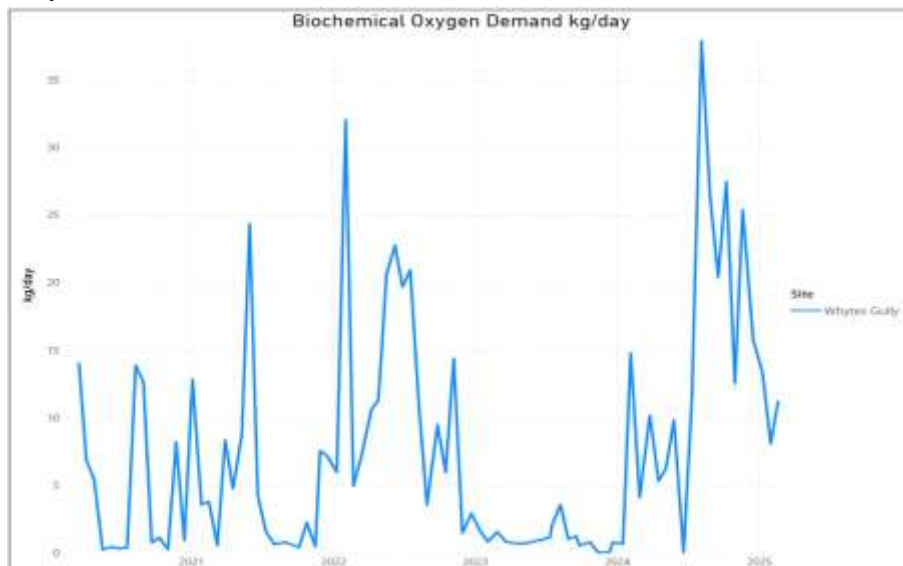
**Graph 12: TDS Trends**



### 5.5.3 Biological Oxygen Demand (BOD)

As shown in the graph below, BOD concentrations in trade wastewater increased from those reported in the previous reporting period. Heavy rainfall and continuing construction work has most likely contributed to this result.

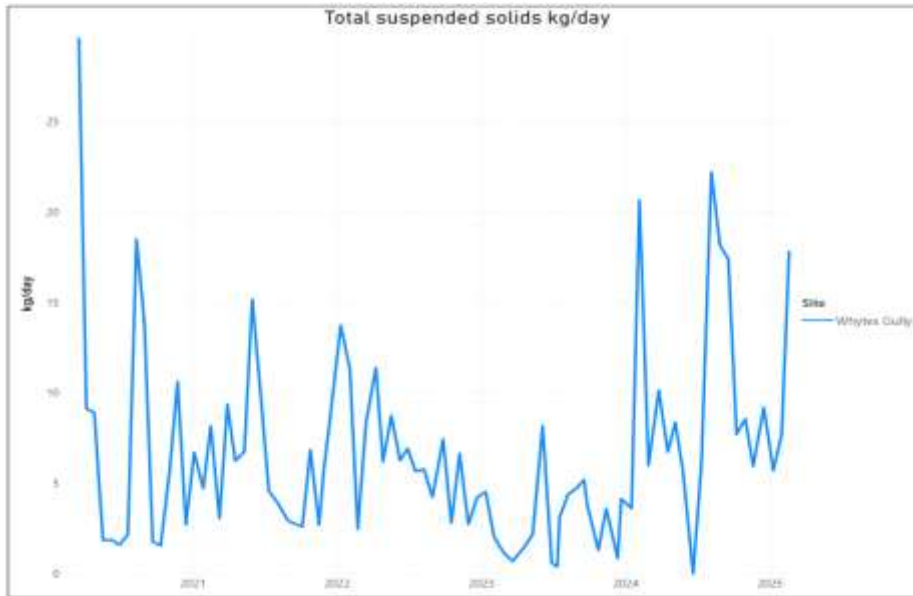
**Graph 13: BOD Trends**



#### 5.5.4 TSS

As shown in the graph below, TSS concentrations in trade wastewater have been stable over the dry period and fluctuating during wet periods. No exceedances were noted this reporting period.

Graph 14: TSS Trends



#### 5.6 EA Predictions

There were no EA predictions pertaining to trade wastewater discharged. This is primarily an agreement with Sydney Water based on wastewater quality and quantity discharged to sewer.

## 6 Waste- General

Waste screening and monitoring is required to satisfy Project Approval\_No.11\_0094 Schedule 4, conditions pertaining to 'Waste'. The findings for the 2024/25 reporting period are provided in the sections below.

### 6.1 Overview

Waste screening and monitoring was undertaken by Council for the 2024/25 reporting period in accordance with EPL 5862 and Project Approval No.11\_0094. A summary of the requirements are detailed in the table below:

Table 6-1: Waste Screening

Activity	Description
Purpose	To ensure that the facility only accepts wastes that are authorised for receipt as per EPL 5862.
Frequency	<b>Random vehicle audits:</b> Daily <b>Screening of waste:</b> Continuous <b>Screening when truck tipping at the tip face or tipping at transfer station:</b> Continuous
Location	Weighbridge and transfer station tipping face.
Methodology	<ul style="list-style-type: none"> <li>• Signs are present at the facility clearly stating the material accepted. The customer declares at the weighbridge the type of waste being disposed. Where the weighbridge operator is suspicious of the waste load, an inspection of the load is conducted.</li> <li>• Inspections via above load CCTV at the weighbridge.</li> <li>• Industrial loads require an application to be submitted with the waste loads- which is then reviewed by the weighbridge operator.</li> <li>• Visual inspection of small vehicle loads at the tipping face of the transfer station.</li> </ul>

### 6.2 Performance Criteria

The performance criteria for waste received at the facility in the 2024/2025 reporting period is provided in the following table:

Table 6.2: Waste Received Criteria

Acceptance Standard	Performance Criteria	Guidance Document
Rejected Loads	Number of unacceptable waste loads rejected.	Draft LEMP (Golder 2020)
	Number of detection reports of any waste rejected.	
	Number of incidences whereby unacceptable waste was discovered at the tipping face.	

	Monitoring data indicating consistent occurrences of unacceptable waste being detected.	
Tyres	No disposal of tyres <1.2 m in diameter.	EPL 5862
	No stockpiling of more than 50 tonnes at any one time.	
General solid waste (putrescible)	No more than 180 000 tonnes per annum.	Schedule 3, Condition 5 Project Approval No. 11_0094.
General solid waste (non-putrescible)		
Asbestos	<i>Not currently accepted at the facility.</i>	

## 6.3 Results

During the reporting period, only suitable waste streams were accepted at the facility, with an inbound total of 84 228.46 tonnes of material received. This is less than the maximum allowable performance criteria limit (180 000 tonnes per annum (tpa)).

### 6.3.1 Rejected Loads

469 rejected loads were recorded during this reporting period.

### 6.3.2 Tyres

A total of 3021 tyres were received during the reporting period. The tyres are temporarily stored at the facility in accordance with EPL 5862, following which they were collected and taken offsite for recycling by Tyrecycle.

### 6.3.3 Other Inbound and Outbound Waste

Table 6-4: Inbound and Outbound Waste

Waste Stream Description	Inbound (tonnes)
Municipal Waste	59 200.78
Commercial & Industrial Waste (inc. Council Waste)	25 027.68
<b>TOTAL</b>	<b>84 228.46</b>
Specific Items (tyres, mattresses, white goods)	9950 (items)
Recyclables (metals, oils e-waste)	2134.58
Rejected Loads	469 loads

Waste Stream Description	Outbound (tonnes)
Outbound*	5991.22
<b>TOTAL</b>	<b>8125.78</b>

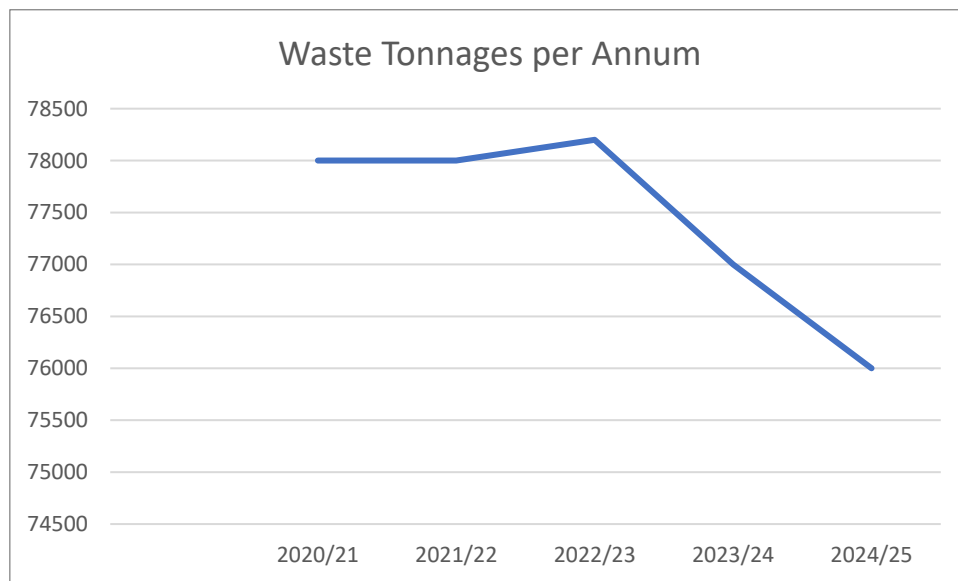
\* Includes: clay, computer/televisions, gravel/aggregate, green waste, mattresses, 'other', rejected material, material from the revolve/recycle area, tyres and VENM.

## 6.4 Conformances

In relation to waste, the facility operated in conformance during the 2024/2025 reporting period.

## 6.5 Monitoring Trends

The total waste stream volumes received at the facility have generally decreased since the facility began operating. This reporting period saw a continuing decrease in waste to landfill as shown below.



## 6.6 EA Predictions

The EA predictions were made based on historical weighbridge records. In the EA predictions, it was reported that the waste volume received at the facility between the period 2008 and 2012 would range between approximately 120 000 -150 000 tpa.

It was predicted that the volume of waste accepted at the facility would not increase, and the waste stream volume for this reporting period was consistent with this EA prediction. Waste volumes continue to decrease overall in relation to this EA prediction, with increased resource recovery programs being undertaken (polystyrene, continuing organics program (FOGO) and overall diversion programs from landfill gaining momentum.

## 7 Air Quality Monitoring – Landfill Gases

Landfill gas monitoring was completed in order to satisfy Project Approval No. 11\_0094 conditions in Schedule 4, pertaining to 'Air Quality'. The findings for the 2024/25 reporting are provided in the sections below.

It should be noted that a number of air quality monitoring points have been taken off line this reporting period during the construction of Cell 2B-2; and will be reinstated once the works are completed.

### 7.1 Overview

Surface gas, subsurface gas and gas accumulation into buildings, monitoring was undertaken by ALS Environmental (on behalf of Council) in accordance with the *NSW EPA Environmental Guidelines: Solid waste landfills (second addition) 2016 (NSW EPA, 2016)*. The monitoring locations are shown in Figure 6. A summary of the monitoring requirements for the facility are detailed in the table below:

Table 7-1: Air Quality Monitoring Requirements

Activity	Description
Purpose	Demonstrate that the cover material and extraction system is controlling the emissions of landfill gas.
Frequency	Monthly in accordance with EPL 5862.

Locations	<ul style="list-style-type: none"> <li>• Transects 1-11<sup>1</sup></li> <li>• Former landfill cell located to the north-west of the current active cell. Transects: A, C, D, E, F, G, H and I.</li> <li>• Recycle/Revolve East and West; and</li> <li>• Reddalls Road and Farmborough Road fence lines.</li> </ul>
Methodology	Monitoring was undertaken using a calibrated <i>Inspectra Laser Gas Detector</i> . Methane concentrations were recorded at 5 cm above the ground surface in areas containing intermediate or final cover. The monitoring was undertaken at 25 metre spaced out transects on calm days, where wind speeds were <10 km/hour.
<b>Subsurface Monitoring</b>	
Purpose	Assess the presence of methane along the perimeter of the landfill cell and the potential for offsite migration.
Frequency	Monthly in accordance with EPL 5862.
Locations	12 landfill gas monitoring wells, including: EPA Point 21 (LFG MW1) to Point 32 (LFG MW12) in accordance with EPL 5862.
Methodology	Monitoring was undertaken using a calibrated <i>Inspectra Laser Gas Detector</i> .
<b>Gas Accumulation</b>	
Purpose	Demonstrate that methane is not accumulating in buildings on site or in surrounding properties.
Frequency	Monthly in accordance with EPL 5862.
Locations	<ul style="list-style-type: none"> <li>• Weighbridge</li> <li>• Glengarry Cottage (administrative building)</li> <li>• Recycling Transfer Station</li> <li>• Whytes Gully Operations Hub</li> <li>• Old SWERF/Visy site</li> <li>• Neighbouring properties within 250 m (these formally declined monitoring by WCC)</li> </ul>
Methodology	Monitoring was undertaken using a calibrated <i>Inspectra Laser Gas Detector</i> .

Figure 6: Landfill Gas Monitoring Locations



## 7.2 Performance Criteria

The performance criteria adopted for the 2024/25 reporting period for landfill gases is provided in the table below:

Table 7-2: Landfill Gas Performance Criteria

Details	Corrective Action Criteria	Mandatory Reporting Requirement	Guidance Document
Surface Gas	Methane: 500 parts per million (ppm)	Yes	NSW EPA (2016)
Subsurface Gas	Methane: 1.0% volume/volume (v/v)	Yes	
	Carbon Dioxide: 1.5% v/v, above established background levels.	No	
Gas Accumulation	Methane :1% v/v	Yes	

## 7.3 Results

The landfill gas monitoring results for the 2024/25 reporting period are summarised in the following sections, with a copy of the full results provided in Appendix D.

### 7.3.1 Surface Methane

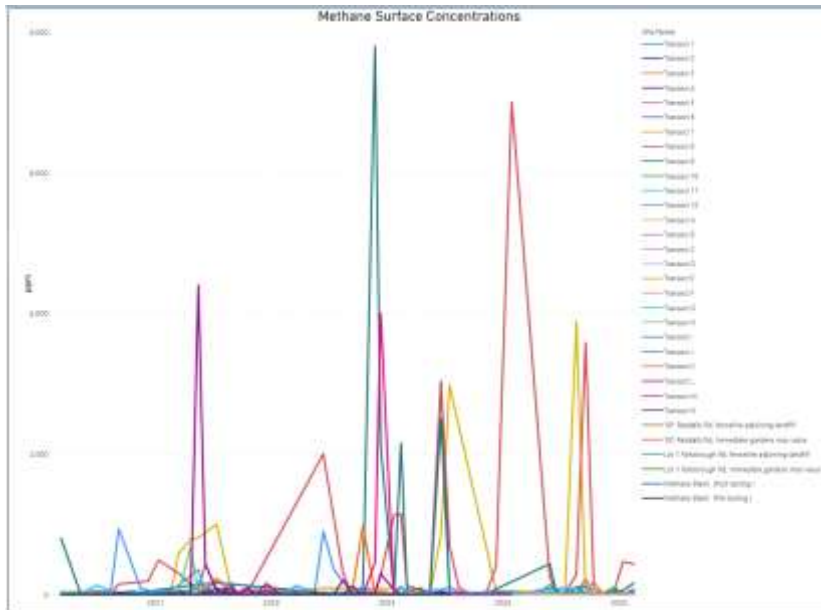
Approximately 900 surface gas samples were recorded this reporting period. On two sampling events, two transects (Transect 7(1) and 8(2)) recorded levels above 500 ppm (two readings) within the reporting period.

These were recorded as follows:

Sampling Date	Transect No.	Location - Methane result (ppm)
21/08/2024	7	1-3885
19/09/2024	8	2-3586

These elevated readings again correlated to previous heavy rainfall areas where the transects remain saturated. Levels have decreased this reporting period in both concentration and frequency. Repairs to interim cover in the upper parts of the site, as well as increased gas collection in this area may have contributed to decreased exceedances. This can be seen in the Graph 16.

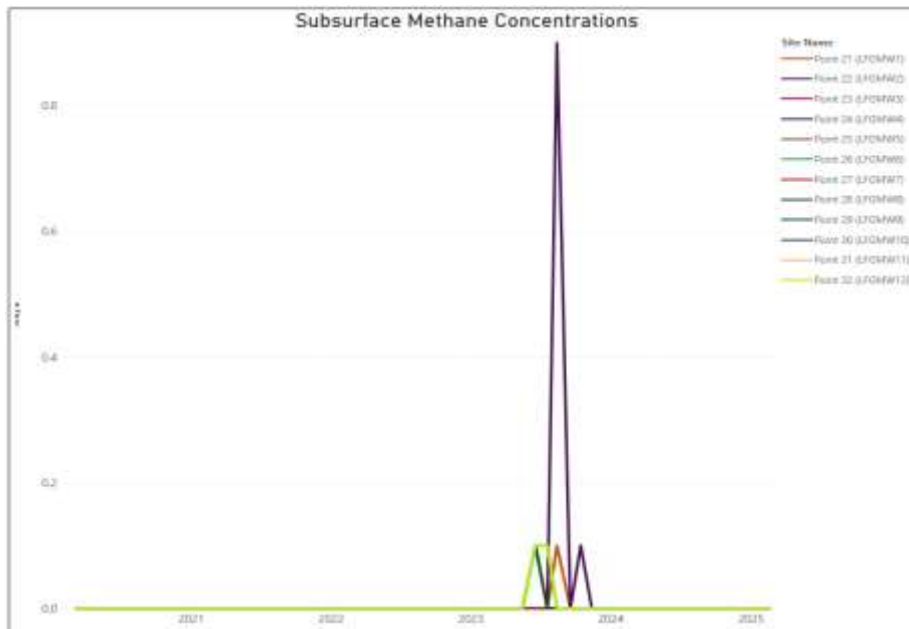
**Graph 16: Methane Concentrations**



7.3.1 Subsurface Methane

No subsurface gas results were recorded over 1.0 % vv. All readings were around 0 for the reporting period.

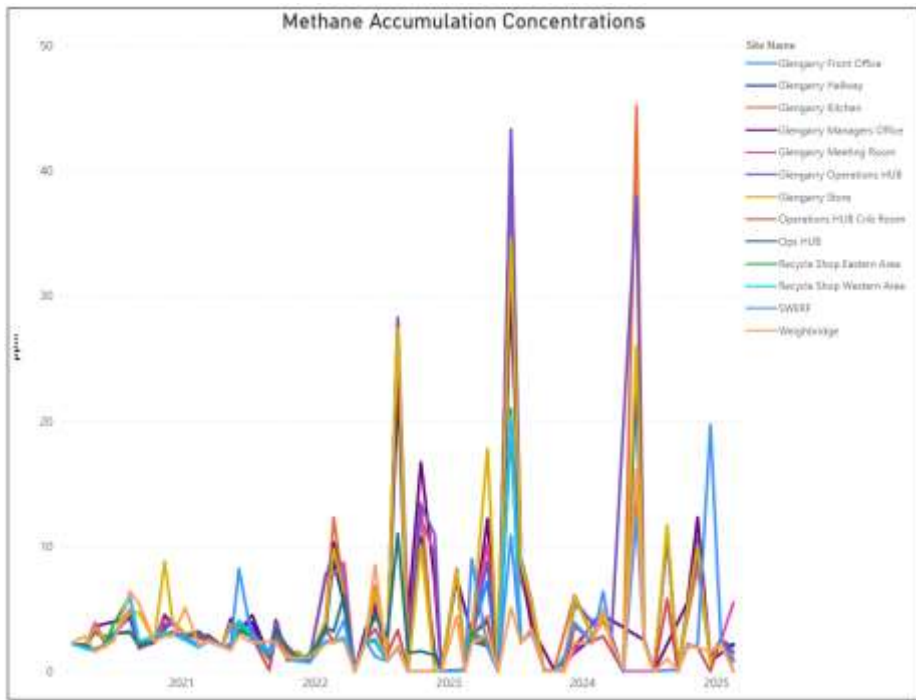
**Graph 17: Subsurface Methane Concentrations**



### 7.3.2 Gas Accumulation

As shown in the following graph, the methane concentrations accumulating into buildings have remained low even though there has been increased levels again over the last few reporting periods. Again, the higher levels correlated with heavy rainfall events.

**Graph 18:** Methane Accumulation Concentrations



### 7.3.3 EA Prediction

There were no predictions pertaining to concentrations of methane accumulating into buildings, subsurface and near surface emissions.

## 8 Air Quality Monitoring – Dust

Dust monitoring was completed in order to satisfy Approval No. 11\_0094 conditions in Schedule 4, pertaining to 'Air Quality'. The findings for the 2024/25 reporting period are provided in the section below.

### 8.1 Overview

Dust monitoring was undertaken on a continuous basis using dust deposition gauges as detailed in the table below, with sampling locations presented in Figure 7.

Table 8-1: Dust Monitoring Requirements

Activity	Description	
Purpose	Measure respirable dust due to sensitive receptors.	
Frequency	Continual basis with dust deposition gauges (DDG) collected and analysed monthly.	
Locations	A total of locations are monitored, including DDG1 – DDG5 which were placed around the perimeter which were placed around the perimeter of the facility, with high-vol samplers set up at two of these locations (DDG1 and DDG2 – Glengarry Cottage and Whytes Gully).	
Methodology	The dust deposition gauges were installed by ALS Environmental in accordance with <i>Australian Standard (AS) 3580.10.1:2003 Methods for analysis of ambient air, Method 10.1: Determination of particulate matter- deposited matter- gravimetric method (AS 3580.10.1:2003)</i> . The gauges were placed around the perimeter of the facility's boundaries with bottles swapped out on a monthly basis. Once per month, respirable dust sampling (particulate (PM)) was undertaken at least two locations utilising a PM <sub>10</sub> sampler.	
Analytes	The laboratory analysis was as follows: <b>Table 8-2 Dust Analysis Schedule</b>	
	Ash content (g/m <sup>2</sup> /month and mg)	Total suspended particulates (TSP)
	Combustible matter (g/m <sup>2</sup> /month and mg)	PM <sub>10</sub>
	Total insoluble matter (g/m <sup>2</sup> /month and mg)	

Figure 7: Dust Monitoring Locations



## 8.2 Performance Criteria

The dust monitoring performance criteria adopted for the facility is provided in the following table:

Details	Averaging Period	Criteria	Guidance Document
<b>Long-term for Particulate Matter</b>			
TSP	Annual	90 µg/m <sup>3</sup>	Approval No. 11_0094
PM <sub>10</sub>	Annual	30 µg/m <sup>3</sup>	
<b>Short-term for Particulate Matter</b>			
PM <sub>10</sub>	24 hour	50 µg/m <sup>3</sup>	Approval No. 11_0094
<b>Long-term for Deposited Dust</b>			
Deposited dust	Annual	Maximum increase in deposited dust level: 2 g/m <sup>2</sup> /mon	Approval No. 11_0094
		Maximum total deposited dust level: 4 g/m <sup>2</sup> /mon	

## 8.3 Results

The tabulated dust monitoring results are provided in Appendix F.

TSP and PM<sub>10</sub> concentrations varied on a monthly basis across the monitoring period, however remained within compliance limits.

## 8.4 Conformances

The facility conformed to air quality criteria throughout this reporting period. An updated Air Quality Management Plan was approved by the EPA and DPE in 2021 and is due to be reviewed in the next reporting period based on changes in site layout and reporting requirements.

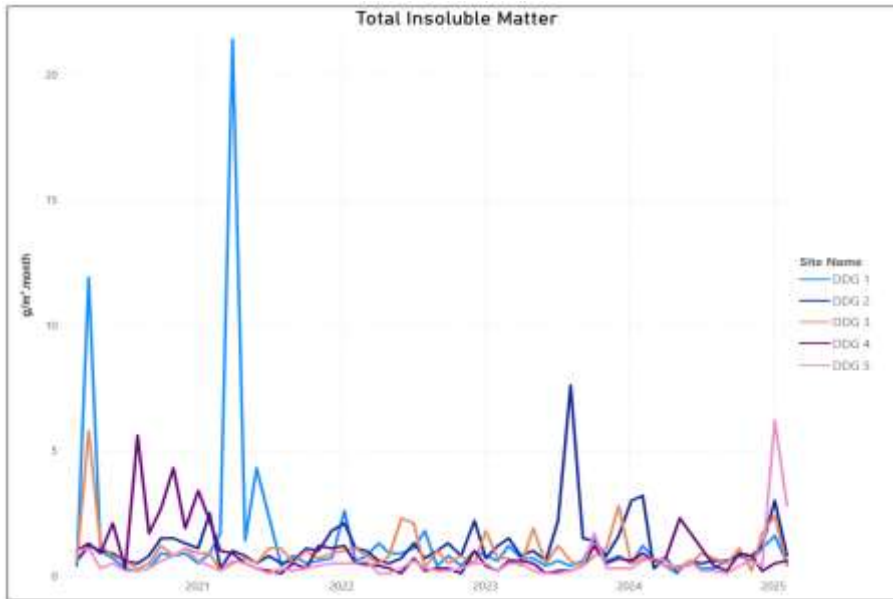
## 8.5 Monitoring Trends

The graphed monitoring trends measured at the Dust Deposition Gauges (DDGs) for the 2024/25 reporting period are provided below.

### 8.5.1 Total Insoluble Matter

As shown in the graph below, dust concentrations have been subject to fluctuations but were below the performance criteria (4 g/m<sup>2</sup>/month) with the exception of one reading of 6.2 g/m<sup>2</sup>/month on the 6/01/2025.

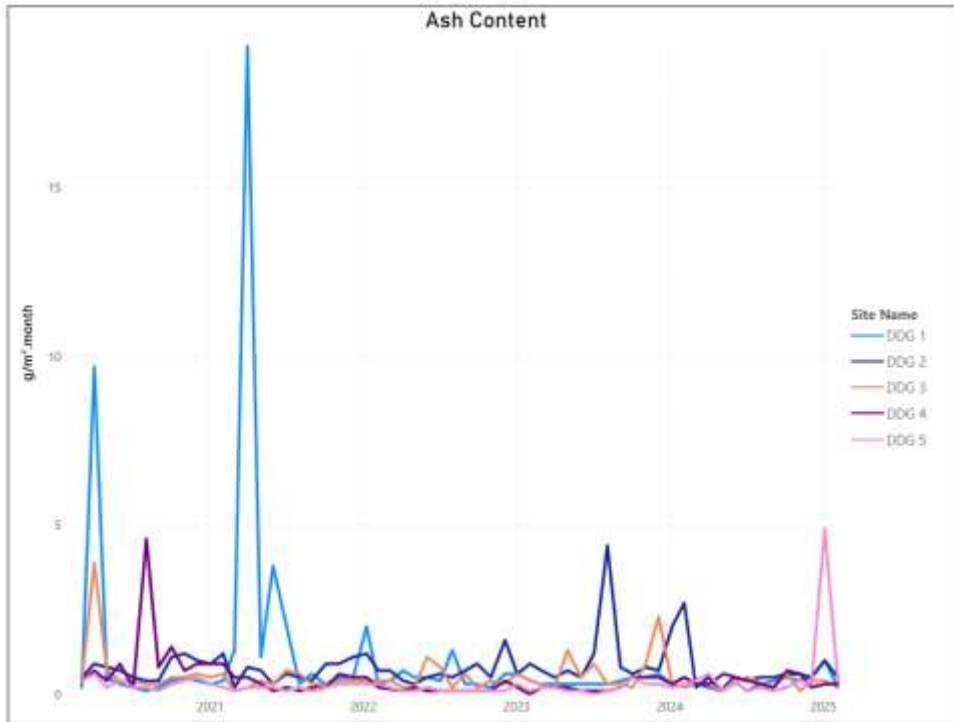
**Graph 19:** Total Insoluble Matter



### 8.5.1 Ash Content

There are no trigger values for ash content. As shown in the graph below, ash content continued to remain at low levels apart from the 6/01/2025 which coincided with the general air quality data for dust readings for that day.

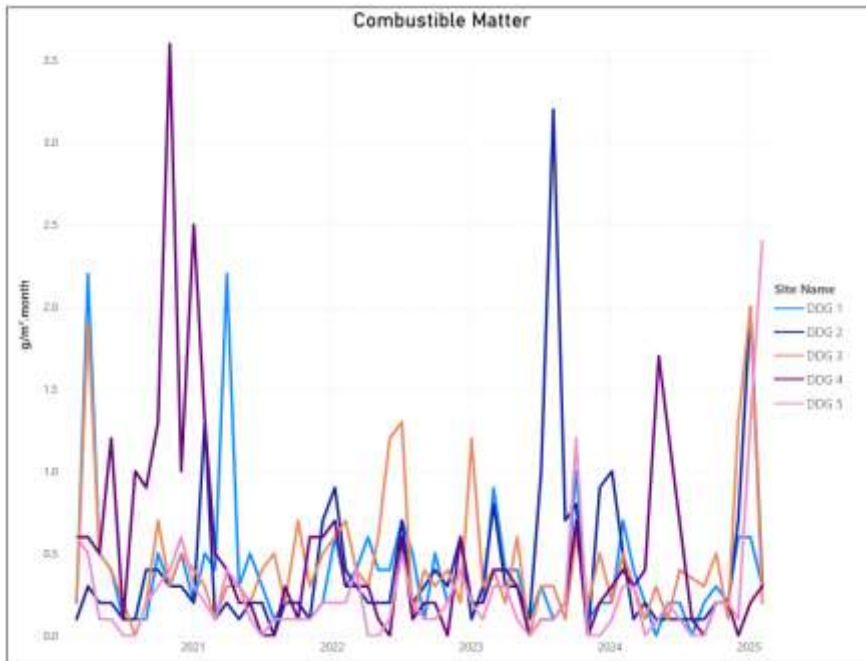
**Graph 20: Ash Content**



### 8.5.2 Combustible Matter

There are no trigger values for combustible matter. As shown in the graph below, combustible matter has been subject to fluctuations across the monitoring period, with levels continuing to remain lower than the 2020/21 reporting period when bushfires were at their peak. Levels peaked once more on the 6/01/2025, following the general air quality data trend.

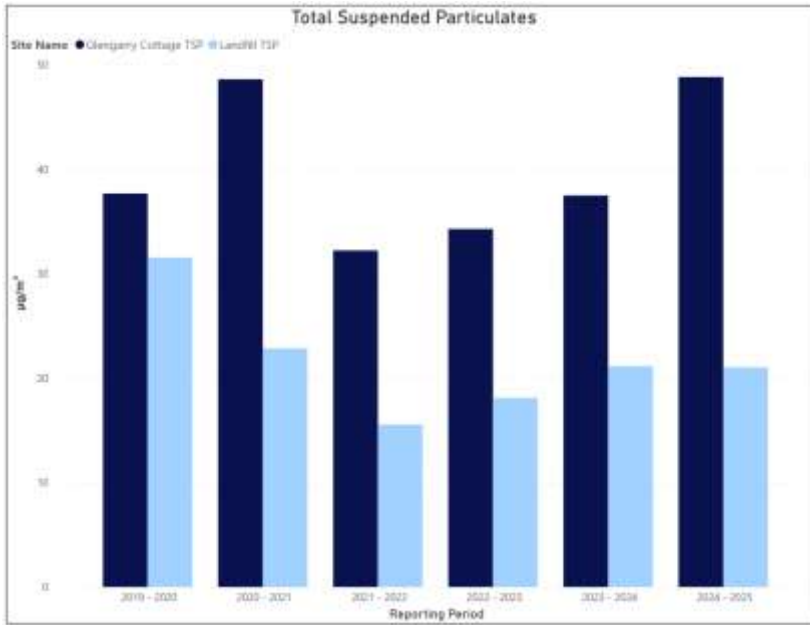
**Graph 21: Combustible Matter**



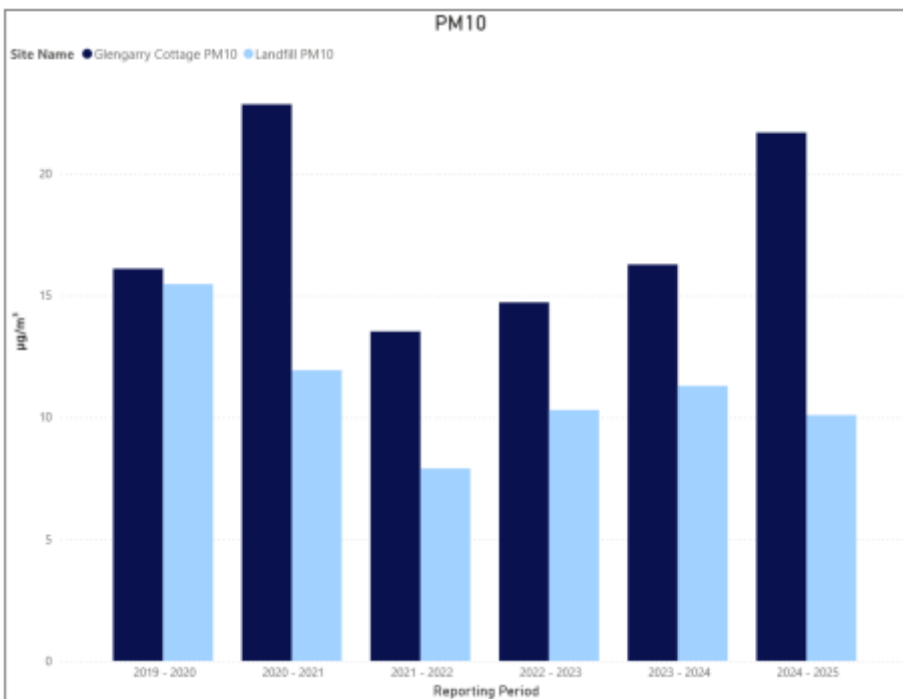
### 8.5.3 Rolling Monthly Average

As shown in the following graphs, there has been a continued increase at DDG1 (Glengarry) in the last reporting period. DDG2 (Whytes Gully) has remained consistently lower through the last four reporting periods.

