ANNUAL ENVIRONMENTAL MANAGEMENT REPORT 2022

Whytes Gully Landfill Extension Project

For The NSW Department of Planning and Environment

Wollongong City Council
Waste Services

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Document Information

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Wollongong Waste and Resource Recovery Park (Whytes Gully)

Annual Environmental Management Review 2022

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).

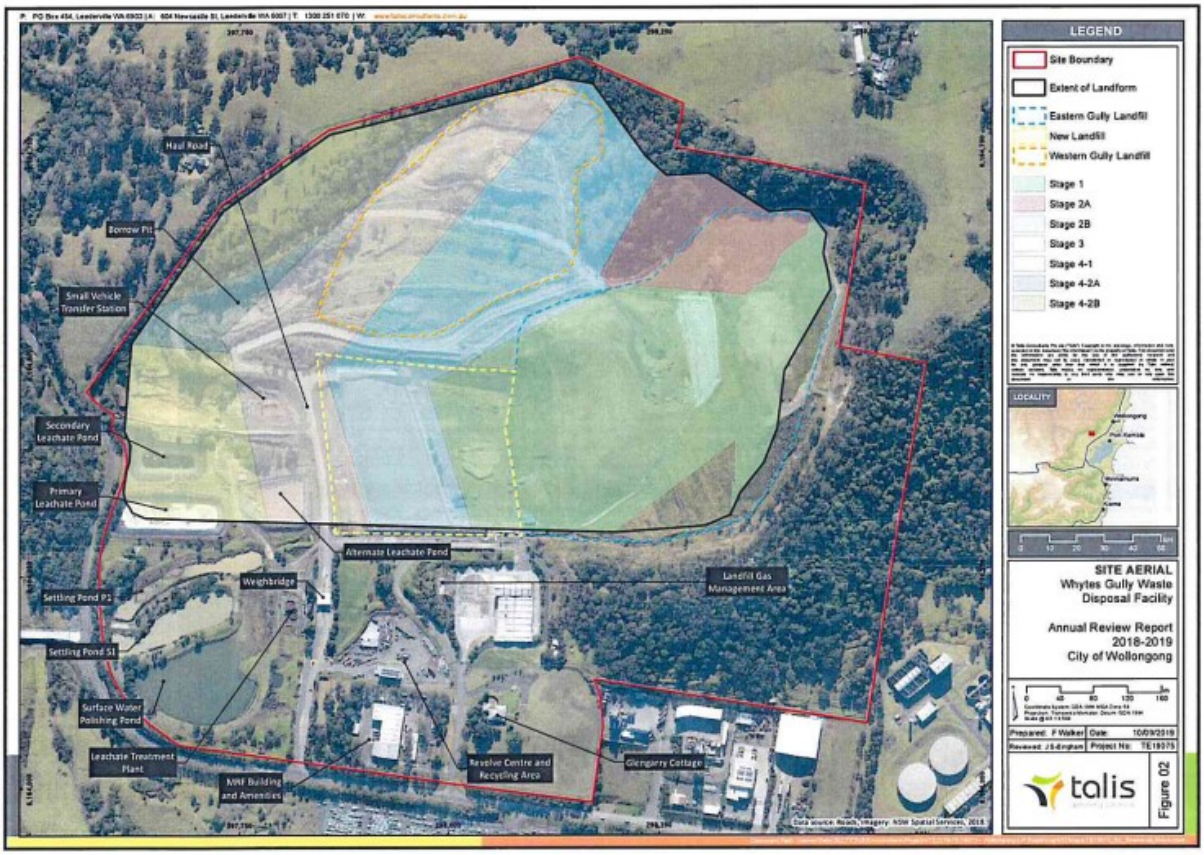
In addition to the above, item (f) states that the Council is required to publish the report on the Council's website within two weeks of its completion.

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.

Figure 1 Locality Plan

Figure 2 Site Aerial Photograph



1.2 Objectives

The objectives of this AEMR report is to satisfy the Council's Project approval obligations for the 2021/2022 annual reporting period, which will cover 2 March 2021 to 1 March 2022. The compiled monitoring data presented in this AEMR report addresses all aspects stipulated in Section 1.1 (items (a) through to (e)).

The COVID Pandemic continued to disrupt normal operations at Wollongong City Council and Waste Services (including Whytes Gully) for all part of the 2021/2022 reporting period. Short staffing, , provision of an 'Essential Service' seven days a week and ensuring legislative compliance represented significant challenges as outlined in this report.

In conjunction with this, catastrophic rainfall was received in the Illawarra, resulting in over 1400 mm being received over the 12 months. The highest levels were recorded in February 2022 where almost 300 mm fell continually over the month.

1.3 Purpose of this Report

The purpose of this Annual Review is to provide the NSW department of Environment and Planning (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 2nd March 2021 to 1st March 2022.
(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: • Relevant statutory requirements, limits or performance measures/criteria • Monitoring results of the previous years • Relevant predictions in the Environmental Assessment	See Section 3 for monitoring results, analysis and comparison against relevant criteria. See Section 4 for complaints results, analysis and comparison against relevant criteria.

Condition	Requirement	Annual Review Section/Response
(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 EPL licence, Sydney Water Trade Waste Agreement and management programs and plans. A discussion of requirements and results is provided in Section 3.

The compliance status of each requirement or commitment was 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

14 non-compliances were recorded during this reporting period. These were reported in accordance with DPIE and EPA requirements.

During this reporting period, consistent heavy rainfall (over 1400 mm) fell throughout and was related to 13 of the non-compliances recorded. Also, COVID restrictions continued and this provided a challenge to site management.

The other non-compliance was a small, contained fire on a hardstand transfer station.

The Pollution Incident Response Management Plan (PIRMP) was activated in a timely manner and mitigation measures were put in place as required in accordance with the updated management plans submitted to DPE. These will be discussed in the relevant sections.

2 General Facility Operations

During the reporting period 2021-2022, the facility operated as per '*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 pertaining to the waste streams and volumes received are provided in Section 6.

The Facility continued to operate throughout the COVID 19 Pandemic with appropriate safety measures and reduced staffing. This proved challenging at times, however operations managed to continue safely during this period. This was also additionally challenging due to the continual wet conditions. The essential nature of Waste Services required the site to be open when access was difficult and staffing impacted by COVID. However, work continued in accordance with Operating Guidelines.

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

- Weighbridge and gatehouse
- Community Recycling Centre
- Small Vehicle Transfer Station
- Continued Filling of cell 1B with waste
- Leachate and stormwater management and associated monitoring
- Monitoring Areas – landfill gas, groundwater, noise and air quality
- Green Waste Transfer Area
- Landfill gas flare
- Further Installation of landfill gas collection infrastructure
- Stockpiling areas
- Water management
- Environmental controls
- Weed Control and Revegetation works
- Weather Monitoring (MHL)

During this reporting period, the filling of Cell 1B continued despite the wet weather challenges. In parallel, gas infrastructure was expanded within the new fill areas and connected to the existing landfill gas flare system.

Upgrades to the leachate management system were undertaken (including leachate transfer automation, remote monitoring and system improvements), as well as Stage 1 Works for Stormwater Pond Desilting and establishment of a Rapid Fill Water Station. Odour Improvement works and relocation of Stormwater Monitoring Point 1 were also completed in accordance EPL 5862.

Also within this reporting period, Wollongong City Council rolled out their Food Organics Garden Organics (FOGO) Program in partnership with a local organics processing facility (Soilco).

3 Water Monitoring – Surface Water

Surface water (stormwater) monitoring was completed in order satisfy Approval No.11_ 0094 Schedule 4, conditions pertaining to 'Soil and Water'. The findings for the 2021-2022 reporting period are provided in the sections below.

3.1 Overview

Surface water monitoring was undertaken by ALS Environmental, with the monitoring locations shown in Figure 3. A summary of the monitoring requirements are detailed in Table 3-1 below:

Table 3-1: Surface Water Monitoring

<table>
<tr><th>Activity</th><th colspan="3">Description</th></tr>
<tr><td>Purpose</td><td colspan="3">Detect excess sediment loads in stormwater leaving the site and/or potential cross contamination of stormwater with landfill leachate.</td></tr>
<tr><td>Frequency</td><td colspan="3">Surface Water Monitoring Points: Quarterly or as required during breaches.
Polishing Pond: During controlled release.</td></tr>
<tr><td>Location</td><td colspan="3">Sampling locations were those listed in EPL 5862, and included the following:

• Monitoring Point 1 – outlet at Reddalls Road (onsite)
• Monitoring Point 33 – Downstream monitoring point; and
• Monitoring Point 34 – Upstream Monitoring point

The location of Monitoring Point 1 was adjusted in this reporting period in EPA License Variation (1st March 2021) from E297777, N6183972 to E297772 N6184025.
The final 'Polishing Pond' is also monitored by Council during any controlled release event or overflow.</td></tr>
<tr><td rowspan="8">Methodology</td><td colspan="3">Samples were collected using a 'scoop'; and
Field parameters were recorded using a calibrated water quality meter.

Table 3-2 : Surface Water Quality Parameters (Point 1, 33 and 34)</td></tr>
<tr><td colspan="3">Annually</td></tr>
<tr><td rowspan="6">Analytes/Field Parameters</td><td>Alkalinity</td><td>Calcium</td><td>Conductivity (EC)</td></tr>
<tr><td>Filterable Iron</td><td>Magnesium</td><td>pH</td></tr>
<tr><td>Sodium</td><td>Temperature</td><td>Total phenolics</td></tr>
<tr><td>Ammonia</td><td>Chloride</td><td>Dissolved Oxygen</td></tr>
<tr><td>Fluoride</td><td>Nitrate</td><td>Potassium</td></tr>
<tr><td>Sulfate</td><td>Total Organic Carbon</td><td>Total Suspended Solids</td></tr>
<tr><td colspan="3">In addition, the 'Polishing Pond' was subject to analysis for pH and turbidity to ensure the water is suitable for release.</td></tr>
</table>

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 (*less than 10 mm of rainfall within a 24 hour period).*	EPL 5862
	No discharge of contaminated stormwater to water during a storm event of less than 1:10 year, 24 hour recurrence interval *(less than 297.4 mm of rain within 24 hours*).	
	pH: 6.5 – 8.5 Turbidity: 40 NTU	
Monitoring Point 1	pH: 6.5 to 8.5 TSS: 50 mg/L	Section 3 (l2) of EPL 5862

In addition to the above, Section 7.4 of the Draft LEMP (Golder 2020) states that all surface water results are to be assessed against the Australian and New Zealand and Australian State and Territory Governments (ANZAST) *Guidelines for Fresh & Marine Water Quality, 2018 (ANZAST 2018*).

After the heavy rainfall events of February 2020 in the last reporting period where leachate entered the stormwater system and resulted in water quality management concerns onsite, the EPA varied the licence to include a Stormwater Improvement Plan (U1) comprising:

U1.1 By no later than 28th August 2021, the licensee must submit a preliminary assessment and update of the existing stormwater management system with the aim of understanding the effectiveness of the current stormwater management system and develop and improvement and maintenance plan.

U1.2 By no later than 3rd December 2021, the licensee must prepare a comprehensive water balance based on current and future landfill operations. The water balance must consider leachate, groundwater and stormwater at the premises.

U1.3 By no later than 31st March 2022, the licensee must submit an independent assessment of the revised stormwater management system prepared by a suitably qualified and experienced independent person. The assessment must include recommendations for improvements to the management of the system to prevent overflow events and ensure compliance with relevant licence limits.

U1.1 and U1.2 were addressed within the timeframe, however U1.3 has been delayed to ongoing adverse weather conditions.

3.3 Results- Monitoring Points 1, 33 and 34

Surface water was monitored during various stormwater events and annually during this period. In total, there were 31 overflow events with 13 constituting non-compliances based on the license constraints for pH and TSS stemming from heavy rainfall events in March 2021, May 2021, November 2021 and January 2022. This reporting period was under the influence of the La Nina weather event, resulting in higher than average 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 7.1 and 8.7 as the water column remained unstable with continual heavy rainfall (over 1400 mm). There was one non-compliant pH result of 8.7

on the 22 November 2021 most likely influenced by the short, heavy downpour the day before (23.6 mm).

On 12 occasions at Point 1, TSS values were recorded over 50 mg/L. Values ranged between 53 -174 mg/L and were related to the rainfall events around each of the elevated values.

Upstream and downstream results were also influenced by rainfall events in this reporting period.

On the 7th May 2021, downstream Point 33 had a recording of 64 mg/L TSS. This was the only elevated level (over 50 mg/L) recorded at this sampling site. On the same date, Point 34 (upstream) recorded a level of 75 mg/L TSS and Point 1 recorded 61 mg/l TSS. These results correlate directly to the rainfall event on the same date where 86.8 mm was received onsite.

At Point 34, two other elevated levels of TSS were recorded on 22nd March 2021 (59 mg/L) and 23rd March 2021 (527 mg/L) also related to a continual rainfall at the site. However, pH remained within acceptable limits (6.5-8.5) throughout the reporting period.

Table 3.3 Surface Water Quality Monitoring Results

Sample Date	Chemical Name	Units	(Point 1)	(Point 33)	(Point 34)
22/03/2021	pH	pH	7.8	7.4	7.2
23/03/2021	pH	pH	7.7	7.7	7.7
24/03/2021	pH	pH	7.6	7.1	7.1
25/03/2021	pH	pH	7.7	7.4	7.6
26/03/2021	pH	pH	7.8	7.5	7.7
27/03/2021	pH	pH	7.6	7.4	7.5
28/03/2021	pH	pH	7.6	7.4	7.7
29/03/2021	pH	pH	8.1	7.5	7.6
30/03/2021	pH	pH	7.2	7.4	7.6
31/03/2021	pH	pH	8.0	7.4	7.5
03/05/2021	pH	pH	7.9	7.6	7.5
07/05/2021	pH	pH	7.9	7.3	7.6
08/05/2021	pH	pH	7.9	7.4	7.6
09/05/2021	pH	pH	8.0	7.3	7.6
10/05/2021	pH	pH	8.1	7.3	7.5
11/05/2021	pH	pH	8.0	7.4	7.6
13/05/2021	pH	pH	8.2	7.5	7.7
05/11/2021	pH	pH	7.4	8.0	7.7
06/11/2021	pH	pH	8.1	7.4	7.5
08/11/2021	pH	pH	7.4	7.4	7.5
15/11/2021	pH	pH	8.4	7.4	7.6
18/11/2021	pH	pH	8.4		
22/11/2021	pH	pH	8.7	7.5	7.6
25/11/2021	pH	pH	7.9	7.4	7.3
26/11/2021	pH	pH	7.6	7.5	7.8
11/01/2022	pH	pH	7.6	7.4	7.2
20/01/2022	pH	pH	7.6	7.4	7.6
02/02/2022	pH	pH	7.8	7.4	7.6
28/02/2022	pH	pH	7.6	7.3	7.6
01/03/2022	pH	pH	7.7	7.2	7.7

Sample Date	Chemical Name	Units	(Point 1)	(Point 33)	(Point 34)
22/03/2021	Total suspended solids	mg/L	53	45	59
23/03/2021	Total suspended solids	mg/L	78	46	527
24/03/2021	Total suspended solids	mg/L	74	12	26
25/03/2021	Total suspended solids	mg/L	60	6	12
26/03/2021	Total suspended solids	mg/L	53	10	11
27/03/2021	Total suspended solids	mg/L	44	<5	<5
28/03/2021	Total suspended solids	mg/L	30	<5	<5
29/03/2021	Total suspended solids	mg/L	55	<5	8
30/03/2021	Total suspended solids	mg/L	82	<5	<5
31/03/2021	Total suspended solids	mg/L	174	<5	<5
30/04/2021	Total suspended solids	mg/L	7		
03/05/2021	Total suspended solids	mg/L	26	8	8
07/05/2021	Total suspended solids	mg/L	61	64	75
08/05/2021	Total suspended solids	mg/L	54	14	15
09/05/2021	Total suspended solids	mg/L	70	18	22
10/05/2021	Total suspended solids	mg/L	41	<5	7
11/05/2021	Total suspended solids	mg/L	32	<5	<5
13/05/2021	Total suspended solids	mg/L	32	<5	<5
05/11/2021	Total suspended solids	mg/L	14	13	<5
06/11/2021	Total suspended solids	mg/L	10	5	<5
08/11/2021	Total suspended solids	mg/L	34	6	<5
15/11/2021	Total suspended solids	mg/L	42	6	6
18/11/2021	Total suspended solids	mg/L	5		
22/11/2021	Total suspended solids	mg/L	12	8	9
25/11/2021	Total suspended solids	mg/L	44	<5	<5
26/11/2021	Total suspended solids	mg/L	20	20	44
11/01/2022	Total suspended solids	mg/L	14	49	6
20/01/2022	Total suspended solids	mg/L	10	6	6
02/02/2022	Total suspended solids	mg/L	64	<5	<5
28/02/2022	Total suspended solids	mg/L	16	<5	18
01/03/2022	Total suspended solids	mg/L	11	14	35

As mentioned in the beginning of this report, heavy rainfall episodes continued throughout the reporting period, as the La Nina weather pattern settled over the Southern Hemisphere. This resulted in over 1500 mm falling at Whytes Gully and rainfall occurred every month. This provided a multitude of environmental management issues discussed in later sections of in this report.