**Graph 22: TSP Rolling Monthly Average**



**Graph 23: PM<sub>10</sub> Rolling Monthly Average**



## EA Predictions

The EA predictions made from dispersive modelling undertaken suggested that, should the implementation of appropriate mitigation and management measures undertaken, there would be compliance with the relevant legislative criteria at all potential offsite residences. During the operational phase of the project, the identified mitigation measures includes dust suppression, restriction of the active tipping face and required daily cover areas.

The most significant occurrence in this reporting period is the beginning of construction of the new cell in March 2024. Generally, dust levels have increased during this period but have remained within limits when averaged. Additional measures have been put in place around the working area in accordance with compliance requirements.

Overall, in this reporting period, measures have proved to be effective and are consistent with EA predictions.

## 9 Air Quality Monitoring – Odour

Odour management is required at the facility to satisfy Approval No. 11\_0094 in Schedule 4, pertaining to 'Air Quality'. The findings 2024/25 reporting period are provided in the section below.

### 9.1 Overview

Whilst not a mandatory requirement, Council proactively undertakes odour inspections on a daily basis around the perimeter of the facility. This is undertaken in order to determine the source of any potential odour breaches, and where additional active management is required.

### 9.2 Performance Criteria

In reference to odour, EPL 5862 stipulates that no offensive odours are emitted beyond the boundary of the facility. As such, the performance criteria for potential offensive odour emissions are formal complaints received from the public and ad hoc offsite odour monitoring by the Council and EPA.

### 9.3 Results

Council received a total of 18 complaints from the public during the reporting period pertaining to offensive odours noted outside the facility's boundary. This level of complaint has continued to decrease from the previous reporting periods.

During the previous reporting periods, there were a number of changes in land use in the surrounding catchment. With the implementation of FOGO, increase in commercial organics composting has occurred in the industrial precinct adjacent to the facility. There has also been an increase in bitumen production in the same period, resulting in an increase in potential odour sources close to the landfill. This has proved a challenge to manage, however commitment to monitor and improve practices is ongoing.

### 9.4 Conformances

Due to the changing nature of industrial production within the catchment, it has been difficult to identify the source of the odour complaints. However, Council has followed up on odour complaints, updated deodouriser infrastructure, increased monitoring and ensured operations are conducted in accordance with best practice at all times.

The Air Quality Management Plan (August 2021) provides a detailed framework for odour management at the site and it is planned to update this document in the next reporting period.

### 9.5 Trends

There appears to be an overall decrease in odour complaints.

## 10 Noise Monitoring

Noise monitoring and management is required at the facility to satisfy Approval 11\_0094 Conditions in Schedule 4, pertaining to noise. Monitoring Locations are shown below.



## 10.1 Overview

Noise monitoring at the facility commenced in early March 2019 in accordance with the NSW Industrial Noise Policy (2000) and Whytes Gully New Landfill Cell Noise Management Plan (Golder 2019). Should any noise complaints be received, additional noise monitoring events will be undertaken. No noise complaints have been received in this reporting period.

## 10.2 Performance Criteria

The following criteria apply to the 5 residential receiver locations on the perimeter of the facility:

Residential Receiver Location	L <sub>Aeq</sub> (15 min)
N1	47
N2	45
N3	38
N4	35
N5	35

## 10.3 Results

The following Table provides the results for the reporting period.

Table 10:1- Noise Monitoring Data

		Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25
<b>N1</b>													
Laeq	dB	no access	56	no results	no results	no results	46.2	54.7	no results	54.7	76.1	no results	40.9
Lamax	dB	no access	86.7	no results	no results	no results	74.1	71.7	no results	87.1	79.9	no results	61.1
<b>N2</b>													
Lamax	dB	no access	57.3	no results	no results	no results	50.5	53.3	no results	52.5	65.5	no results	46.7
Laeq	dB	no access	87.3	no results	no results	no results	71.3	51.4	no results	70.2	73.1	no results	67.7
<b>N3</b>													
Laeq	dB	75.2	75.7	69.8	71.7	76.9	71.1	75.6	71.8	70.4	71.5	71.5	72.1
Lamax	dB	89.7	91.2	90.2	90.2	90.2	70.7	83.5	89.9	85.9	87.4	84.9	89
<b>N4</b>													
Lamax	dB	48	46.8	52.5	49	54.7	51.6	46	48.5	56	68.1	55.8	57.4
Laeq	dB	67.2	88.9	81.3	73.6	77.8	66.9	67.6	71.1	70.9	71.4	65.1	81.7
<b>N5</b>													
Laeq	dB	59.9	46.2	53.2	43	54.7	46.2	61.9	50.9	59.9	77.1	55.6	51.1
Lamax	dB	85.7	72.7	74.1	65.7	77.8	66.9	89.9	74	68	83.9	61	77.2

## 10.4 Conformances

The results from monthly monitoring at the perimeter receivers were predominantly non-conforming. This is not the result of noise emanating from the facility, but rather the surrounding catchment. Due to the change in land use discussed in the previous section, the noise criteria are now not achievable

in a light industrial area. They were previously set when the area was a predominantly rural residential and are not applicable to current surrounding industrial land use.

## 10.5 Trends

Noise monitoring continued to be above threshold levels and will require review due to the change in surrounding catchment characteristics. Only limited sampling was able to be undertaken during this period due to ongoing wet weather and construction activities; resulting in some monitoring sites not able to be accessed.

## 11 Complaints, Incidences and Community Consultation

### 11.1 Complaints

During the 2024-25 reporting period, a total of 18 complaints were received. This is less than previous reporting periods.

All complaints were pertaining to offensive odour and were reported through via EPA to Council.

### 11.2 Incidents

Ten environmental incidents were reported during the 2024/25 reporting period. One event was associated with stormwater overflow after a rain event and the other related to a small fire at the Small Vehicle Transfer Station. A summary of the incidents is provided below.

#### 11.2.1 Fire 2<sup>nd</sup> February 2025

A small fire occurred in the construction area on the 2<sup>nd</sup> February 2025 when the Contractor was welding two seams of the new liner in Cell 2B-2 using a Gas Torch. The Supervisor was approximately 20m away from the incident and extinguished the fire promptly using a fire extinguisher. The water cart was then used to dampen down the area as an additional control measure. The area was continuously monitored while the adjacent geotextile liner was pulled back as an added precaution.

On going monitoring of the area took place throughout the course of the day to ensure the fire was out and it did not reignite. In addition to the above, the following occurred:

1. Gas burner was removed off site (Not the correct tool to perform the works).
2. Gas monitors and heat gun were used to continuously monitor the area throughout the day to ensure the temperature decreasing and there was no reignition of the fire within the cell.
3. Meeting (toolbox) was undertaken with Council and the Contractors to ensure compliance in the future.

Incident reports were provided to the EPA and Safework NSW.

### 11.2.2 Stormwater Overflow Events

6 separate stormwater overflow events occurred from the polishing pond after continuous heavy rainfall on the following dates:

- 06/04/24 – 12/04/24
- 06/05/24 – 25/05/24 (intermittent)
- 07/06/24 – 12/06/24
- 04/07/25 – 09/07/25 (intermittent)
- 02/12/24 – 06/12/24
- 16/01/25 – 23/01/25 (intermittent)

During these events, the stormwater management system was monitored continually by the Operations Staff, as it began to overflow into the Dapto Creek catchment. Testing was undertaken every 24 hours and the EPA notified when results were compliant. Table 3.3 provides the water quality monitoring results.

Incident reports were provided to the EPA.

### 11.2.3 Leachate Overflow Events

The ongoing flood events that hit the Illawarra in the reporting period significantly impacted the Leachate at the Whytes Gully Landfill Facility. Three overflows occurred from the backup leachate pond resulting in sporadic leachate breaches on the following dates:

- 06/04/24 – 08/04/24
- 06/05/24 – 17/05/24 (intermittent)
- 06/06/24 – 09/06/24

The EPA was notified (and Incident Reports provided). Water quality testing was undertaken every 24 hours during overflows in this period as required under EPL 5862.

## 11.3 Community Consultation

Community consultation on strategic directions for waste was completed during this reporting period to update the existing plan as discussed earlier in this report. Preparations also began to reinstate the Community Consultative Committee in accordance with Consent Requirements. The scheduled date for the next meeting is the 2<sup>nd</sup> April 2025 and are expected to be held twice a year.

## 12 Compliances and Non-compliances

In accordance with EPA Licence Conditions (EPL 5862), the facility generally operated in compliance during the 2024/25 reporting period despite construction being undertaken during this time under adverse weather conditions.

In relation to the specific Project Approval No. 11\_0094 compliance requirements, the last Independent Environmental Audit (2020) reported the facility generally operated in compliance with all conditions. In correspondence dated 15/02/2021 (Response to Audit Recommendations), the following table was to be addressed based on identified non-compliances.

Condition of Consent	Management Plan	Details on what will be revised	Submission Date
Schedule 3 Condition 2	Landfill Environmental Management Plan (LEMP)	The body of the main LEMP document.	Draft Document complete & being reviewed by Council.
Schedule 4 Condition 14	Soil, Water & Leachate Management Plan	Develop a Stormwater Management Plan	Approved
Schedule 4 Condition 17	Soil, Water & Leachate Management Plan	Develop a Leachate Management Plan	Approved
Schedule 4 Condition 18	Soil, Water & Leachate Management Plan	Finalise Entire Plan	Approved
Schedule 4 Condition 24	Air Quality Management Plan	Dust monitoring Plan and review of dust monitoring requirements at Whytes Gull7	Approved

The 2020 Independent Environmental Audit listed several conditions to be addressed in the following reporting period. These are summarised below:

Condition Number	Activity	Status
Schedule 3 Condition 2	Update the LEMP to reflect current practices	Draft Document complete & being reviewed by Council
Schedule 4 Condition 14	17 Stormwater Exceedances in the previous reporting period	Soil, Water & Leachate Management Plan complete and implemented.
Schedule 4 Condition 15	Development of a Stormwater Management Plan	Soil, Water & Leachate Management Plan complete and implemented.
Schedule 4 Condition 17	Review and update the Leachate Management System	Soil, Water & Leachate Management Plan complete and implemented.
Schedule 4 Condition 24	A review of dust monitoring requirements will be undertaken	Air Quality Management Plan complete and implemented.
Schedule 4 Condition 30	A greenhouse gas management plan will be developed	Draft being developed by Council in accordance with new state government legislative requirements.

The 2025 Independent Environmental Audit will be commenced in the next reporting period.

## 13 Recommendations

In accordance with the formal recommendations presented in correspondence from DPE from the previous reporting period relating the findings of the IEA and the outcomes of this AEMR, Council proposes to address the following in the next reporting period:

- Schedule 3 Condition 2 Landfill Environmental Management Plan (LEMP).
  - The body of the main document of the Landfill Environmental Management Plan to be updated by the 1<sup>st</sup> March 2026.
- Schedule 4 Condition 30 Greenhouse Gas Management Plan
  - Complete the final plan by 1<sup>st</sup> March 2026.
- Reinstatement of a regular community consultation program in the next reporting period.

It is also planned to undertake a consent review this reporting period to submit in conjunction with Modification 3. This aims to improve reporting against applicable guidelines, update the structure of reporting and the role of management plans.

It is also recommended to undertake a review of surrounding noise levels based on the change in catchment use.

## 14 Conclusions

This reporting period saw many challenges with the construction of Cell 2B-2 under adverse weather conditions. Stormwater management proved to be difficult due to the nature of the site's topography and slope.

Schedule 5 of MP 11\_0094 states that an Independent Environmental Audit is required every 5 years. This will be undertaken in the 2025/2026 reporting period and must address the following:

- (a) be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General;
- (b) include consultation with the relevant agencies;
- (c) assess the environmental performance of the project and assess whether it is complying with the relevant requirements in this approval and any relevant EPL (including any plan or program required under these approvals);
- (d) review the adequacy of any plans or programs required under these approvals; and, if appropriate;
- (e) recommend measures or actions to improve the environmental performance of the Project, and/or any plan or program required under these approvals; and
- (f) be placed on Council's website within 2 weeks of its completion.

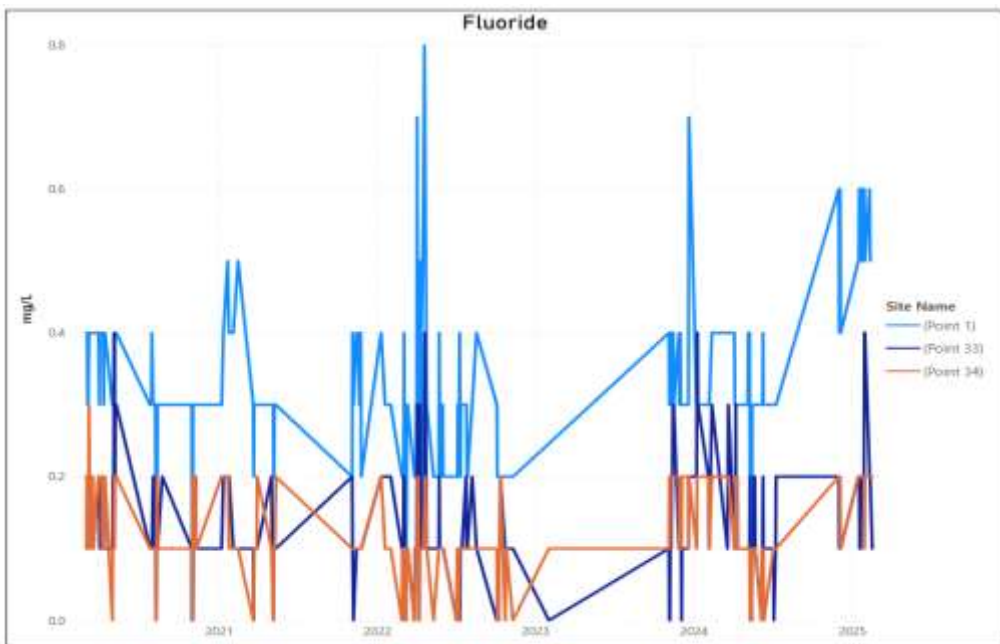
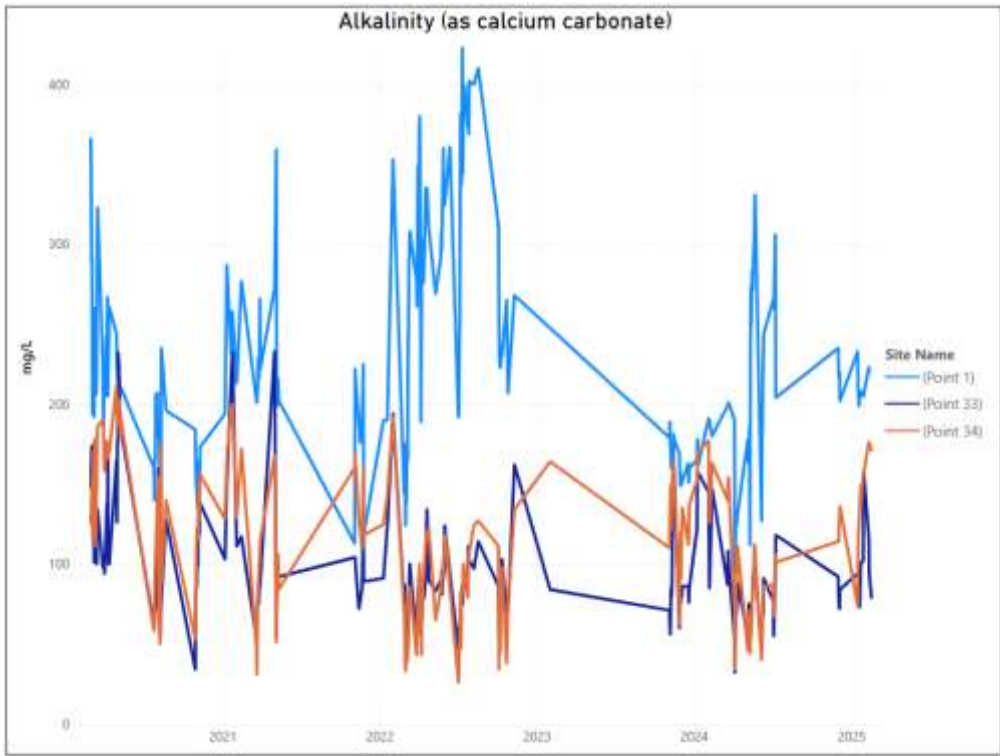
# APPENDICES

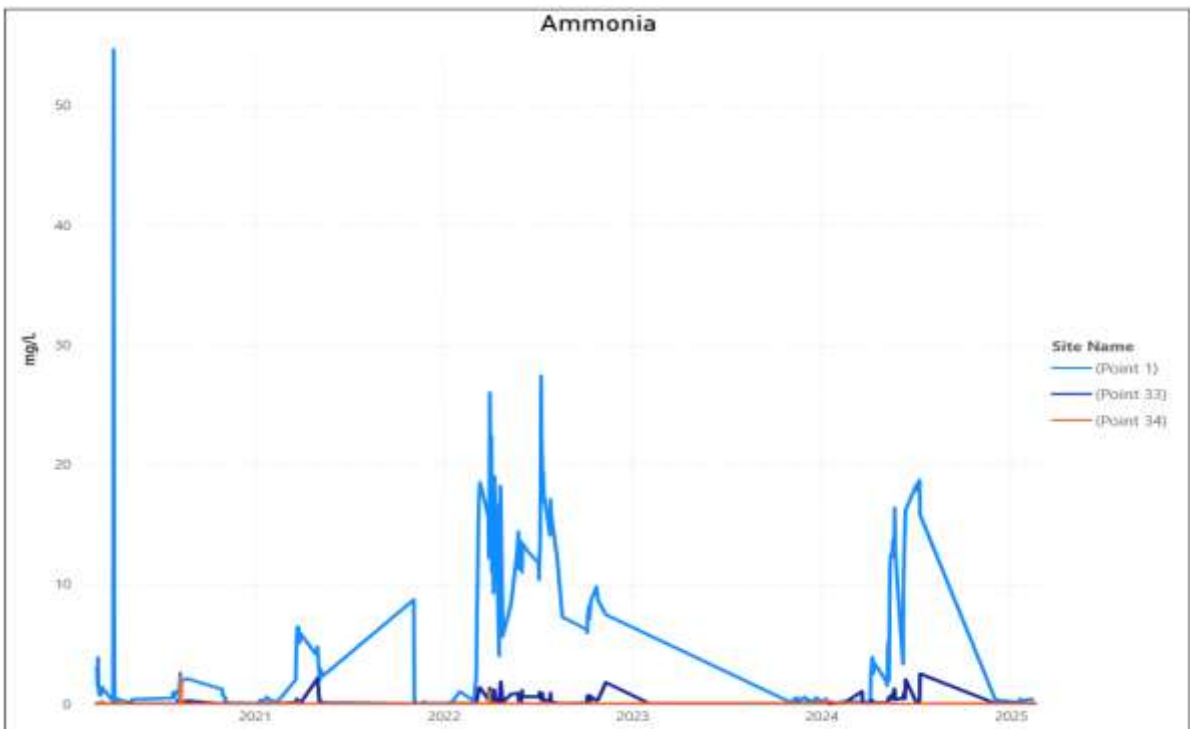
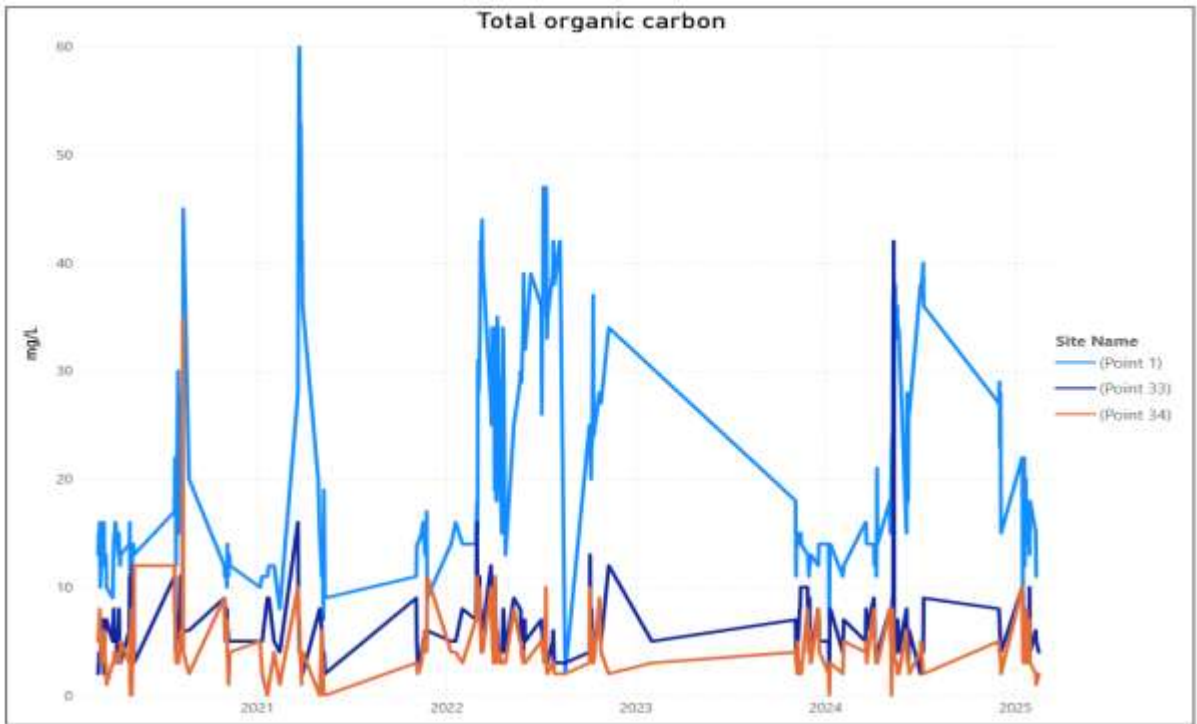
# Appendix One: Surface Water Quality Monitoring: Tabulated Results and Trends (2024/25)

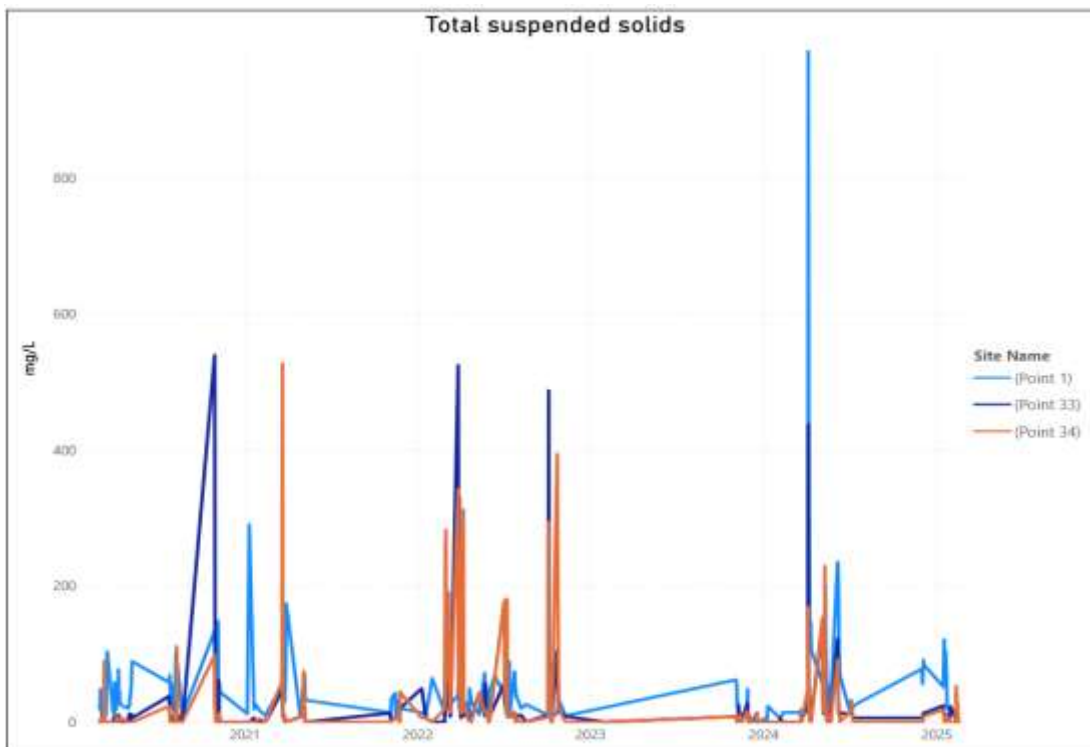
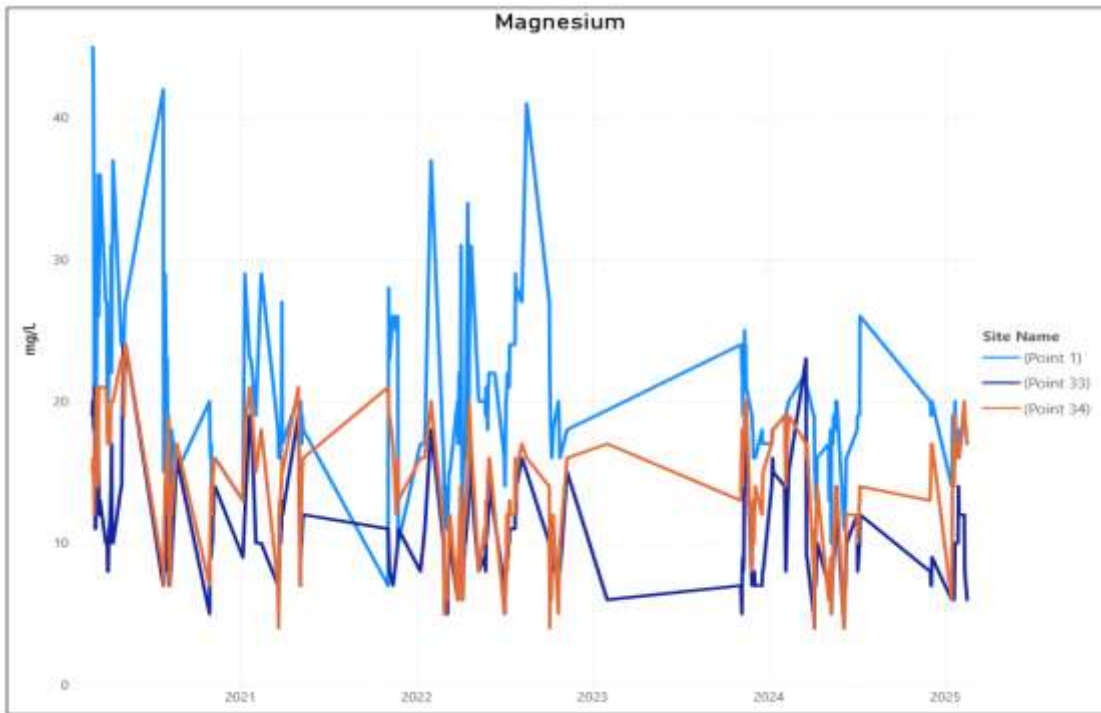
Units		Alkalinity (as calcium carbonate) mg/L	Ammonia mg/L	Calcium mg/L	Chloride mg/L	Conductivity µS/cm	Dissolved Oxygen mg/L	Filterable iron mg/L	Fluoride mg/L	Magnesium mg/L	Nitrate as N mg/L	pH	Potassium mg/L	Sodium mg/L	Sulfate mg/L	Temperature °C	Total organic carbon mg/L	Total Phenolics mg/L	Total suspended solids mg/L	
Site Name	Sample Date																			
(Point 1)	20/03/2024	199	0.21	32	78	677	7.24	<0.05	0.4	22	0.04	8.1	13	85	27	23.9	16	<1.00	14	
	21/03/2024	200	0.36	33	79	713	8.44	<0.05	0.4	21	0.07	8.1	12	85	26	25.5	16	<1.00	6	
	22/03/2024	201	0.19	33	81	702	8.58	<0.05	0.4	21	0.04	8.2	13	88	27	23.6	14	<1.00	18	
	05/04/2024	190	0.20	29	78	666	9.23	<0.05	0.4	19	0.09	8.2	10	72	30	20.6	14	<0.05	14	
	06/04/2024	95	2.54	28	35	373	7.59	0.09	0.3	19	0.54	7.8	12	45	14	21.8	12	<0.05	986	
	07/04/2024	98	2.83	27	39	371	7.12	0.08	0.3	15	0.23	7.6	13	44	14	20.9	12	<0.05	504	
	08/04/2024	124	3.69	30	42	455	6.52	<0.05	0.3	15	0.10	7.5	17	49	15	22.4	13	<0.05	242	
	09/04/2024	129	3.91	25	47	509	7.59	<0.05	0.3	13	0.44	7.7	14	49	15	19.0	14	<0.05	131	
	10/04/2024	124	3.42	25	46	488	8.12	<0.05	0.3	14	<0.01	7.9	14	49	15	18.9	11	<0.05	142	
	11/04/2024	127	2.59	25	48	488	8.58	<0.05	0.3	13	<0.01	7.6	16	52	55	16.9	21	<0.05	148	
	12/04/2024	131	3.44	27	50	502	8.04	<0.05	0.3	16	<0.01	7.7	17	51	15	18.1	14	<0.05	106	
	06/05/2024	178	1.91	29	84	675	9.94	<0.05	0.3	17	6.10	8.0	18	78	25	16.6	18	<0.05	57	
	07/05/2024	164	1.54	28	61	597	9.71	<0.05	0.4	13	5.16	8.1	14	75	25	16.3	15	<0.05	79	
	08/05/2024	165	2.57	30	71	666	9.16	<0.05	0.4	16	3.68	8.0	18	86	25	17.8	18	<0.05	42	
	09/05/2024	170	4.73	30	84	657	8.21	0.06	0.4	17	2.10	7.7	22	94	28	17.1	22	<0.05	50	
	10/05/2024	186	5.26	35	80	818	7.29	<0.05	0.4	18	1.00	7.7	22	98	27	17.0	24	<0.05	75	
	11/05/2024	112	1.93	22	36	350	8.50	0.14	0.2	10	0.58	7.4	12	46	<10	16.9	19	<0.05	20	
	12/05/2024	233	7.26	35	66	618	6.94	0.08	0.3	18	<0.01	8.4	22	93	21	17.0	37	<0.05	201	
	13/05/2024	273	11.4	35	102	824	5.67	0.09	0.3	18	<0.01	8.9	27	99	20	17.8	7	<0.05	124	
	14/05/2024	249	12.2	35	104	875	5.52	0.08	0.3	18	<0.05	8.6	28	98	19	17.3	26	<0.05	90	
	15/05/2024	263	12.5	36	123	887	6.95	0.09	<0.1	17	<0.01	8.8	28	117	19	17.8	36	<0.05	57	
	16/05/2024	284	12.4	38	119	762	7.41	0.09	0.3	19	<0.05	8.8	30	105	18	18.0	38	<0.05	38	
	17/05/2024	271	12.3	37	105	912	6.75	0.15	0.3	18	<0.01	8.7	30	118	18	17.0	34	<0.05	55	
	18/05/2024	280	13.3	38	173	946	6.48	0.09	0.3	18	<0.05	8.6	31	121	25	16.4	35	<0.05	33	
	19/05/2024	293	13.7	39	110	981	6.80	0.07	0.3	19	<0.05	8.6	32	126	18	16.0	36	<0.05	25	
	20/05/2024	298	13.8	41	124	795	8.73	0.08	0.3	18	<0.10	8.6	32	115	20	14.7	36	<0.05	15	
	21/05/2024	306	12.8	37	132	809	8.19	0.10	0.3	20	<0.01	8.6	31	117	19	15.5	33	<0.05	10	
	22/05/2024	325	16.4	41	137	826	8.55	0.09	0.3	20	<0.01	8.8	32	114	19	15.8	34	<0.05	16	
	23/05/2024	331	12.8	38	149	815	9.19	0.11	0.3	20	<0.05	8.7	32	120	26	14.8	34	<0.05	24	
	07/06/2024	127	3.36	26	24	283	8.72	0.07	0.3	11	1.00	7.8	9	34	10	14.4	15	<0.05	235	
	08/06/2024	178	10.5	24	56	626	7.90	0.10	0.3	12	0.85	7.7	19	66	12	13.4	28	<0.05	228	
	09/06/2024	186	11.8	25	74	673	7.76	0.24	0.3	12	<0.01	8.0	20	72	12	14.0	23	<0.05	186	
	10/06/2024	219	13.7	26	80	780	7.15	0.09	0.4	13	<0.01	8.2	23	84	13	13.9	18	<0.05	104	
	11/06/2024	231	15.2	29	89	848	8.26	0.10	0.3	16	<0.01	8.1	30	105	13	13.0	27	<0.05	77	
	12/06/2024	244	16.2	28	110	909	8.52	0.10	0.3	16	<0.01	8.1	32	106	13	12.8	26	<0.05	68	
	04/07/2024	265	18.4	31	130	112	0.06	0.3	18	2.08	8.6	34	127	16	14.1	38	<0.05	12		
	05/07/2024	260	17.8	35	127	11.9	0.06	0.3	19	1.10	8.6	33	128	15	13.0	37	<0.05	11		
	09/07/2024	306	18.7	34	135	11.9	<0.05	0.3	19	4.98	8.8	34	139	16	14.2	40	<0.05	21		
	10/07/2024	204	15.8	47	232	8.01	0.17	0.3	26	11.0	7.8	43	153	21	15.3	36	<0.05	24		
	02/12/2024	235	0.39	28	131	7.32	<0.05	0.6	20	1.38	8.3	19	126	27	29.9	27	<0.05	78		
	03/12/2024	219	0.44	31	141	7.06	<0.05	0.4	20	1.52	8.4	20	134	25	26.0	29	<0.05	56		
	04/12/2024	216	0.37	28	138	7.41	<0.05	0.5	19	1.55	8.4	18	122	28	24.7	23	<0.05	70		
	05/12/2024	220	0.25	29	136	7.99	<0.05	0.6	19	1.68	8.5	18	128	28	25.8	28	<0.05	91		
	06/12/2024	202	0.32	30	136	7.69	<0.05	0.4	20	1.43	8.2	19	129	28	25.6	15	<0.05	84		
	16/01/2025	233	0.11	29	126	24.0	<0.05	0.5	14	0.16	8.7	15	113	29	7.1	22	<0.05	52		
	17/01/2025	210	0.23	26	127	7.00	<0.05	0.5	16	0.40	8.4	14	113	31	22.8	9	<0.05	97		
	18/01/2025	205	0.33	31	118	7.69	<0.05	0.6	19	0.45	8.2	17	123	31	20.8	15	<0.05	121		
	19/01/2025	199	0.41	30	123	7.87	<0.05	0.6	19	0.48	8.3	17	122	31	21.5	16	<0.05	92		
	20/01/2025	204	0.40	28	108	7.28	<0.05	0.6	19	0.49	8.2	17	116	31	23.2	22	<0.05	96		
	21/01/2025	204	0.37	28	110	7.53	<0.05	0.6	17	0.45	8.3	15	118	30	22.0	12	<0.05	104		
	23/01/2025	206	0.26	28	108	8.20	<0.05	0.5	20	0.52	8.4	17	115	31	23.3	20	<0.05	67		
	24/01/2025	208	0.28	25	115	7.97	<0.05	0.6	18	0.49	8.4	15	115	30	23.5	14	<0.05	20		
	29/01/2025	206	0.32	28	113	7.10	<0.05	0.5	18	0.61	8.2	14	114	30	25.0	17	<0.05	22		
	30/01/2025	205	0.34	28	111	7.70	<0.05	0.6	17	0.51	8.2	14	112	30	23.6	13	<0.05	18		
	31/01/2025	207	0.36	28	108	7.72	<0.05	0.5	16	0.50	8.2	13	116	34	23.7	18	<0.05	13		
	11/02/2025	223	0.41	32	122	7.86	<0.05	0.6	19	0.15	8.4	16	119	34	26.1	15	<0.05	10		
	12/02/2025	220	0.41	30	125	7.70	<0.05	0.5	19	0.16	8.4	14	118	39	24.8	11	<0.05	6		

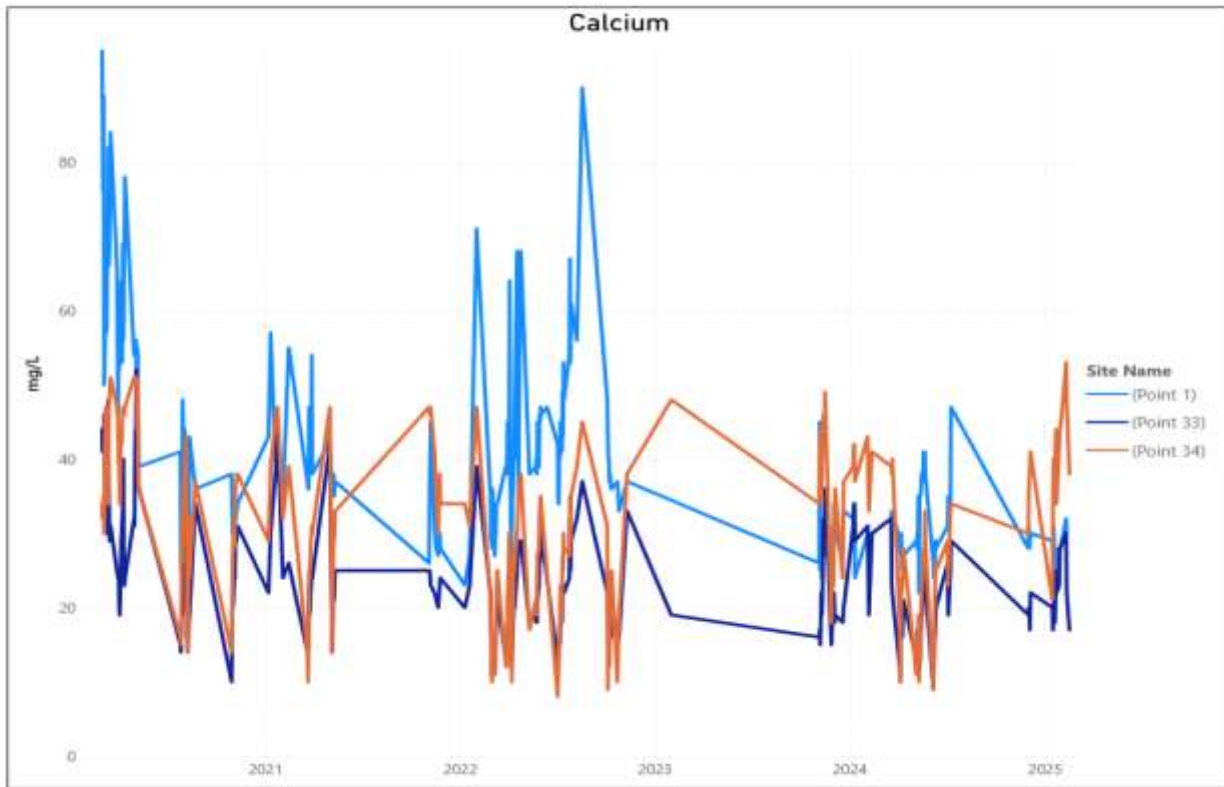
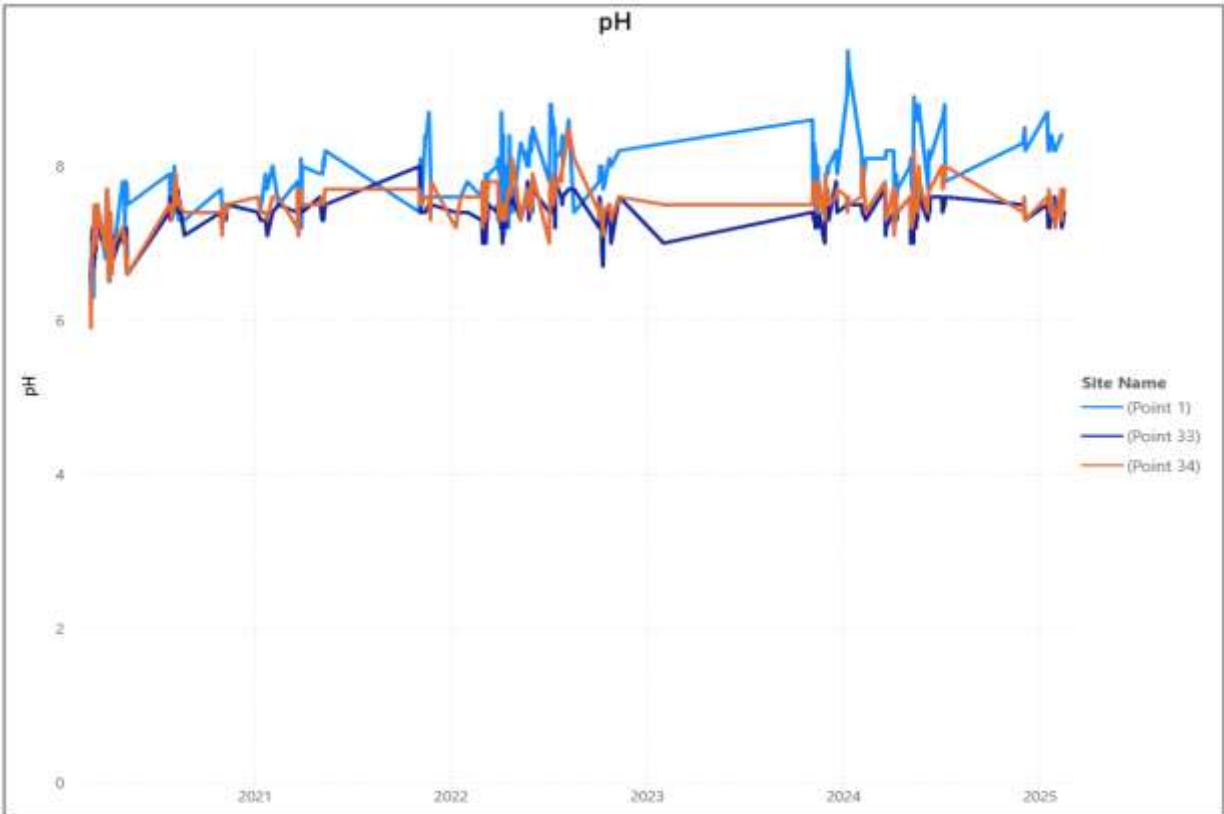
		Alkalinity (as calcium carbonate)	Ammonia	Calcium	Chloride	Conductivity	Dissolved Oxygen	Filterable iron	Fluoride	Magnesium	Nitrate as N	pH	Potassium	Sodium	Sulfate	Temperature	Total organic carbon	Total Phenolics	Total suspended solids	
Units		mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	pH	mg/L	mg/L	mg/L	°C	mg/L	mg/L	mg/L	
Site Name	Sample Date																			
(Point 33)	20/03/2024	87	1.04	32	29	271	7.04	0.09	0.1	23	0.05	7.7	14	85	11	22.7	5	<1.00	<5	
	21/03/2024	108	0.05	23	37	432	8.43	0.10	0.2	9	0.09	7.1	4	37	14	17.5	8	<1.00	<5	
	22/03/2024	101	0.03	22	35	287	8.90	0.17	0.3	9	0.06	7.2	4	35	13	18.8	6	<1.00	<5	
	05/04/2024	54	0.01	12	25	220	8.85	0.25	0.1	5	0.63	7.4	4	18	14	18.6	9	<0.05	31	
	06/04/2024	32	0.26	10	16	135	8.21	0.36	0.1	4	0.58	7.2	5	12	8	22.1	7	<0.05	437	
	07/04/2024	54	0.19	14	25	176	8.64	0.11	0.1	6	0.50	7.5	3	19	13	20.0	5	<0.05	52	
	08/04/2024	68	0.30	20	27	216	8.60	<0.05	0.3	9	0.36	7.3	5	21	13	19.4	4	<0.05	19	
	09/04/2024	68	0.24	17	27	249	8.94	<0.05	0.1	7	0.28	7.6	3	20	12	17.5	4	<0.05	16	
	10/04/2024	72	0.12	16	27	263	10.1	<0.05	0.1	8	0.32	7.3	3	20	13	15.8	4	<0.05	11	
	11/04/2024	78	0.09	19	29	268	9.67	<0.05	0.2	9	0.28	7.3	3	24	13	15.6	3	<0.05	7	
	12/04/2024	88	0.09	21	34	302	9.83	<0.05	0.1	10	0.35	7.4	4	28	14	16.3	4	<0.05	8	
	06/05/2024	55	0.12	13	24	208	9.56	0.21	0.1	7	0.69	7.6	4	19	12	15.8	8	<0.05	145	
	07/05/2024	67	0.14	14	27	240	9.58	0.29	0.1	6	0.83	7.0	4	25	12	15.6	7	<0.05	36	
	08/05/2024	75	0.14	17	39	395	9.30	0.08	0.1	8	0.71	7.2	11	28	15	16.8	6	<0.05	12	
	09/05/2024	65	0.31	14	27	201	9.30	0.25	0.1	6	0.75	7.1	4	24	13	16.4	8	<0.05	31	
	10/05/2024	73	0.29	17	29	269	9.48	0.12	0.1	7	0.63	7.0	2	22	15	15.6	6	<0.05	14	
	11/05/2024	62	0.55	14	22	186	9.48	0.26	0.2	6	0.43	7.2	6	24	9	16.2	9	<0.05	86	
	12/05/2024	59	0.44	12	19	155	8.31	0.21	0.1	5	0.31	7.0	4	20	10	15.9	8	<0.05	78	
	13/05/2024	68	0.64	13	29	216	7.92	0.20	0.1	7	0.26	7.9	4	23	12	17.2	42	<0.05	31	
	14/05/2024	65	0.47	15	25	238	8.93	0.09	0.1	8	0.30	7.8	3	20	13	16.3	6	<0.05	22	
	15/05/2024	69	0.38	17	26	247	9.23	0.07	<0.1	8	0.28	7.7	4	24	14	17.4	5	<0.05	6	
	16/05/2024	76	0.60	19	28	224	9.61	0.07	0.1	9	0.28	7.4	4	24	14	17.1	5	<0.05	<5	
	17/05/2024	80	0.57	19	31	285	8.82	0.13	0.1	9	0.26	7.2	4	27	14	14.8	4	<0.05	16	
	18/05/2024	92	0.85	22	48	327	8.77	0.11	0.1	10	0.31	7.6	4	31	18	14.1	5	<0.05	10	
	19/05/2024	94	0.80	22	40	336	10.0	0.10	0.1	11	0.32	7.3	4	32	16	12.9	4	<0.05	11	
	20/05/2024	92	0.64	24	45	264	10.7	0.10	0.1	11	0.33	7.4	4	29	17	13.1	4	<0.05	5	
	21/05/2024	111	1.24	24	41	313	8.75	0.10	0.2	13	0.40	7.4	6	36	17	14.8	7	<0.05	<5	
	22/05/2024	110	1.18	29	48	326	8.72	0.11	0.2	14	0.47	7.7	6	38	18	15.2	6	<0.05	<5	
	23/05/2024	99	0.35	23	37	268	10.4	0.10	0.1	12	0.35	7.6	3	29	19	14.1	4	<0.05	<5	
	07/06/2024	44	0.51	9	12	105	9.96	0.26	<0.1	4	0.54	7.3	3	14	7	14.0	8	<0.05	122	
	08/06/2024	58	0.67	13	21	210	9.81	0.23	0.1	6	0.35	7.3	4	19	12	12.9	6	<0.05	31	
	09/06/2024	68	0.90	16	24	247	9.84	0.21	0.1	7	0.23	7.4	4	23	14	12.8	5	<0.05	22	
	10/06/2024	67	0.41	16	25	241	10.0	0.08	0.2	7	0.33	7.5	4	21	14	12.6	3	<0.05	11	
	11/06/2024	71	0.53	18	26	257	10.6	<0.05	0.1	9	0.80	7.4	4	26	15	11.2	4	<0.05	10	
	12/06/2024	91	2.04	20	38	351	9.84	0.06	0.1	10	0.36	7.6	8	34	16	11.6	6	<0.05	13	
	04/07/2024	77	0.03	26	40		10.6	<0.05	0.1	12	0.15	7.6	6	40	20	12.8	2	<0.05	12	
	05/07/2024	55	0.06	19	29		10.5	0.15	<0.1	8	0.50	7.4	3	21	13	12.0	5	<0.05	31	
	09/07/2024	93	0.09	25	34		9.76	0.05	0.1	10	0.26	7.5	3	30	18	13.9	4	<0.05	7	
	10/07/2024	118	2.52	29	59		9.06	0.12	0.2	12	2.10	7.6	9	51	20	13.5	9	<0.05	6	
	02/12/2024	92	0.05	19	35		6.45	<0.05	0.2	8	0.27	7.5	4	33	14	25.9	8	<0.05	6	
	03/12/2024	78	0.05	20	33		5.89	<0.05	0.1	8	0.17	7.4	4	32	12	24.6	7	<0.05	8	
	04/12/2024	73	0.03	19	27		5.63	0.05	0.1	7	0.10	7.4	3	26	9	23.9	6	<0.05	8	
	05/12/2024	72	0.03	17	22		5.07	0.06	0.1	7	0.07	7.4	2	23	8	24.1	5	<0.05	13	
	06/12/2024	84	0.06	22	28		4.16	0.10	0.1	9	0.06	7.3	3	29	10	24.9	4	<0.05	13	
	16/01/2025	94	0.05	20	38		20.6	0.09	0.2	6	0.36	7.5	4	33	18	6.8	10	<0.05	24	
	17/01/2025	76	0.03	17	33		6.68	0.10	0.2	6	0.18	7.4	4	34	15	20.8	9	<0.05	14	
	18/01/2025	74	0.04	19	30		6.89	0.05	0.2	7	0.11	7.2	4	32	14	19.4	5	<0.05	12	
	19/01/2025	77	0.04	24	29		6.94	<0.05	0.1	8	0.08	7.4	4	30	16	20.9	4	<0.05	8	
	20/01/2025	73	0.03	19	26		6.71	<0.05	0.1	8	0.05	7.2	3	27	13	21.1	5	<0.05	6	
	21/01/2025	74	0.04	18	26		5.22	0.06	0.1	6	0.04	7.3	2	26	11	21.4	4	<0.05	11	
	23/01/2025	98	0.04	25	34		3.66	0.11	0.2	10	0.04	7.3	3	33	13	23.4	5	<0.05	9	
	24/01/2025	101	0.05	22	33		5.60	0.07	0.2	10	0.14	7.3	3	32	15	21.1	6	<0.05	6	
	29/01/2025	102	0.04	23	38		3.68	0.07	0.2	10	0.07	7.3	4	37	13	23.4	6	<0.05	6	
	30/01/2025	158	0.06	28	63		4.88	<0.05	0.4	14	0.23	7.6	8	79	24	22.6	10	<0.05	14	
	31/01/2025	155	0.07	28	61		4.75	<0.05	0.4	12	0.24	7.4	7	76	22	22.5	4	<0.05	23	
	11/02/2025	116	0.04	30	41		4.94	0.14	0.2	12	0.04	7.5	4	37	15	23.1	6	<0.05	5	
	12/02/2025	94	0.02	22	34		4.55	0.12	0.2	8	0.03	7.2	3	35	13	22.6	5	<0.05	<5	
	17/02/2025	79	0.03	17	24		4.65	0.15	0.1	6	0.01	7.4	2	24	8	21.4	4	<0.05	<5	

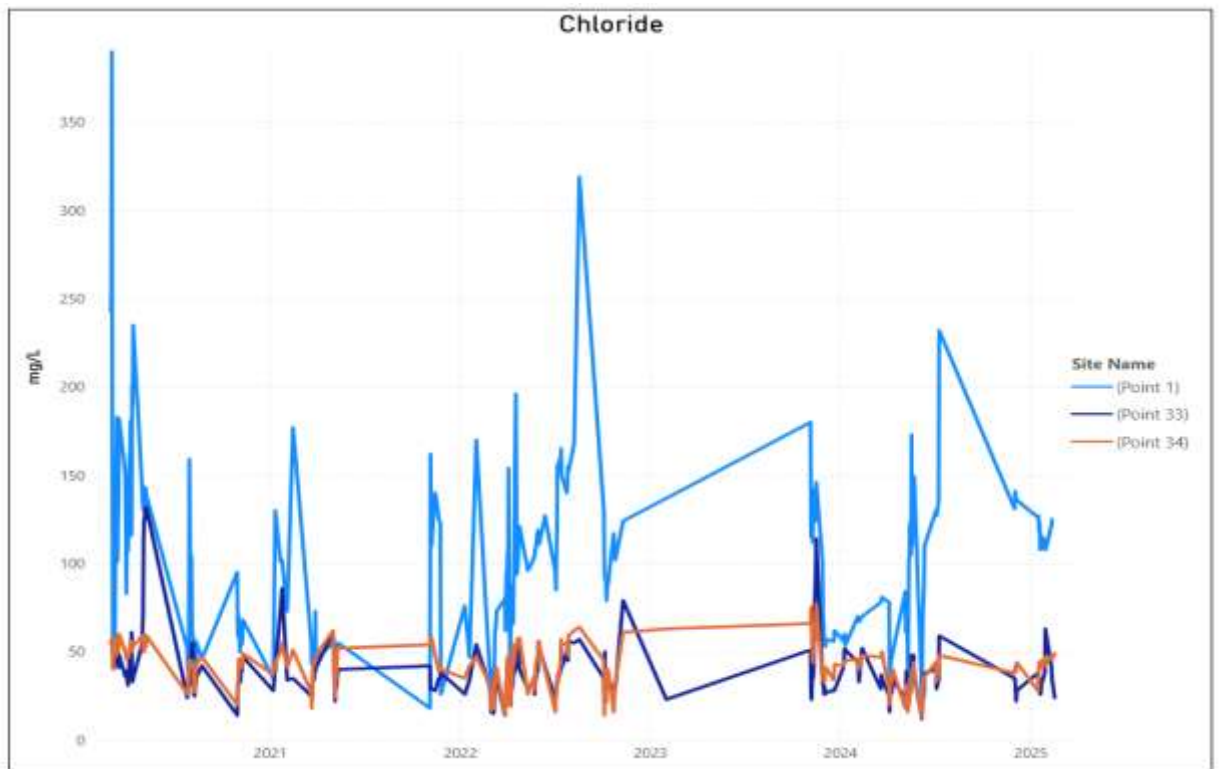
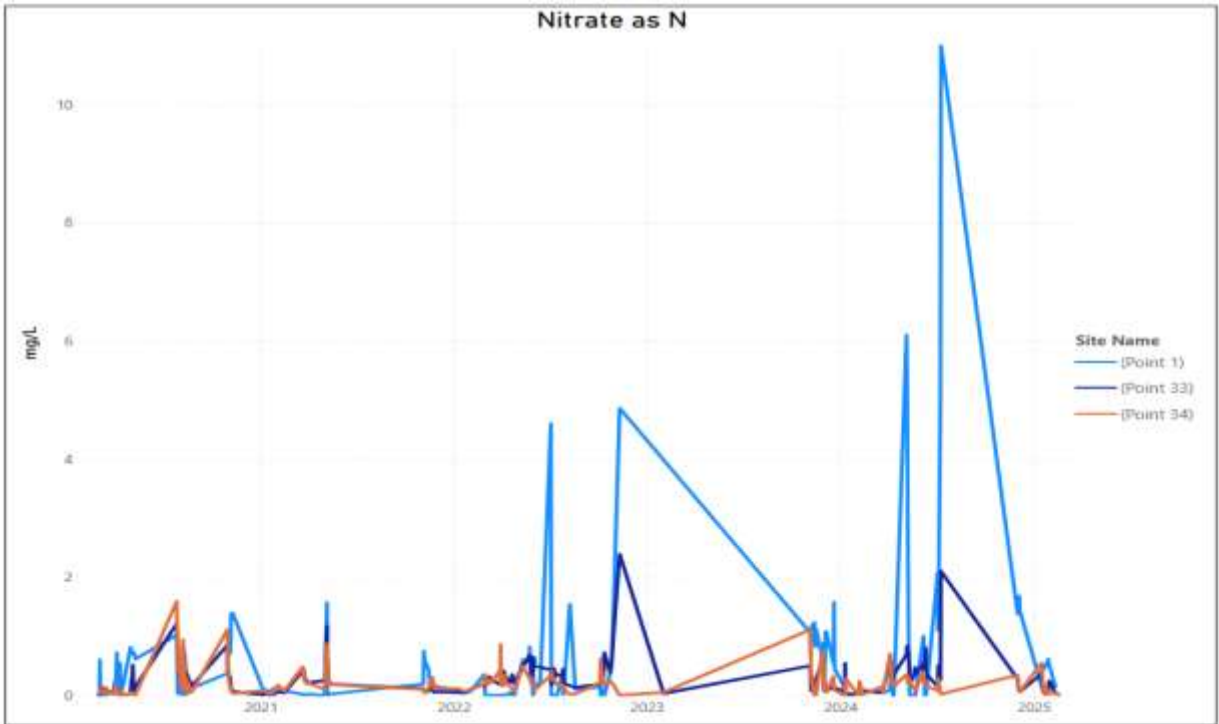
		Alkalinity (as calcium carbonate)	Ammonia	Calcium	Chloride	Conductivity	Dissolved Oxygen	Filterable iron	Fluoride	Magnesium	Nitrate as N	pH	Potassium	Sodium	Sulfate	Temperature	Total organic carbon	Total Phenolics	Total suspended solids	
	Units	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	pH	mg/L	mg/L	mg/L	°C	mg/L	mg/L	mg/L	
Site Name	Sample Date																			
(Point 34)	20/03/2024	140	0.04	39	47	458	8.00	<0.05	0.2	17	0.14	7.8	4	38	22	20.9	4	<1.00	<5	
	21/03/2024	152	0.03	38	47	584	9.21	<0.05	0.2	16	0.13	7.6	3	39	23	15.9	5	<1.00	<5	
	22/03/2024	154	0.04	40	50	473	10.4	<0.05	0.2	17	0.05	7.3	4	40	23	19.7	3	<1.00	<5	
	05/04/2024	72	<0.01	18	28	272	10.0	0.21	0.1	8	0.70	7.7	3	21	17	18.5	8	<0.05	48	
	06/04/2024	34	0.03	10	20	155	9.29	0.20	0.1	4	0.58	7.1	3	14	10	21.2	6	<0.05	169	
	07/04/2024	62	0.02	16	29	199	9.49	0.07	0.1	7	0.40	7.4	3	20	15	19.9	5	<0.05	25	
	08/04/2024	79	0.02	24	32	249	9.30	<0.05	0.2	11	0.42	7.3	4	24	18	19.2	4	<0.05	6	
	09/04/2024	86	<0.01	22	34	320	9.91	<0.05	0.2	10	0.21	7.7	3	22	18	17.1	3	<0.05	<5	
	10/04/2024	91	0.01	23	35	337	10.4	<0.05	0.2	11	0.22	7.6	3	25	19	15.8	3	<0.05	<5	
	11/04/2024	103	<0.01	27	38	362	11.0	<0.05	0.1	13	0.18	7.4	3	28	19	14.3	3	<0.05	<5	
	12/04/2024	111	<0.01	28	40	367	10.3	<0.05	0.1	14	0.15	7.4	3	32	21	15.2	3	<0.05	<5	
	06/05/2024	46	<0.01	11	18	165	10.8	0.31	0.1	6	0.35	7.6	4	15	9	15.5	8	<0.05	154	
	07/05/2024	62	0.01	14	26	226	10.5	0.21	0.1	6	0.33	7.2	2	21	12	15.3	5	<0.05	16	
	08/05/2024	68	0.06	16	31	261	10.5	0.09	0.1	8	0.21	7.5	2	24	16	16.6	5	<0.05	42	
	09/05/2024	61	0.02	14	26	185	10.5	0.22	0.1	6	0.30	7.2	3	20	14	16.3	<1	<0.05	22	
	10/05/2024	71	0.01	19	28	266	10.5	0.10	0.1	9	0.21	7.5	3	24	19	15.7	4	<0.05	12	
	11/05/2024	44	0.01	10	16	123	10.8	0.38	<0.1	5	0.21	7.3	4	15	7	16.0	8	<0.05	229	
	12/05/2024	51	0.01	12	19	144	9.66	0.21	0.1	6	0.28	7.3	3	18	13	16.1	7	<0.05	39	
	13/05/2024	54	<0.01	13	22	190	9.37	0.20	0.1	7	0.22	8.2	2	18	14	16.8	5	<0.05	30	
	14/05/2024	58	0.02	16	27	232	9.70	0.08	0.1	8	0.21	7.4	2	20	16	16.5	4	<0.05	18	
	15/05/2024	69	0.02	19	30	262	9.73	<0.05	<0.1	9	0.19	7.8	3	24	18	17.8	4	<0.05	17	
	16/05/2024	76	<0.01	22	32	238	10.6	<0.05	0.1	11	0.17	7.5	2	23	18	16.4	3	<0.05	<5	
	17/05/2024	80	<0.01	23	35	307	9.59	0.05	0.1	10	0.16	7.5	3	26	19	14.8	3	<0.05	11	
	18/05/2024	87	0.04	25	35	325	9.95	<0.05	0.1	11	0.14	7.6	2	28	20	14.1	3	<0.05	8	
	19/05/2024	89	0.03	26	40	337	11.2	<0.05	0.1	12	0.13	7.5	2	29	22	13.2	3	<0.05	<5	
	20/05/2024	92	0.04	28	37	268	11.5	<0.05	0.1	12	0.13	7.6	3	27	23	13.2	2	<0.05	5	
	21/05/2024	101	<0.01	27	37	280	10.9	<0.05	0.1	14	0.12	7.4	2	28	24	14.6	3	<0.05	<5	
	22/05/2024	112	<0.01	33	44	301	10.5	<0.05	0.1	14	0.08	8.0	2	30	25	15.0	2	<0.05	<5	
	23/05/2024	106	<0.01	29	39	285	11.8	<0.05	0.1	14	0.09	7.8	2	29	26	13.1	2	<0.05	<5	
	07/06/2024	40	<0.01	9	13	99	10.8	0.22	<0.1	4	0.39	7.4	3	13	8	14.0	6	<0.05	92	
	08/06/2024	56	0.02	14	23	215	11.0	0.13	0.1	6	0.29	7.6	4	18	15	13.4	4	<0.05	20	
	09/06/2024	68	0.02	19	28	261	10.9	0.06	0.1	8	0.22	7.6	2	22	19	13.3	3	<0.05	11	
	10/06/2024	77	0.01	22	31	293	11.1	<0.05	0.1	9	0.23	7.7	2	24	21	12.8	3	<0.05	9	
	11/06/2024	83	0.01	26	35	315	11.4	<0.05	0.1	12	0.18	7.7	3	30	22	11.7	3	<0.05	6	
	12/06/2024	86	<0.01	25	36	328	10.6	0.05	<0.1	12	0.16	7.7	3	28	24	12.3	2	<0.05	<5	
	04/07/2024	87	<0.01	29	44		12.2	<0.05	0.1	12	0.08	8.0	5	33	24	12.7	4	<0.05	16	
	05/07/2024	67	<0.01	23	33		11.4	0.16	0.1	10	0.28	7.7	3	24	17	11.4	5	<0.05	29	
	09/07/2024	106	0.02	33	42		11.7	0.05	0.1	13	0.03	7.8	2	34	25	13.1	2	<0.05	6	
	10/07/2024	101	0.02	34	48		13.2	0.06	0.1	14	0.02	8.0	3	35	27	12.7	2	<0.05	<5	
	02/12/2024	114	0.03	30	38		7.98	<0.05	0.2	13	0.34	7.4	4	31	25	24.7	5	<0.05	<5	
	03/12/2024	114	0.01	36	40		7.33	<0.05	0.2	14	0.22	7.5	3	33	23	22.7	4	<0.05	<5	
	04/12/2024	125	0.01	38	42		8.05	<0.05	0.2	15	0.15	7.6	3	34	27	22.7	4	<0.05	<5	
	05/12/2024	129	<0.01	38	39		8.43	<0.05	0.2	17	0.09	7.5	4	34	27	22.2	4	<0.05	8	
	06/12/2024	136	0.02	41	44		5.89	<0.05	0.1	17	0.06	7.3	5	36	26	22.3	2	<0.05	8	
	16/01/2025	74	<0.01	21	28		20.2	0.20	0.2	6	0.54	7.6	3	21	17	8.2	10	<0.05	18	
	17/01/2025	105	0.01	29	35		7.91	0.06	0.2	11	0.40	7.6	3	30	24	18.6	5	<0.05	14	
	18/01/2025	122	0.02	40	44		7.63	<0.05	0.2	15	0.27	7.5	4	37	26	18.4	3	<0.05	<5	
	19/01/2025	123	0.02	40	42		8.19	0.05	0.2	15	0.16	7.7	4	37	27	19.1	3	<0.05	<5	
	20/01/2025	129	0.04	37	41		8.31	<0.05	0.2	17	0.10	7.5	4	35	25	20.2	4	<0.05	<5	
	21/01/2025	136	0.02	40	43		7.51	<0.05	0.2	14	0.07	7.4	3	37	51	19.0	3	<0.05	<5	
	23/01/2025	149	0.01	44	45		7.53	<0.05	0.2	19	0.01	7.4	4	37	26	21.6	3	<0.05	6	
	24/01/2025	138	0.02	34	41		8.22	<0.05	0.2	16	0.16	7.6	4	36	25	19.7	8	<0.05	8	
	29/01/2025	156	<0.01	42	47		6.90	<0.05	0.2	17	0.02	7.4	4	37	24	21.9	3	<0.05	<5	
	30/01/2025	156	0.02	44	42		5.48	<0.05	0.1	17	0.02	7.2	4	37	24	21.2	7	<0.05	<5	
	31/01/2025	158	0.02	44	43		6.04	<0.05	0.2	16	0.04	7.2	3	37	27	21.3	3	<0.05	<5	
	11/02/2025	176	0.13	53	48		8.13	<0.05	0.2	20	0.03	7.7	5	40	33	24.6	2	<0.05	<5	
	12/02/2025	176	0.02	48	46		5.40	<0.05	0.2	19	0.05	7.3	4	39	30	21.4	1	<0.05	53	
	17/02/2025	171	0.05	38	49		6.28	<0.05	0.2	17	0.01	7.7	3	38	28	19.2	2	<0.05	<5	