Month	Rainfall over the Reporting Period
March 2021	242 mm
April 2021	8 mm
May 2021	153.5 mm
June 2021	40.5 mm
July 2021	12.5 mm
August 2021	45 mm
September 2021	29.5 mm
October 2021	112 mm
November 2021	155.5 mm
December 2021	71.5 mm
January 2022	168.5 mm
February 2022	236 mm
TOTAL	1454.5 mm

3.3.2 All Other Parameters

3.3.2.1 Nutrients and Total Organic Carbon (TOC)

No trigger values in ANZAST (2018) guidelines are specified for these compounds in fresh waters. The previous 2000 threshold level for nitrate (0.7 mg/L) is erroneous according to Australian and New Zealand Water Quality Guidelines and no current updated value is available for comparison.

Generally, increased nitrate concentrations correlated with the significant rainfall events at all Points (1, 33, 34). Point 1 had nitrate levels peaking at 1.57 mg/L on the 7th May 2021, with elevated levels also occurring between 6-15th November 2021. Point 33 (downstream) peaked on this date as well at 1.17 mg/L with Point 34 nitrate levels recording 0.87 mg/L (also the highest in this reporting period for upstream).

During most of the reporting period, nitrate levels remained below 0.5 mg/L. Upstream and downstream results were generally lower, however followed the similar peaking rates after rain events travelled through the upper and lower catchment.

Ammonia, which is a compound commonly associated with leachate, was reported at low concentrations at all sampling points, though marginally higher at Discharge Point 1. Between 22nd March 2021 and 5th November 2021 levels were recorded on 19 occasions over the recommended threshold value of 0.9 mg/L. This corelated with heavy rainfall events throughout the reporting period and values ranged from 2.02 mg/L – 8.71 mg/L. On 2nd February 2022, levels spiked once more at 1.03 mg/L. Interestingly, Point 33 (downstream) only recorded one elevated result on the 3rd May 2021 at 2.14 mg/L.

Point 34 (upstream) recorded very low levels of ammonia during this reporting period with the highest being 0. 08 mg/L.

TOC, which can be used as a general water quality indicator reported higher concentrations at Discharge Monitoring Point 1, with lower concentrations reported at both the Upstream and Downstream Monitoring Points (33 and 34). This may indicate a small influence at the sampling point which can be contributed to the facility, though this is not being carried through to the downstream sampling point. It also appears that higher concentrations were reported at the discharge point during the stormwater overflow events compared to the annual sampling event. This suggests a slight increase in discharge during the storm event, which is to be expected.

The highest level of TOC recorded at Point 1 was 60 mg/L on 25th March 2021. At Point 33 (downstream) 16 mg/L was the highest level recorded on the 22nd March 2021 and the highest level recorded at Point 34 (upstream) was 11 mg/L on the 26th November 2021. These peak values do not appear to relate to each other.

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. Again, this suggests that the discharge point is having some level of influence on surface water quality at this 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 the continual rainfall 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 1070 µS/L at Point 1 which occurred on the 2nd February 2022 in the midst of continual heavy rainfall over 4 consecutive months. These elevated levels lasted for six days.

Overall, EC was lowest at the Upstream Monitoring Point 34 with values averaging around 383 µS/L, which is classified as ‘fresh water’. Levels were predominantly lower than the last reporting period, most likely due to higher dilution factors from continual rainfall over the majority of the year.

3.3.2.4 Filterable Iron

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

At Point 1, very low iron levels (under 0.08 mg/L) were detected between 5th November 2021 and 28th February 2022. Throughout the rest of the reporting period, levels remained under 0.8 mg/L with the exception of one recorded level of 3.59 mg/L on 30th March 2021.

Low detectable concentrations were recorded both upstream and downstream (under 0.58 Mg/L) throughout the reporting period.

3.3.2.5 Dissolved Oxygen (DO) and Temperature

Reported DO concentrations ranged between 1.65 mg/L (26th March 2021) and 9.01 mg/L (15th November 2021) at Point 1. Ideally, DO levels should not drop below 3 mg/L to ensure a healthy water column (ANZAST (2018)). Values at Point 1 were under 3 mg/L between 23/03/2021 and 28/03/2021, which coincides with a heavy rainfall event that influenced other water quality parameters over this period (e.g. TSS levels).

Upstream and downstream waterways remained at healthy DO levels throughout the reporting period and temperatures remained relatively stable across all three monitoring points (15.8^0C – 25.5^0C) with minor seasonal fluctuations as expected.

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 tabulated results for the polishing pond are provided in Appendix A.

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.

The polishing pond parameters (pH and turbidity) were measured on 14 occasions, while controlled release occurred on 12 occasions where pH was within the suitable range (6.5-8.5), and turbidity was < 40 NTU.

3.5 Non-Conformances

In reference to surface water monitoring, the facility had 14 non-conformances during the 2021/22 reporting period.

3.6 Monitoring Trends

The graphed TSS and pH values for the last 5 years (2021/2022) 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 are provided below.

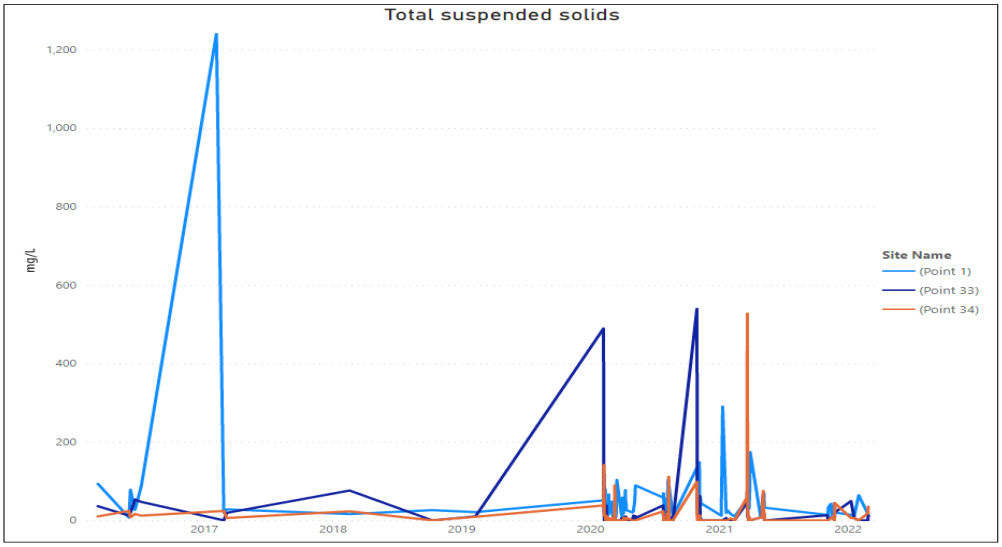
3.6.1 TSS Trends

As shown in the graph below, TSS concentrations have generally remained at/or below the performance criteria, with exceedances coinciding with heavy rainfall events. In contrast to last reporting period which had significantly high sediment loads at Sampling Sites 1, 33 and 34 during overflow events, this reporting period had relatively low levels.

This has meant that controlled discharge was able to be undertaken from the polishing pond in a compliant manner on most occasions, allowing improved management of the stormwater system.

The two overflow events that triggered the breaches were directly related to severe storm events that affected the entire region, and therefore Council was not considered to be at fault by the EPA or DPIE. During this reporting timeframe, there was no infiltration of leachate into the stormwater management system as in the previous period. This can be attributed to improved management practices which are discussed later in the report.

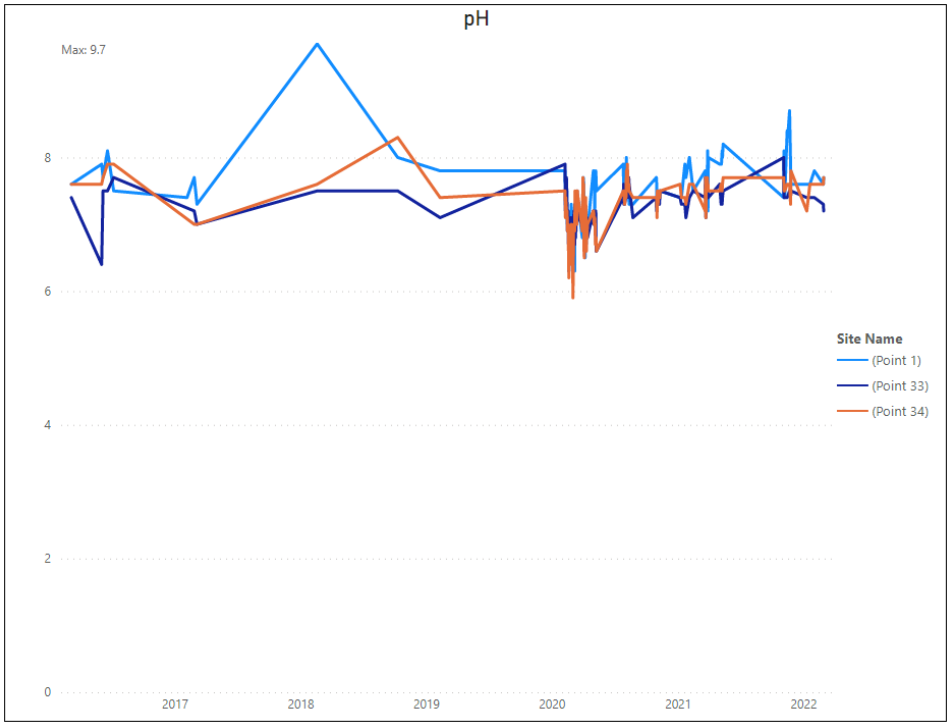
Graph 1: TSS Trends - Total Suspended Solids



3.6.2 pH Trends

As shown in the graph below, pH has been relatively stable and within range (6.5-8.5) for the life of the project. This trend continued during 2021/22 with only one breach of 8.7 (attributable to a torrential flooding event).

Graph 2: pH Trends



3.6.3 All Other Parameters

In relation to other parameters monitored, trend graphs are provided in Appendix A. Unlike the previous reporting period, monitoring results have remained comparatively stable and parameters have remained at low levels compared to previous years. This may be due to the large volume of water passing through the catchment over the last two years, mobilising contaminants and flushing them through the water column.

Of interest, is the changing nature of the catchment. Until the last four 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 undoubtably impact surrounding water quality, however it has been difficult to assess in this reporting period due to the heavy rainfall events.

3.7 EA Predictions

The EA did not provide predictions relating to surface water. However, the following are the relevant outcomes relating to surface water management requirements outlined by DPIE in their response to IEA finding last reporting period:

- *Schedule 4 Condition 14 & Condition 15 Soil, Water and Leachate Management Plan.* Develop a Stormwater Management Plan by 30 September 2021.
- *Schedule 4 Condition 17 Soil, Water and Leachate Management Plan.* Develop a Leachate Management Plan by 30 September 2021.
- *Schedule 4 Condition 18 Soil, Water and Leachate Management Plan.* Finalise the entire plan (including soil/stockpile management) for 30 November 2021 submission.
-

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 within this reporting period (November 2021) and was subsequently approved on the 29/06/2022.

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

Table 3-5 Instrument of Modification (s75W)

Requirement	Condition Actions	Relevant Section
Site Water Balance	Identifies the source of water collected or stored on site, including rainfall, stormwater and groundwater. Includes details of all water use on site and any discharges. Describes the measures that will be implemented to minimize water use on site.	Whytes Gully Landfill Site Water Balance (GHD 2021).
Erosion and Sediment Control Plan	Is consistent with the requirements in the latest version of the Blue Book. Identifies the activities on site that could cause soil erosion and generate sediment. Describes the measures that will be implemented to minimise soil erosion and transport of sediment and stockpiles are managed.	Stockpile Management Plan (August 2021)

Leachate Management Plan	Includes final details of leachate management and collection on site. Includes a remedial action plan.	Whytes Gully Landfill - Leachate Management Systems Update (JPG Engineering 2021)
Stormwater Management Plan	Is consistent with the Wollongong DCP. Includes detailed design for the stormwater management and collection system. Demonstrates how the requirements of Condition 15 of the schedule has been addressed. Is updated to the satisfaction of the Secretary prior to the construction of works.	Whytes Gully: Preliminary Stormwater Assessment (2021)
An Ongoing Monitoring Program	Includes baseline data. A combined surface and groundwater monitoring program. Includes surface and groundwater impact assessment criteria.	Whytes Gully: Preliminary Stormwater Assessment (2021)

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 2021 -2022 annual reporting period are provided in the sections below.

4.1 Overview

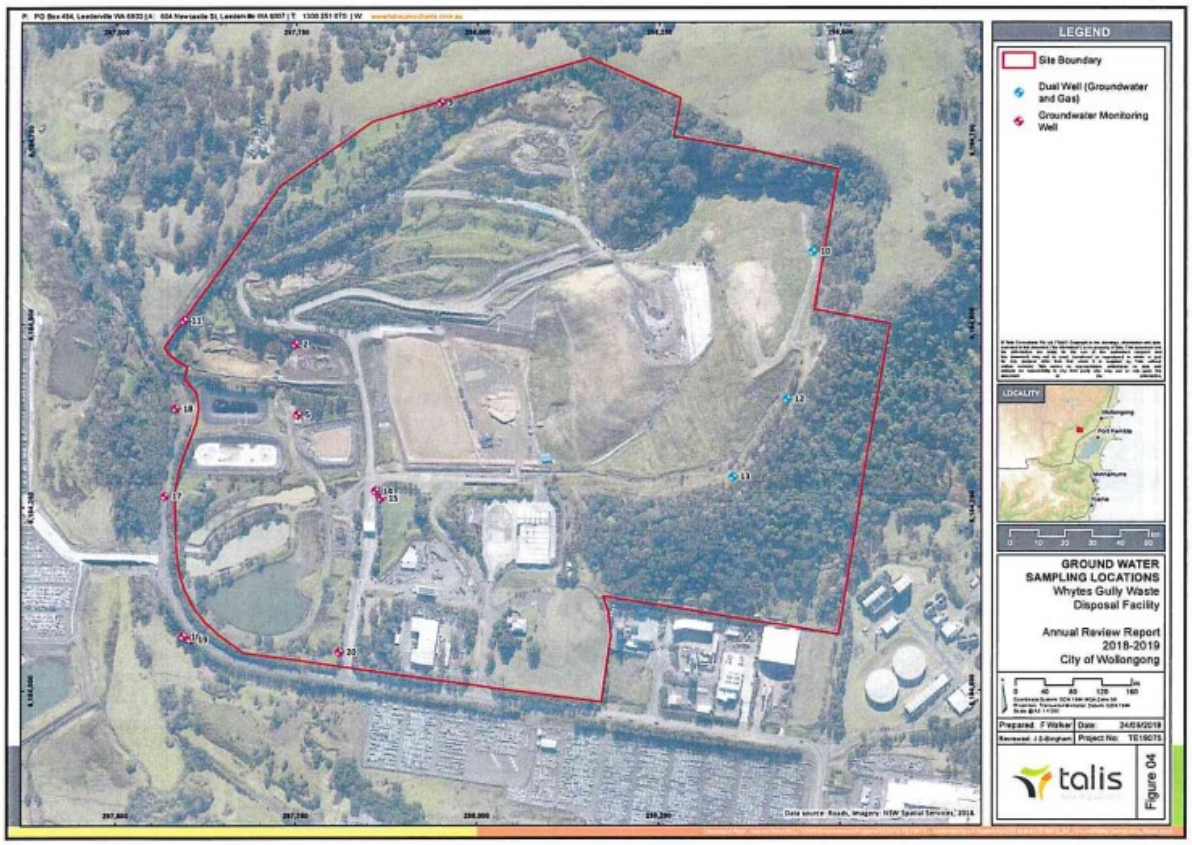
Groundwater monitoring was undertaken by ALS Environmental, with monitoring locations shown in Figure 4. A summary of the monitoring requirements are detailed below:

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: • May 2021 • August 2021 • November 2021 • February 2022
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.	
Analytes/Field Parameters	The analysis schedule was in accordance with M2.3 of EPL 5862 and included: **Table 4-2: Groundwater Parameters**	
	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 ANZAST, 2018 Fresh Water (95%) guidelines and or other relevant trigger values specified in the document will be adopted during future monitoring events.

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)
10/05/2021	1.82 (Point 15)	8.32 (Point 12)
16/08/2021	1.63 (Point 20)	11.3 (Point 12)
01/11/2021	1.5(Point 20)	11.2 (Point 12)
23/02/2022	1.52 (Point 14,15)	10.42 (Point 12)

4.3.1.1 pH and EC

Groundwater pH was reported to be relatively neutral averaging between 6.1 to 7.4 for the reporting period. The exception was Point 12 (GMW105) that was recorded as 5.8 on 16/08/2021. This bore had historically been dry until the end of last reporting period when continual heavy rainfall resulted in water table levels increasing back to pre-drought levels.

Electrical Conductivity varied greatly across the site with the lowest value recorded being 107 µS/L at Point 12 (GMW105) on the 23/02/2022 and the highest value recorded being 4440 µS/L at Point 5 (GABHO2) also on 23/02/2022.

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

4.3.2 Laboratory Analysis Results

Tabulated analysis results for the 2021/22 annual reporting period are provided in Appendix B, with a summary of the results presented in the following sections.