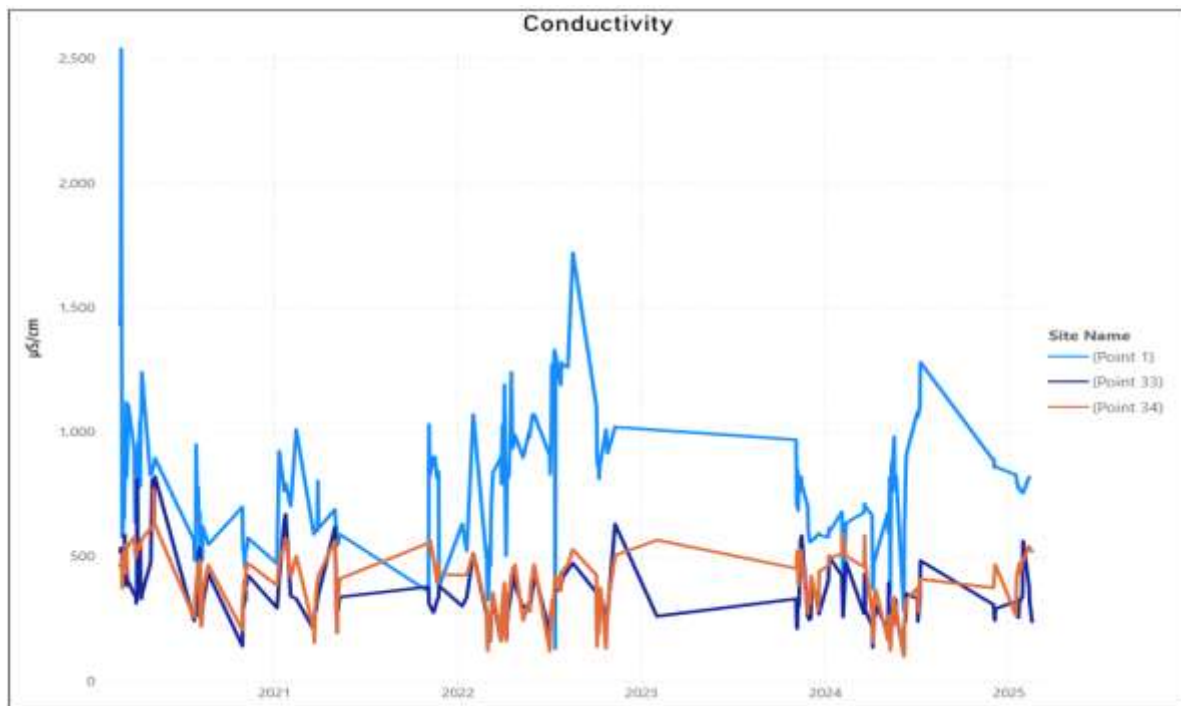
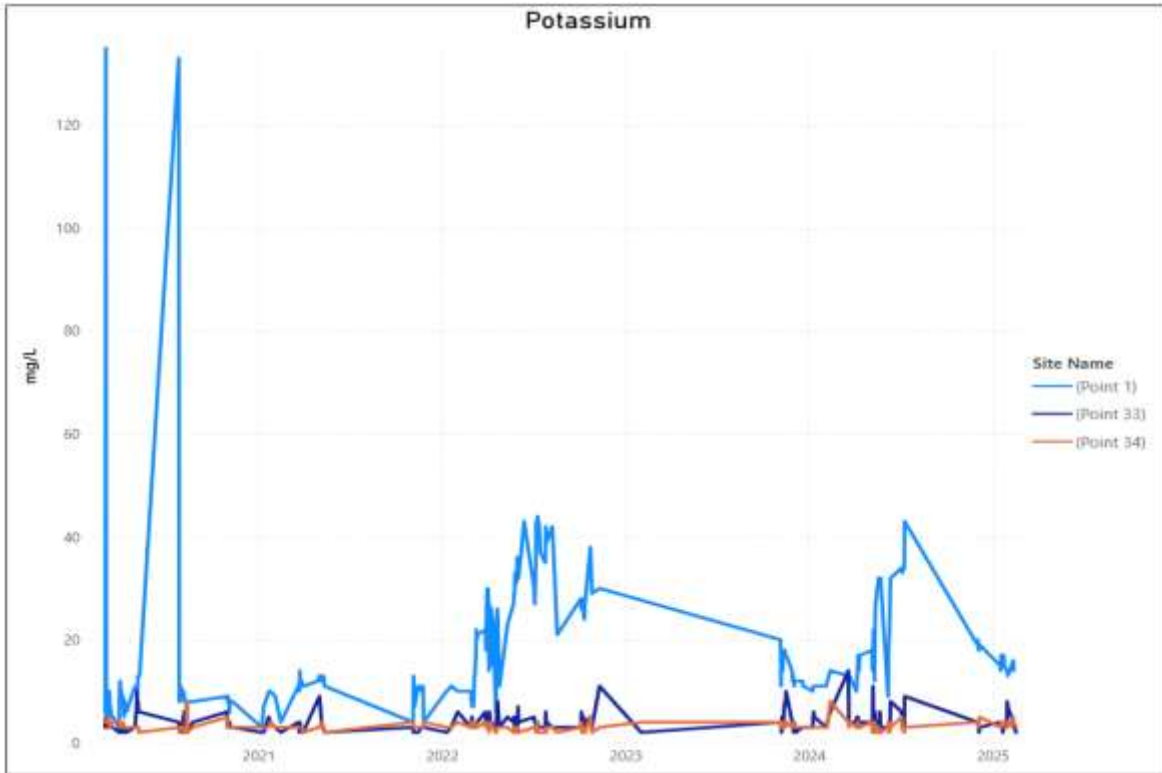


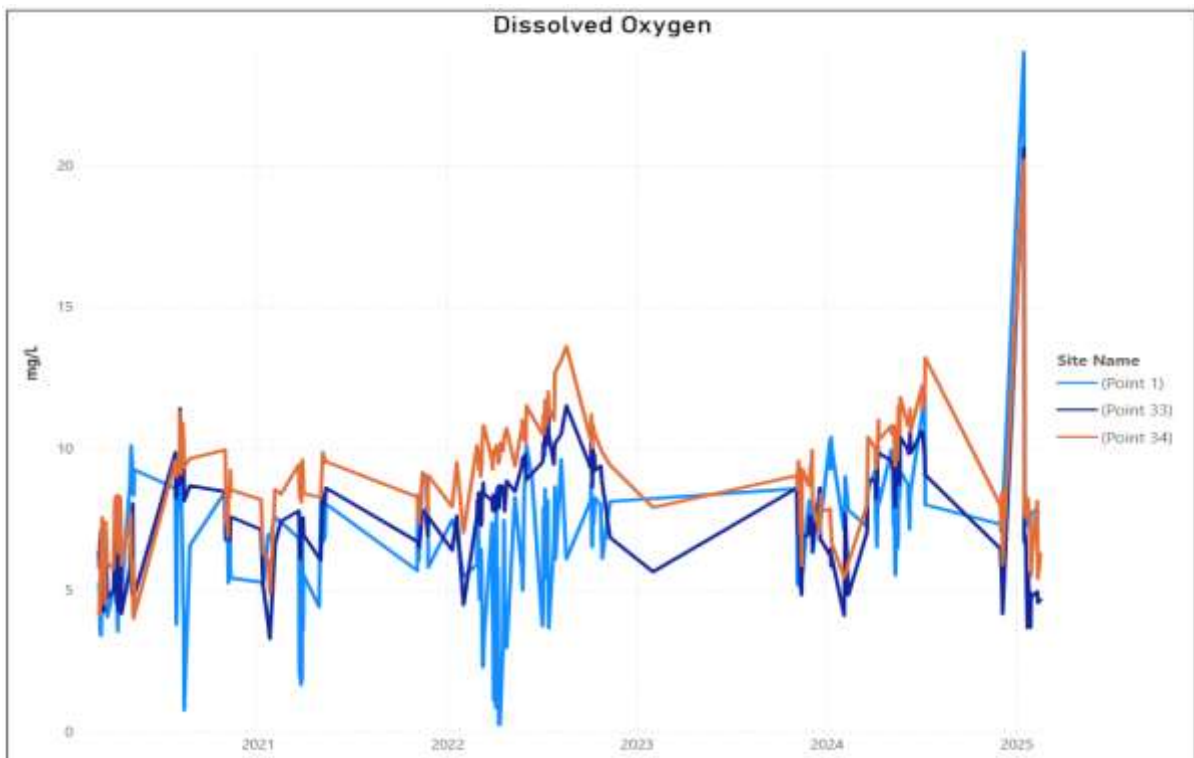
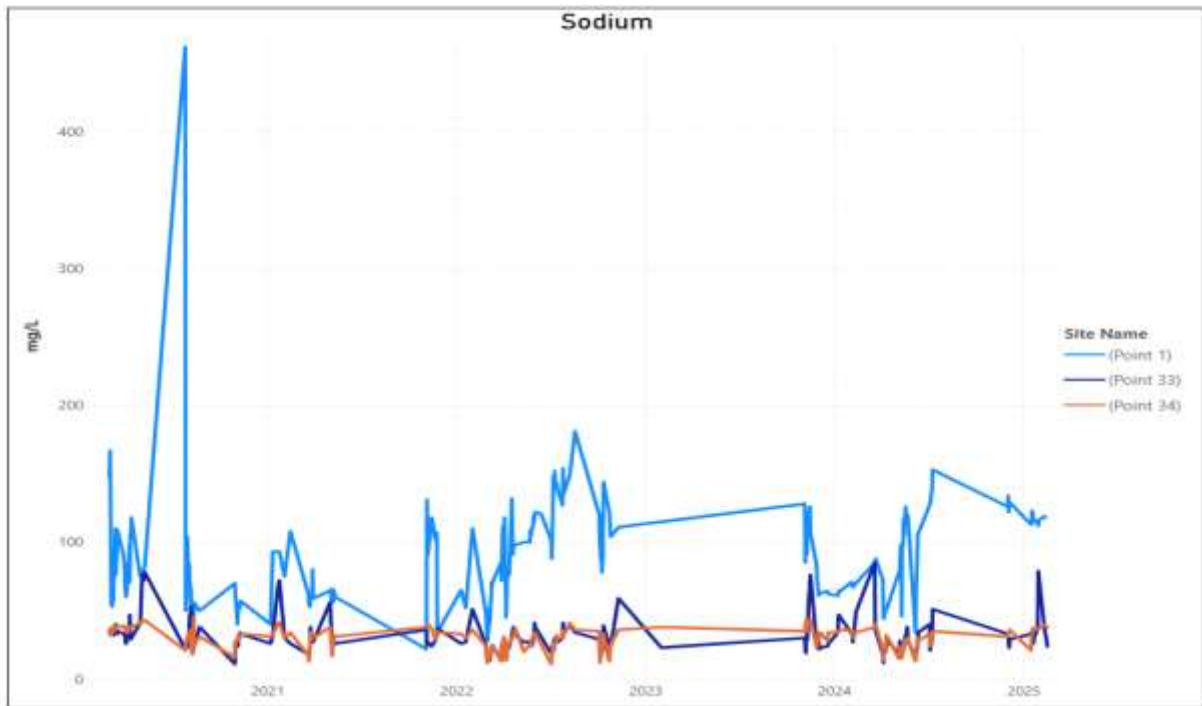


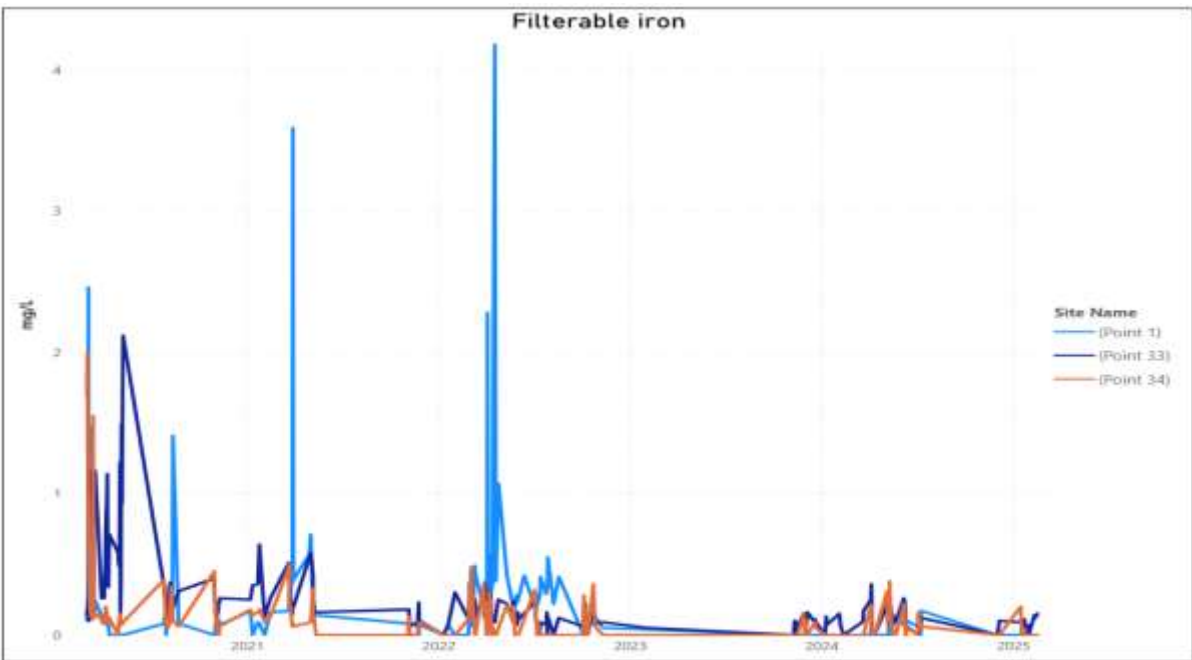
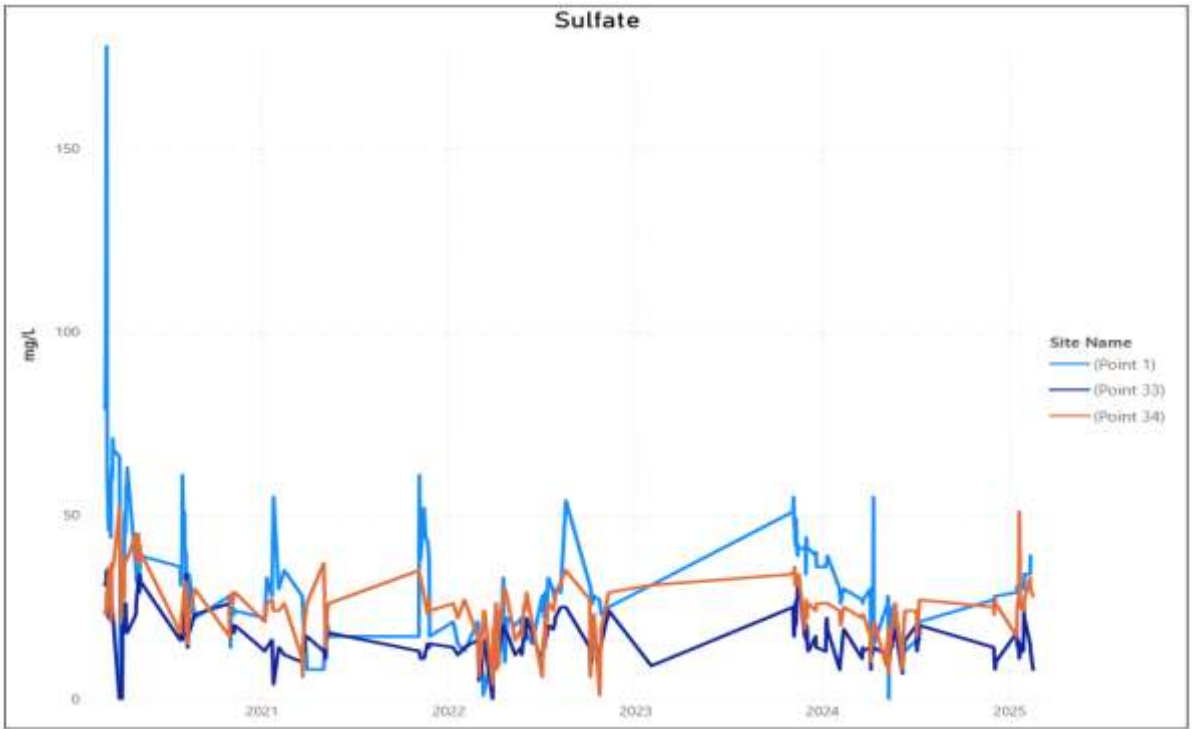


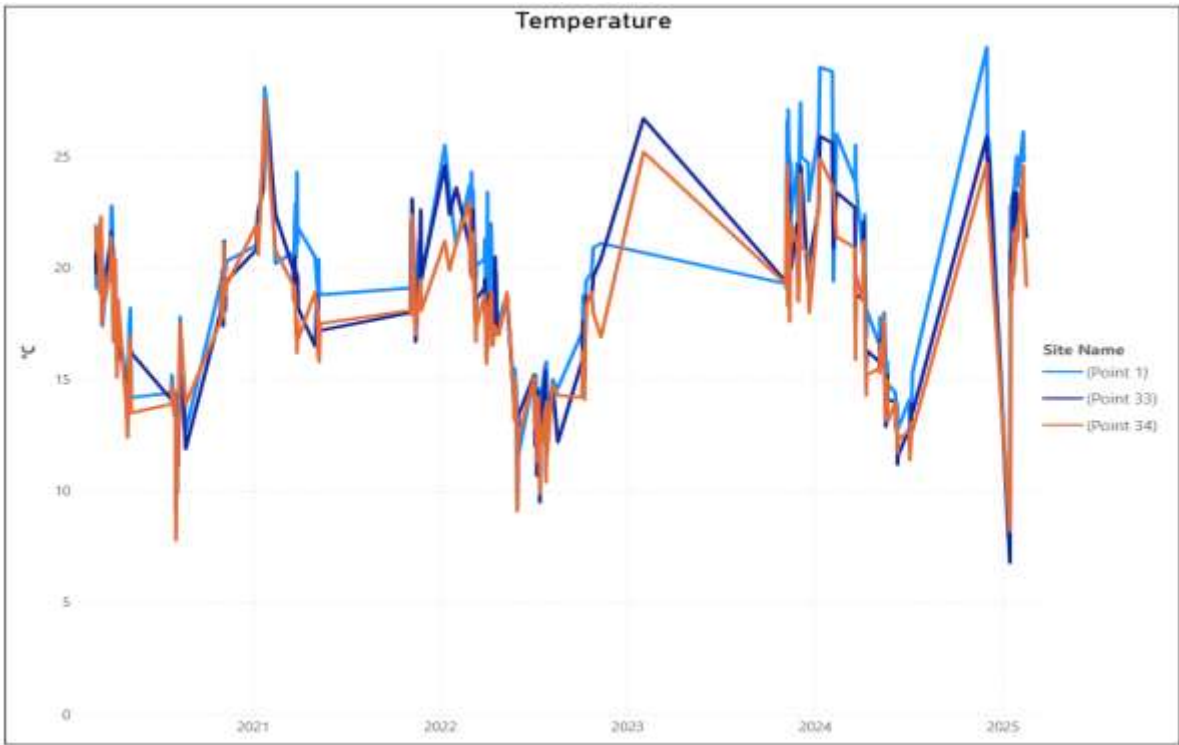








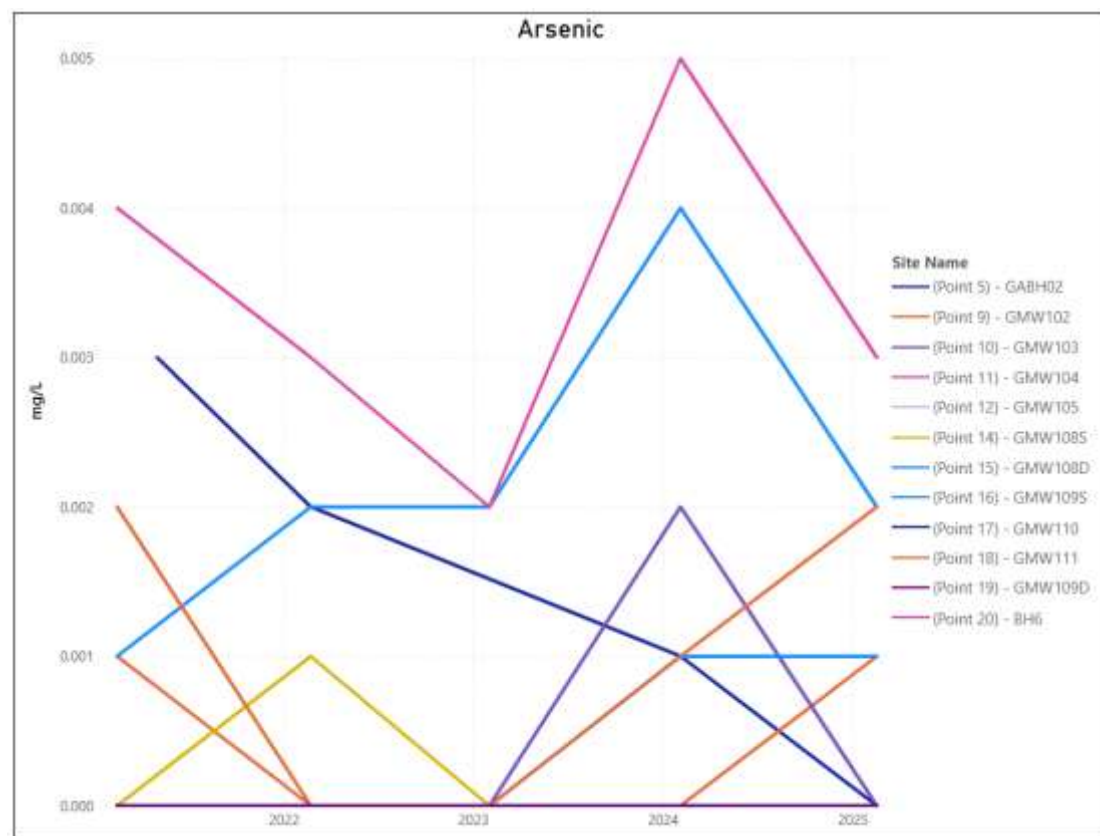
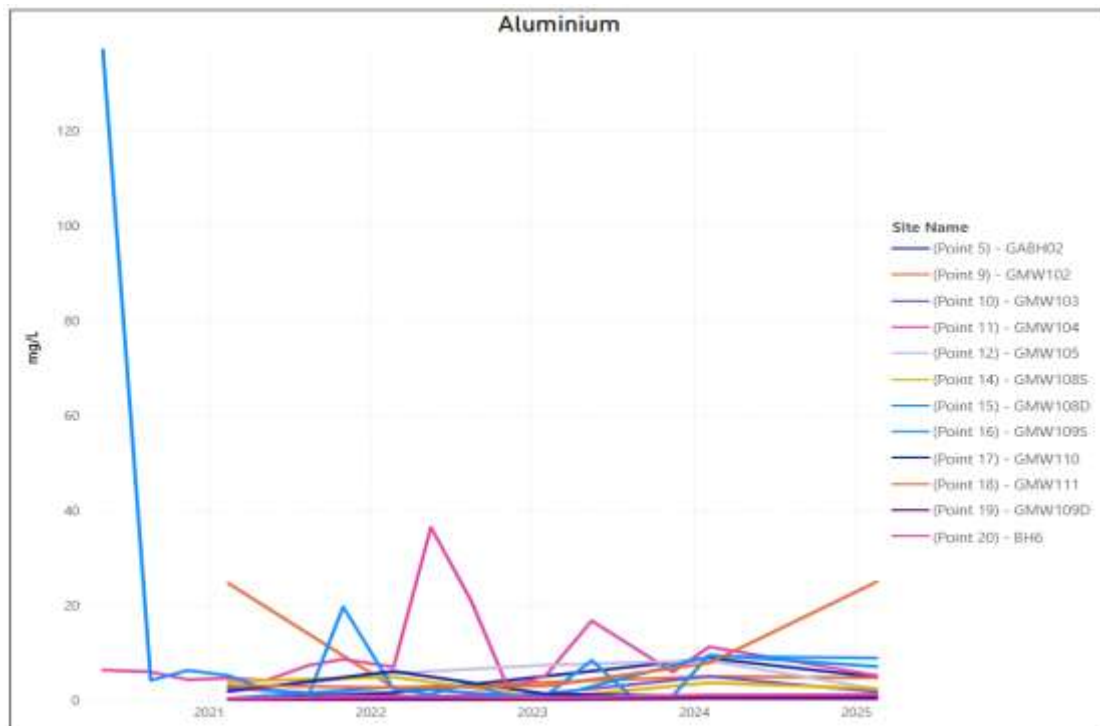


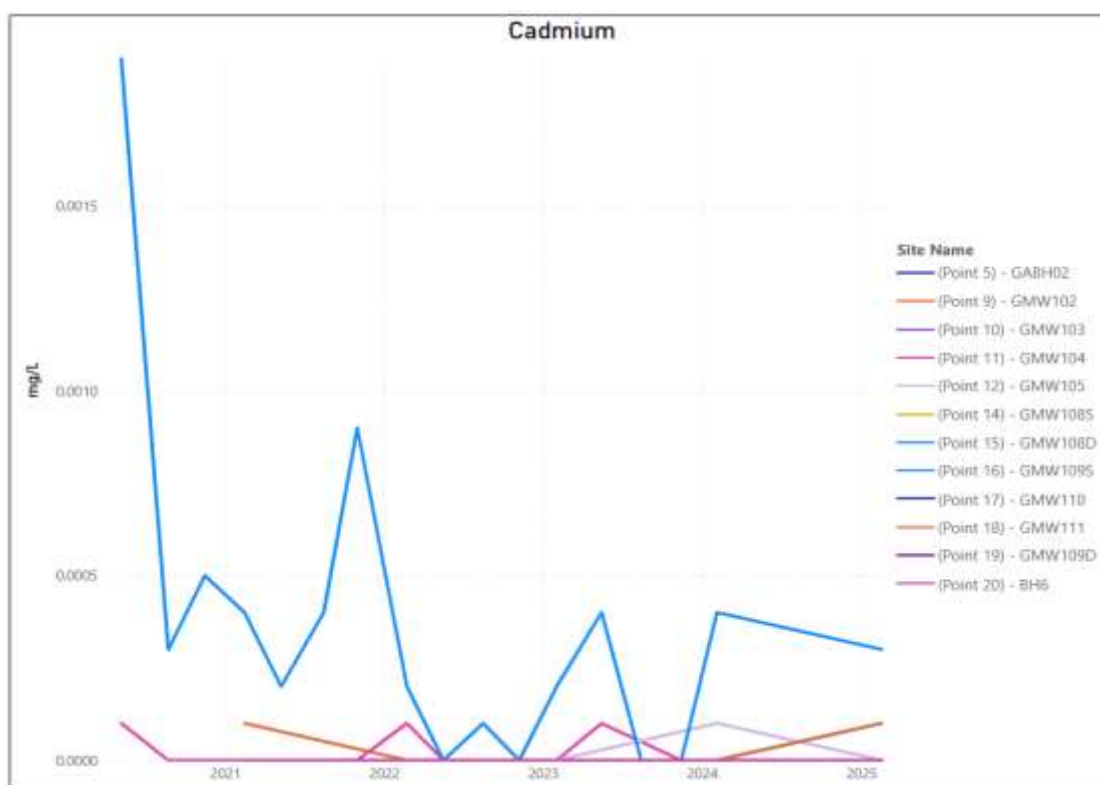
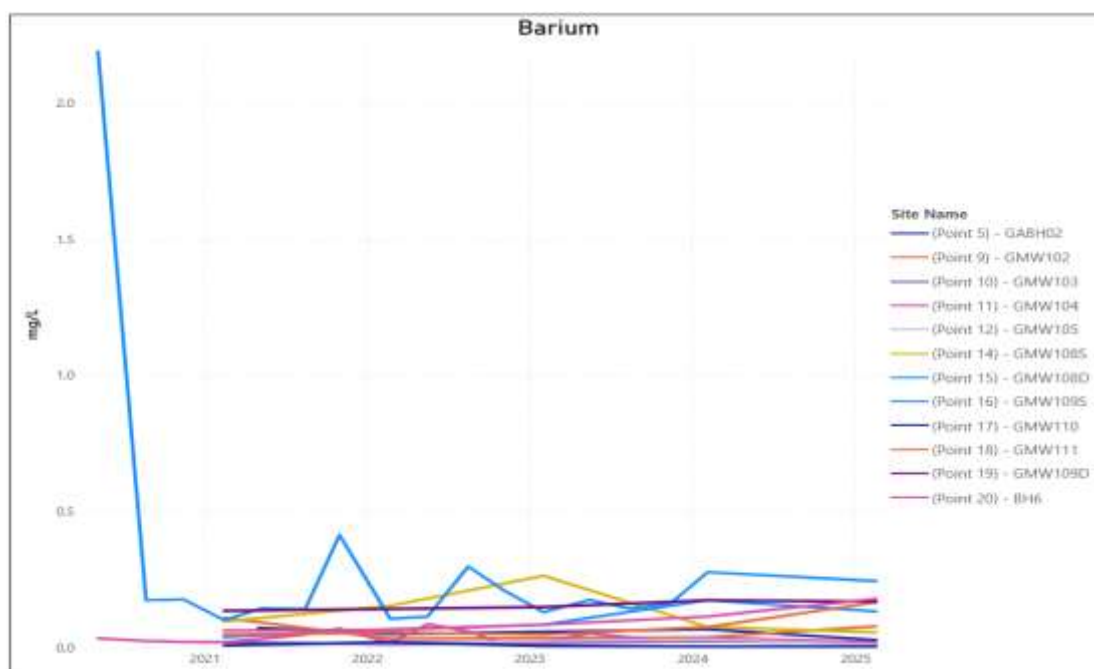


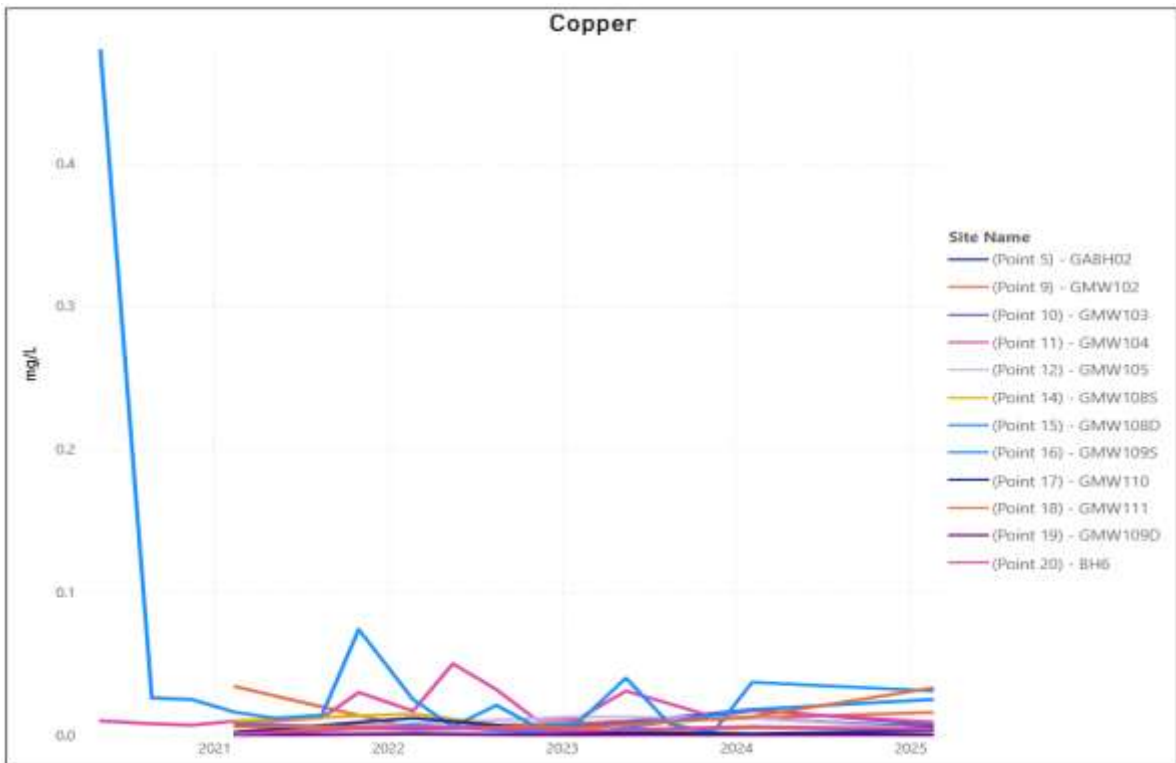
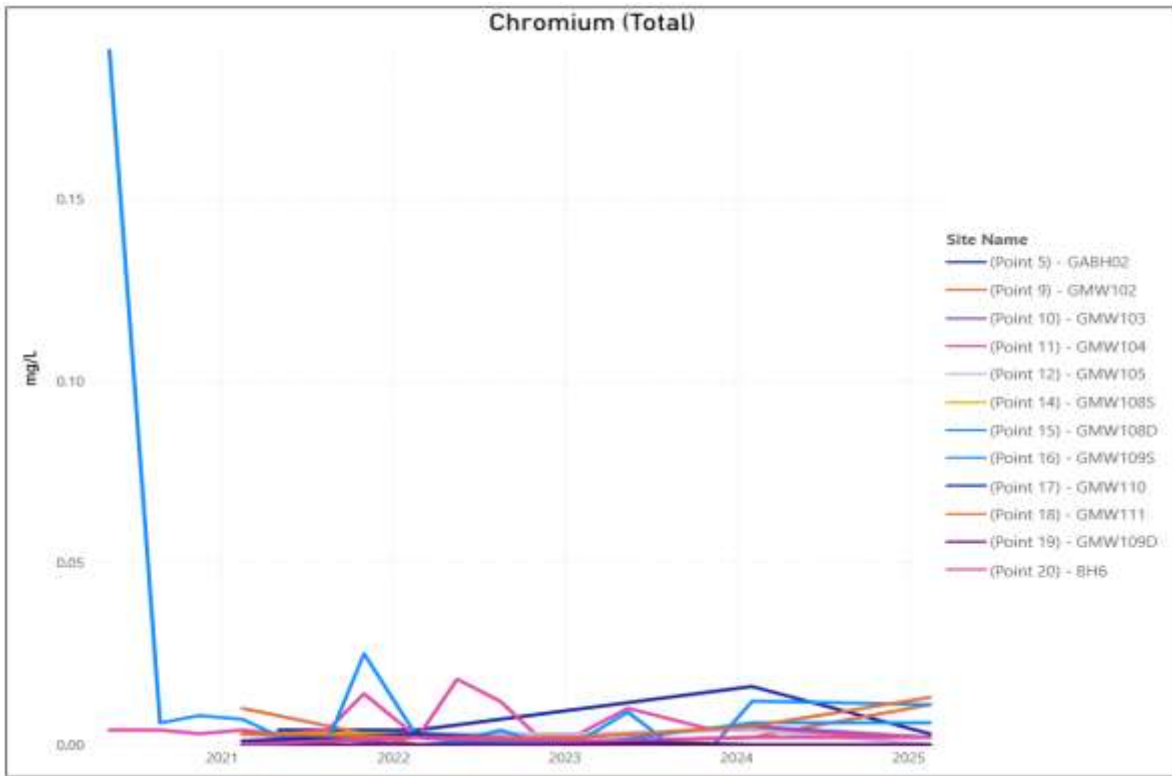
## Appendix B: Groundwater Tabulated Results and Trends (2024/25)