4.3.2.1 Metals

Metals were detected in groundwater at all sampling locations, with concentrations of arsenic, barium, cadmium, chromium, cobalt, lead, mercury and zinc below the ANZAST (2018) criteria for freshwater. However, the following exceedances were reported:

Table 4-4 Metals Exceedances

Metals	Monitoring Point	Exceedance (mg/L)	Assessment Criteria ANZAST (2018)
Aluminium	5 9 10 11 12 14 15 16 17 18 19 20	1.47 (23/02/2022) 2.59 (23/02/2022) 0.52 (23/02/2022) 6.96 (23/02/2022) 5.63 (23/02/2022) 4.85 (23/02/2022) 2.72 (23/02/2022) 2.24 (23/02/2022) 6.05(23/02/2022) 2.60 (23/02/2022) 0.08 (23/02/2022) 0.76 (23/02/2022)	0.055
Copper	5 9 10 11 12 14 15 16 17 18 19 20	0.005 (23/02/2022) 0.005 (23/02/2022) 0.004 (23/02/2022) 0.017 (23/02/2022) 0.008 (23/02/2022) 0.015 (23/02/2022) 0.007 (23/02/2022) 0.025 (23/02/2022) 0.012 (23/02/2022) 0.006 (23/02/2022) 0.001 (23/02/2022) 0.006 (23/02/2022)	0.0014
Manganese	5 16	5.88 (23/02/2022) 2.01 (23/02/2022)	1.9

4.3.2.2 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.

4.3.2.3 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 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 $CaCO_3$ concentrations during the reporting period, ranging between 729 mg/L (1/11/2021) to 985mg/L (16/08/2021).

Monitoring Point 12 had the lowest concentrations ranging between 30 mg/L (1/11/2021) and 47 mg/L (16/08/2021).

4.3.2.4 Total Dissolved Solids (TDS)

Groundwater across the site was reported to be 'fresh' to 'brackish', with TDS concentrations ranging between 143 mg/L at Point 12 (23/02/2022) and 2620 mg/L at Monitoring Point 17 (16/08/21). Concentrations fluctuated significantly throughout the site and appear to be linked to the rainfall events during the reporting period. TDS levels were overall lower than the last reporting period, most likely due to dilution factors from the shear large volumes of rainfall received at the site.

4.3.2.5 Total Organic Carbon (TOC)

No trigger values were adopted for TOC as none exists in the ANZAST (2018) guidelines. Concentrations across the site range from below the laboratory PQL (<1 mg/L) at all bores sampled on the 10/05/2021 through to 12 mg/L (Point 20) on 01/11/2021 and 23/02/2022.

4.3.2.6 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 ANZAST (2018) guideline values, and as such some exceedances may be masked.

4.3.2.7 Nutrients

Nutrient concentrations including nitrate, nitrite and ammonia-N concentrations were reported below the adopted assessment criteria in almost all groundwater bores. However, there was an elevated level of 1.3 mg/L Ammonia-N at Monitoring Point 5 on the 10/05/2021.

Nitrate and nitrite levels remained low and fluctuated slightly during the reporting period.

4.4 Conformances

In relation to groundwater, the monitoring schedule was in conformance during the 2021/22 reporting period. However, in relation to concentrations of contaminants of potential concern (COPs) in groundwater, the following non-conformances were noted:

- Raised OC/OP PQLs which may require review of the adopted criteria.
- Continued metal exceedance (aluminium, copper and manganese) at several locations. However, based on previous monitoring data, it appears that aluminium and copper appear to be regionally elevated.

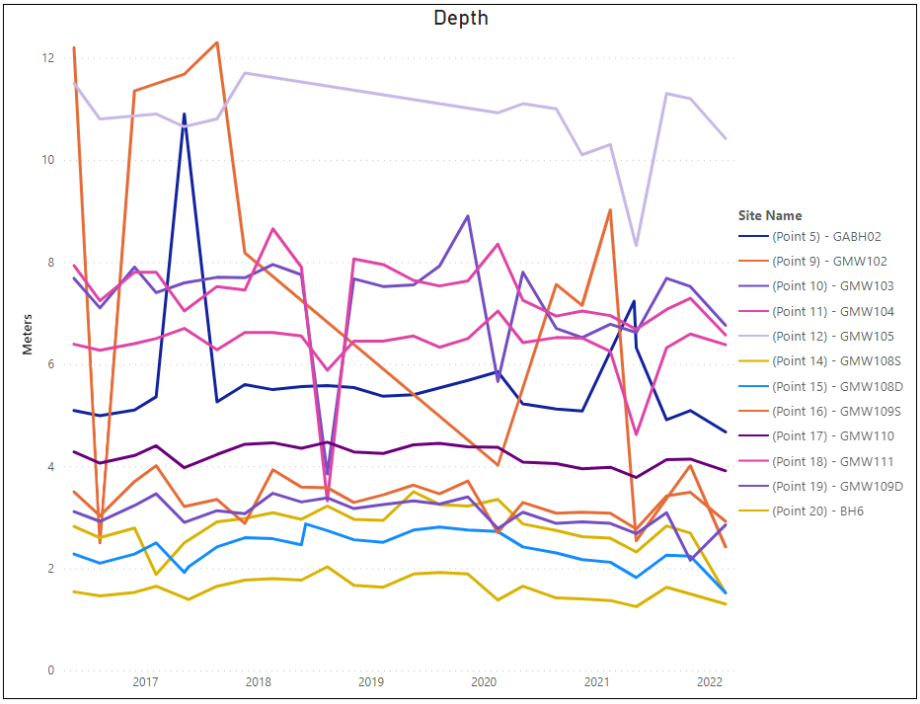
4.5 Monitoring Trends

The graphed monitoring trends for groundwater depth, TOC, ammonia-N and metals including aluminium, arsenic, copper, cadmium and zinc for the period 2017-2022 are provided below. The full suite of graphed trends are 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 previous years as heavy rainfall continued this reporting period. All bores continued to flow and were able to be measured.

Graph 3- Depth to Water Table



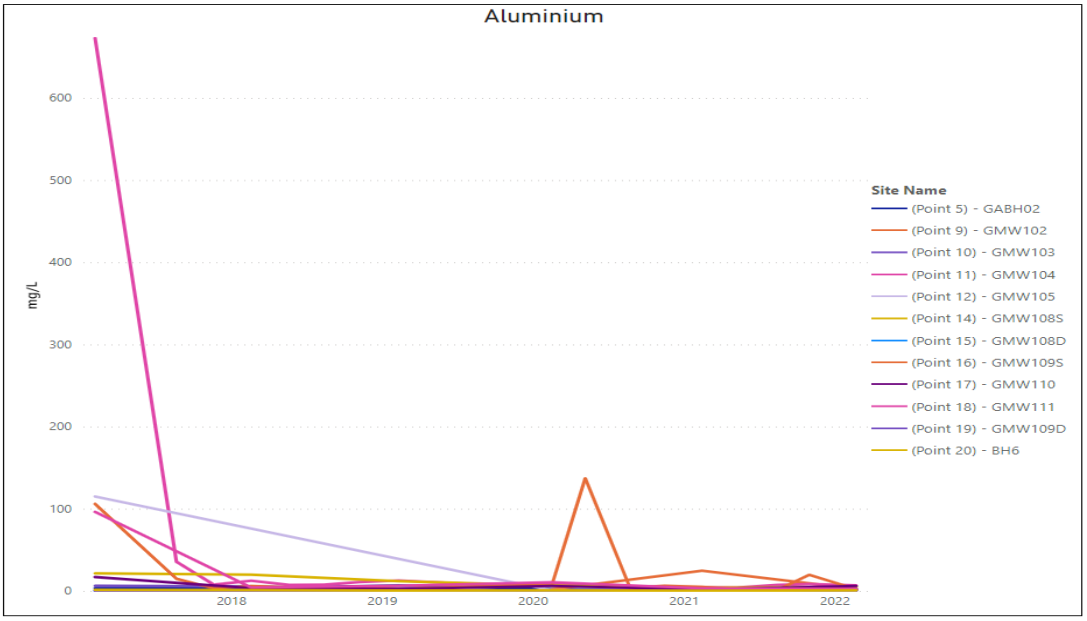
4.5.2 Metals

Aluminium

As shown in the graph below, aluminium concentrations continued to remain stable after peaking in 2017 (after a heavy rainfall event). Continuing heavy rainfall again mobilised metals in the groundwater system, however concentrations remained low across the site.

However, aluminium levels still exceeded the adopted assessment criteria (0.055 mg/L).

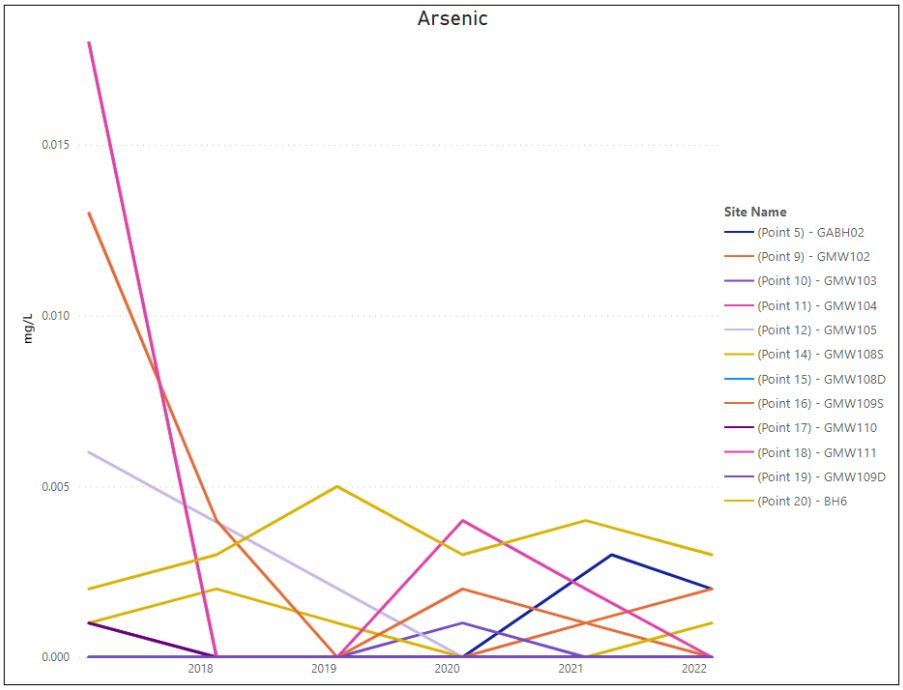
Graph 4 – Aluminium Trends



Arsenic

As shown in the graph below, 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, 17 and 20 arsenic mobility in groundwater was below the guideline value.

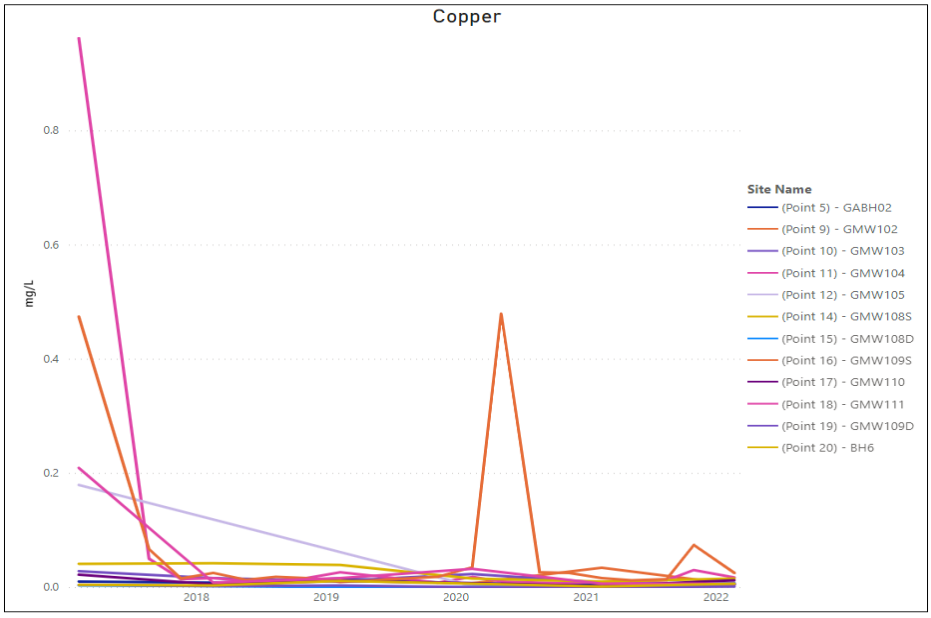
Graph 5: Arsenic Trends



Copper

As shown in the graph below, copper concentrations were generally below the adopted assessment criteria of 0.0014 mg/L this reporting period with only one exception (0.074 mg/L at Monitoring Point 16). Levels remained stable throughout this reporting period.

Graph 6: Copper Trends

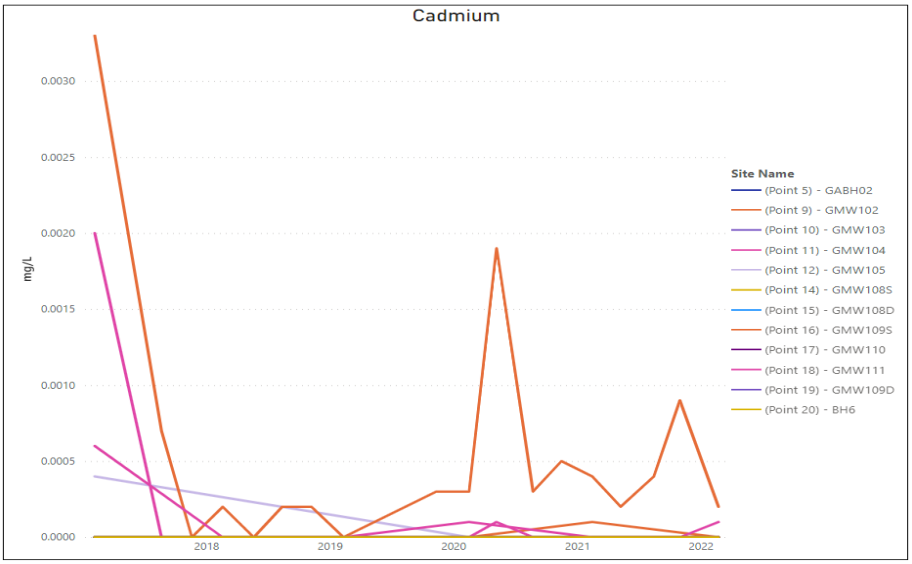


Cadmium

The guideline values for cadmium were corrected to account for water hardness. As shown in the graph below, cadmium concentrations have been generally stable and below 0.002 mg/L. There was one elevated value detected at Monitoring Point 16 on the 1/11/2021 which peaked at 0.009 mg/L.

Concentrations at the other monitoring points returned to their long-term trends. Concentrations at all locations remained below the adopted assessment criteria.

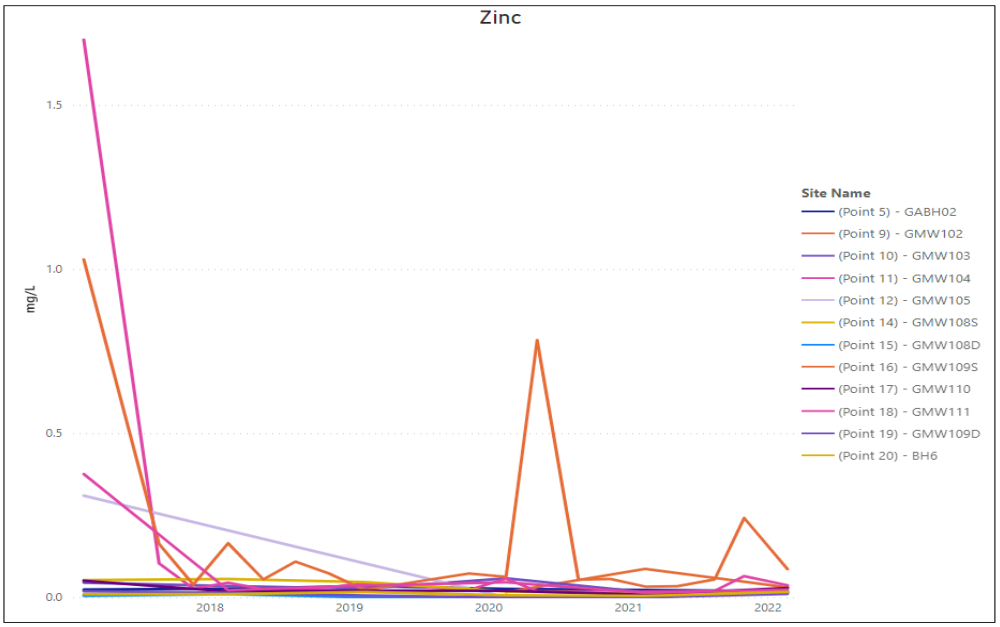
Graph 7 Cadmium Trends



Zinc

The guideline values were corrected for hardness, and all results reported below the adopted assessment criteria.

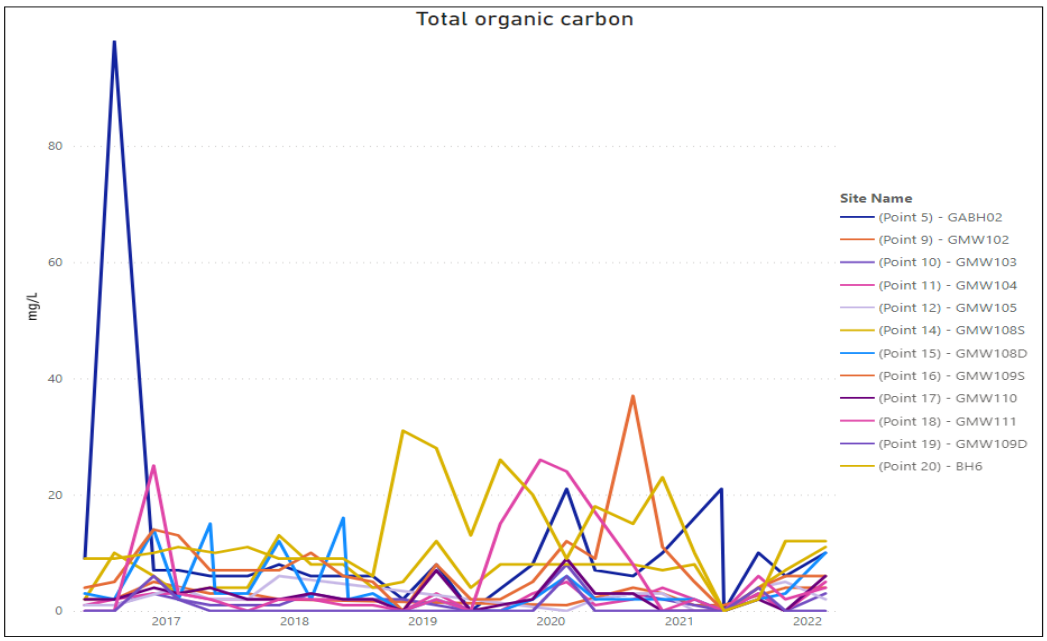
Graph 8 Zinc Trends



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 heavy rainfall events that have mobilised solutes within the groundwater system.

Graph 9 -TOC Trends

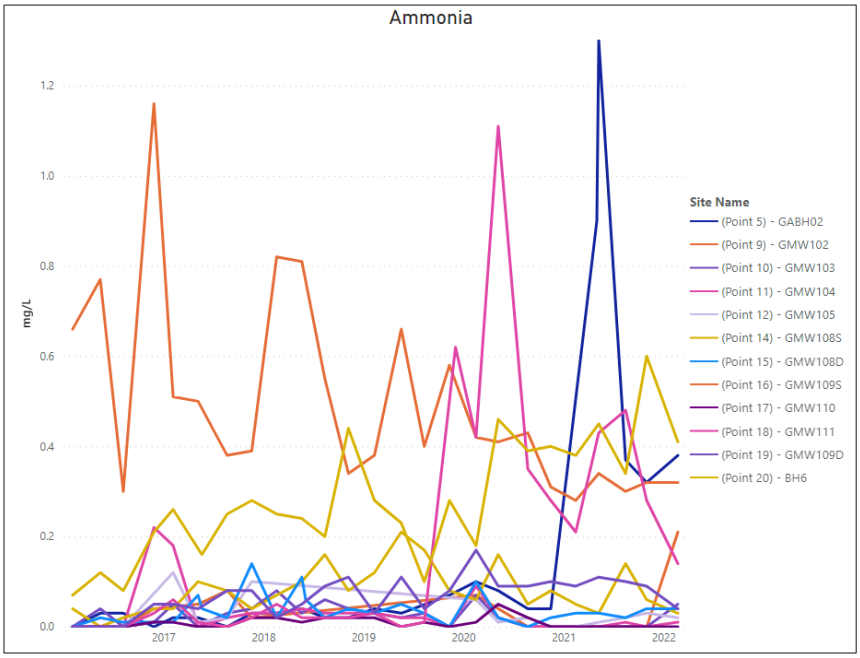


4.5.4 Ammonia-N

As shown in the graph below, ammonia-N was reported below the threshold level of 0.95 mg/L throughout the reporting period except for one sampling event at Monitoring Point 5 on the 10/05/2021 which was recorded at 1.30 mg/L.

Previous to the drought breaking conditions in 2020, ammonia levels across the groundwater network were decreasing, however all bores are now running and flow throughout the system is once more active with ammonia levels steadily increasing.

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 been subject to continuing fluctuations across this monitoring period due to heavy rainfall causing the groundwater system to flow.

Major anions and cations, total dissolved solids, nutrients, pH and electrical conductivity were all heavily influenced by rainfall events during the 2021/22 period as solutes were mobilised in the water column.

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 latest Water Balance Analysis (GHD 2021) summarises groundwater characteristics as follows:

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

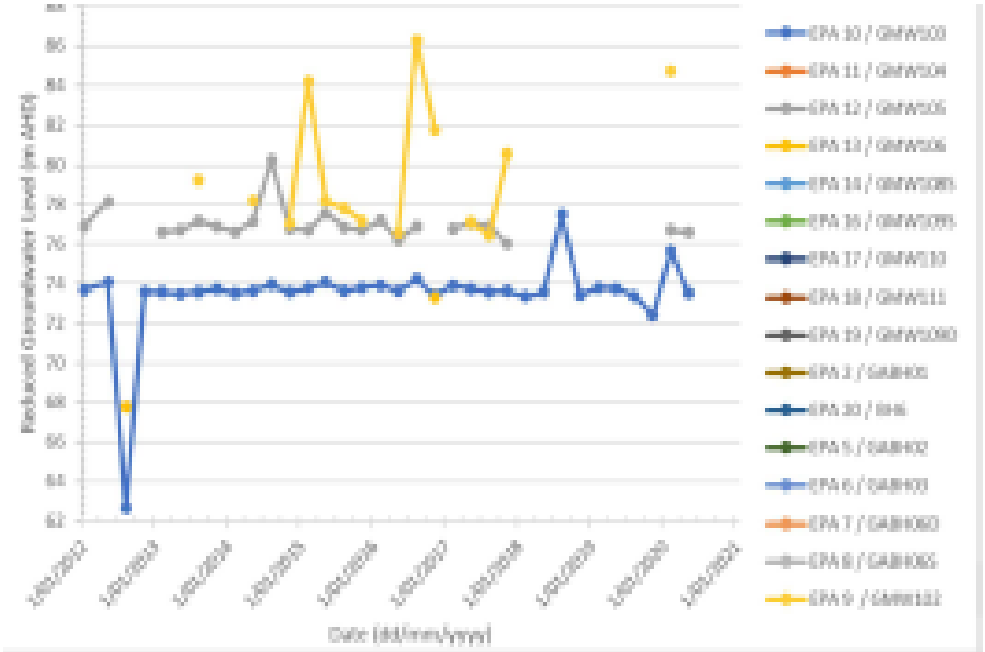
is a considerable difference in elevation between the northern, elevated part of the site, and the flatter topographies to the south.

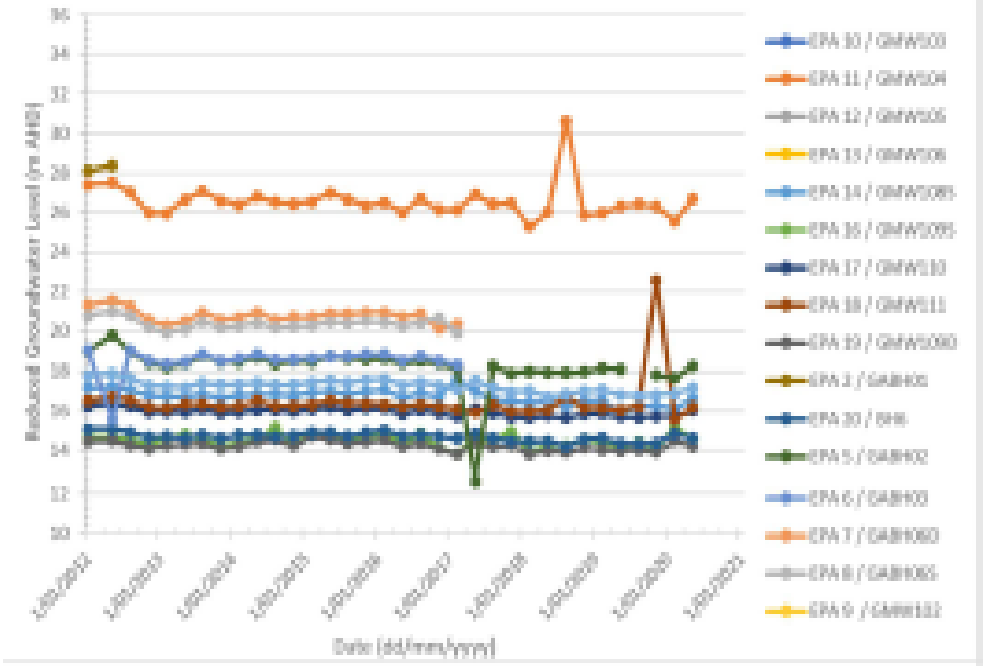
The water level monitoring data was received from Council and there are multiple monitoring anomalies, as water levels can change by over 6 m in some instances. In general terms, most monitoring bores show very limited seasonal fluctuation, i.e., generally less than 1 m variation.
A monthly residual mass curve of rainfall has been prepared to identify long term rainfall trends and has also been presented in the figure below. The rainfall data was sourced from Bellambi AWS climate station (68228) for the period 1990 to 2021, to characterise the influence of climate on groundwater levels. The absolute value of the residual mass curve is not significant; however the slope of the curve is:

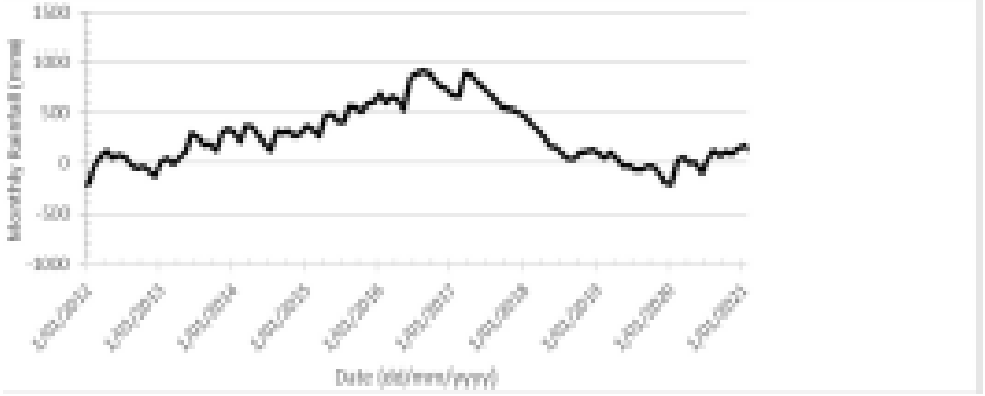
– A positive slope indicates a wetter than average period
– A negative slope indicates a drier than average period
– A section of both negative and positive indicates a period of generally average rainfall
– The grade of the slope indicates how much wetter or drier than average the climate is

The residual mass curve indicates that the rainfall has been above average between 2013 and 2017, below average between 2017 and 2019, and relatively average since this period. 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:
– Very low recharge rates in the bedrock aquifer
– In some parts of the site, groundwater levels in monitoring bores may be being artificially recharged by near site features e.g. leaking lagoons, stormwater channels or leaking buried services.

Figure 5 Monitoring Bore Hydrographs


Reduced Groundwater Level (m AHD)
Date (dd/mm/yyyy)
EPA 10 / GMW103
EPA 11 / GMW104
EPA 12 / GMW105
EPA 13 / GMW106
EPA 14 / GMW108S
EPA 15 / GMW109S
EPA 17 / GMW110
EPA 18 / GMW111
EPA 19 / GMW109D
EPA 1 / GABH01
EPA 20 / BH6
EPA 5 / GABH02
EPA 6 / GABH03
EPA 7 / GABH06D
EPA 8 / GABH06S
EPA 9 / GMW112


Reduced Groundwater Level (m AHD)
Date (dd/mm/yyyy)
EPA 10 / GMW103
EPA 11 / GMW104
EPA 12 / GMW105
EPA 13 / GMW106
EPA 14 / GMW108S
EPA 15 / GMW109S
EPA 17 / GMW110
EPA 18 / GMW111
EPA 19 / GMW109D
EPA 1 / GABH01
EPA 20 / BH6
EPA 5 / GABH02
EPA 6 / GABH03
EPA 7 / GABH06D
EPA 8 / GABH06S
EPA 9 / GMW112


Monthly Rainfall (mm)
Date (dd/mm/yyyy)

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 2021/2022 reporting period are provided in the sections below.

5.1 Overview

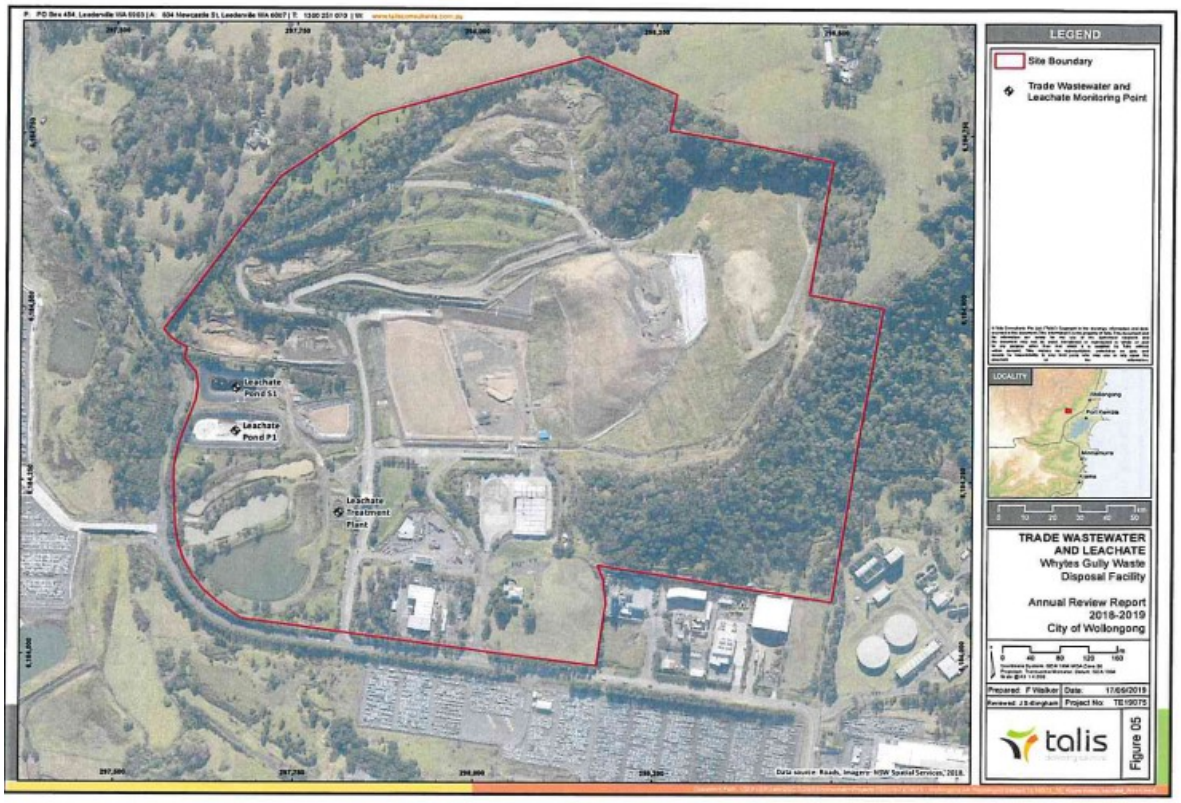
Trade wastewater and leachate sampling was undertaken by ALS Environmental in accordance with the *Consent to Discharge Industrial Trade Wastewater* (Sydney Water 2021). The monitoring locations are shown in Figure 5. A summary of the monitoring requirements is detailed in the table below.

Table 5-1: Trade Waste Monitoring Requirements

<table>
<tr><th>Activity</th><th>Description</th></tr>
<tr><td>Purpose</td><td>Trade Wastewater: Confirm quality of wastewater discharged from the facility.
Leachate: Chemically characterise the leachate to allow assessment of potential environmental harm and impacts.</td></tr>
<tr><td>Frequency</td><td>Trade Wastewater:
Monthly in accordance with EPL 5862. Monitoring was completed in:
On 13th March 2019 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.
Leachate:
On 3 March 2019 and every week thereafter.</td></tr>
<tr><td>Locations</td><td>Sampling locations were in accordance with Sydney Water 2021, 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.</td></tr>
<tr><td>Methodology</td><td>Trade Wastewater: 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.
Leachate: 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.</td></tr>
<tr><td>Analytes/Field Parameters</td><td>Samples were subject to laboratory analysis for the following:

Table 5-2: Trade Wastewater and Leachate Parameters
<table>
<tr><th colspan="2">Trade Wastewater</th><th>Leachate (CW-East, Balance Tank and Pond P1 and S1)</th></tr>
<tr><td>EC</td><td>Ammonia-N</td><td>TDS, TSS</td></tr>
<tr><td>Biological Oxygen Demand (BOD)</td><td>TSS</td><td>pH</td></tr>
<tr><td>TDS</td><td>EC</td><td>Ammonia-N</td></tr>
<tr><td>pH</td><td>Temperature</td><td>Temperature</td></tr>
</table>
Discrete samples were tested for pH, EC and temperature using a calibrated water quality meter at the start and finish of each day.</td></tr>
</table>

Figure 6: Wastewater and Leachate Sampling Locations



5.2 Performance Criteria

In 2021, a new trade waste agreement was signed that lowered the levels of some discharge parameters. The new 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	
Concentrations	Start and finish: pH 7-10 Ammonia – N: 100 mg/L TSS: 600 mg/L TDS: 10 000 mg/L Temperature: < 38^{0}C	

Maximum Daily Mass	Ammonia: 21 kg/day TSS: 120 kg/day TDS: 2500 kg/day BOD: 50 kg/day Ammonia: 100 mg/L TSS: 600 mg/L TDS: 10 000 mg/L	Sydney Water 2021

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:

- ANZAST(2018) Freshwater (95%) guidelines.