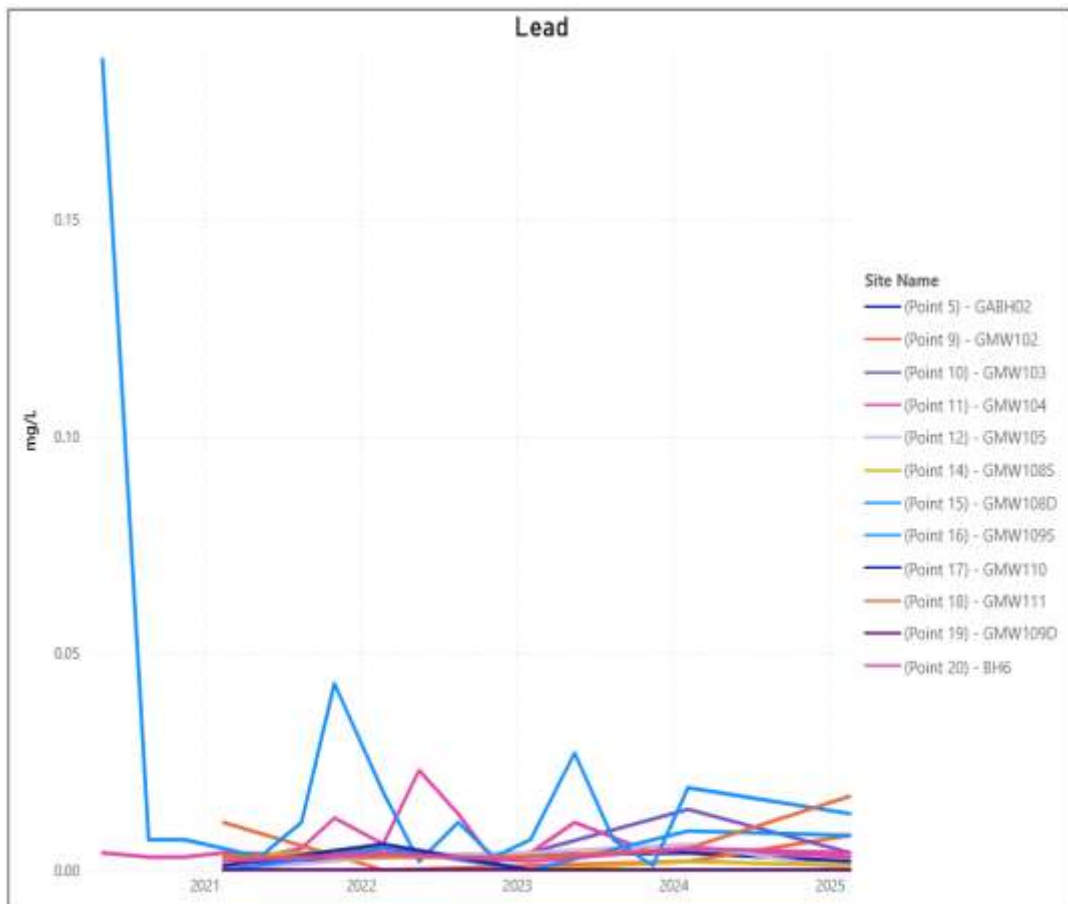
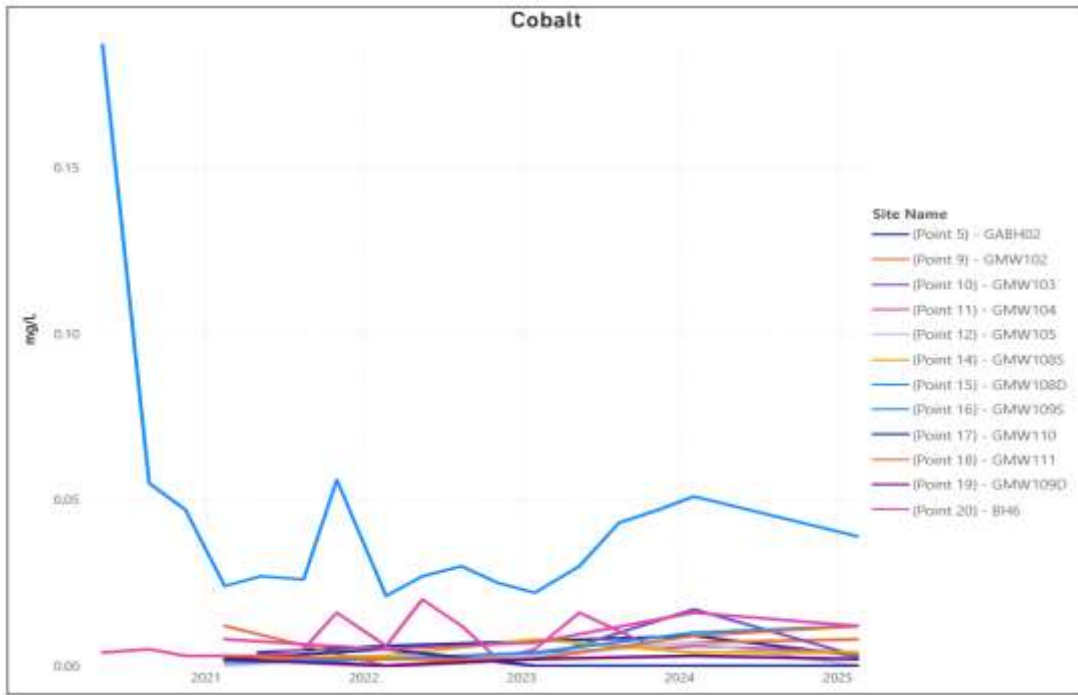
		Alkalinity (as calcium carbonate)	Aluminium	Ammonia	Arsenic	Barium	Benzene	Cadmium	Calcium	Chloride	Chromium (hexavalent)	Chromium (Total)	Cobalt	Conductivity	Copper	Depth	Ethylbenzene	Fluoride
Units		mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	Meters	µg/L	mg/L
Site Name	Sample Date																	
(Point 5) - GABH02	15/05/2024	828		0.33					118	1040				4100		4.34		
	20/08/2024	894		0.03					287	1020						4.40		
	20/11/2024	1010		0.04					313	1110						4.78		
	17/02/2025	1020	4.81	0.02	<0.001	0.028	<1	<0.0001	315	1060	<0.01	0.003	0.003		0.005	4.65	<2	0.6
(Point 9) - GMW102	20/08/2024	114		0.09					26	14						9.68		
	20/11/2024	591		0.02					212	435						8.14		
	17/02/2025	546	4.69	0.02	0.001	0.078	<1	<0.0001	192	354	<0.01	0.011	0.008		0.016	7.77	<2	0.5
(Point 10) - GMW103	15/05/2024	576		<0.01					96	61				1210		6.03		
	20/08/2024	422		0.04					134	171						7.55		
	20/11/2024	478		0.01					122	245						7.61		
	17/02/2025	427	1.70	0.02	<0.001	0.016	<1	<0.0001	126	211	<0.01	0.002	0.003		0.007	7.67	<2	0.4
(Point 11) - GMW104	20/08/2024	243		0.05					40	129						6.54		
	20/11/2024	410		0.05					59	134						7.49		
	17/02/2025	229	5.15	0.11	<0.001	0.019	<1	<0.0001	34	106	<0.01	0.002	0.004		0.009	7.12	<2	4.9
(Point 12) - GMW105	15/05/2024	16		<0.01					5	40				175		6.57		
	20/08/2024	34		<0.01					7	38						10.04		
	20/11/2024	35		0.01					6	39						11.0		
	17/02/2025	40	2.31	<0.01	<0.001	0.011	<1	<0.0001	6	32	<0.01	<0.001	<0.001		0.004	11.0	<2	0.4
(Point 13) - GMW106	15/05/2024	639		<0.01					41	401				2220		7.88		
	20/08/2024	770		0.09					136	913						7.74		
	20/11/2024	586		0.08					75	632						7.90		
	17/02/2025	384	123	0.48	0.014	1.38	<1	0.0007	29	298	<0.01	0.076	0.091		0.236	7.41	<2	0.6
(Point 14) - GMW108S	15/05/2024	127		0.03					26	22				282		2.15		
	20/08/2024	217		0.11					42	176						2.30		
	20/11/2024	408		0.14					100	522						2.52		
	17/02/2025	214	2.39	0.10	<0.001	0.056	<1	<0.0001	29	128	<0.01	0.002	0.004		0.004	2.47	<2	0.4
(Point 15) - GMW108D	15/05/2024	156		0.10					40	58				447		1.67		
	20/08/2024	390		0.37					156	586						1.76		
	20/11/2024	459		0.58					136	575						2.05		
	17/02/2025	320	8.85	0.17	0.001	0.133	<1	0.0001	92	391	<0.01	0.006	0.012		0.025	2.02	<2	0.3
(Point 16) - GMW109S	15/05/2024	685		0.32					144	253				2320		2.60		
	20/08/2024	309		0.69					103	249						3.30		
	20/11/2024	297		0.53					106	362						3.55		
	17/02/2025	290	7.05	0.67	0.002	0.244	<1	0.0003	122	400	<0.01	0.011	0.039		0.031	3.42	<2	0.1
(Point 17) - GMW110	15/05/2024	581		<0.01					116	933				3550		3.60		
	20/08/2024	572		<0.01					207	805						3.88		
	20/11/2024	630		0.10					196	864						4.07		
	17/02/2025	628	0.80	<0.01	<0.001	0.004	<1	<0.0001	211	845	<0.01	<0.001	<0.001		0.003	3.92	<2	0.4
(Point 18) - GMW111	15/05/2024	586		0.11					49	633				2670		6.15		
	20/08/2024	568		0.14					72	310						6.34		
	20/11/2024	418		0.09					36	150						6.39		
	17/02/2025	208	24.9	0.28	0.002	0.166	<1	0.0001	19	22	<0.01	0.013	0.012		0.033	6.46	<2	0.3
(Point 19) - GMW109D	15/05/2024	212		0.11					106	573				1770		2.43		
	20/08/2024	207		0.13					116	505						2.81		
	20/11/2024	226		0.11					108	566						3.05		
	17/02/2025	224	0.30	<0.01	<0.001	0.169	<1	<0.0001	118	576	<0.01	<0.001	0.002		<0.001	3.05	<2	0.4
(Point 20) - BH6	15/05/2024	430		0.26					49	453				1870		2.24		
	20/08/2024	535		0.32					98	640						2.40		
	20/11/2024	645		0.18					112	778						2.47		
	17/02/2025	660	1.11	0.28	0.003	0.179	<1	<0.0001	163	901	<0.01	0.002	0.012		0.004	2.32	<2	0.7

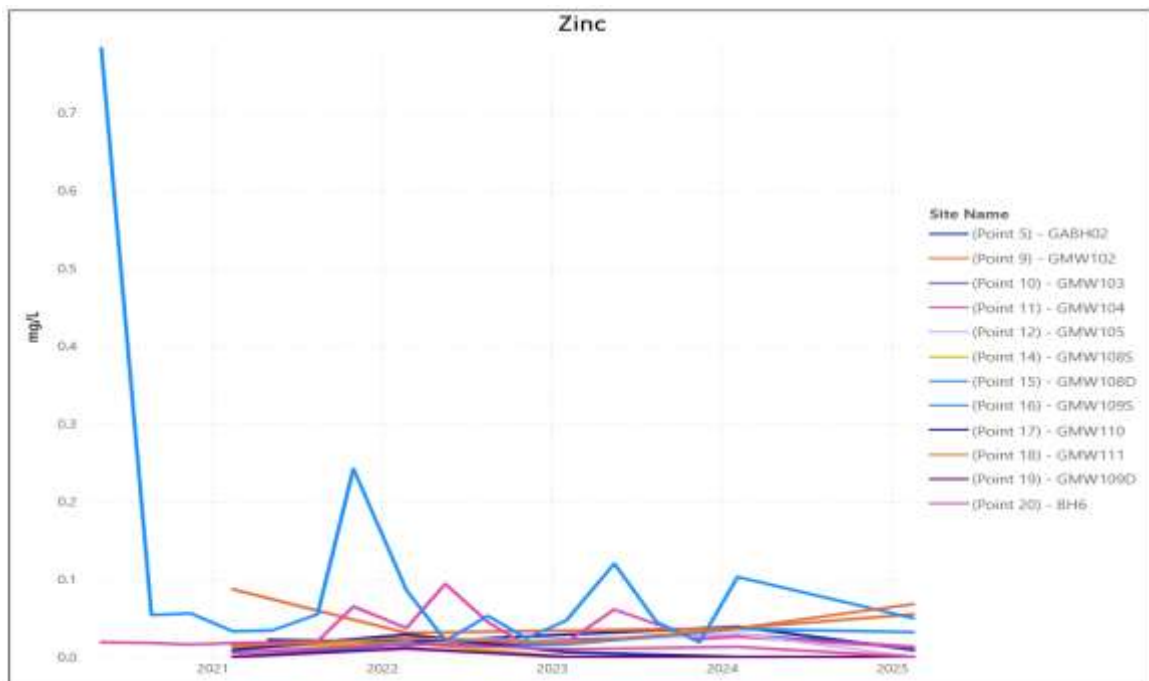
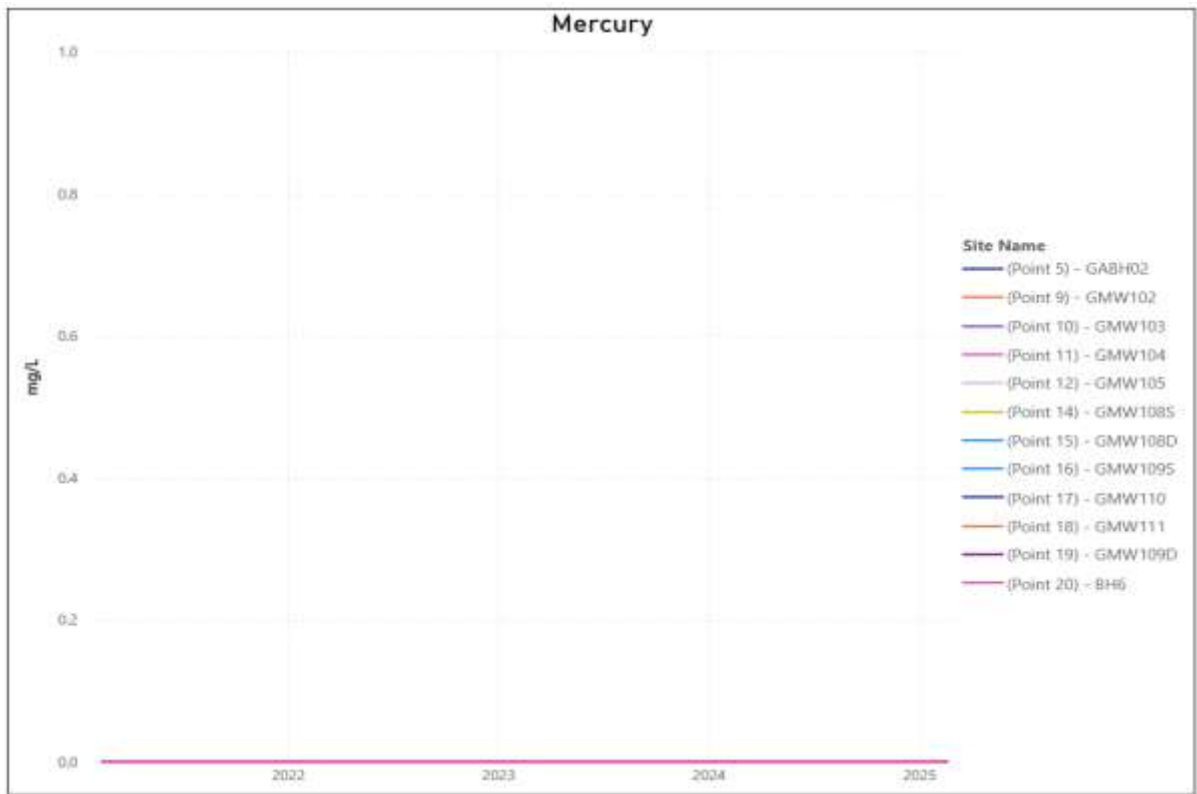
	Lead	Magnesium	Manganese	Mercury	Nitrate as N	Nitrite as N	Organochlorine Pesticides	Organophosphate Pesticides	pH	Polycyclic aromatic hydrocarbons	Potassium	Sodium	Sulfate	Toluene	Total Dissolved Solids	Total organic carbon	Total Petroleum Hydrocarbons	Total Phenolics	Xylene	Zinc
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	pH	µg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L
Site Name	Sample Date																			
(Point 5) - GABH02	15/05/2024		168						6.5		2	516	166		2940	2				
	20/08/2024		190						6.6		2	594	180		3220	10				
	20/11/2024		198						6.6		3	560	192		3040	1				
	17/02/2025	0.002	204	0.246	<0.0001	<0.01	<0.01	<0.5	<0.5	6.6	<0.5	2	607	184	<2	3890	4	<20	<0.05	<2
(Point 9) - GMW102	20/08/2024		6						6.5		<1	23	8		232	3				
	20/11/2024		130						7.2		2	149	309		1620	<1				
	17/02/2025	0.008	117	0.187	<0.0001	0.08	<0.01	<0.5	<0.5	7.3	<0.5	2	147	234	<2	1370	27	<100	<0.05	<2
(Point 10) - GMW103	15/05/2024		48						7.0		1	150	60		800	<1				
	20/08/2024		47						7.3		1	151	69		892	2				
	20/11/2024		44						7.1		1	139	89		890	<1				
	17/02/2025	0.004	45	0.112	<0.0001	0.12	<0.01	<0.5	<0.5	7.2	<0.5	<1	153	77	<2	903	22	<100	<0.05	<2
(Point 11) - GMW104	20/08/2024		25						7.1		<1	118	39		556	4				
	20/11/2024		34						7.3		1	130	58		628	<1				
	17/02/2025	0.003	22	0.483	<0.0001	0.12	<0.01	<0.5	<0.5	7.0	<0.5	<1	108	35	<2	502	3	<100	<0.05	<2
(Point 12) - GMW105	15/05/2024		3						5.4		<1	31	10		175	11				
	20/08/2024		3						5.8		<1	35	13		217	2				
	20/11/2024		3						5.8		<1	34	12		202	2				
	17/02/2025	<0.001	3	0.036	<0.0001	1.00	<0.01	<0.5	<0.5	5.8	<0.5	<1	31	11	<2	190	<1	<100	<0.05	<2
(Point 13) - GMW106	15/05/2024		33						6.7		1	507	217		1850	15				
	20/08/2024		95						7.2		2	950	540		3540	23				
	20/11/2024		51						7.0		3	577	379		2350	16				
	17/02/2025	0.134	19	2.92	<0.0001	4.13	0.04	<0.5	<0.5	6.9	<0.5	2	348	172	<2	1360	8	<100	<0.05	<2
(Point 14) - GMW108S	15/05/2024		9						6.8		4	30	6		222	5				
	20/08/2024		25						6.8		2	137	40		610	5				
	20/11/2024		73						6.6		4	278	142		1380	11				
	17/02/2025	0.001	19	0.346	<0.0001	<0.01	<0.01	<0.5	<0.5	6.8	<0.5	2	112	30	<2	522	8	<100	<0.05	<2
(Point 15) - GMW108D	15/05/2024		16						6.8		6	47	20		333	7				
	20/08/2024		80						6.7		6	296	159		1690	3				
	20/11/2024		80						6.6		7	308	168		1680	2				
	17/02/2025	0.008	48	1.33	<0.0001	0.01	<0.01	<0.5	<0.5	6.8	<0.5	6	226	148	<2	1080	3	<20	<0.05	<2
(Point 16) - GMW109S	15/05/2024		113						6.5		4	194	458		1830	32				
	20/08/2024		62						6.3		3	134	160		967	8				
	20/11/2024		67						6.1		5	130	172		961	5				
	17/02/2025	0.013	76	4.71	<0.0001	<0.01	<0.01	<0.5	<0.5	6.2	<0.5	4	144	111	<2	1210	1	<100	<0.05	<2
(Point 17) - GMW110	15/05/2024		156						6.5		2	479	351		2550	<1				
	20/08/2024		154						6.6		1	489	332		2630	<1				
	20/11/2024		155						6.6		2	449	344		2560	<1				
	17/02/2025	<0.001	160	0.035	<0.0001	6.28	<0.01	<0.5	<0.5	6.6	<0.5	1	478	335	<2	2750	2	<20	<0.05	<2
(Point 18) - GMW111	15/05/2024		89						6.8		1	449	203		1790	24				
	20/08/2024		56						7.0		1	346	97		1280	6				
	20/11/2024		25						6.8		<1	174	39		626	8				
	17/02/2025	0.017	5	0.447	<0.0001	0.02	0.02	<2.0	<2.0	7.1	<0.5	1	74	9	<2	539	15	<100	<0.05	<2
(Point 19) - GMW109D	15/05/2024		58						6.7		2	199	23		1380	<1				
	20/08/2024		58						6.8		1	200	25		1410	<1				
	20/11/2024		57						6.7		2	193	23		1350	<1				
	17/02/2025	<0.001	58	0.869	<0.0001	0.02	<0.01	<0.5	<0.5	6.8	<0.5	1	210	23	<2	1400	<1	<100	<0.05	<2
(Point 20) - BH6	15/05/2024		51						6.7		2	313	68		1220	9				
	20/08/2024		80						6.8		1	484	96		1780	12				
	20/11/2024		94						6.7		2	504	135		2200	10				
	17/02/2025	0.004	113	2.36	<0.0001	<0.01	<0.01	<0.5	<0.5	6.7	<0.5	2	564	188	<2	2780	10	<100	<0.05	<2

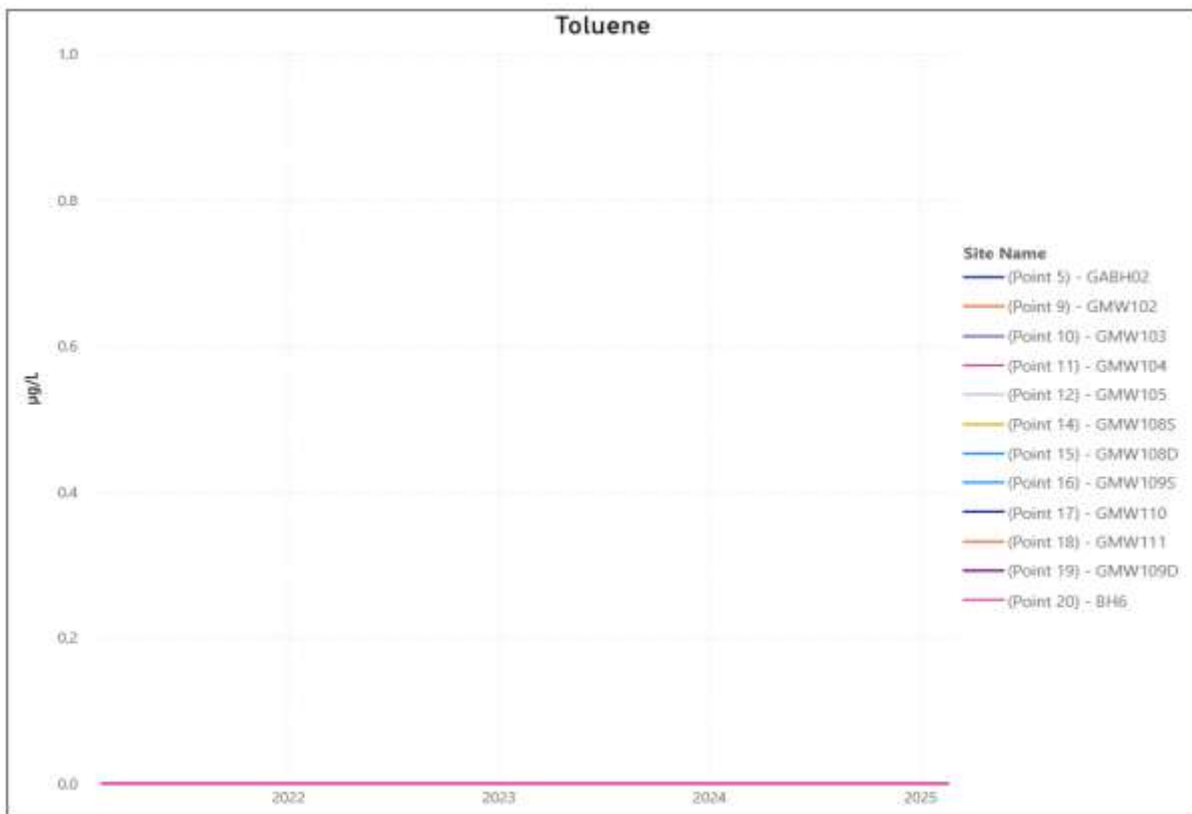
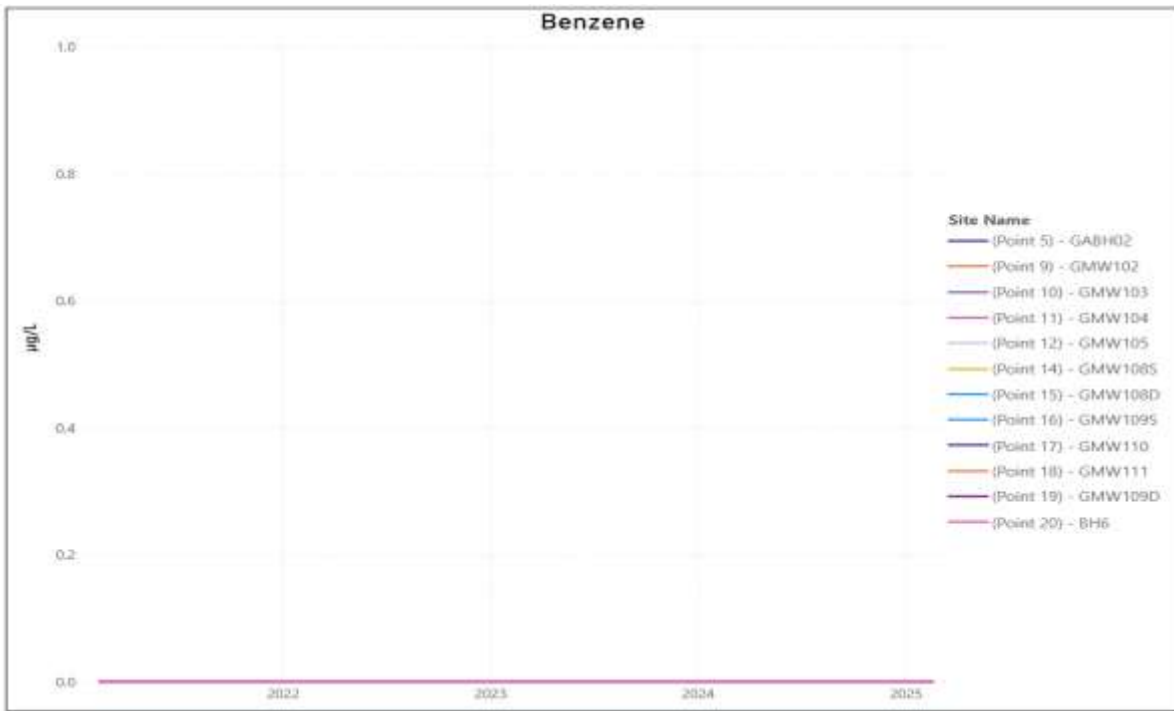


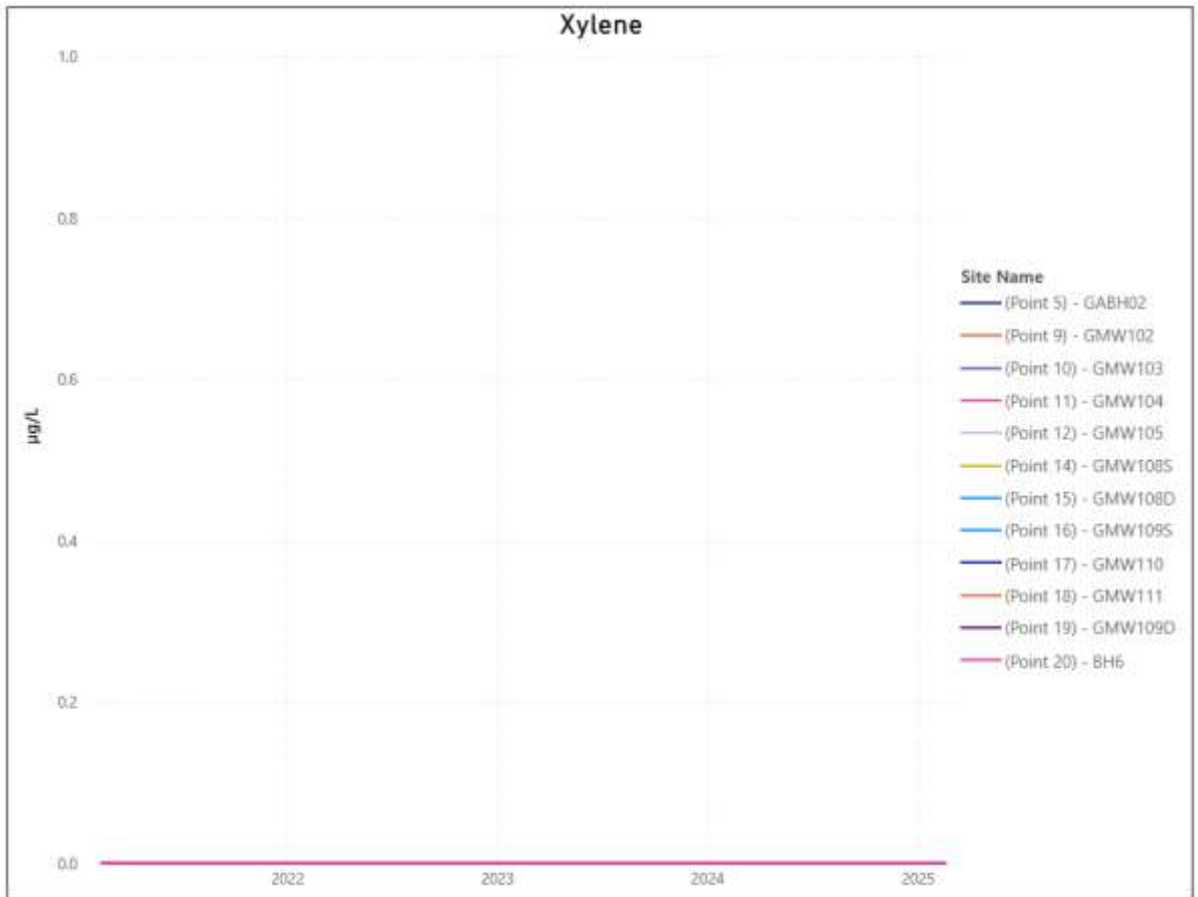
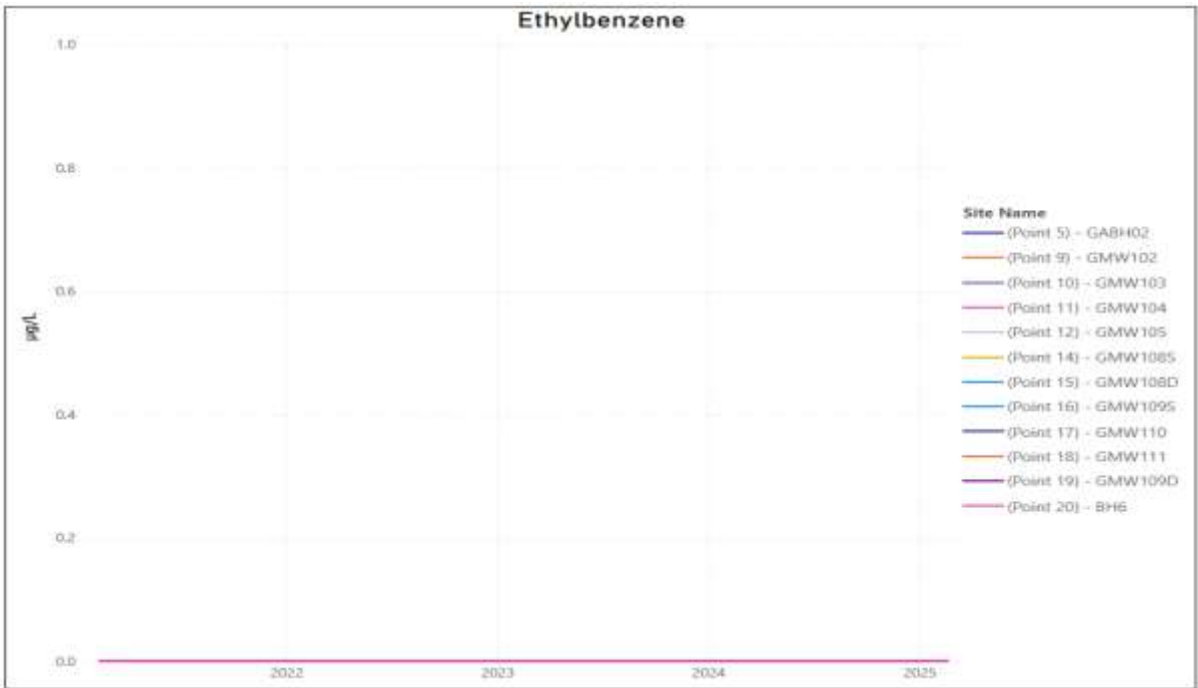