5.3 Results

5.3.1 Trade Wastewater Discharged

The full tabulated trade wastewater results for the 2021-2022 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	06/10/2021 56.5 kL	12/8/2020 and 1/9/2020 420 kL	605 kL/day
pH start	7.1	8.5	pH 7-10
pH finish	7.2	8.5	
Ammonia-N Concentrations	0 mg/L	92.4 mg/L	100 mg/L
Ammonia -N Maximum Daily Mass	0	29 kg	Maximum Daily Mass: 21 kg/day Long Term Average:3.98 kg/day
TSS	10 mg/L	53 mg/L	600 mg/L
TDS	1370 mg/L	6960 mg/L	10 000mg/L
Temperature	14^{O} C	34^{0} C	< 38^{0} mg/L

5.4 Conformances

Based on the monitoring data over the reporting period, there was one breach in maximum daily mass of ammonia at 29 kg/day on 3/02/2022. Interestingly, this level is now only non-compliant under the new Trade Waste Agreement which lowered the limit from 36 kg/day to 28.3 kg/day. All other parameters were compliant.

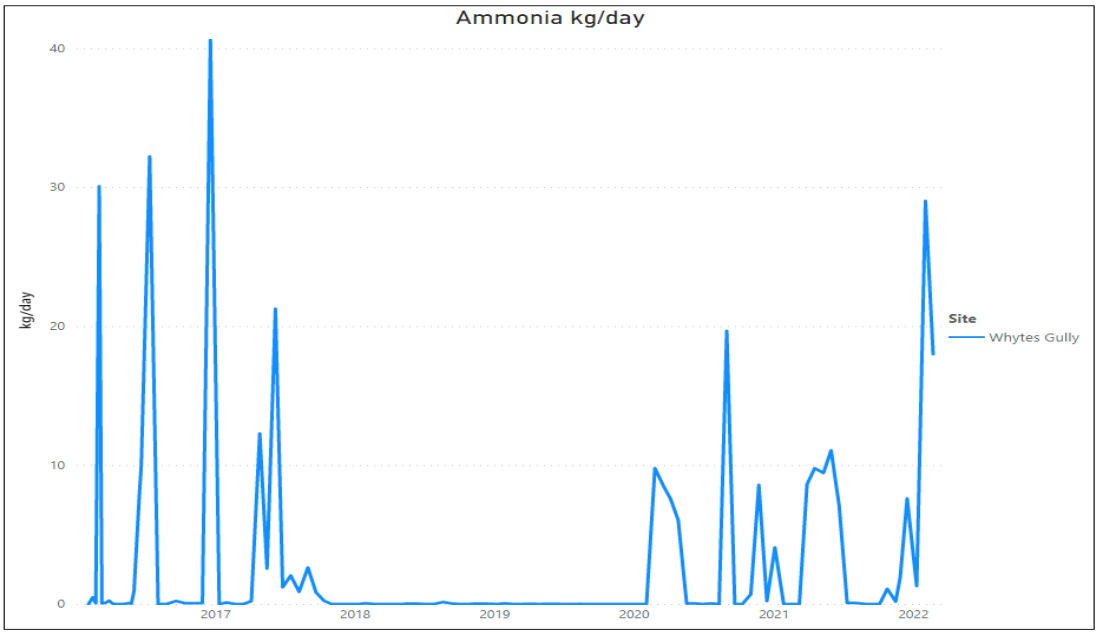
This Agreement is currently due for review in December 2022 or earlier if Council is having difficulty meeting the guideline values. A performance review is currently being undertaken to commence renegotiations with Sydney Water.

5.5 Monitoring Trends

5.5.1 Ammonia

Fluctuations continued to occur this reporting period due to the continual heavy rainfall and the performance criteria of 28.3 kg/day was exceeded on one occasion. As mentioned previously, if the 36 kg/day criteria that existed previously were still in place, this would not have been a non-compliant result.

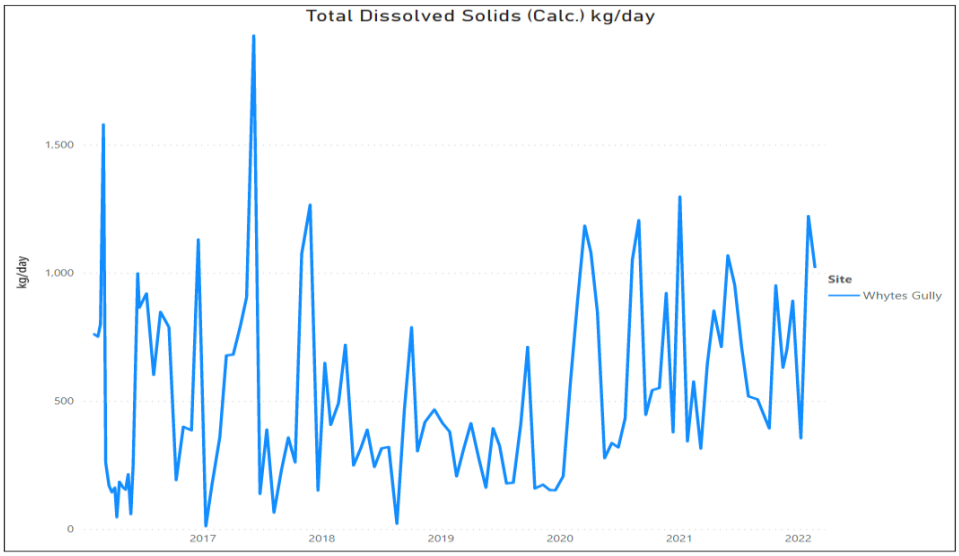
Graph 11: Ammonia Trends



5.5.2 TDS

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

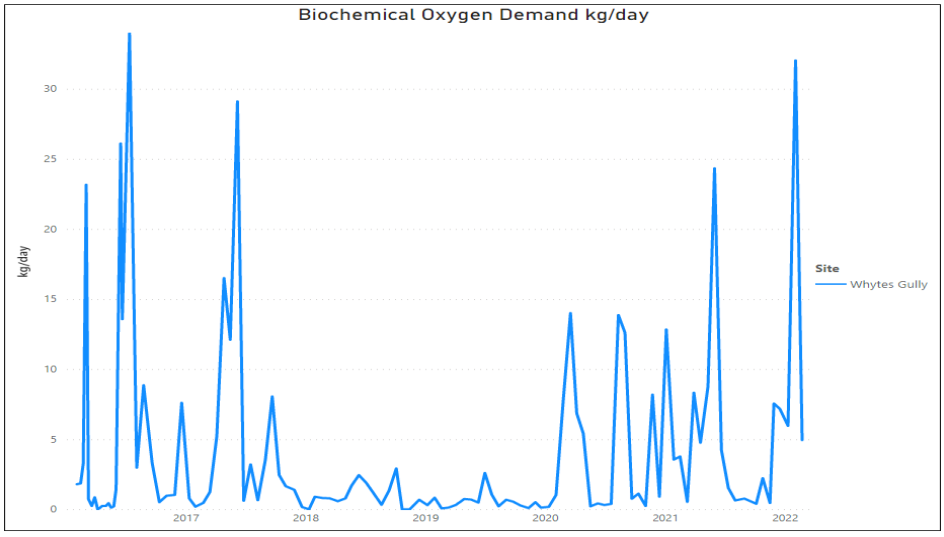
Graph 12: TDS Trends



5.5.3 Biological Oxygen Demand (BOD)

As shown in the graph below, BOD concentrations in trade wastewater continue to increase during the periods of heavy rainfall. This poses a management challenge despite the recent leachate management upgrades.

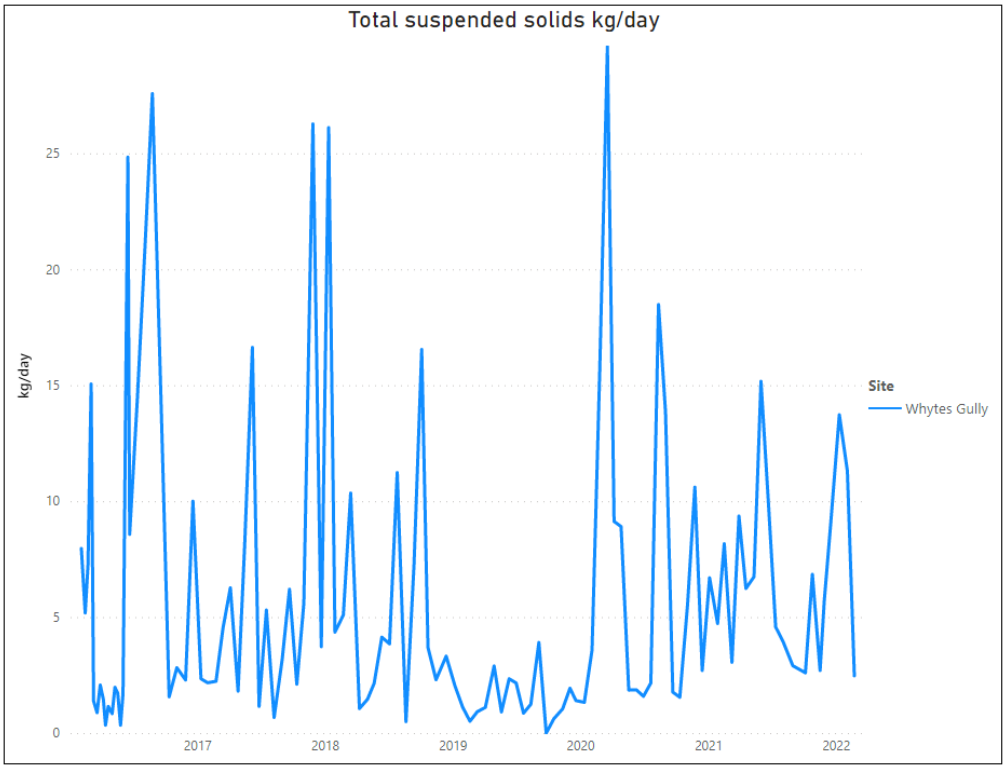
Graph 13: BOD Trends



5.5.4 TSS

As shown in the graph below, TSS concentrations in trade wastewater have been stable over the dry period like most parameters. However, the initial torrential rainfall event and subsequent follow up events, a number of individual exceedances occurred, however, when averaged over a 12 month period (as per Sydney Trade Waste Agreement 2021), these were under the agreed license requirements.

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 discharged to sewer. In 2021, the Trade Waste Agreement was renegotiated based on the following advice from Sydney Water.

The agreement checker has been reviewed for the proposed consent and while NH3 MDM is lower than previous consent as stated by WCC submission, the agreement checker was run for a 12-month period from June 2019 to June 2020 not for the whole consent period 2017 to 2021. While BOM rainfall data for Kembla Grange during this period is considered higher than average, Maximum sample mass was 9.46 kg. Renewal MDM was modified to reflect domestic concentration 35 mg/L rather than sample average of 6.4 mg/L.

Another agreement check was run for March 2020 to March 2021 which included high rainfall periods and Sample MDM was 18.47 kg. If we use highest sample concentration (46.8 mg/L) against

highest discharge volume 420 kL, calculated MDM would be 19.65 kg. Both values are below the proposed renewal mass of 21 kg. The case for the agreement max daily discharge 605 kL at highest sample concentration (46.8 mg/L) would result in calculated mass of 28.3 kg.

The rainfall data since 2012 has also ben reviewed and compared them with treated leachate discharge volume, NH3 concentration and NH3 sample discharge mass and Sydney Water wish to make the following comments;

- *The proposed MDM is adequate and consistent with last 12 months sample highest volume and NH3 concentration data.*
- *BOM data for Kembla Grange indicate that last 12-month rainfall are considered highest in last 8 years.*
- *Proposed MDM have low tolerance to operational issues or extreme rainfall.*
- *MDM of 28.3 kg calculated based on agreement maximum discharge volume would allow for these conditions.*

These conditions were put in place for 12 months and will be reviewed in the next reporting period.

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 2021/22 reporting period are provided in the sections below.

6.1 Overview

Waste screening and monitoring was undertaken by Council for the 2021/2 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	**Random vehicle audits**: Daily **Screening of waste:** Continuous **Screening when truck tipping at the tip face or tipping at transfer station**: Continuous
Location	Weighbridge and transfer station tipping face.
Methodology	• 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. • Inspections via above load CCTV at the weighbridge. • Industrial loads require an application to be submitted with the waste loads- which is then reviewed by the weighbridge operator. • Visual inspection of small vehicle loads at the tipping face of the transfer station.

6.2 Performance Criteria

The performance criteria for waste received at the facility in the 2021/2022 reporting period is provided in the following table:

Table 6.2: Waste Received Criteria

Acceptance Standard	Performance Criteria	Guidance Document
Rejected Loads	Quantity of unacceptable waste types 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 (non-putrescible)	No more than 180 000 tonnes per annum.	Schedule 3, Condition 5 Project Approval No. 11_0094.
General solid waste (non-putrescible)		
Asbestos	*Not currently accepted at the facility.*	

6.3 Results

During the reporting period, only suitable waste streams were accepted at the facility, with an inbound total of 72 231.54 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

1104 were recorded during this reporting period.

6.3.2 Tyres

A total of 2 713 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)
Mixed Waste – Clean Up Australia Day	1.98
Dead Animals	18.50
General Waste	47 424.73
Commercial General Waste (inc. Council Waste)	24 786.33
Weighbridge Failure – Small Domestic Waste	-
TOTAL	**72 231.54**
Specific Items (tyres and mattresses)	5 594 (items)
Recyclables (kerbside tyres and e-waste)	140.90

Waste Stream Description	Outbound (tonnes)
External Sources	2737.28
Outbound	5691.58
TOTAL	**8428.86**

1 Includes: computers/televisions, CRC, general recyclables, metal and motor oil.

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

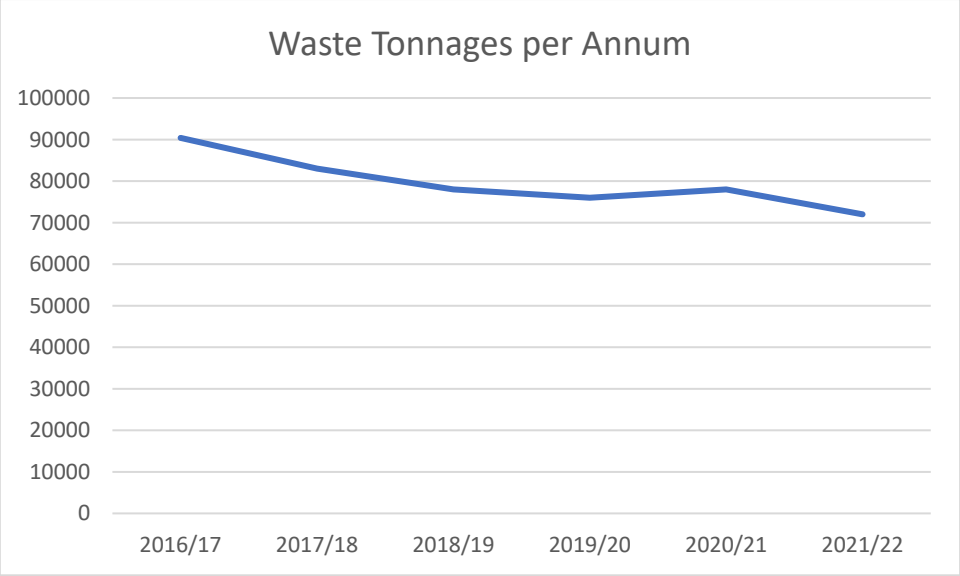
6.4 Conformances

In relation to waste, the facility operated in conformance during the 2021/2022 reporting period.

6.5 Monitoring Trends

The total waste stream volumes received between 2013 and 2019 remained generally consistent. Looking at the volumes in the last reporting period, there appears to be a decreasing trend in the total waste stream amounts entering the facility.

The trend can be seen 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, resultant of more formal recycling programs, introduction of the organics program (FOGO) and overall diversion from landfill.

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 2021/22 reporting are provided in the sections below.

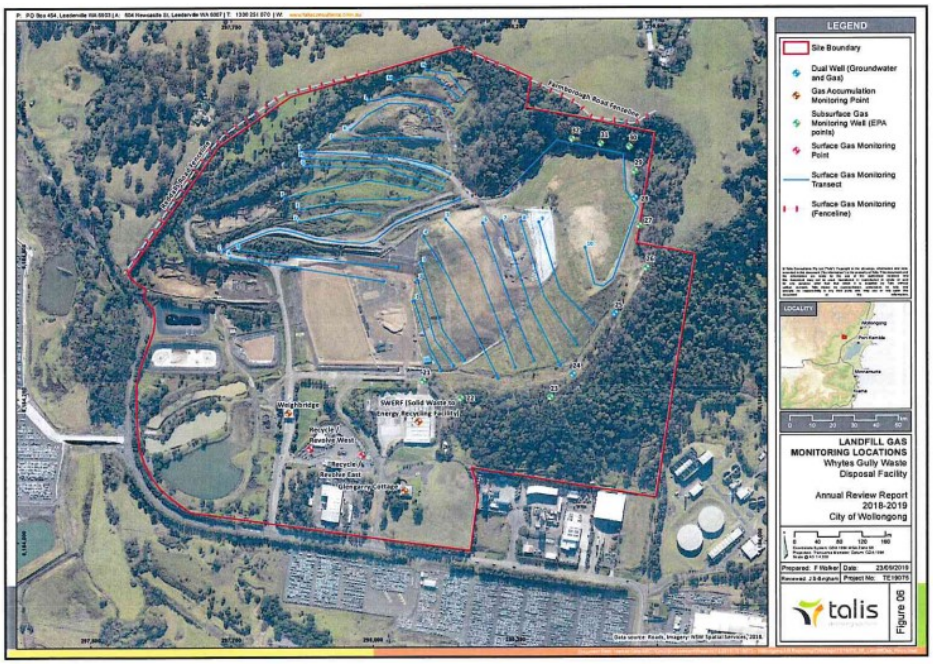
7.1 Overview

Surface gas, subsurface gas and gas accumulation into buildings, monitoring was undertaken by ALS Environmental 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	• Transects 1-11[1] • Former landfill cell located to the north-west of the current active cell. Transects: A, C, D, E, F, G, H and I. • Recycle/Revolve East and West; and • Reddalls Road and Farmborough Road fence lines.
Methodology	Monitoring was undertaken using a calibrated *Inspectra Laser Gas Detector*. 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.
Subsurface Monitoring	
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 *Inspectra Laser Gas Detector*.
Gas Accumulation	
Purpose	Demonstrate that methane along the perimeter of the landfill cell and the potential for offsite migration.
Frequency	Monthly in accordance with EPL 5862.
Locations	• Weighbridge • Glengarry Cottage (administrative building) • Recycling Transfer Station • Whytes Gully Operations Hub • Old SWERF/Visy site • Neighbouring properties within 250 m (these formally declined monitoring by WCC)
Methodology	Monitoring was undertaken using a calibrated *Inspectra Laser Gas Detector*.

Figure 6: Landfill Gas Monitoring Locations



7.2 Performance Criteria

The performance criteria adopted for the 2020/21 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 2021/22 reporting period are summarised in the following sections, with a copy of the full results provided in Appendix D.

7.3.1 Surface Methane

Surface gas results were reported above 500 ppm on five occasions within the reporting period. Three of these readings were located at Transect 7 and were recorded as follows:

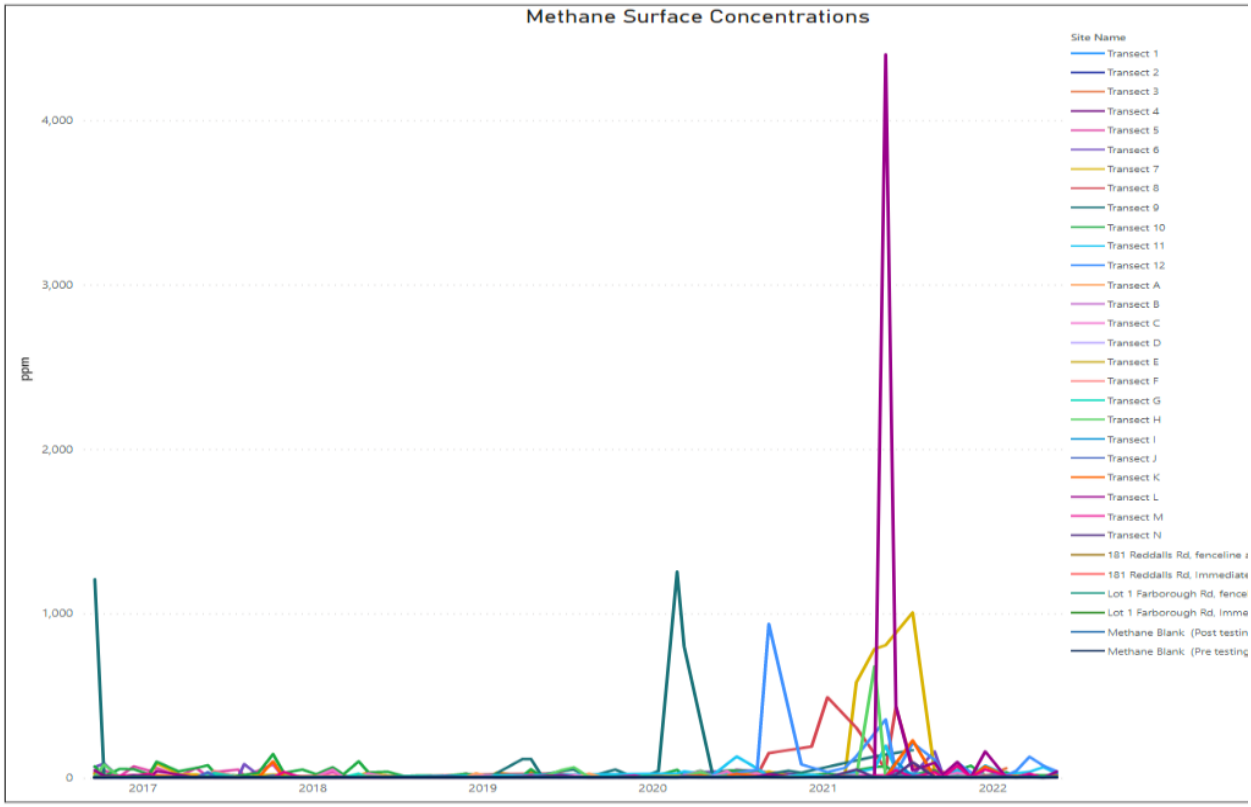
- Sample 7.3 (580.3 ppm) on 15/03/2021
- Sample 7.6 (784 ppm) on 23/04/2021
- Sample 7.1 (1005 ppm) on 14/07/21

The other two elevated readings were at Transect L:

- Sample L.6 (1160 ppm) on 17/05/21
- Sample L.8 (4400 ppm) on 17/05/21

These correlated to heavy rainfall events received at the site in the days prior. However, Sample L.8 appears to be an anomaly.

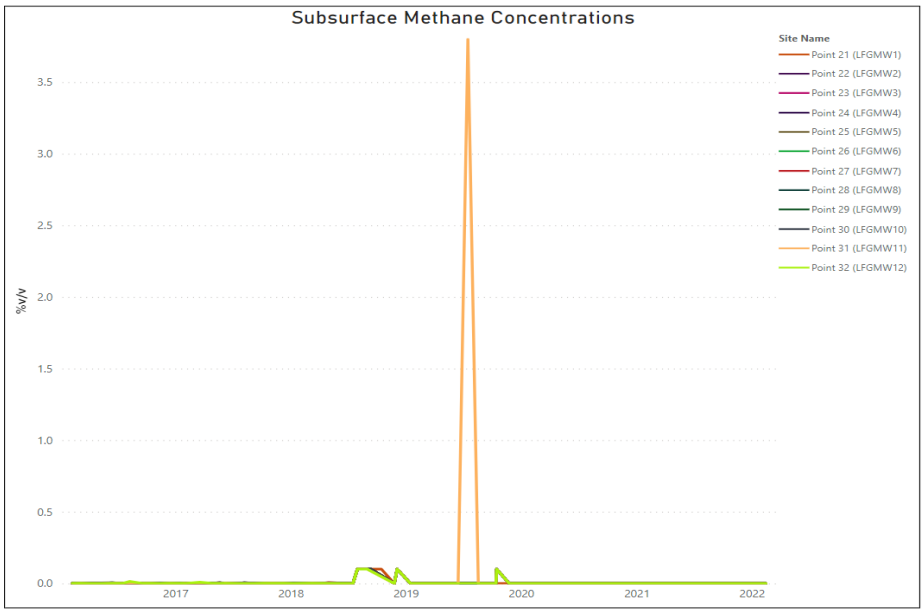
Graph 16: Methane Concentrations



7.3.2 Subsurface Methane

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

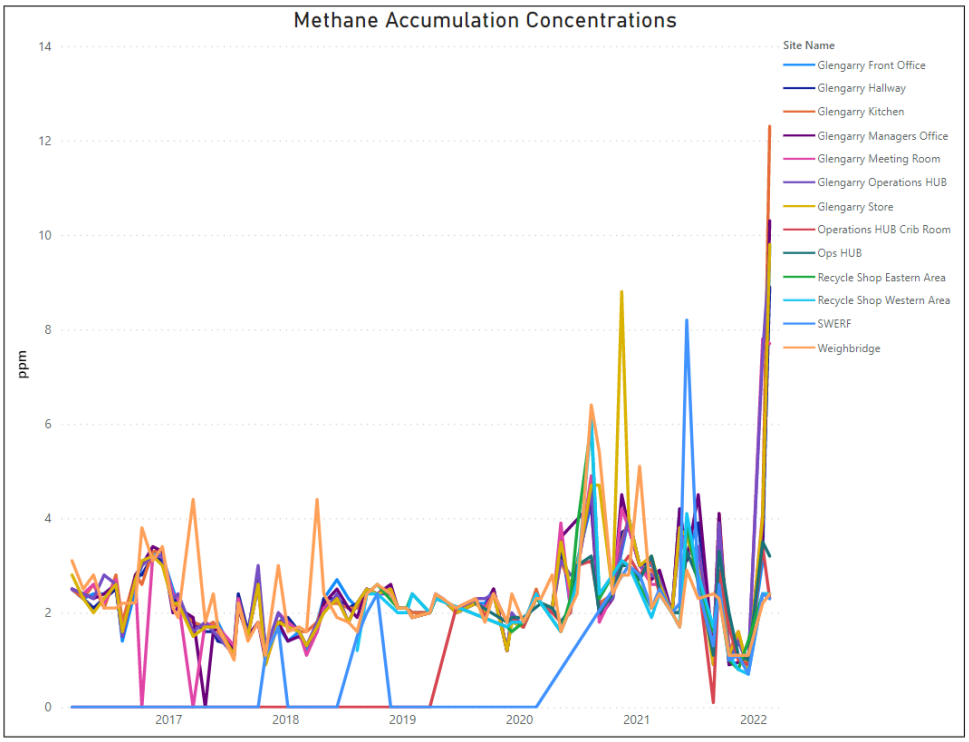
Graph 17: Subsurface Methane Concentrations



7.3.3 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 reporting period. Again, the higher levels correlate with heavy rainfall events.

Graph 18: Methane Accumulation Concentrations



7.3.4 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 2021/22 reporting period are provided in the section below.

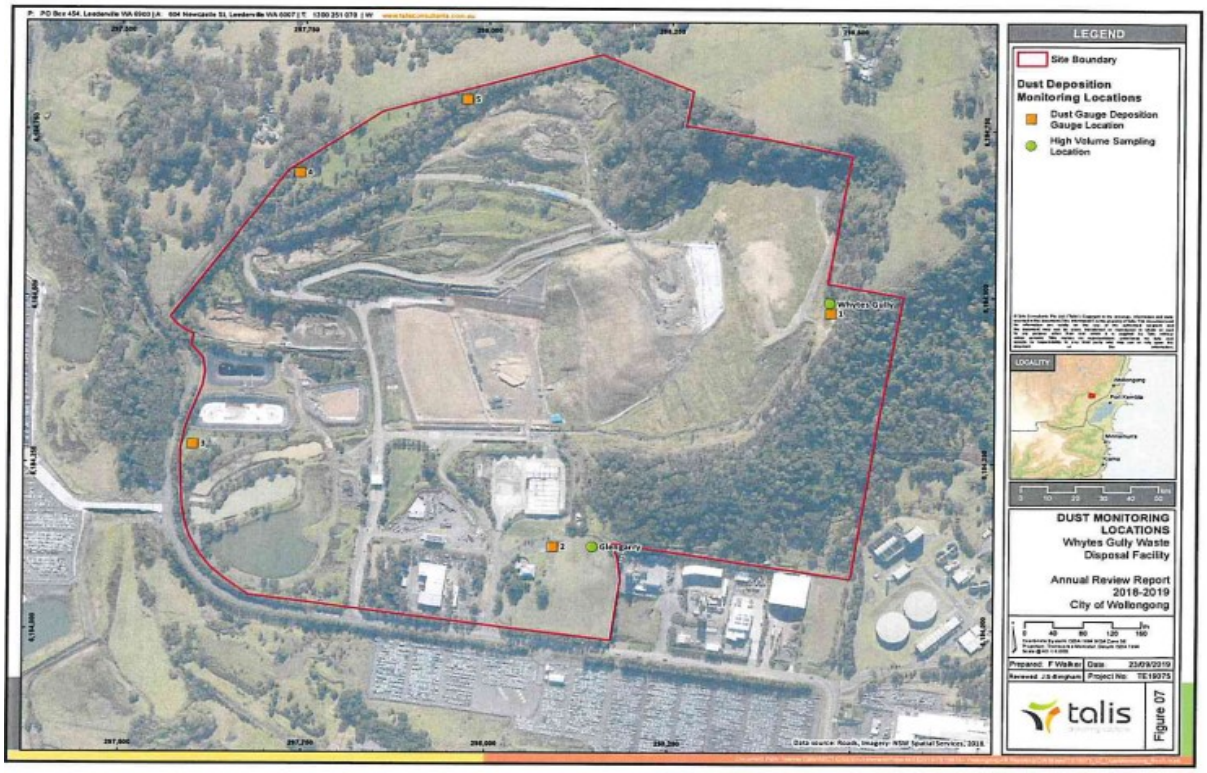
8.1 Overview

Dust monitoring was undertaken on a continuous basis using dust deposition gauges as detailed in the table below, with sampling location 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 *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).* 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_{10} sampler.	
Analytes	The laboratory analysis was as follows: **Table 8-2 Dust Analysis Schedule**	
	Ash content (g/m^2/month and mg)	Total suspended particulates (TSP)
	Combustible matter (g/m^2/month and mg)	PM_{10}
	Total insoluble matter (g/m^2/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:

Table 8-3: Dust Criteria

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

8.3 Results

The tabulated dust monitoring results are provided in Appendix F.

TSP and PM_{10} 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 this reporting period.

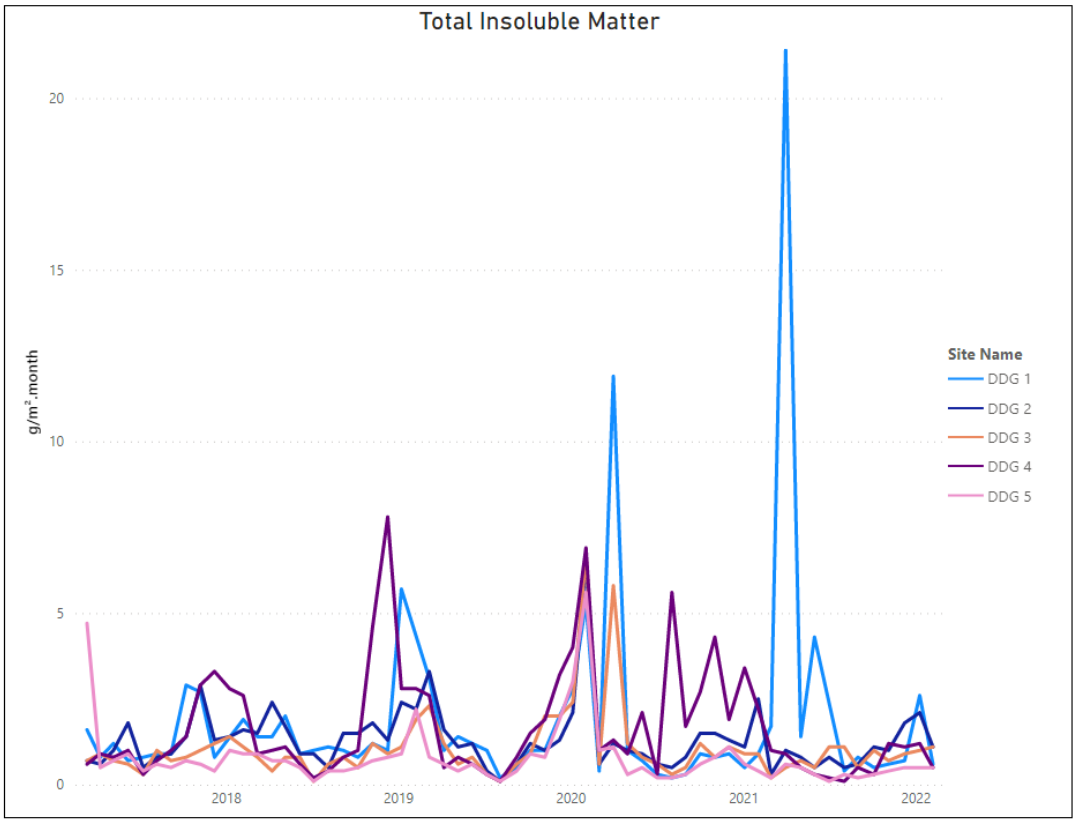
8.5 Monitoring Trends

The graphed monitoring trends measured at the Dust Deposition Gauges (DDGs) for the 2021/22 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 generally below the performance criteria. The dust g/m^2/month exceeded the performance criteria (4 g/m^2/month) on two occasions, peaking at over 21.4 g/m^2/month at DDG1 on 01/04/21 and 4.3 g/m^2/month at DDG1 On 01/06/2021.