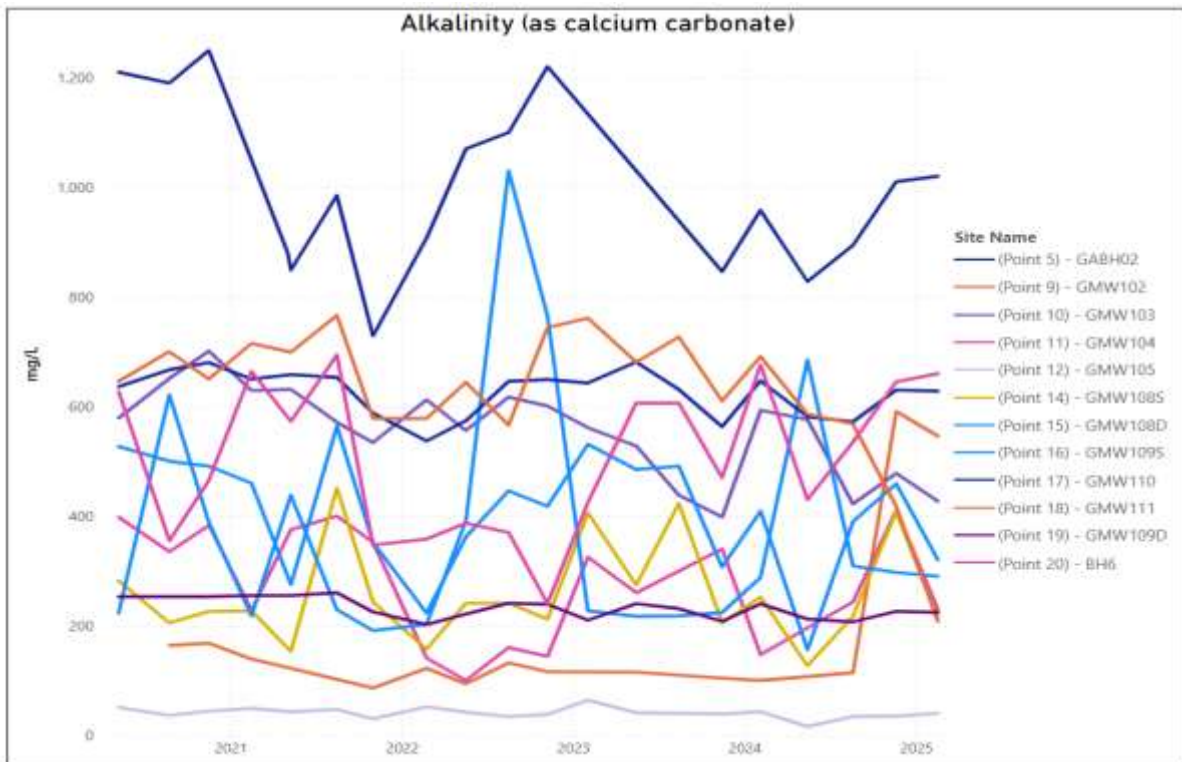
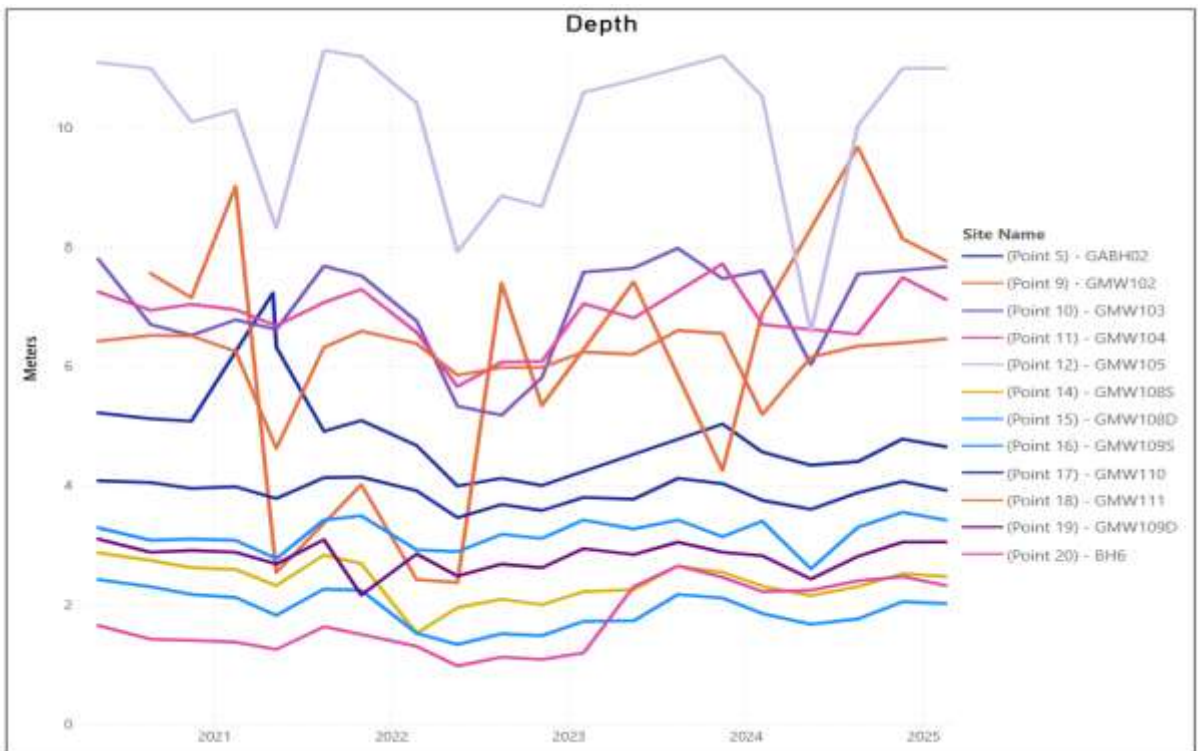


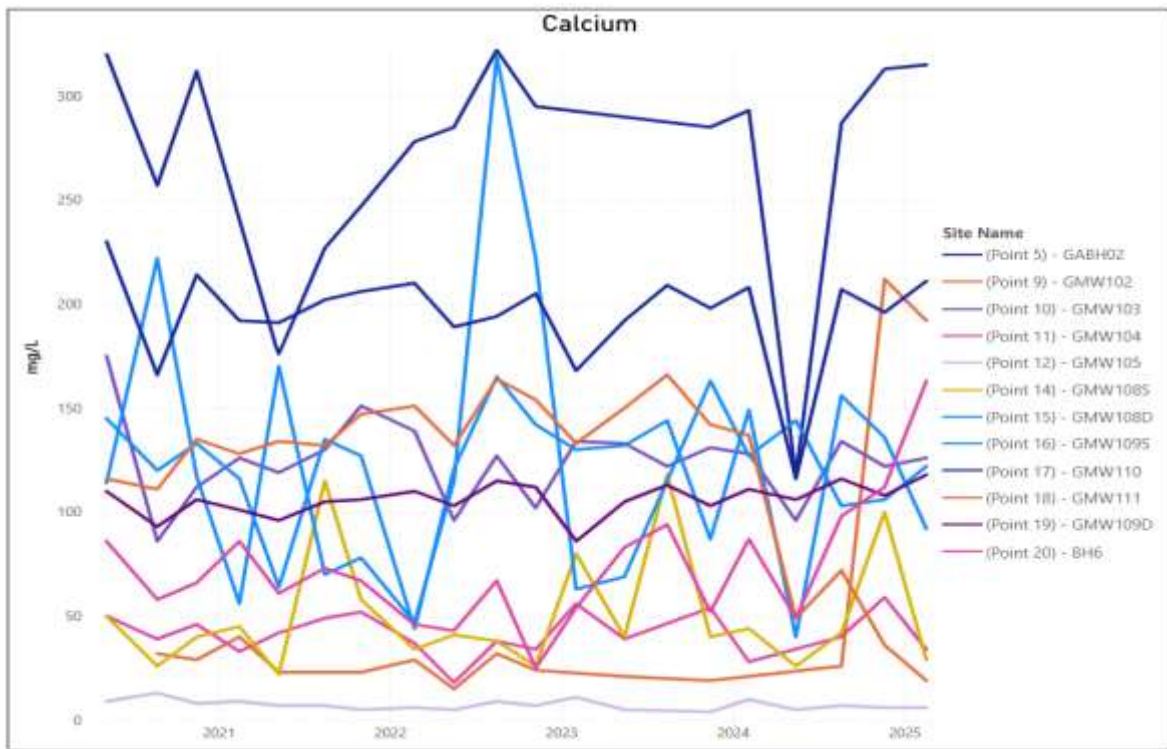
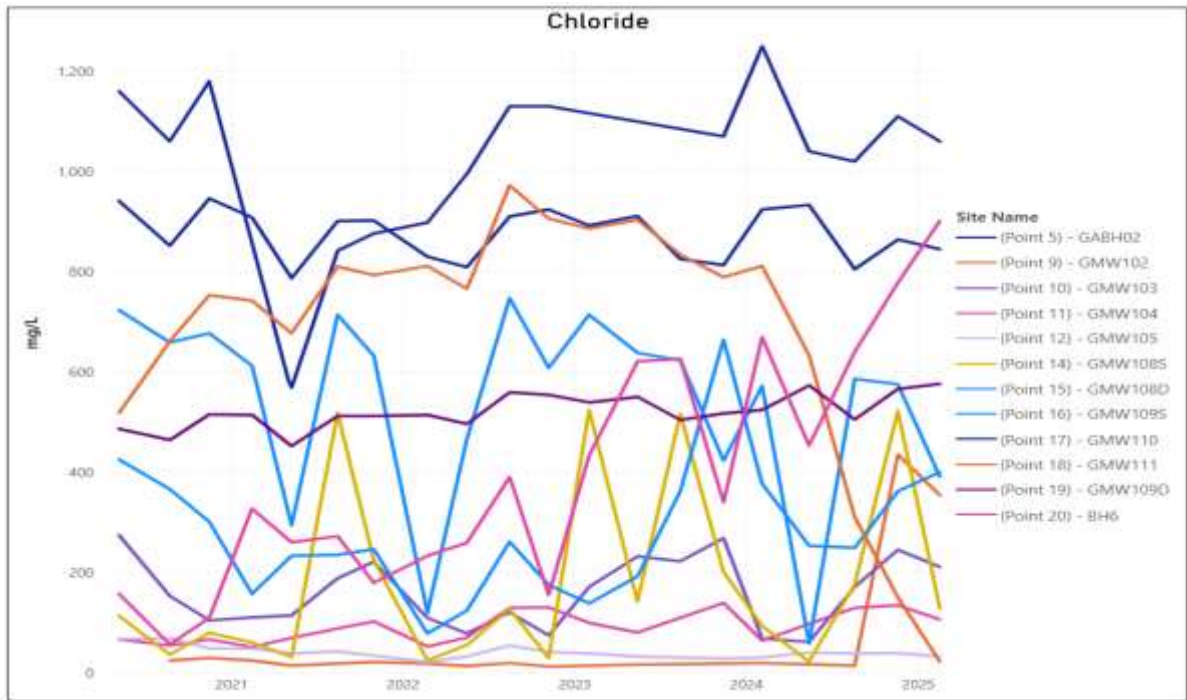


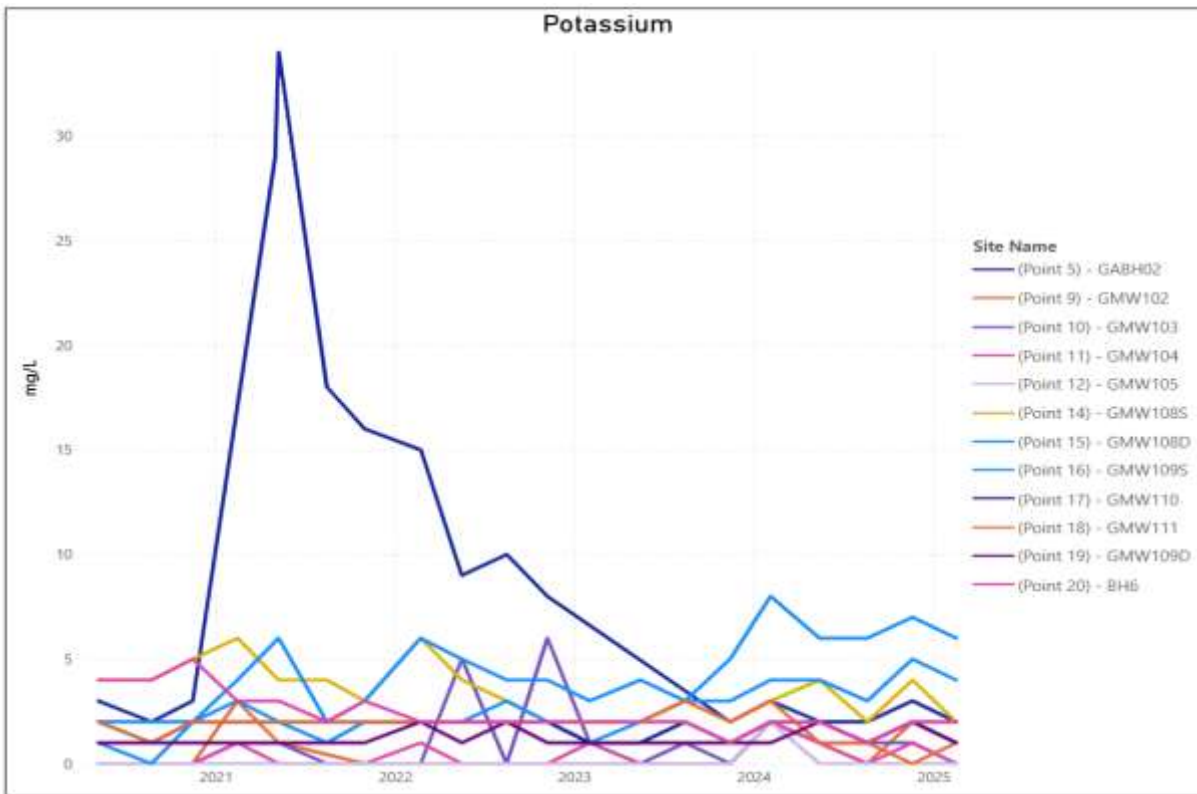
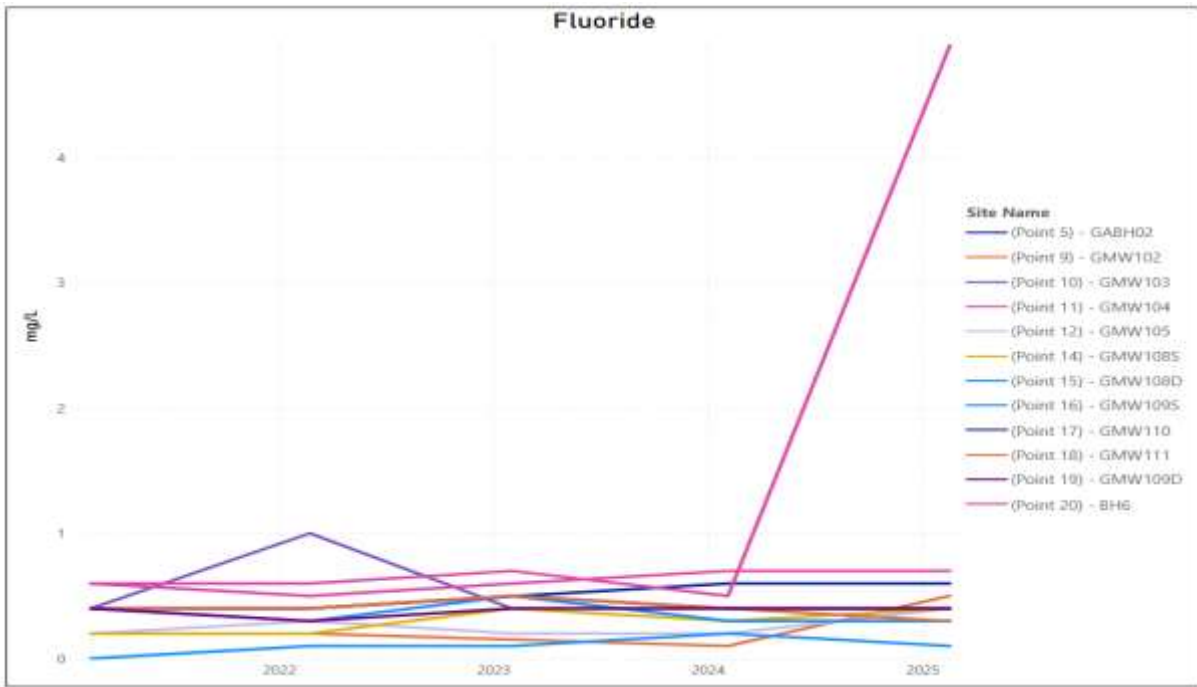


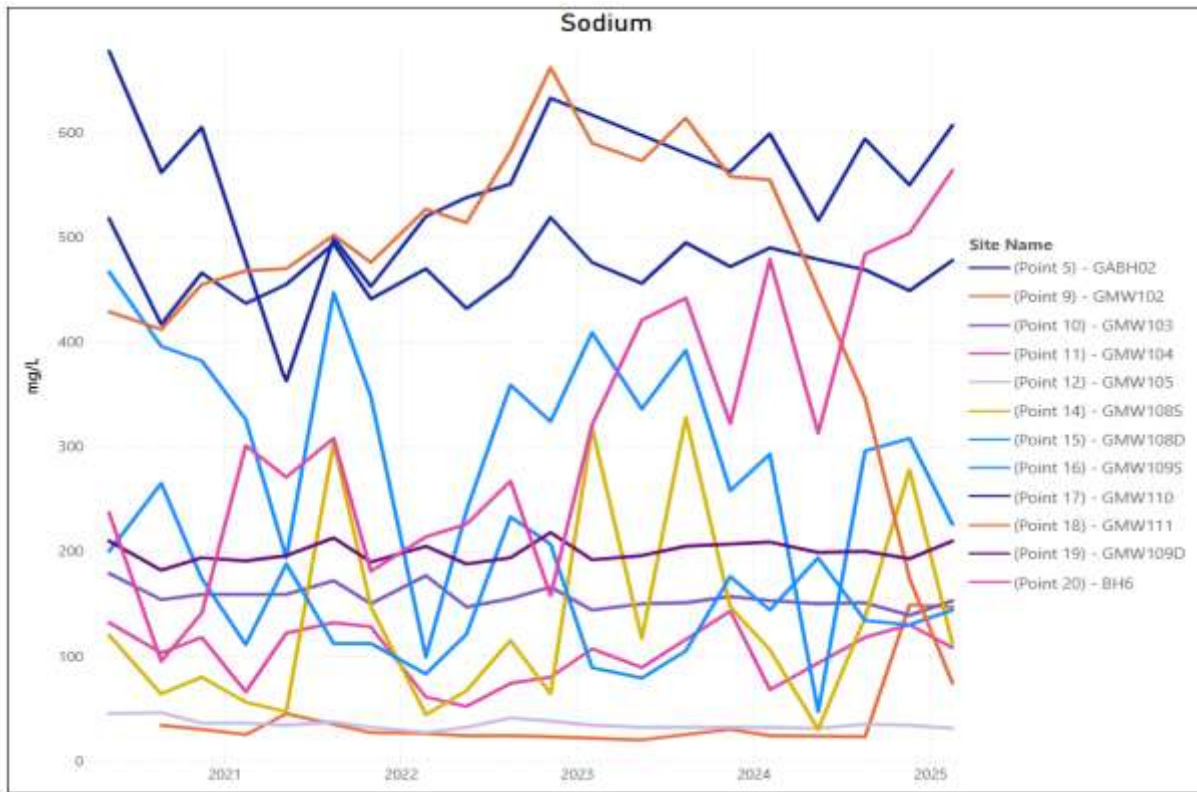
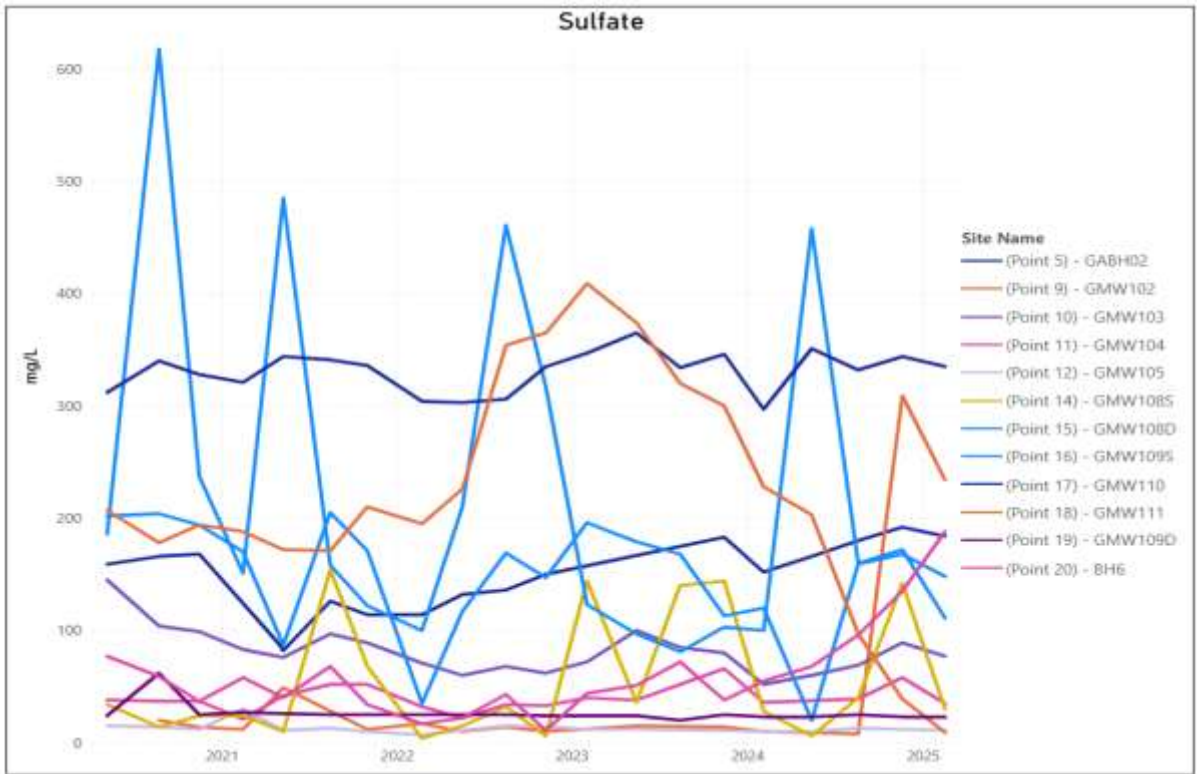


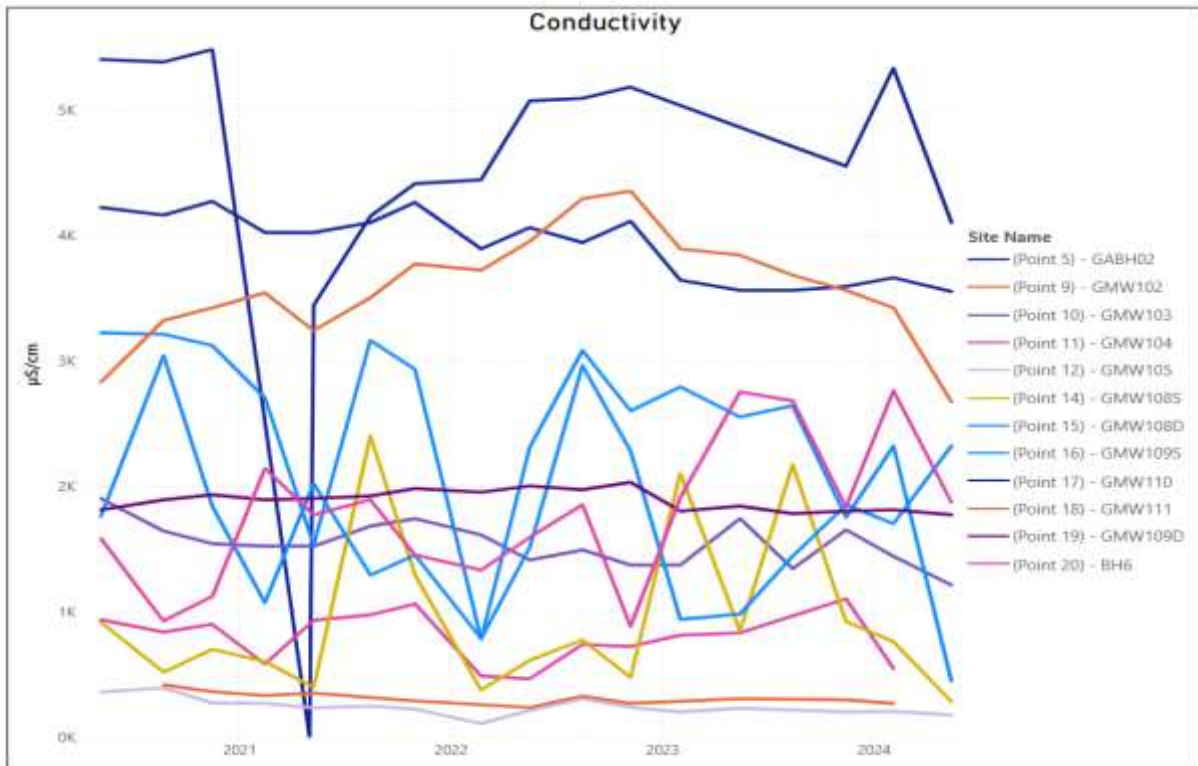
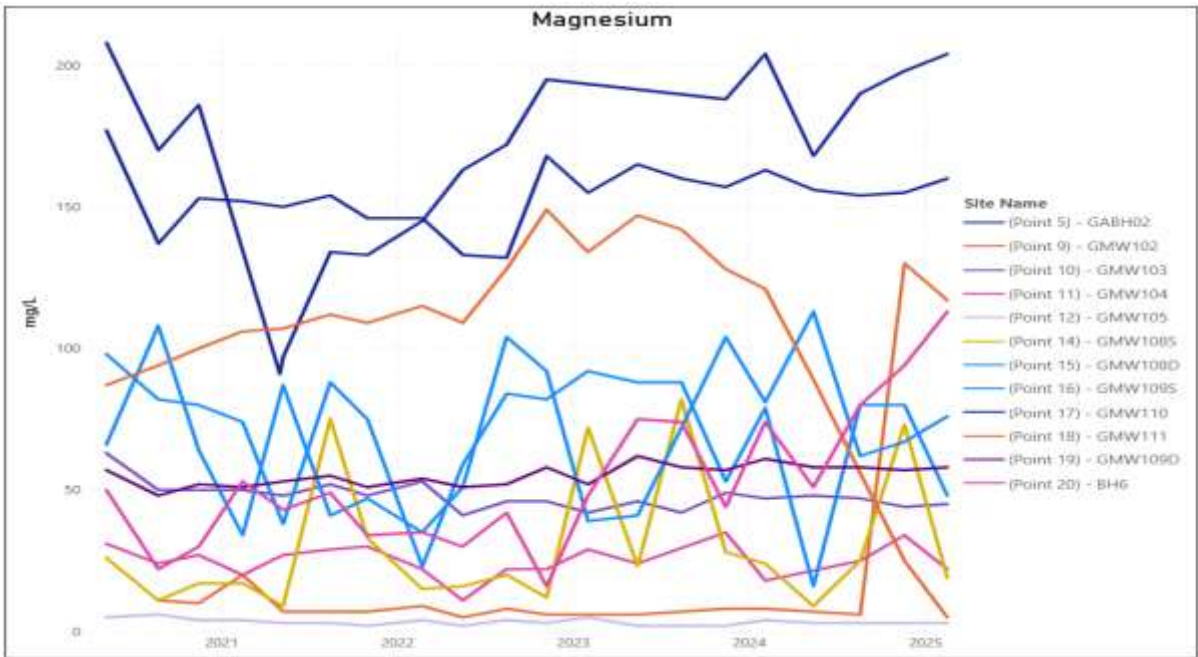


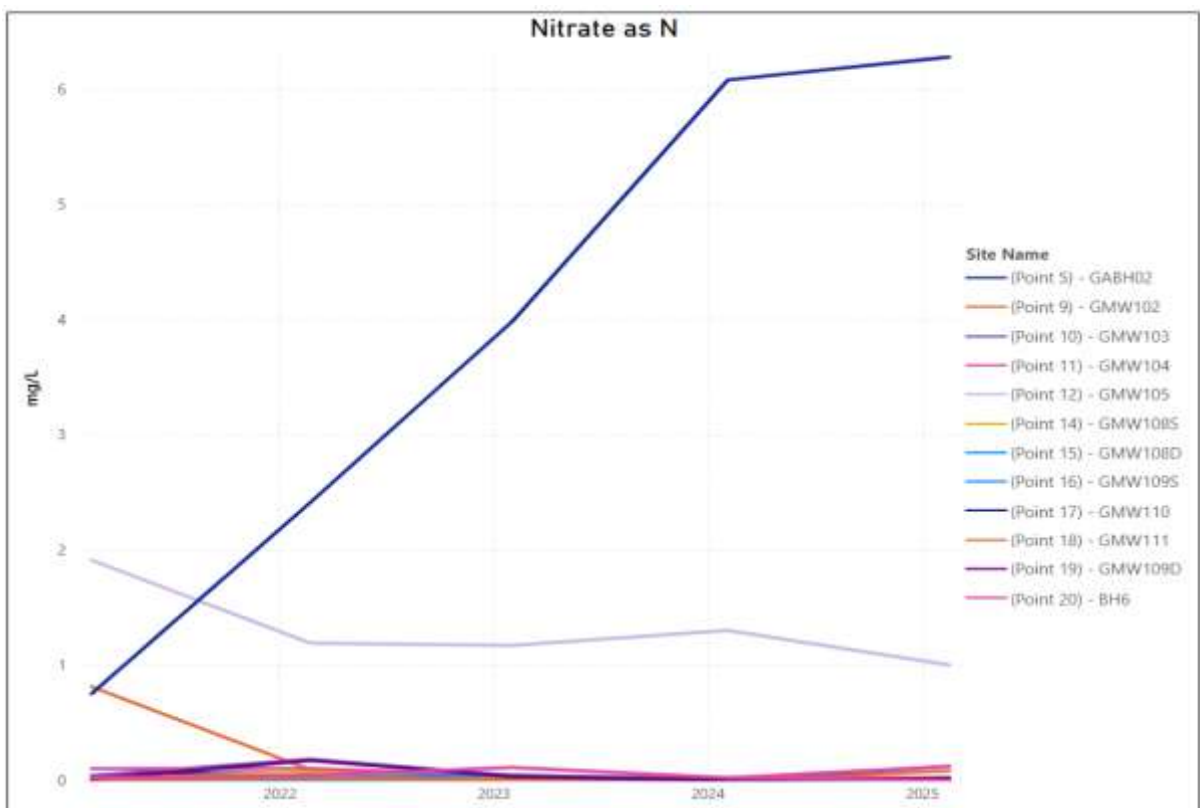
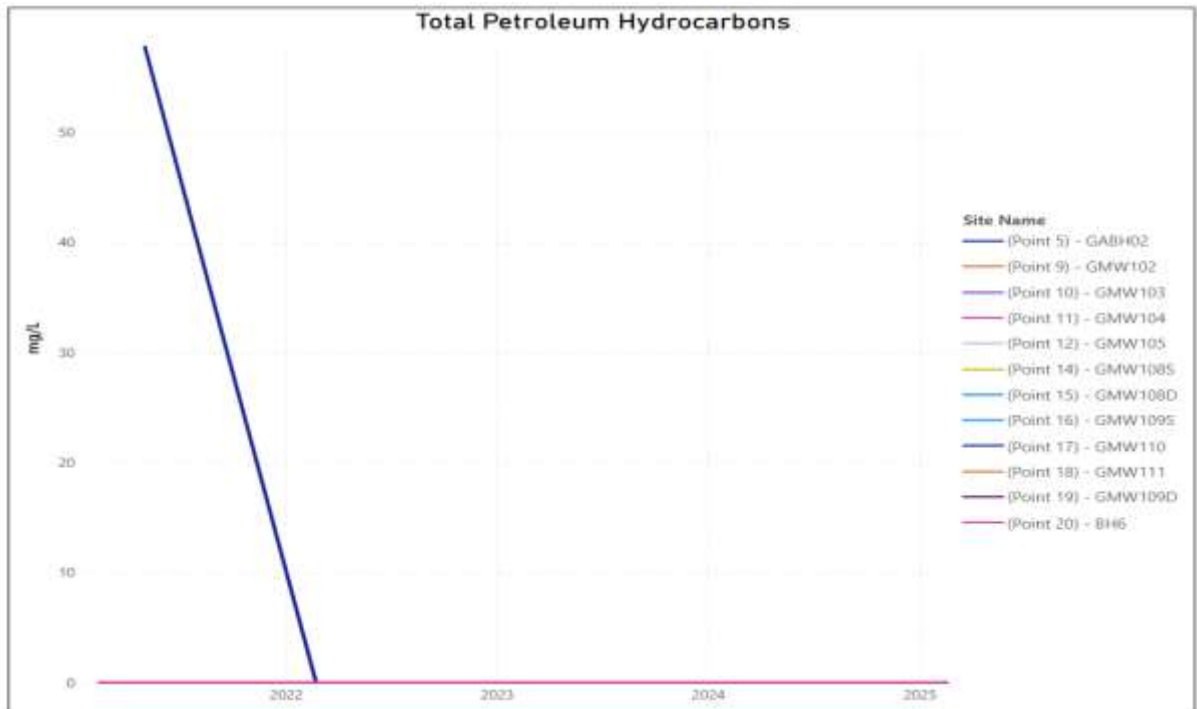