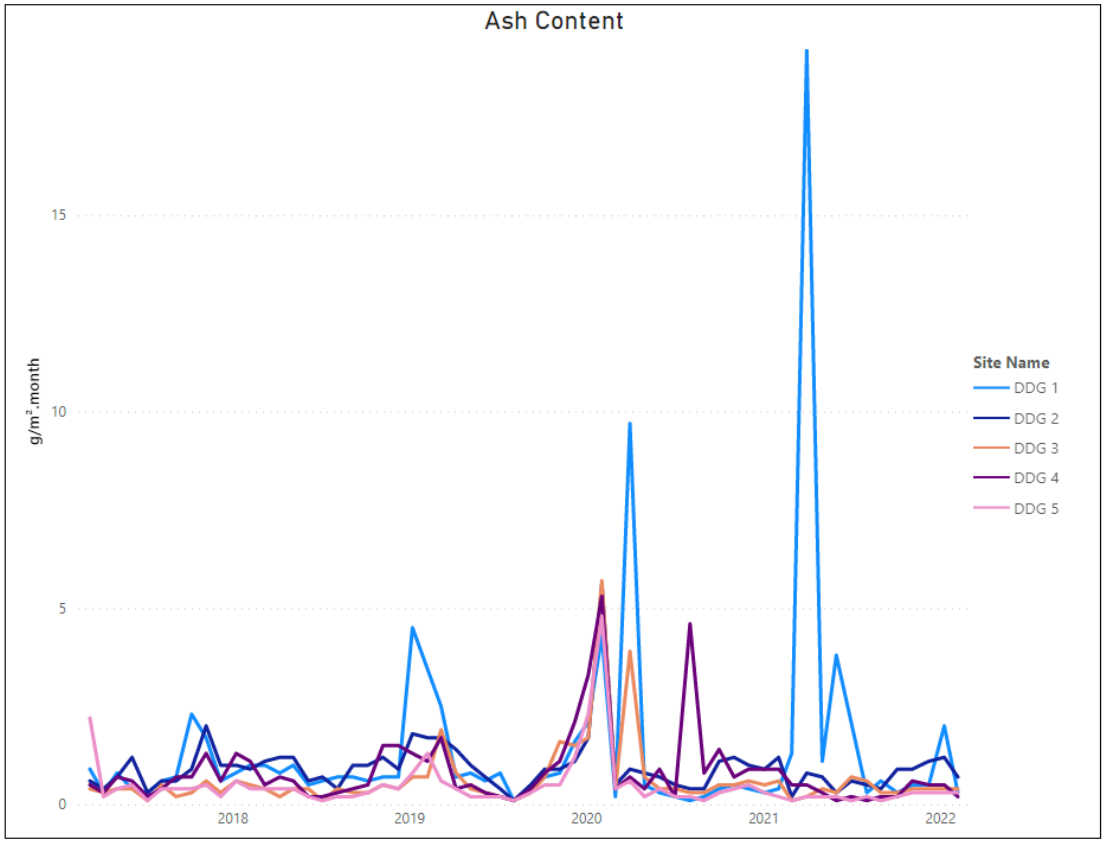
Graph 19: Total Insoluble Matter



8.5.2 Ash Content

There are no trigger values for ash content. As shown in the graph below, ash content dropped back to low levels this reporting period. In the 2019/2020 severe bushfire season, ash content spiked to above 10 g/m^2/month at the peak.

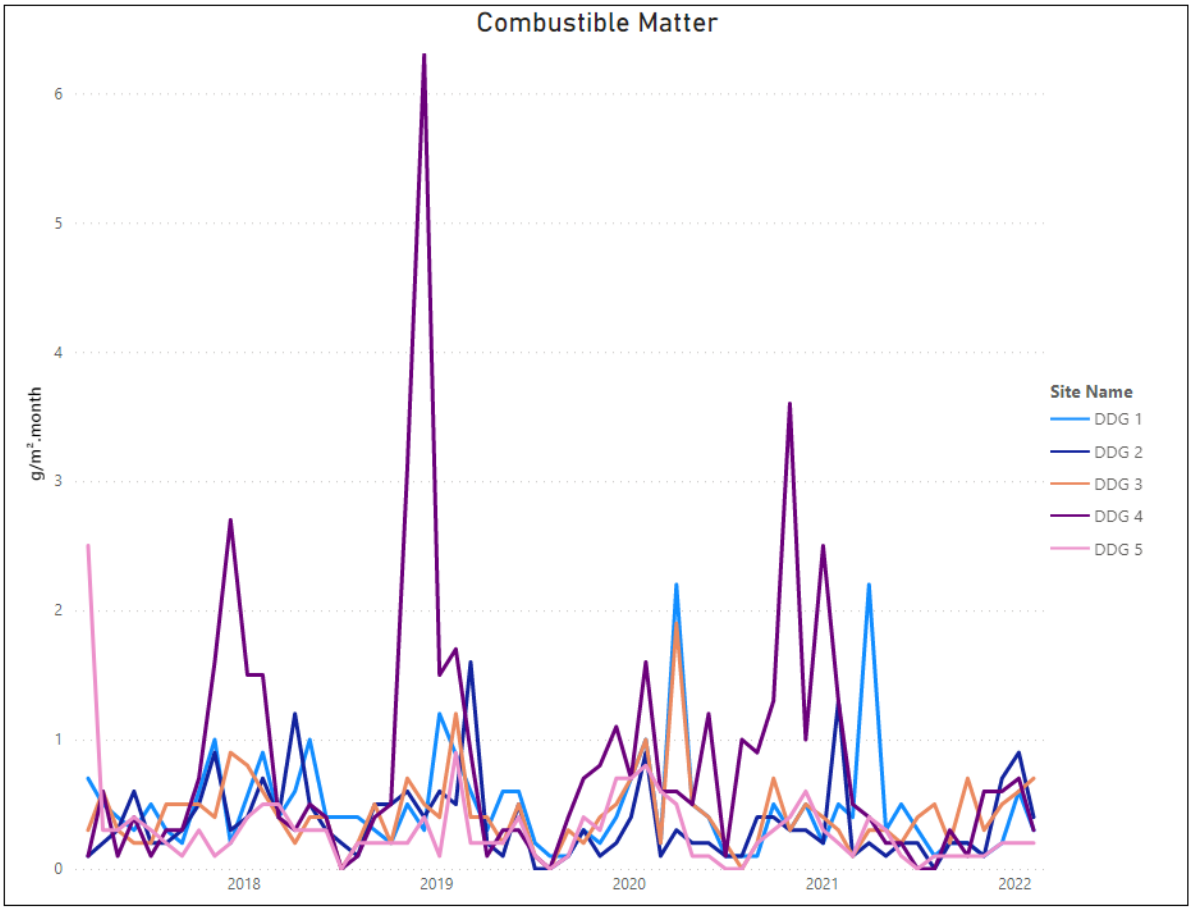
Graph 20: Ash Content



8.5.3 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 significantly lower than the previous year when bushfires were at their peak.

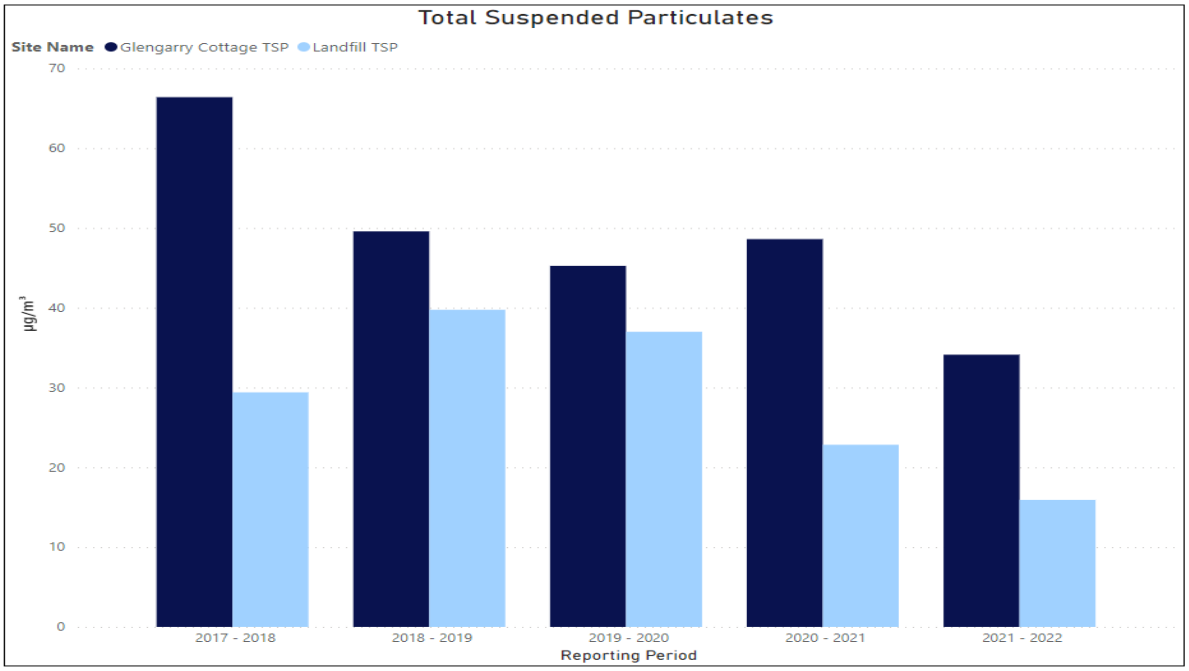
Graph 21: Combustible Matter



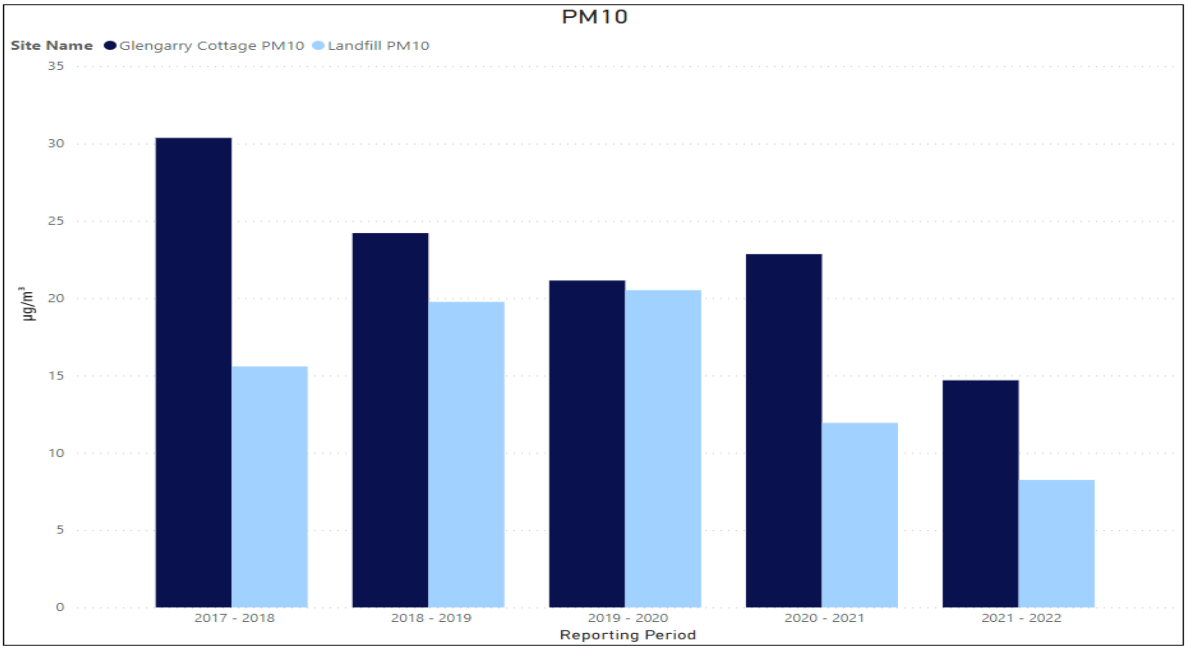
8.5.4 Rolling Monthly Average

As shown in the following graphs, there has been a continued decrease at DDG1 (Glengarry) and DDG2 (Whytes Gully) in the last reporting period.

Graph 22: TSP Rolling Monthly Average



Graph 23: PM_{10} 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.

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 2021/22 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. A copy of the weekly log is provided in Appendix G.

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 109 complaints from the public during the reporting period pertaining to offensive odours noted outside the facility's boundary. This increase in complaints followed on from the previous reporting period that also saw a substantial rise. During the previous reporting period, 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.

EPA continues to work with Council to quantify and manage odours within the catchment.

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, 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.

9.5 Trends

There appears to be an overall increase in complaints similar to levels in the operational start up period of 2012/2013.

10 Noise Monitoring

Noise monitoring and management is required at the facility to satisfy Approval 11_0094 Conditions in Schedule 4, pertaining to noise.

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_{Aeq}(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-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22
N1												
Laeq	no access	46.2	49.4	48.6	46.3	50.3	45.9	no access	no access	no access	no access	no access
Lamax	no access	68.6	67.5	63.3	62.8	69.4	69.4	no access	no access	no access	no access	no access
N2												
Laeq	no access	46.7	46.3	51	52.8	57.8	60.5	no access	no access	no access	no access	no access
Lamax	no access	57.6	51.8	68.5	72.4	74.7	74.7	no access	no access	no access	no access	no access
N3												
Laeq	66	52.6	70.4	68.9	68.5	69.5	69.5	70.1	72.2	69.5	70.9	68.2
Lamax	83.1	78.3	86.9	88.4	84.5	93.7	86.3	88.8	87.3	89.2	91.8	84.3
N4												
Laeq	56.1	46.2	38.9	45.5	49.6	47.5	46.4	45.6	67.5	48.4	51.9	45.6
Lamax	80.6	66.1	80.6	69.2	79.1	70.7	65.1	63.9	86.7	62.9	85.4	61.3
N5												
Laeq	51.4	50.1	46.6	52.6	58.1	64.7	49.6	57.3	49.4	47.4	51.5	55.7
Lamax	66	72.8	64.4	73.9	79.7	85.9	72.3	80.5	71	72.7	50.7	75.1

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.

11 Complaints, Incidences and Community Consultation

11.1 Complaints

During the 2021-2022 reporting period, a total of 109 complaints were received. All complaints were pertaining to offensive odour and most were reported through the EPA.

11.2 Incidents

Two environmental incidents occurred within the reporting period, a fire and stormwater overflow.

11.2.1 Fire 16th September 2021

A small fire started at 2:20 pm and was extinguished at 2:30 pm in the small vehicle transfer station. It is believed to have been caused by unknown chemical combustion from wastes received from a member of the public. It was managed by Operations staff.

11.2.2 Leachate Overflow 23 March 2021

Leachate that was being transferred from the primary pond to the backup pond after the heavy rainfall event in March. The incident occurred as the result of a transfer pump being unattended for a short period of time and the associated hosing being dislodged by a vehicle. This resulted in a leachate leaving the pond system but contained within immediate area and was quickly cleaned up. Since this event pumping procedures have been modified with ponds connected with subsurface pipes eliminating future reoccurrence.

11.3 Community Consultation

No consultation during this time due to COVID and staffing restrictions.

12 Compliances and Non-compliances

The annual return stipulated that the facility generally operated in compliance during the 2020/21 reporting period. A copy of the annual return is provided in Appendix J. The current Return (2021/2022) will not be submitted until 28 July 2022 and will be included in the next AEMR.

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 Council reviewed
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 Gully	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	In progress

13 Recommendations

In accordance with the formal recommendations presented in correspondence from DPIE dated the 15th February 2021 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.
    - The body of the main document of the Landfill Environmental Management Plan to be updated by the 23th December 2022.
- Schedule 4 Condition 30 Greenhouse Gas Management Plan

- Complete the draft plan by 28 March 2023.

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

14 Conclusions

This reporting period has seen continued torrential rainfall and posed significant challenges for Waste Services staff to manage the site in accordance with the Approval. However, improved management practices have seen a decrease in non-compliances pertaining to site stormwater and leachate management.