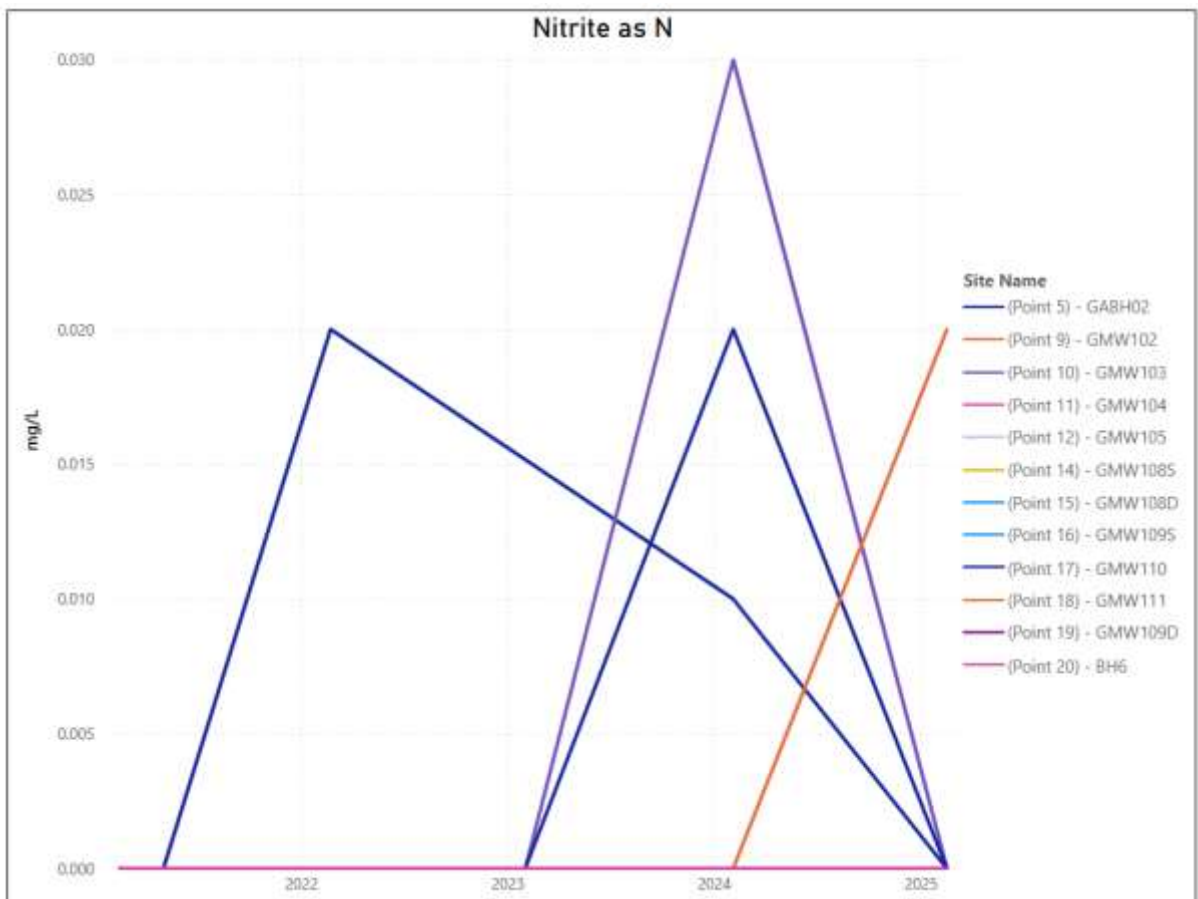
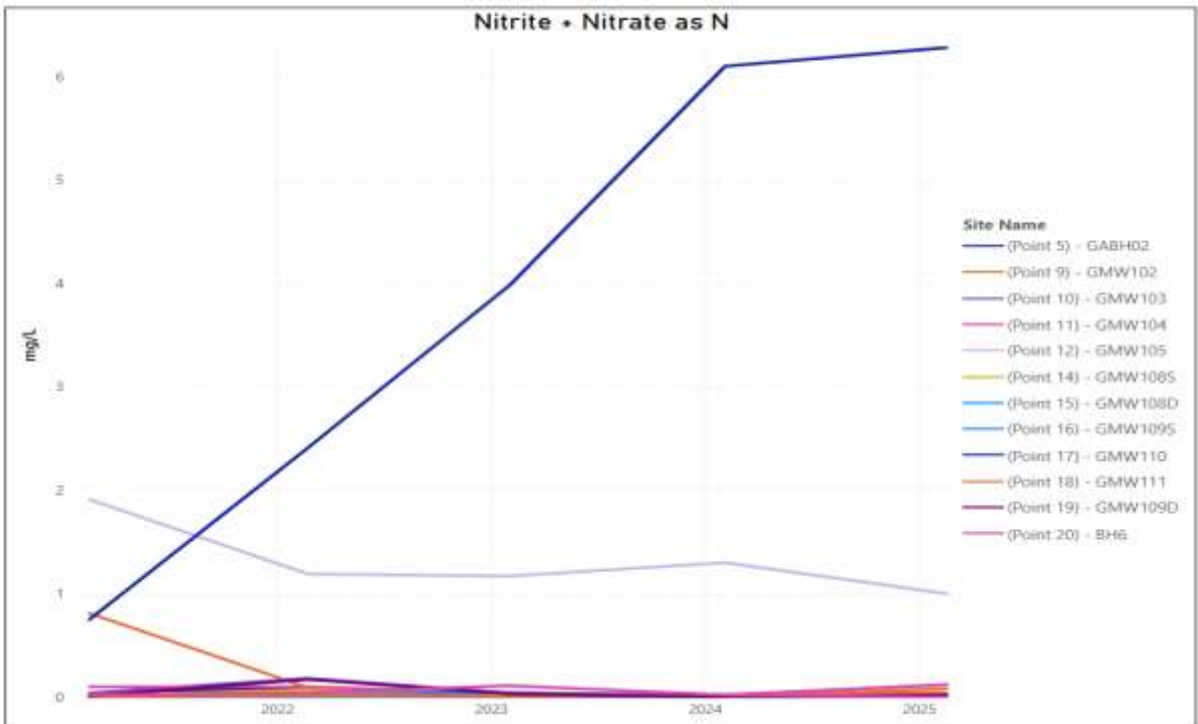


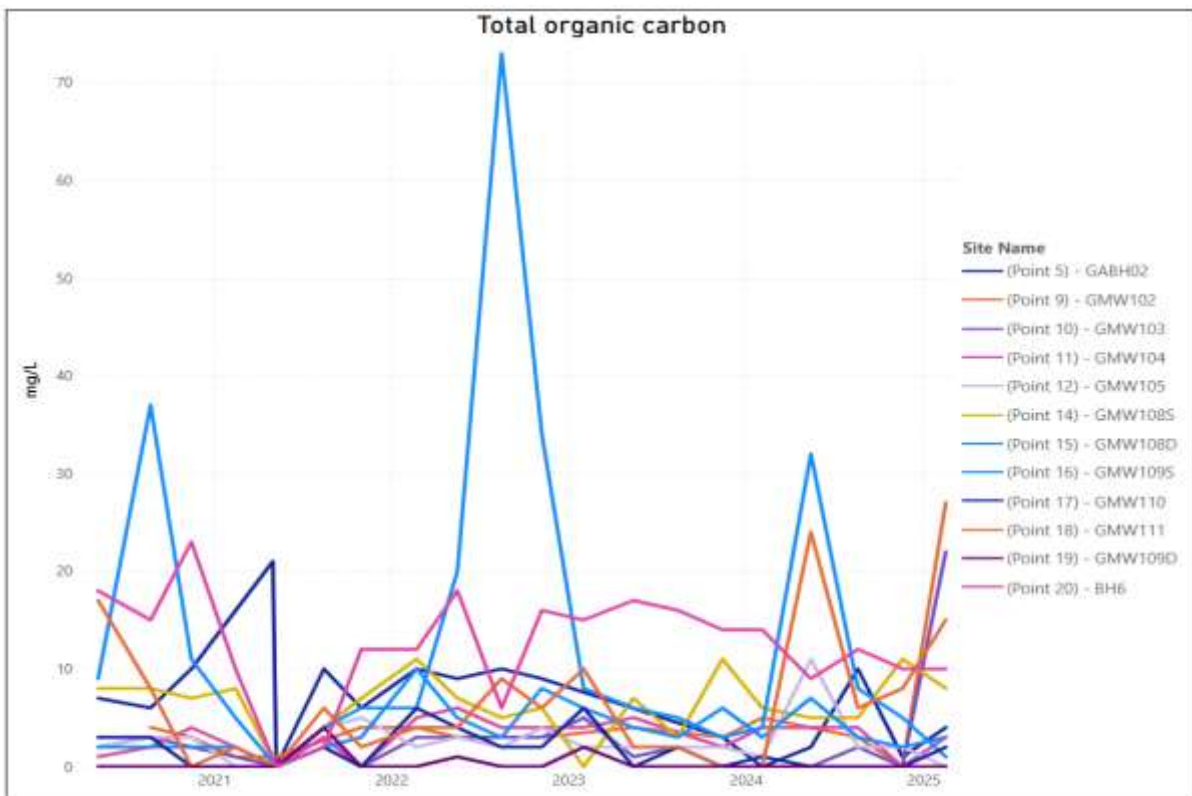
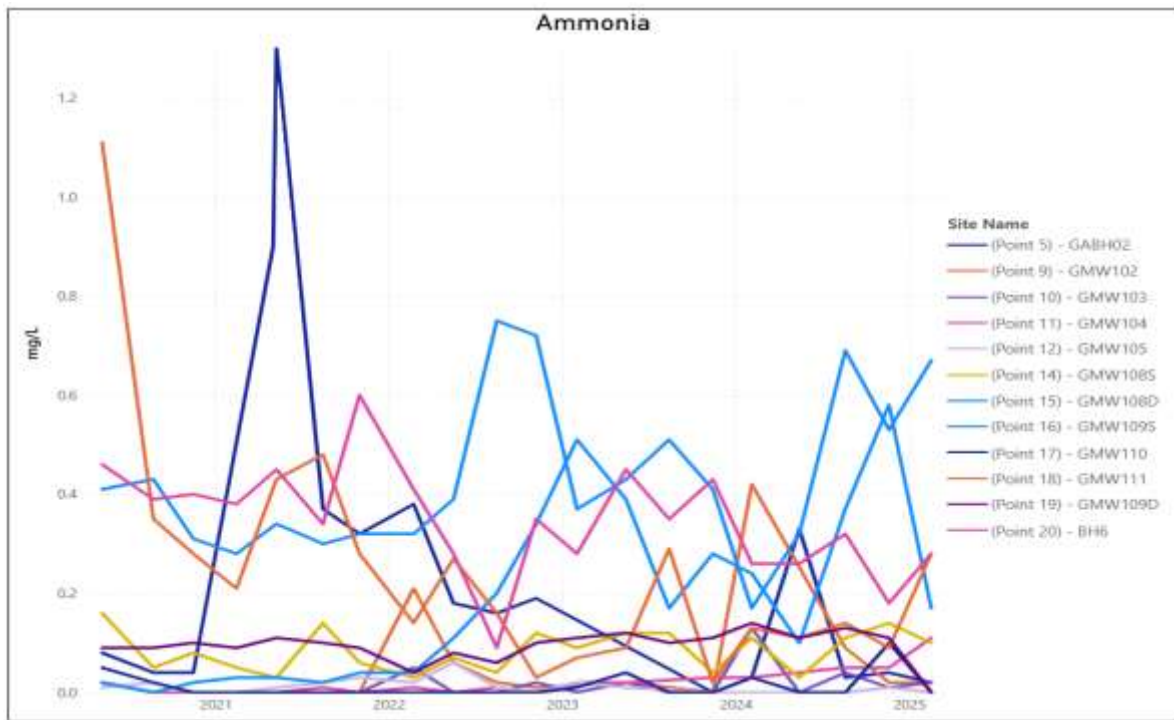


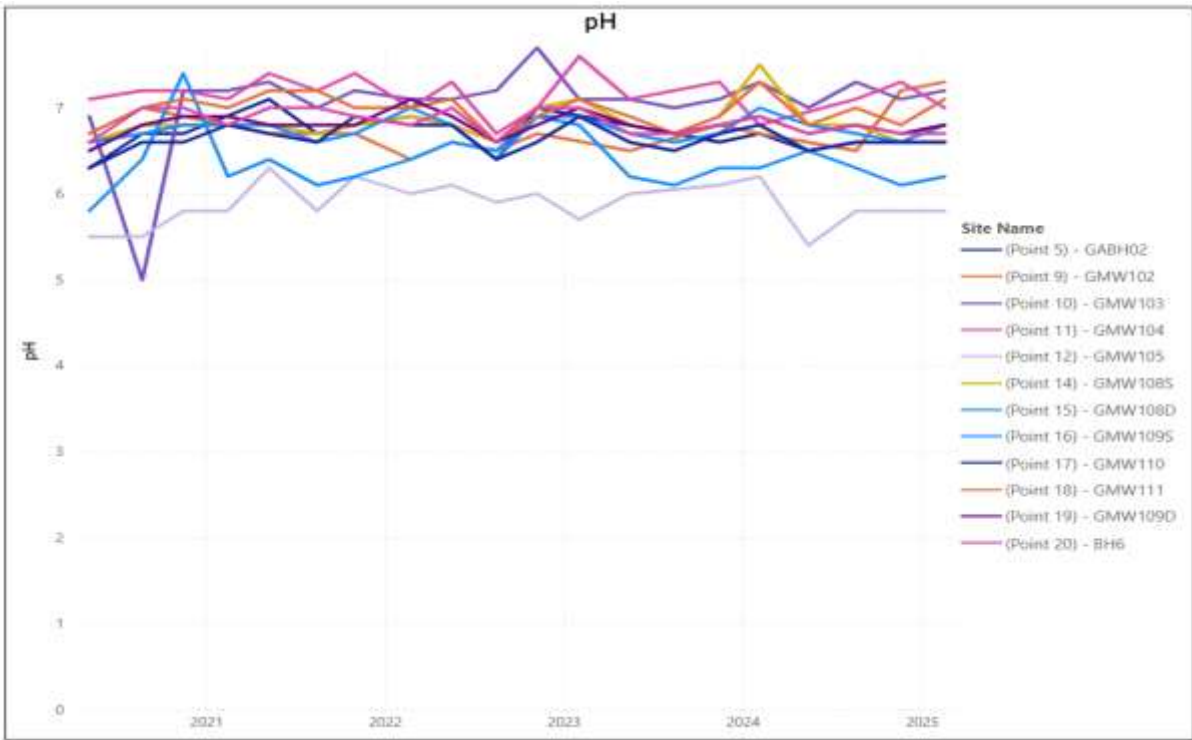








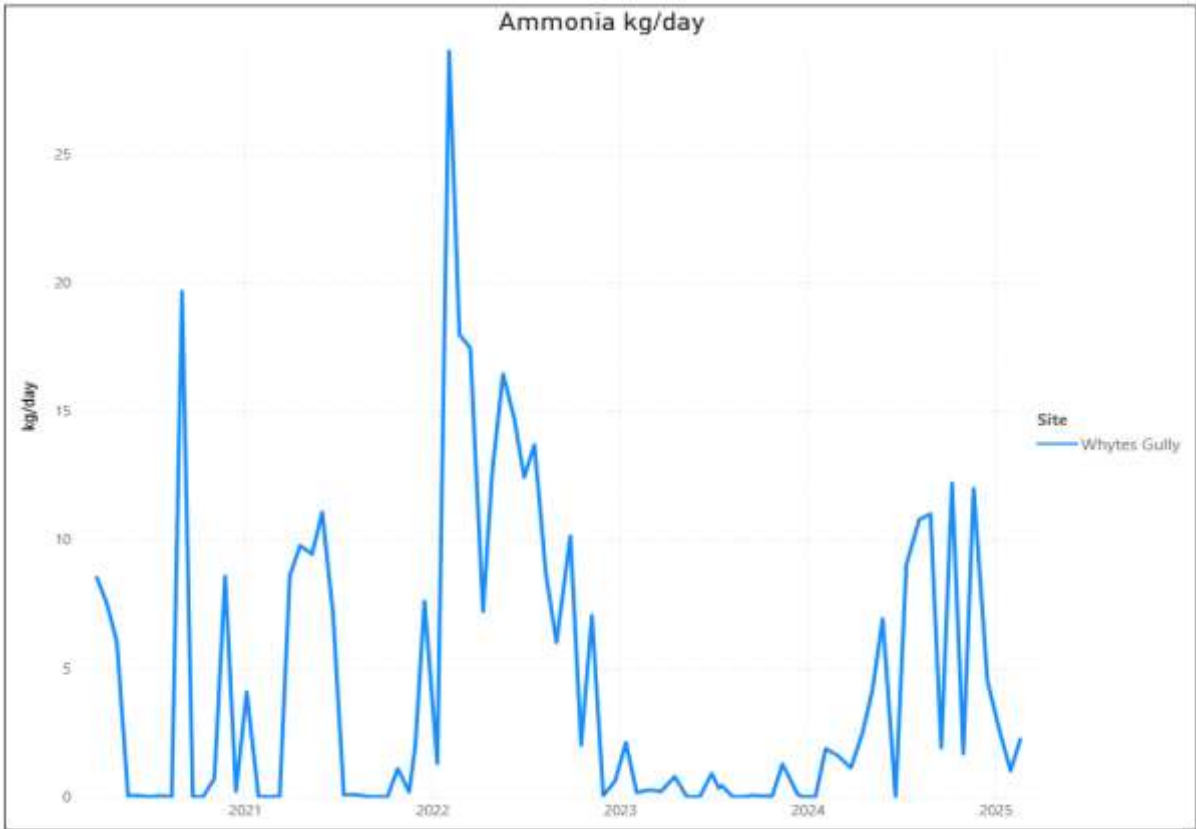
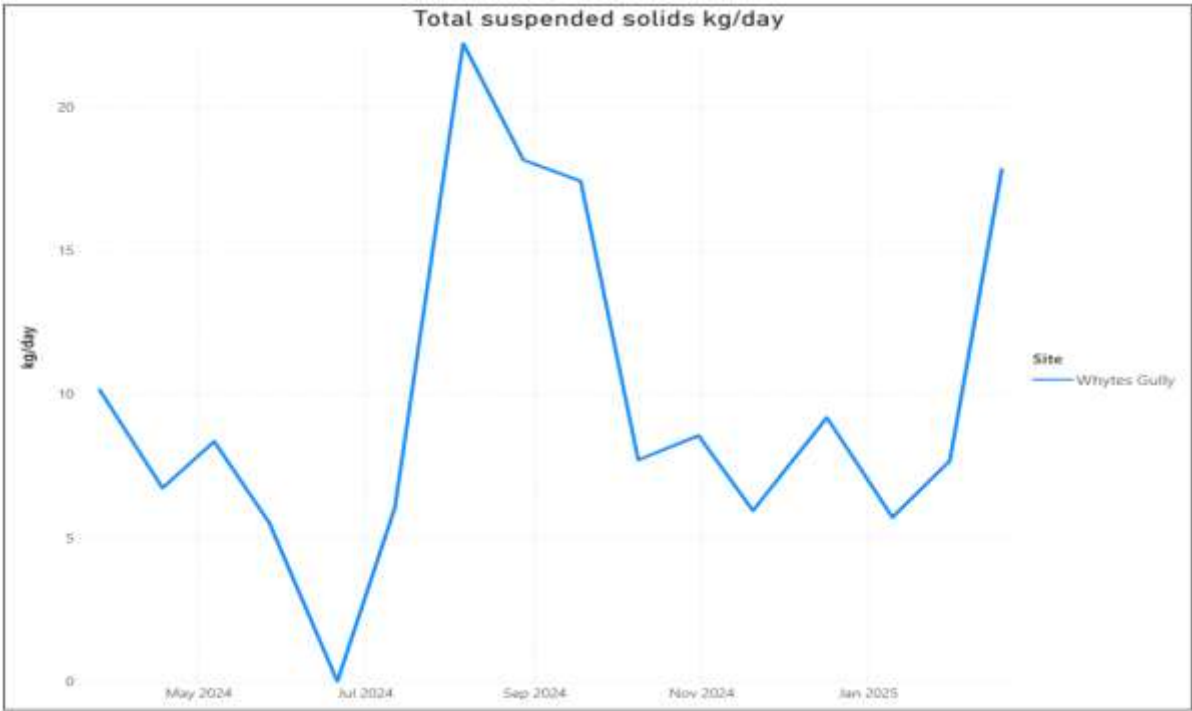


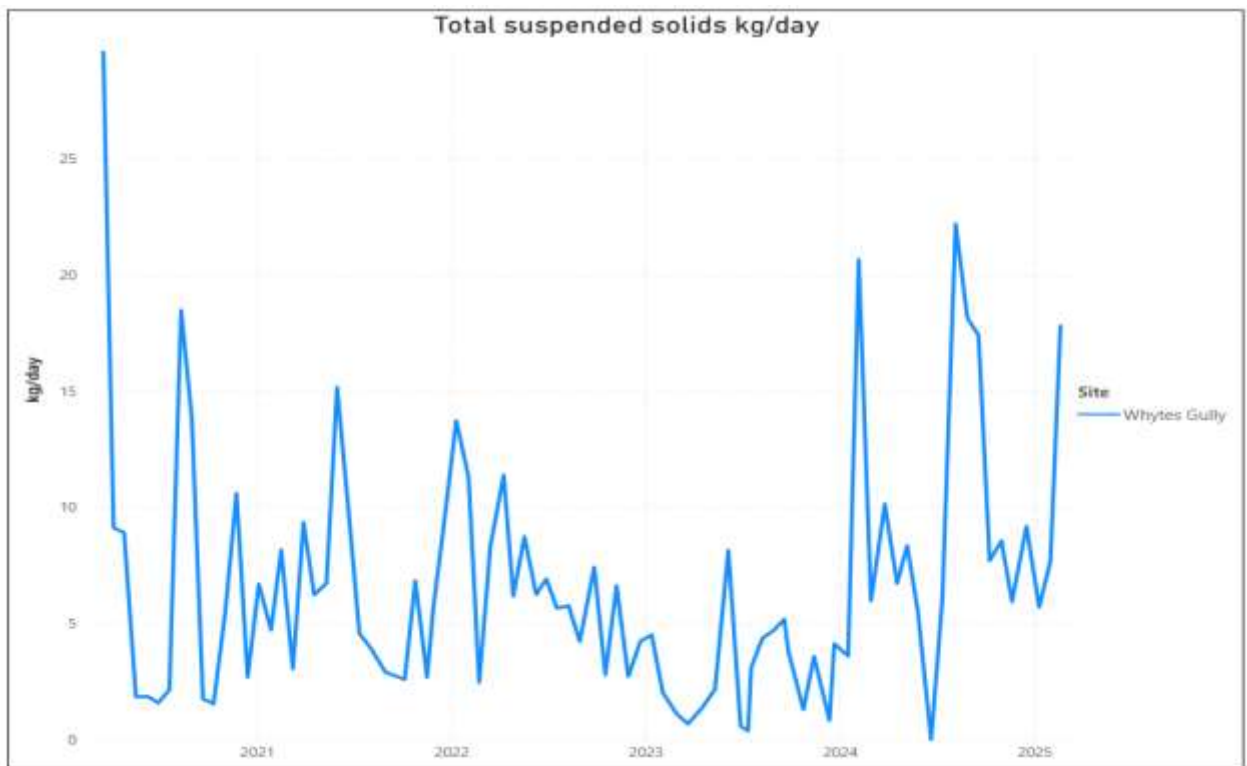
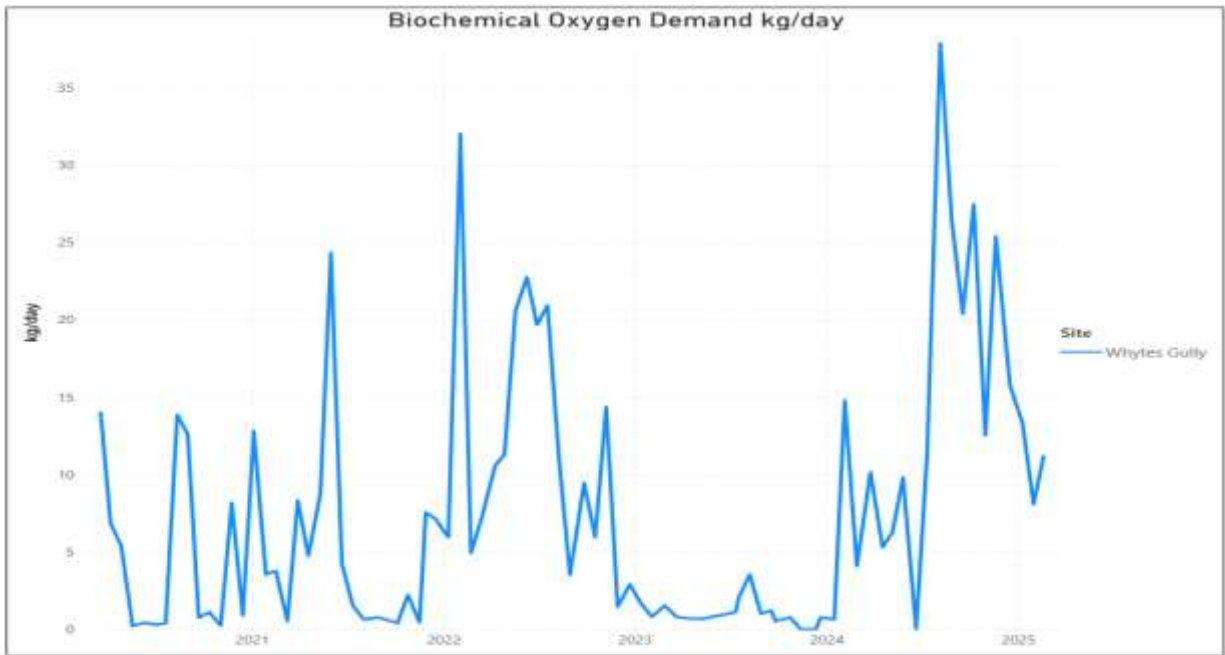


# Appendix C: Trade Wastewater: Tabulated Results and Trends (2024/25)

Compound Name	Units	25/03/2024	26/03/2024	17/04/2024	18/04/2024	06/05/2024	07/05/2024	27/05/2024	28/05/2024	20/06/2024	21/06/2024	11/07/2024	12/07/2024	05/08/2024	06/08/2024	27/08/2024	28/08/2024
Ammonia	mg/L		4.2		12.3		17.9	32.5			55.2		32.8		36.4		40.
Biochemical Oxygen Demand	mg/L		38.		26.		27.	46.			121.		41.		128.		96.
Electrical Conductivity @ 25°C	µS/cm		6,190.		4,290.		5,150.	3,780.			4,200.		4,760.		5,570.		5,710.
Finish Time	hrs		0.		0.		0.	0.					0.		0.		0.
Temperature	°C		30.		20.		19.		16.		15.		12.		15.		20.
Total Dissolved Solids (Calc.)	mg/L		4,020.		2,790.		3,350.	2,460.			2,730.		3,090.		3,620.		3,710.
Total suspended solids	mg/L		38.		33.		36.	26.			23.		22.		75.		66.
Volume Discharged	kL		267.		204.		232.	213.			0.		275.		296.		275.
Volume Discharged (corrected)	kL		267.		204.		232.	213.			0.		275.		296.		275.
Meter Reading (start)	kL		264,499.78		269,877.1		274,186.58	278,803.3			0.		284,861.2		291,833.15		298,242.18
Meter Reading (finish)	kL		264,766.78		270,081.24		274,418.8	279,016.48			0.		285,136.11		292,129.54		298,517.56
pH (start)	pH	7.5		8.2		7.4			8.1	8.		7.7		7.9		7.6	
pH (finish)	pH		7.4		7.7		7.6		8.2		7.9		8.		7.9		7.7
Ammonia kg/day	kg/day		1.1214		2.5092		4.1528	6.9225			0.		9.02		10.7744		11.
Biochemical Oxygen Demand kg/day	kg/day		10.146		5.304		6.264	9.798			0.		11.275		37.888		26.4
Total Dissolved Solids (Calc.) kg/day	kg/day		1,073.34		569.16		777.2	523.98			0.		849.75		1,071.52		1,020.25
Total suspended solids kg/day	kg/day		10.146		6.732		8.352	5.538			0.		6.05		22.2		18.15

Compound Name	Units	28/08/2024	17/09/2024	18/09/2024	08/10/2024	09/10/2024	30/10/2024	31/10/2024	19/11/2024	20/11/2024	16/12/2024	17/12/2024	09/01/2025	10/01/2025	30/01/2025	31/01/2025	18/02/2025	19/02/2025
Ammonia	mg/L	40.		7.		36.4		8.4		66.6		13.7		14.6		5.		14.8
Biochemical Oxygen Demand	mg/L	96.		75.		82.		63.		141.		48.		77.		40.		74.
Electrical Conductivity @ 25°C	µS/cm	5,710.		6,660.		5,910.		9,110.		8,400.		5,030.		8,220.		5,550.		7,410.
Finish Time	hrs	0.		0.		0.		0.		0.		0.		0.		0.		0.
Temperature	°C	20.		18.		15.		24.		24.		36.		23.		26.		26.
Total Dissolved Solids (Calc.)	mg/L	3,710.		4,330.		3,840.		5,920.		5,460.		3,270.		5,340.		3,610.		4,820.
Total suspended solids	mg/L	66.		64.		23.		43.		33.		28.		33.		38.		118.
Volume Discharged	kL	275.		272.		335.		199.		180.		328.		173.		202.		151.
Volume Discharged (corrected)	kL	275.		272.		335.		199.		180.		328.		173.		202.		151.
Meter Reading (start)	kL	298,242.18		304,062.6		311,149.24		317,661.59		320,908.38		327,019.22		333,146.53		337,539.31		341,139.06
Meter Reading (finish)	kL	298,517.56		304,334.89		311,484.14		317,860.58		321,088.32		327,347.34		333,319.96		337,741.38		341,290.11
pH (start)	pH		8.1		7.7		7.4		7.8		7.8		8.		7.3		7.4	
pH (finish)	pH	7.7		7.7		8.1		7.4		7.4		7.9		7.4		7.2		7.2
Ammonia kg/day	kg/day	11.		1.904		12.194		1.6716		11.988		4.4936		2.5258		1.01		2.2348
Biochemical Oxygen Demand kg/day	kg/day	26.4		20.4		27.47		12.537		25.38		15.744		13.321		8.08		11.174
Total Dissolved Solids (Calc.) kg/day	kg/day	1,020.25		1,177.76		1,286.4		1,178.08		982.8		1,072.56		923.82		729.22		727.82
Total suspended solids kg/day	kg/day	18.15		17.408		7.705		8.557		5.94		9.184		5.709		7.676		17.818





## Appendix D: Landfill Gas Tabulated results and trends

### Table 1: Subsurface Gas Results

			Bal	Baro	CH4	CH4 Peak	CO	CO2	CO2 Peak	Flow	H2S	Relative Pressure	SWL	Well Depth		
Units			%	hPa	%v/v	%v/v	ppm	%v/v	%v/v	l/h			Meters	Meters		
Monitoring Point ID	Sample ID	Sample Date														
21	LFG MW1	25/03/2024	79.2	1018	<0.1	<0.1	0	0.2	0.3	<0.1	0	0.05	3.29	10.20		
		17/04/2024	79.5	1016	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.00	3.10	10.20		
		29/05/2024	79.2	0.00	<0.1	<0.1	0	0.1	0.1	<0.1	0	1023	2.61	10.20		
		26/06/2024	79.3	1012	<0.1	<0.1	0	<0.1	0.2	0.3	0	0.05	2.23	10.20		
		15/07/2024	78.5	1005	<0.1	<0.1	0	0.1	0.1	<0.1	0	-0.02	2.27	10.20		
		20/08/2024	78.6	1013	<0.1	<0.1	1	<0.1	0.2	0.3	0	-0.02	2.63	10.20		
		18/09/2024	78.8	1015	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.05	3.09	10.20		
		16/10/2024	79.0	1015	<0.1	<0.1	1	<0.1	0.1	0.1	0	0.00	3.14	10.20		
		11/11/2024	78.8	1019	<0.1	<0.1	1	0.1	0.1	<0.1	0	-0.05	3.44	10.20		
		17/12/2024	78.7	1010	<0.1	<0.1	1	<0.1	0.1	0.4	0	0.02	3.26	10.20		
		22/01/2025	79.0	1002	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.03	3.18	10.20		
		18/02/2025	79.5	1006	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.03	3.38	10.20		
		22	LFG MW2	25/03/2024	79.5	1018	<0.1	<0.1	0	0.1	0.2	<0.1	0	0.02	10.45	10.36
				17/04/2024	79.6	1016	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.03	9.12	10.36
29/05/2024	79.0			0.02	<0.1	<0.1	0	0.1	0.1	<0.1	0	1023	8.87	10.36		
26/06/2024	79.1			1012	<0.1	<0.1	1	0.1	2.4	0.3	0	-0.02	9.18	10.36		
15/07/2024	78.5			1005	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.00	8.90	10.36		
20/08/2024	78.6			1013	<0.1	<0.1	1	0.1	1.6	0.2	0	0.00	10.11	10.36		
18/09/2024	79.3			1015	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.02	DRY	10.36		
16/10/2024	79.1			1015	<0.1	<0.1	0	<0.1	1.8	0.3	0	0.03	DRY	10.36		
11/11/2024	78.9			1019	<0.1	<0.1	1	0.1	0.1	<0.1	0	-0.05	DRY	10.36		
17/12/2024	78.7			1010	<0.1	<0.1	1	<0.1	0.4	0.3	0	0.05	DRY	10.66		
22/01/2025	79.6			1002	<0.1	<0.1	0	0.2	0.3	<0.1	0	0.05	DRY	10.36		
18/02/2025	79.7			1006	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.02	DRY	10.36		
23	LFG MW3			25/03/2024	80.0	1012	<0.1	<0.1	0	4.9	5.3	<0.1	0	0.02	5.55	10.52
				17/04/2024	79.8	1016	<0.1	<0.1	0	1.8	1.8	<0.1	0	0.03	5.26	10.52
		29/05/2024	79.2	-0.03	<0.1	<0.1	0	2.4	2.4	<0.1	0	1019	5.19	10.52		
		26/06/2024	79.2	1012	<0.1	<0.1	0	2.4	2.4	0.4	0	0.05	4.59	10.52		
		15/07/2024	78.0	998	<0.1	<0.1	0	3.3	3.3	<0.1	0	0.05	3.98	10.52		
		20/08/2024	78.2	1013	<0.1	<0.1	0	1.9	1.9	0.2	0	-0.02	5.40	10.52		
		18/09/2024	78.3	1015	<0.1	<0.1	0	2.7	2.7	<0.1	0	0.02	5.73	10.52		
		16/10/2024	79.1	1015	<0.1	<0.1	0	1.9	1.9	0.4	0	-0.05	5.72	10.52		
		11/11/2024	78.3	1019	<0.1	<0.1	1	2.6	2.6	<0.1	0	0.03	5.73	10.52		
		17/12/2024	79.6	1010	<0.1	<0.1	0	<0.1	3.0	0.2	0	0.00	8.30	10.52		
		22/01/2025	79.7	1002	<0.1	<0.1	0	3.7	3.7	0.1	0	-0.02	5.09	10.52		
		18/02/2025	79.6	1006	<0.1	<0.1	<0.1	1.6	1.6	<0.1	<0.1	0.03	5.70	10.52		
		24	LFG MW4	25/03/2024	82.0	1011	<0.1	<0.1	0	5.3	5.3	<0.1	0	-0.05	DRY	9.27
				17/04/2024	80.1	1016	<0.1	<0.1	0	0.6	0.6	<0.1	0	0.02	DRY	9.27
29/05/2024	79.4			0.05	<0.1	<0.1	0	0.4	0.4	<0.1	0	1019	8.23	9.27		
26/06/2024	80.4			1012	<0.1	<0.1	0	1.7	8.4	0.4	0	0.02	7.82	9.27		
15/07/2024	83.1			998	<0.1	<0.1	0	10.6	10.6	0.3	0	-0.02	7.79	9.27		
20/08/2024	79.6			1013	<0.1	<0.1	1	1.6	1.8	0.2	0	0.03	7.74	9.15		
18/09/2024	79.6			1015	<0.1	<0.1	0	0.4	1.1	<0.1	0	0.00	8.05	9.27		
16/10/2024	80.0			1015	<0.1	<0.1	0	0.8	2.1	0.3	0	0.05	7.83	9.27		
11/11/2024	79.4			1019	<0.1	<0.1	1	1.0	1.2	<0.1	0	0.03	8.27	9.27		
17/12/2024	79.3			1010	<0.1	<0.1	0	<0.1	8.5	0.3	0	0.00	7.95	9.27		
22/01/2025	79.5			1002	<0.1	<0.1	0	0.2	0.3	<0.1	0	0.05	7.40	9.27		
18/02/2025	81.1			1006	<0.1	<0.1	<0.1	2.4	2.5	<0.1	<0.1	0.03	8.25	9.27		
25	LFG MW5			25/03/2024	80.4	1010	<0.1	<0.1	0	2.4	2.4	<0.1	0	0.02	10.98	12.03
				17/04/2024	84.9	1016	<0.1	<0.1	0	9.4	9.4	<0.1	0	0.03	9.78	12.03
		29/05/2024	84.5	0.03	<0.1	<0.1	0	8.2	8.2	<0.1	0	1018	8.93	12.03		
		26/06/2024	84.9	1012	<0.1	<0.1	0	9.2	9.5	0.3	0	0.00	8.67	12.03		
		15/07/2024	85.1	998	<0.1	<0.1	0	11.3	11.3	<0.1	0	0.02	9.16	12.03		
		20/08/2024	82.2	1014	<0.1	<0.1	1	9.1	9.1	0.2	0	-0.02	10.04	12.03		
		18/09/2024	79.5	1015	<0.1	<0.1	0	9.0	9.0	<0.1	0	-0.03	10.56	12.03		
		16/10/2024	79.5	1015	<0.1	<0.1	0	1.9	1.9	0.3	0	0.00	10.73	12.03		
		11/11/2024	79.2	1019	<0.1	<0.1	0	5.4	5.4	<0.1	0	-0.02	11.20	12.03		
		17/12/2024	81.7	1010	<0.1	<0.1	1	9.0	9.0	0.3	0	0.02	10.74	12.03		
		22/01/2025	81.3	1002	<0.1	<0.1	0	9.7	9.7	<0.1	0	0.07	10.73	12.03		
		18/02/2025	83.3	1006	<0.1	<0.1	<0.1	7.3	7.3	<0.1	<0.1	-0.05	11.20	12.03		

			Bal	Baro	CH4	CH4 Peak	CO	CO2	CO2 Peak	Flow	H2S	Relative Pressure	SWL	Well Depth		
Units			%	hPa	%v/v	%v/v	ppm	%v/v	%v/v	l/h			Meters	Meters		
Monitoring Point ID	Sample ID	Sample Date														
26	LFG MW6	25/03/2024	79.7	1010	<0.1	<0.1	0	0.2	0.2	<0.1	0	0.05	DRY	10.85		
		17/04/2024	80.2	1016	<0.1	<0.1	0	1.5	1.5	<0.1	0	0.00	DRY	10.85		
		29/05/2024	79.3	0.05	<0.1	<0.1	0	0.6	0.6	<0.1	0	1020	DRY	10.85		
		26/06/2024	81.9	1012	<0.1	<0.1	1	5.2	5.2	0.5	0	0.05	DRY	10.85		
		15/07/2024	82.7	998	<0.1	<0.1	0	6.5	6.5	<0.1	0	0.05	DRY	10.85		
		20/08/2024	80.2	1014	<0.1	<0.1	1	2.1	2.1	0.5	0	0.02	DRY	10.85		
		18/09/2024	81.4	1015	<0.1	<0.1	0	4.3	4.3	<0.1	0	0.02	DRY	10.85		
		16/10/2024	80.0	1015	<0.1	<0.1	0	1.4	1.4	0.4	0	0.00	DRY	10.85		
		11/11/2024	79.6	1019	<0.1	<0.1	1	1.8	1.8	<0.1	0	-0.03	DRY	10.85		
		17/12/2024	79.5	1011	<0.1	<0.1	0	<0.1	0.2	0.1	0	0.03	DRY	10.85		
		22/01/2025	82.7	1002	<0.1	<0.1	0	6.5	6.5	<0.1	0	0.03	DRY	10.85		
		18/02/2025	81.6	1006	<0.1	<0.1	<0.1	4.1	4.1	<0.1	<0.1	-0.02	DRY	10.85		
		27	LFG MW7	25/03/2024	79.8	1010	<0.1	<0.1	0	0.6	0.6	<0.1	0	-0.02	7.67	12.33
				17/04/2024	80.1	1016	<0.1	<0.1	0	0.8	0.8	<0.1	0	0.02	7.38	12.33
29/05/2024	79.1			0.00	<0.1	<0.1	0	0.6	0.6	<0.1	0	1020	6.73	12.33		
26/06/2024	79.5			1012	<0.1	<0.1	0	0.2	0.6	0.3	0	0.02	6.52	12.33		
15/07/2024	78.3			998	<0.1	<0.1	0	0.3	0.3	<0.1	0	0.03	6.65	12.33		
20/08/2024	79.4			1014	<0.1	<0.1	0	0.2	0.2	0.3	0	0.02	7.05	12.33		
18/09/2024	78.9			1015	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.00	7.38	12.33		
16/10/2024	79.5			1015	<0.1	<0.1	0	0.5	0.5	0.4	0	-0.05	7.53	12.33		
11/11/2024	78.8			1019	<0.1	<0.1	1	0.2	0.2	<0.1	0	0.02	7.83	12.33		
17/12/2024	79.6			1011	<0.1	<0.1	0	0.2	0.4	0.3	0	0.07	7.66	12.33		
22/01/2025	79.6			994	<0.1	<0.1	0	0.8	1.4	<0.1	0	0.00	7.65	12.33		
18/02/2025	79.8			1006	<0.1	<0.1	<0.1	0.4	0.5	<0.1	<0.1	0.03	7.97	12.33		
28	LFG MW8			25/03/2024	79.4	1011	<0.1	<0.1	0	0.1	0.2	<0.1	0	0.09	7.67	10.37
				17/04/2024	79.5	1016	<0.1	<0.1	0	0.2	0.2	<0.1	0	0.00	7.00	10.37
		29/05/2024	79.1	0.07	<0.1	<0.1	0	0.1	0.2	<0.1	0	1020	6.66	10.37		
		26/06/2024	79.5	1012	<0.1	<0.1	0	0.1	2.1	0.3	0	0.00	6.43	10.37		
		15/07/2024	78.3	998	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.00	6.60	10.37		
		20/08/2024	79.3	1016	<0.1	<0.1	0	0.1	3.0	<0.1	0	0.02	7.55	10.37		
		18/09/2024	78.9	1015	<0.1	<0.1	0	0.3	0.3	<0.1	0	0.05	7.86	10.37		
		16/10/2024	79.5	1015	<0.1	<0.1	0	0.1	1.3	0.3	0	0.02	7.69	10.37		
		11/11/2024	78.7	1019	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.02	7.92	10.37		
		17/12/2024	79.5	1011	<0.1	<0.1	0	<0.1	2.9	0.2	0	0.02	7.67	10.37		
		22/01/2025	79.6	994	<0.1	<0.1	0	0.1	0.1	<0.1	0	0.02	7.36	10.37		
		18/02/2025	79.8	1006	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	0.02	9.60	10.37		
		29	LFG MW9	25/03/2024	80.1	1011	<0.1	<0.1	0	1.9	1.9	<0.1	0	0.00	5.82	10.70
				17/04/2024	80.5	1016	<0.1	<0.1	0	1.4	1.4	<0.1	0	-0.03	4.65	10.70
29/05/2024	80.4			0.03	<0.1	<0.1	0	1.8	1.8	<0.1	0	1020	3.96	10.70		
26/06/2024	79.9			1012	<0.1	<0.1	0	2.1	2.1	0.4	0	-0.03	4.46	10.70		
15/07/2024	78.7			998	<0.1	<0.1	0	0.8	0.8	<0.1	0	-0.05	4.24	10.70		
20/08/2024	78.4			1016	<0.1	<0.1	1	3.1	3.1	0.1	0	0.02	6.16	10.70		
18/09/2024	78.6			1015	<0.1	<0.1	0	1.5	1.5	<0.1	0	0.00	6.43	10.70		
16/10/2024	79.6			1015	<0.1	<0.1	0	1.3	1.6	0.3	0	0.02	6.42	10.70		
11/11/2024	78.3			1019	<0.1	<0.1	0	2.4	2.4	<0.1	0	0.05	6.72	10.70		
17/12/2024	79.7			1011	<0.1	<0.1	0	3.0	3.8	0.3	0	0.00	6.60	10.70		
22/01/2025	80.8			994	<0.1	<0.1	1	1.7	1.7	<0.1	0	0.02	3.45	10.70		
18/02/2025	79.8			1006	<0.1	<0.1	<0.1	3.1	3.1	<0.1	<0.1	0.03	5.74	10.70		
30	LFG MW10			25/03/2024	80.5	1011	<0.1	<0.1	0	3.2	4.7	<0.1	0	-0.05	10.28	12.38
				17/04/2024	81.3	1017	<0.1	<0.1	0	2.2	2.2	<0.1	0	-0.05	9.80	12.38
		29/05/2024	81.6	0.07	<0.1	<0.1	0	1.5	1.5	<0.1	0	1020	9.89	12.38		
		26/06/2024	80.7	1012	<0.1	<0.1	0	1.4	1.5	0.3	0	0.00	9.56	12.38		
		15/07/2024	81.6	1005	<0.1	<0.1	0	0.9	0.9	<0.1	0	0.07	9.73	12.38		
		20/08/2024	79.1	1016	<0.1	<0.1	0	1.0	1.6	0.2	0	0.03	9.85	12.38		
		18/09/2024	80.3	1015	<0.1	<0.1	0	2.0	2.0	<0.1	0	-0.09	10.28	12.38		
		16/10/2024	80.1	1015	<0.1	<0.1	0	1.6	3.2	0.3	0	0.00	9.99	12.38		
		11/11/2024	78.9	1019	<0.1	<0.1	0	2.8	2.8	<0.1	0	0.00	10.42	12.38		
		17/12/2024	79.8	1011	<0.1	<0.1	0	3.7	5.9	0.3	0	0.02	9.90	12.38		
		22/01/2025	81.9	994	<0.1	<0.1	1	3.7	3.7	<0.1	0	-0.02	9.97	12.38		
		18/02/2025	80.9	1006	<0.1	<0.1	<0.1	4.7	4.7	<0.1	<0.1	0.00	10.23	12.38		
		31	LFG MW11	25/03/2024	80.4	1011	<0.1	<0.1	0	4.5	7.6	<0.1	0	0.02	5.22	9.36
				17/04/2024	80.7	1017	<0.1	<0.1	0	2.8	2.8	<0.1	0	0.00	4.78	9.36
29/05/2024	79.3			-0.02	<0.1	<0.1	0	1.8	1.8	<0.1	0	1021	5.30	9.36		
26/06/2024	79.3			1012	<0.1	<0.1	0	1.4	4.1	0.4	0	0.00	5.23	9.36		
15/07/2024	81.9			1005	<0.1	<0.1	0	5.6	5.6	<0.1	0	0.00	4.91	9.36		
20/08/2024	79.5			1016	<0.1	<0.1	0	1.6	4.3	0.3	0	0.03	5.49	9.36		
18/09/2024	81.9			1015	<0.1	<0.1	0	4.2	4.2	<0.1	0	0.02	5.65	9.36		
16/10/2024	80.2			1015	<0.1	<0.1	0	3.4	3.4	0.3	0	0.03	5.45	9.36		
11/11/2024	80.1			1019	<0.1	<0.1	0	4.8	4.8	<0.1	0	-0.05	5.63	9.36		
17/12/2024	80.3			1011	<0.1	<0.1	0	5.9	6.0	0.1	0	-0.03	5.42	9.36		
22/01/2025	80.5			994	<0.1	<0.1	1	4.0	4.0	<0.1	0	0.02	3.65	9.36		
18/02/2025	80.3			1006	<0.1	<0.1	<0.1	5.5	5.5	<0.1	<0.1	0.02	5.50	9.36		
32	LFG MW12			25/03/2024	87.2	1011	<0.1	<0.1	0	8.0	8.0	<0.1	0	-0.07	4.82	10.46
				17/04/2024	80.1	1018	<0.1	<0.1	0	6.5	6.6	<0.1	0	0.02	4.48	10.46
		29/05/2024	87.6	0.02	<0.1	<0.1	0	4.9	4.9	<0.1	0	1021	4.84	10.46		
		26/06/2024	86.6	1012	<0.1	<0.1	0	4.2	4.2	0.2	0	0.00	4.84	10.46		
		15/07/2024	88.5	1005	<0.1	<0.1	0	5.2	5.2	<0.1	0	-0.02	4.47	10.46		
		20/08/2024	83.6	1016	<0.1	<0.1	0	4.4	4.4	0.3	0	0.03	5.08	10.46		
		18/09/2024	85.2	1015	<0.1	<0.1	0	5.4	5.4	<0.1	0	-0.03	5.14	10.46		
		16/10/2024	80.0	1015	<0.1	<0.1	0	1.6	1.6	0.4	0	0.02	4.93	10.46		
		11/11/2024	85.1	1019	<0.1	<0.1	1	6.2	6.2	<0.1	0	0.05	5.28	10.46		
		17/12/2024	83.0	1011	<0.1	<0.1	0	6.3	6.3	0.4	0	0.00	5.09	10.46		
		22/01/2025	84.9	994	<0.1	<0.1	0	5.3	5.3	<0.1	0	0.05	4.32	10.46		
		18/02/2025	81.7	1006	<0.1	<0.1	<0.1	5.5	5.5	<0.1	<0.1	0.03	5.05	10.46		

Table 2: Accumulation – Buildings

Location	Chemical Name Units LOR	Methane												
		ppm												
		500.00	21/03/2024	23/04/2024	29/05/2024	19/06/2024	18/07/2024	21/08/2024	19/09/2024	15/10/2024	12/11/2024	17/12/2024	15/01/2025	18/02/2025
Crib Room	Operations HUB Crib Room	0.0	14.4	2.4	0.0	5.8	0.0	2.2	1.9	0.0	2.7	0.0		
Glenary Cottage	Glenary Front Office	0.1	23.2	2.4	0.0	10.7	0.0	5.1	10.6	0.8	2.5	2.0		
	Glenary Hallway	0.0	23.8	2.5	0.0	11.1	0.0	5.3	9.4	0.8	2.5	0.9		
	Glenary Kitchen	2.5	0.0	45.2	2.5	0.0	10.9	0.0	4.3	8.1	1.1	2.6	1.0	
	Glenary Managers Office				2.5	0.0			5.5	12.3	0.8		2.2	
	Glenary Meeting Room	2.6	0.0			0.0	11.0	0.0	4.9	9.3	0.9	2.5	5.5	
	Glenary Operations HUB	2.6		38.0	2.5	0.0	11.1	0.0	5.0	9.4	1.0	2.8	1.5	
	Glenary Store	2.4	0.0	26.0	2.5	0.0	11.7	0.0	5.0	10.1	0.7	2.5	0.0	
	Manager Office		0.1											
	Mangers Office						10.1						2.5	
	Max Garden Reading							0.1						
Max Garden Reading			43.8		0.0	0.1			2.1	0.1	2.4	2.2		
Max reading gardens		0.1												
Operation Room		0.1												
Recycle Centre	1	2.4	0.0	25.1	2.4	0.0	5.2	0.0	1.8	1.9	1.6	2.5	0.1	
	2	2.5	0.0	34.5	2.4	0.0	5.6	0.0	1.8	1.9	2.6	2.7	0.1	
SWRF	SWRF	2.4	0.0	12.4	2.3	0.0	0.0	0.0	1.8	2.0	19.7	2.3	0.0	
Weighbridge	Weighbridge	2.4	0.3	16.1	2.2	0.0	1.0	0.1	2.1	1.9	1.6	2.2	0.0	

Table 3: Surface Gas Results

Chemical Name		Methane											
Units		ppm											
LOR		500											
DateFormatted		21/03/2024	23/04/2024	29/05/2024	19/06/2024	16/07/2024	21/08/2024	19/09/2024	15/10/2024	12/11/2024	17/12/2024	15/01/2025	18/02/2025
Location													
Transect 1	1			6.9	2.3	0.0	7.9	0.0	1.6	2.0	0.0	2.1	17.9
	2			3.4	2.4	0.0	7.8	0.0	1.5	2.0	0.1	2.1	
	3			3.5	2.3	0.0	6.1	0.1	1.5	2.0	0.0	2.1	
Transect 2	1			6.3	28.5	0.0	6.7	1.1	1.4	1.9	0.0	2.1	7.8
	2			6.0	63.7	0.0	6.4	0.0	1.5	1.9	0.0	2.2	9.1
	3			8.4	26.7	0.0	6.7	0.0	1.5	1.9	0.0	2.2	20.4
	4			12.1	4.7	0.0	6.4	0.1	1.4	3.2	0.0	2.2	
Transect 3	5				2.6	0.0		0.0	1.4			2.2	
	1			12.9	2.3	0.0	2.2	0.0	1.5	2.3	0.4	2.3	0.0
	2			6.6	2.7	0.0	2.0	0.0	1.7	22.9	0.0	2.3	5.7
	3			5.2	4.8	0.0	2.2	0.1	1.4	1.9	0.0	2.3	7.1
	4			4.4	24.1	0.0	8.9	12.4	1.4	1.9	0.1	2.4	
	5			4.9	35.3	0.0	16.1	14.4	1.4	1.9	0.0	2.3	
Transect 4	6						12.5						
	1			8.2	2.8	0.0	1.2	17.8	1.5	2.0	2.4	2.4	
	2			9.6	25.0	9.0	22.9	9.8	1.5	2.4	5.1	2.4	
	3			8.5	25.1	31.8	17.2	2.8	1.5	2.5	2.0	2.4	
	4			9.6	21.3	21.7	12.9	0.6	1.4	2.0	1.3	2.4	
	5			8.2	27.8	22.2	11.0	0.4	2.6	2.0	0.5	2.5	
	6			16.2	39.9	19.2	11.9			2.0		2.4	
	7					24.6	11.6					2.5	
Transect 5	8					24.1							
	1			12.9	38.8	18.2	2.1	228	1.6	2.2	7.4	3.2	1.8
	2			13.2	48.8	21.1	5.9	6.1	1.6	2.2	0.6	29.4	0.6
	3			6.7	13.1	11.6	0.2	13.4	1.5	2.2	1.5	2.9	0.5
	4			7.2	20.3	0.0	0.4	12.7		2.4	9.3	2.7	0.1
	5			5.1	26.1	0.0	1.4	7.2	1.4	2.0	32.5	15.7	0.0
Transect 6	6			4.8	2.7	0.0	6.0		1.5	2.0	10.2	3.6	
	1			6.3	4.5	1.0	7.7	0.0	1.7	2.1	0.0	2.4	71.4
	2			6.4	20.6	0.0	5.8	11.4	1.7	2.3	0.1	2.4	7.1
	3			7.5	4.8	0.0	2.2	7.8	1.6	2.2	2.7	2.4	5.3
	4			6.5	18.8	1.8	1.9	1.5	1.5	2.2	7.1	2.5	5.4
	5			9.4	31.5	4.7	0.1	8.4	1.8	2.2	3.1	4.2	5.7
	6			10.3	22.8	14.2	0.7	4.2	1.9	2.8	2.8	2.8	
Transect 7	7			10.2	18.3	0.0	0.9		3.2	2.4	13.2	2.6	
	1			31.6	16.2	12.4	3885	17.9	1.9	4.8	11.4	2.9	13.2
	2			17.3	29.9	11.0	2.2	4.4	10.4	19.9	9.1	2.5	
	3			8.5	20.1	10.9	5.4	14.9	1.8	11.5	1.6	2.5	
	4			9.6	21.3	13.1	7.4	11.4	185.6	2.8	1.4	2.6	
	5			11.8	11.1	10.6	12.4	7.6	5.9	2.3	7.4	4.2	
	6			5.6	13.3	0.0	1.9	0.1	1.6	2.1	5.4	2.8	
Transect 8	7						1.9						
	1			18.8	17.5	0.0	1.0	0.1	1.8	2.1	9.9	2.4	0.4
	2			11.4	10.3	16.6	2.8	3586	58.6	2.2	36.4	2.6	12.0
	3			16.5	4.2	14.5	285.8	13.8	4.2	2.2	12.5	58.5	432
	4			37.0	13.6	11.3	5.4	15.6	92.5	2.3	11.3	10.1	14.8
	5			182	24.2	15.3	5.9	555	22.8	10.8	11.8	18.7	23.8
	6			23.7	24.2	17.9	38.4	18.5	16.6	5.5	13.8	468.2	121.5
	7			255									
	9						0.8						
Transect 9	1			31.6	17.4	14.6	101.0	10.4	6.2	20.2	11.8	6.2	162
	2			18.8	11.8	42.9	11.0	14.5	2.2	5.7	47.2	4.4	10.4
	3			12.2	10.2	12.2	11.4	14.4	1.6	2.2	2.9	5.5	6.1
	4			8.0	9.8	10.9	15.5	13.3	1.6	2.1	5.4	61.2	5.5
	5			11.2	6.6	10.8	14.0	9.0	1.6	2.0	5.7	2.2	6.3
	6			438	3.0	10.4	10.4	0.0	1.6		2.8	2.3	1.3
Transect 10	1	4.4	0.9	2.6	12.5	0.0	0.0	8.3	15.2	2.0	0.1	2.6	1.5
	10	8.3	1.1	122	57.6	12.3	2.0	10.3	2.3	4.1	8.7	4.6	1.2
	11	5.1	18.2	9.3	13.4	11.6	5.7	22.8	10.1	2.2	102	3.2	1.9
	12	4.5	0.5	12.0	8.6	0.0	2.7	5.7	1.6	2.3	1.1	2.7	1.1
	13	5.5	0.0	9.2	15.0	1.2	2.2	7.1	1.6	2.1	12.3	2.8	1.9
	14		0.1	108	21.6	0.0	7.9	6.1	1.8	2.3	1.3	5.8	2.7
	15		0.6	10.3	11.8	10.1	12.3			2.1	1.0	2.7	2.0
	16			12.5	5.1	0.0				2.2	0.0	2.5	0.6
	17												2.4
	18												3.1
	2	4.0	0.1	2.7	8.7	1.1	5.5	1.5	5.9	2.1	0.1	2.7	1.2
	3	5.4	0.0	2.7	5.9	1.5	0.0	1.5	3.7	2.0	0.8	2.5	1.1
	4	4.8	0.0	2.8	4.7	0.0	0.5	0.6	4.8	2.2	0.2	3.6	0.9
	5	5.1	8.2	2.8	4.4	9.4	1.9	0.6	4.0	2.4	5.9	2.8	0.5
	6	7.1	1.3	2.9	4.5	9.3	0.9	2.4	4.6	13.3	11.1	10.0	5.2
	7	9.3	10.9	3.4	6.7	10.3	107	123	3.7	3.8	0.6	7.4	1.2
	8	4.4	6.8	14.7	6.0	0.0	5.7	27.1	15.2	5.7	0.6	11.4	1.2
	9	4.4	0.9	135	13.9	11.1		7.2	2.4	2.7	14.3	2.6	5.1

Chemical Name	Methane												
Units	ppm												
LOR	500												
DateFormatted	21/03/2024	23/04/2024	29/05/2024	19/06/2024	16/07/2024	21/08/2024	19/09/2024	15/10/2024	12/11/2024	17/12/2024	15/01/2025	18/02/2025	
Location													
Transect 11	1	4.2	0.5	20.4	17.4	11.8	0.4	12.2	1.8	2.9	5.9	2.6	5.0
	2	6.6	0.3	21.3	14.2	13.7	0.1	9.3	7.7	1.4	2.4	0.4	
	3	6.8	25.8	27.0	20.9	0.0	1.6	6.1	6.3	17.3	0.5	3.0	8.2
	4	27.5	0.3	29.9	12.4	0.0	2.2	5.5	8.5	2.3	1.8	6.6	42.0
	5	6.3	0.0	5.7	10.2	0.0	1.4	5.8	2.9	2.3	1.5	3.3	5.2
	6	7.4	9.5	7.9	12.1	11.2	17.9	5.9	4.9	2.3	0.3	4.2	1.8
	7		26.9	4.1	18.1	44.6	15.4		4.3		0.0	2.7	2.3
	8			43.5			37.9		4.4		0.0	2.7	8.1
Transect 12	1	15.2	63.2	78.7	84.7	92.0	23.1	15.6	23.5	7.3	11.6	5.2	49.3
	2	21.6	53.0	66.6	64.0	38.3	32.0	120	5.8	2.8	16.6	6.5	42.6
	3	12.2	20.4	11.2	44.9	13.8	7.6	14.2	9.9	2.8	0.8	6.2	36.1
	4	5.6	14.4	13.5	64.5	17.1	0.2	35.0	2.4	2.6	0.6	6.2	20.3
	5	5.7	12.0	12.2	18.0	10.6	10.1	13.5	2.1	2.4	28.1	4.5	14.8
	6	4.5	1.0	6.6	20.6	0.0	10.1	11.1	2.0	2.5	1.1	4.3	13.1
	7	5.9	5.6	7.8	21.5	46.1		16.1	25.4	5.4	1.0	6.0	8.6
	8										0.3	8.7	
Transect A	1		6.7	2.0	2.2	0.0	0.7	0.0	1.4	2.9	0.0	9.6	0.0
	2		8.1	1.9	2.2	0.0	0.1	0.0	1.4	5.5	0.1	11.2	0.0
	3		10.4	1.9	2.2	0.0	0.1	0.0	1.4	5.3	0.0	2.5	0.0
	4		7.2	1.9	2.2	0.0	0.0	0.0	1.4	5.9	0.2	2.8	0.0
	5		1.9	1.8	2.2	0.0	0.0		1.4	7.2			0.0
	6			1.8						5.4			
181 Reddalls Rd, Fenceline	1		0.0	2.1			0.0	0.0	1.8	2.3	0.0	4.5	0.2
	2		0.1	2.0			0.1	0.0	1.8	2.3	0.1	5.2	0.0
	3		0.0	2.0			0.1	0.0	1.8	2.2	0.1	5.2	0.0
	4		0.0	2.0			0.0	0.0	1.8	2.2	0.0	3.4	0.0
	5		0.0	1.9			0.0	0.0	1.9	2.2		2.8	0.0
	6		0.0	2.0			0.0	0.0	1.8	2.4	0.0	4.1	0.0
	7		0.0	1.9			0.0	0.1	1.9	2.5	0.0	4.8	0.0
	8		0.1	1.9			0.1	0.0	1.9	2.7	0.0	2.7	0.0
	Max Garden Reading		0.0	1.9			0.1	0.0		2.8	0.0	2.7	0.1
	Max Gardening Reading								2.2				
Lot 1 Farborough fenceline	1	2.7	0.1										
	2	2.8	0.0										
	3	3.5	0.0										
	4	2.9	0.1										
	5	2.7	1.4										
	6	3.3	0.7										
	7	3.6	0.3										
	8	3.7	0.1										
Max Garden Reading	3.0												
Lot 1 Farborough Rd, Fenceline	1						0.0	0.0	2.1	2.1	0.0		0.0
	2						0.1	0.0	2.6	2.2	0.0		0.0
	3						1.2	0.0	2.8	2.2	0.0		0.0
	4						0.7	0.1	2.4	2.2	0.1		0.0
	5						1.0	0.0	2.1	2.1	0.1		0.1
	6						0.6	0.1	2.8	2.2	0.1		0.0
	7						0.4	0.1	3.0	2.2	0.0		0.0
	8						0.3	0.0	4.3	2.1	0.0		0.0
Max Garden Reading						1.4	0.1	4.9	2.1	0.0		0.0	
Lot 1 Farborough, fenceline	1			1.8									
	2			1.7									
	3			1.7									
	4			1.6									
	5			1.6									
	67			1.6									
	7			1.6									
	8			1.5									
Max Garden Reading			1.5										
Lot1 Farborough Rd, Fenceline	1											3.2	
	2											3.3	
	3											4.1	
	4											5.0	
	5											4.9	
	6											4.1	
	7											4.2	
	8											3.0	
Max Garden Reading											3.1		

## Appendix E: Dust: Tabulated Data and Trends

Table 1: Respirable Dust

		PM10	PM10 (mass per filter)	Total Suspended Particulates	Total Suspended Particulates (mass per filter)
Units		$\mu\text{g}/\text{m}^3$	mg/filter	$\mu\text{g}/\text{m}^3$	mg/filter
Site Name	Sample Date				
Glengarry Cottage PM10	20/03/2024		20.6		
	16/04/2024	13.3	20.5		
	14/05/2024	12.5	19.3		
	19/06/2024	21.4	33.3		
	15/07/2024	12.5	19.2		
	20/08/2024	20.0	30.6		
	18/09/2024	41.0	62.2		
	15/10/2024	14.2	22.1		
	11/11/2024	14.8	22.7		
	16/12/2024	23.5	34.1		
	13/01/2025	28.6	42.4		
18/02/2025	19.2	28.9			
Glengarry Cottage TSP	20/03/2024				52.2
	16/04/2024			29.0	44.6
	14/05/2024			28.1	43.4
	19/06/2024			55.0	86.1
	15/07/2024			22.7	35.4
	20/08/2024			41.2	63.0
	18/09/2024			101	154
	15/10/2024			33.6	52.3
	11/11/2024			30.4	46.5
	16/12/2024			53.8	79.8
	13/01/2025			52.0	75.7
18/02/2025			49.7	73.8	
Landfill PM10	21/03/2024		13.8		

	17/04/2024	9.3	14.1		
	15/05/2024	11.2	17.2		
	20/06/2024	10.3	15.9		
	16/07/2024	1.1	1.7		
	21/08/2024	7.2	10.9		
	17/09/2024	7.6	11.7		
	16/10/2024	8.2	12.6		
	12/11/2024	7.9	11.9		
	17/12/2024	20.4	30.3		
	14/01/2025	19.3	28.3		
	17/02/2025	8.8	13.3		
Landfill TSP	21/03/2024				33.2
	17/04/2024			18.4	27.9
	15/05/2024			17.9	27.5
	20/06/2024			19.3	29.9
	16/07/2024			4.7	7.2
	21/08/2024			17.1	25.9
	17/09/2024			16.8	25.7
	16/10/2024			15.3	23.4
	12/11/2024			17.3	25.9
	17/12/2024			45.1	66.1
	14/01/2025			31.2	45.1
	17/02/2025			22.5	33.7

Table 2 Total Insoluble Matter

Site Name			DDG 1	DDG 2	DDG 3	DDG 4	DDG 5
Sample Date	Chemical Name	Units					
06/02/2025	Total Insoluble Matter	g/m <sup>2</sup> .month	0.5	0.8	0.4	0.6	2.8
06/01/2025	Total Insoluble Matter	g/m <sup>2</sup> .month	1.6	3.0	2.4	0.5	6.2
05/12/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	1.1	1.2	1.7	0.2	0.4
08/11/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.6	0.8	0.2	0.8	0.6
08/10/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.8	0.8	1.1	0.9	0.4
06/09/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.6	0.6	0.5	0.2	0.1
05/08/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.3	0.6		0.4	0.2
04/07/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.3	0.5	0.9		0.2
03/06/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.6	0.6	0.4		0.6
10/05/2024	Total Insoluble Matter	g/m <sup>2</sup> .month				2.3	0.2
03/05/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.1	0.2	0.4		
04/04/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.4	0.7	0.4	0.7	0.6
05/03/2024	Total Insoluble Matter	g/m <sup>2</sup> .month	0.7	0.3	0.6	0.6	0.7