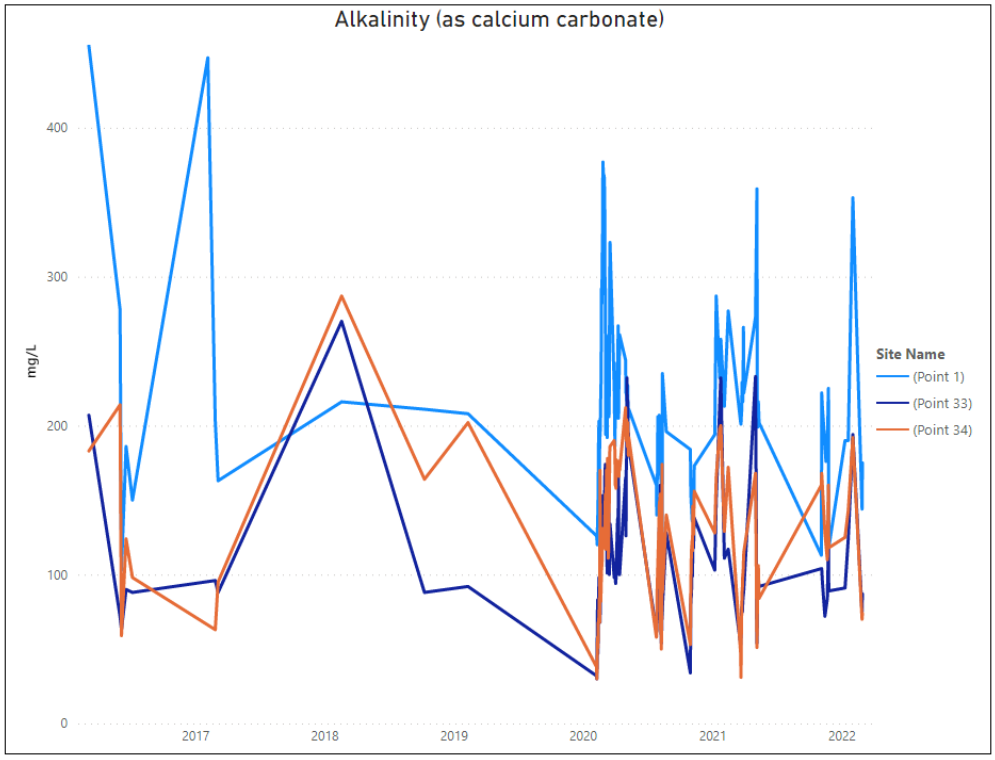
Community perception relating to odour issues continued to be of concern. However, COVID limited the opportunities to work with stakeholders. This will be a key priority over the next reporting period.

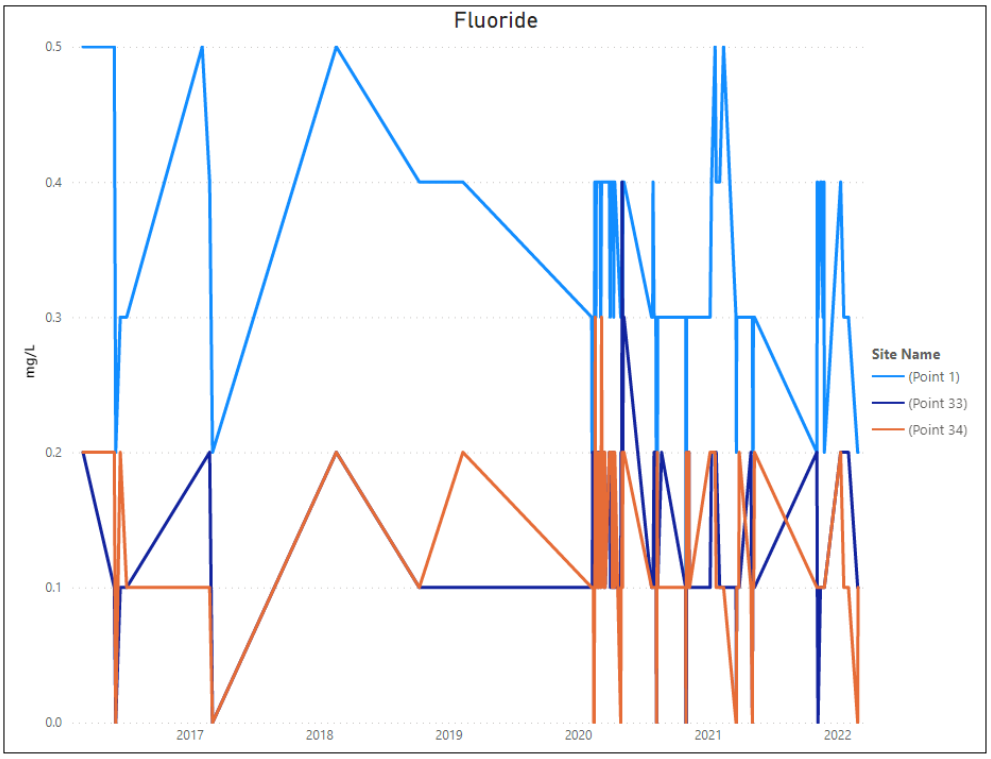
APPENDICES

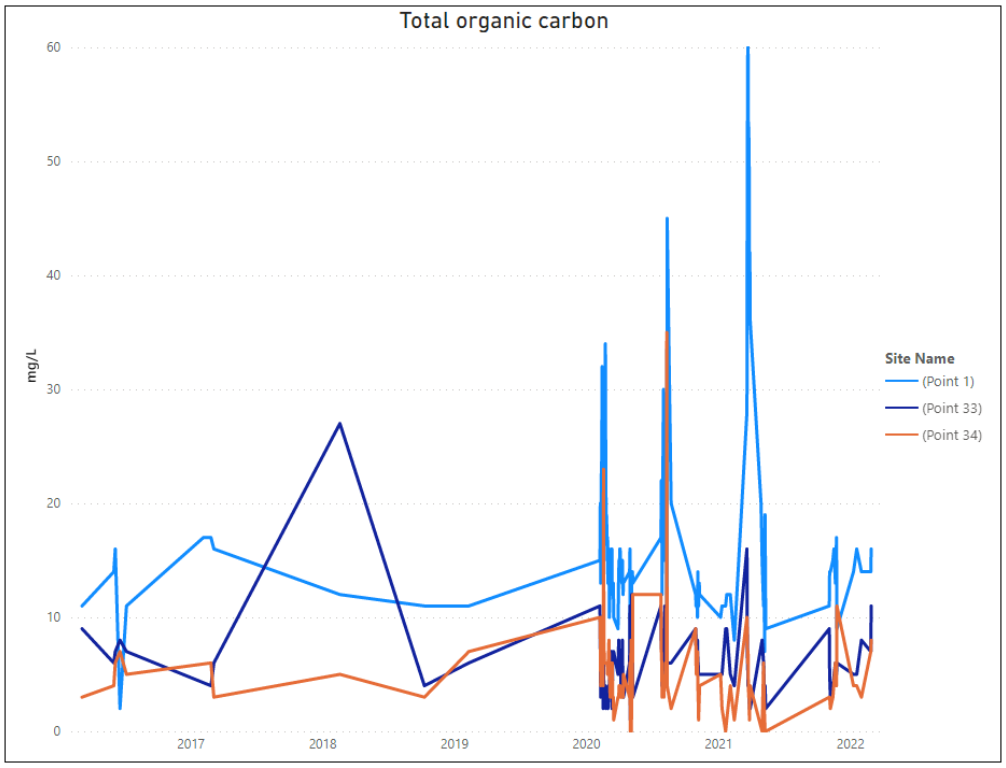
Appendix A: Surface Water: Tabulated Results and Trends

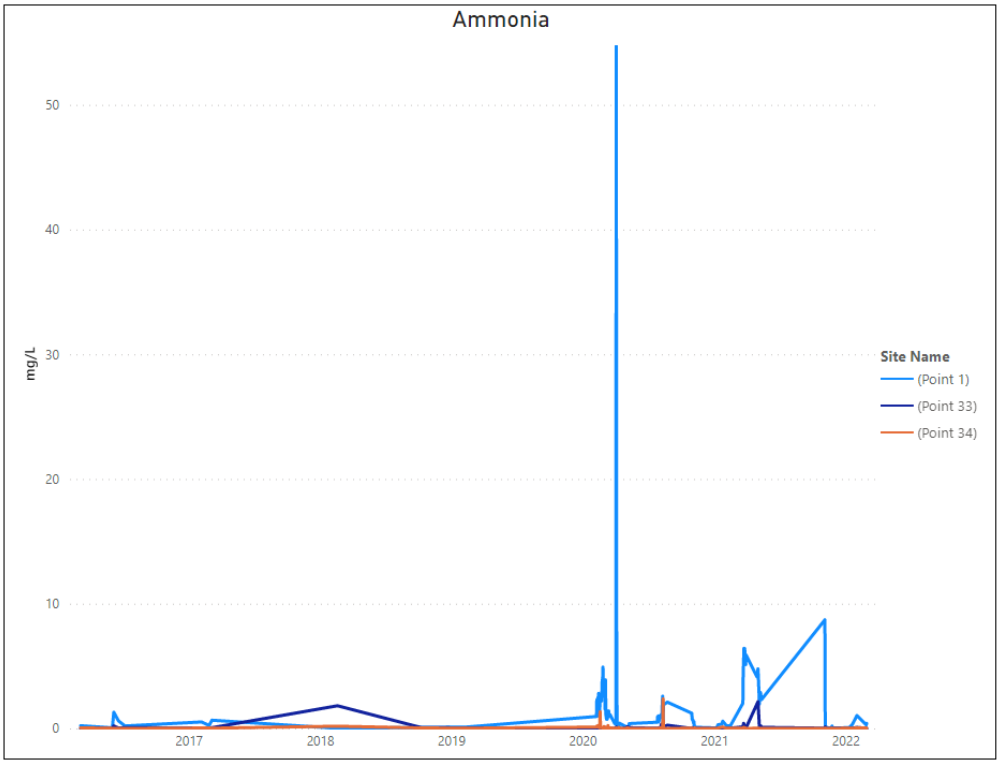
Table 1: Surface Water Results

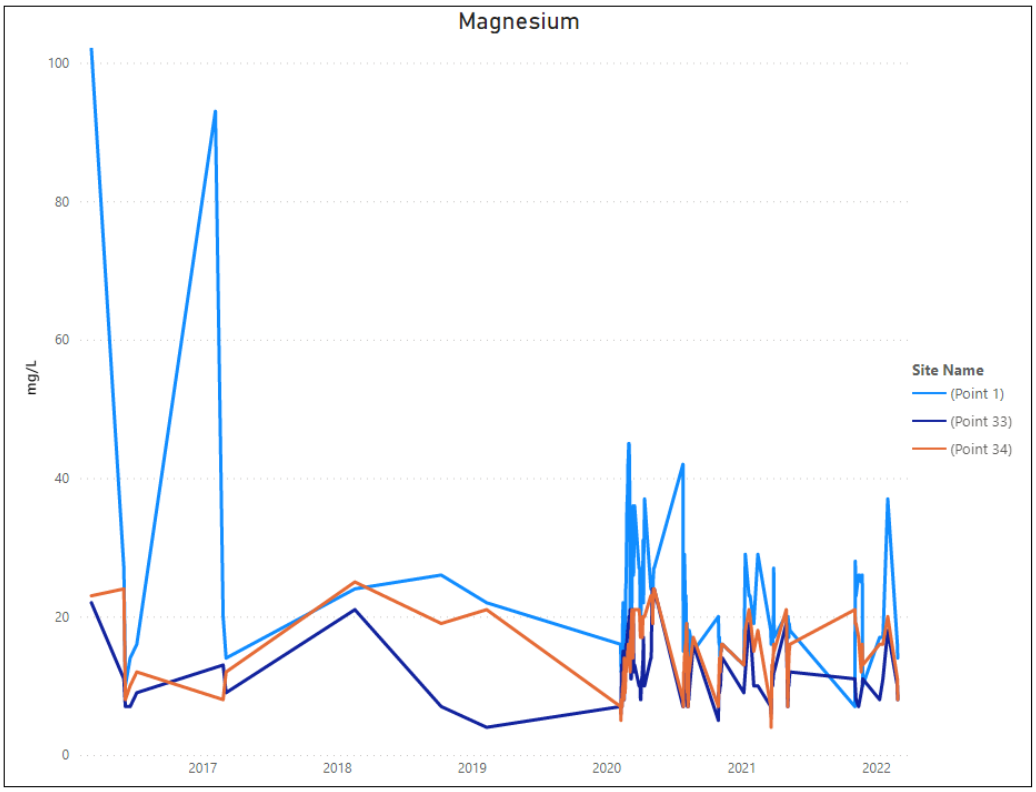
		Alkalinity (as calcium carbonate)	Ammonia	Calcium	Chloride	Conductivity	Dissolved Oxygen	Filterable iron	Fluoride	Magnesium	Nitrate as N	pH	Potassium	Sodium	Sulfate	Temperature	Total organic carbon	Total Phenolics	Total suspended solids
Units		mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	pH	mg/L	mg/L	mg/L	°C	mg/L	mg/L	mg/L
Site Name	Sample Date																		
(Point 1)	22/03/2021	202	2.02	37	56	589	6.82	0.17	0.3	18	0.02	7.8	11	62	28	20.7	28	<0.05	53
	23/03/2021	201	4.53	36	43	614	2.20	0.28	0.2	16	<0.01	7.7	11	54	25	19.7	46	<0.05	78
	24/03/2021	206	5.31	36	45	601	1.89	0.37	0.3	16	<0.01	7.6	10	54	24	21.5	59	<0.05	74
	25/03/2021	210	6.42	47	45	602	2.06	0.34	0.3	17	<0.01	7.7	14	53	19	22.2	60	<0.05	60
	26/03/2021	229	6.42	40	45	610	1.65	0.29	0.3	18	<0.01	7.8	12	58	18	22.9	52	<0.05	53
	27/03/2021	224	6.41	38	44	602	2.71	0.50	0.3	16	<0.01	7.6	11	61	15	20.5	53	<0.05	44
	28/03/2021	216	5.96	41	44	617	1.80	0.38	0.3	17	<0.01	7.6	11	59	13	21.3	50	<0.05	30
	29/03/2021	234	5.70	41	45	602	7.38	0.36	0.3	17	<0.01	8.1	12	59	14	24.3	40	<0.05	55
	30/03/2021	266	5.12	54	73	804	3.57	3.59	0.3	27	<0.01	7.2	11	80	12	21.1	42	<0.05	82
	31/03/2021	222	5.89	38	46	613	5.53	0.39	0.3	17	0.02	8.0	11	59	8	21.8	36	<0.05	174
	30/04/2021	268	4.15	42	54		4.4	0.57	0.3	20	<0.01		12	64	8		20	<0.05	7
	03/05/2021	273	4.78	43	60	689	8.15	0.71	0.3	20	0.06	7.9	13	65	8	20.5	15	<0.05	26
	07/05/2021	359	1.97	36	47	551	8.16	0.17	0.3	19	1.57	7.9	12	56	20	19.2	11	<0.05	61
	08/05/2021	204	2.69	36	53	571	6.72	0.18	0.2	20	<0.01	7.9	13	66	21	19.2	15	<0.05	54
	09/05/2021	199	2.76	38	50	547	6.79	0.19	0.2	18	<0.01	8.0	12	59	20	18.1	12	<0.05	70
	10/05/2021	214	2.88	38	51	565	7.51	0.16	0.3	17	<0.01	8.1	12	57	19	20.4	7	<0.05	41
	11/05/2021	216	2.64	35	53	570	6.85	0.13	0.3	19	0.02	8.0	13	64	20	19.1	19	<0.05	32
	13/05/2021	202	2.32	37	55	589	8.04	0.14	0.3	18	0.02	8.2	11	60	17	18.8	9	<0.05	32
	05/11/2021	113	8.71	26	18	359	5.68	0.08	0.2	7	0.19	7.4	4	22	17	19.1	11	<0.05	14
	06/11/2021	222	0.26	36	162	1030	8.36	<0.05	0.4	28	0.75	8.1	13	131	61	21.9	14	<0.05	10
	08/11/2021	212	0.12	45	110	827	6.04	<0.05	0.3	23	0.57	7.4	7	91	38	22.5	14	<0.05	34
	15/11/2021	188	0.03	31	140	900	9.01	<0.05	0.4	26	0.44	8.4	11	118	52	18.2	15	<0.05	42
	18/11/2021	176	0.04	28	135	899	9.10	<0.05	0.4	26	0.13	8.4	11	112	44		16	<0.05	5
	22/11/2021	186	0.04	27	125	816	8.85	<0.05	0.3	25	0.23	8.7	10	102	43	21.2	13	<0.05	12
	25/11/2021	225	0.19	30	123	840	8.11	<0.05	0.4	26	0.20	7.9	11	107	38	21.0	17	<0.05	44
	26/11/2021	118	0.04	28	26	379	5.80	0.07	0.2	10	0.15	7.6	4	34	17	19.4	9	<0.05	20
	11/01/2022	190	0.06	23	76	631	7.47	<0.05	0.4	17	0.09	7.6	10	65	21	25.5	14	<0.05	14
	20/01/2022	190	0.30	27	47	523	6.96	0.07	0.3	17	0.04	7.6	11	52	15	23.4	16	<0.05	10
	02/02/2022	353	1.03	71	170	1070	5.46	<0.05	0.3	37	0.06	7.8	10	110	13	21.0	14	<0.05	64
	28/02/2022	144	0.29	35	38	496	5.90	<0.05	0.2	16	0.35	7.6	10	48	21	23.7	14	<0.05	16
	01/03/2022	175	0.41	29	36	487	6.92	0.13	0.2	14	0.17	7.7	8	42	20	23.1	16	<0.05	11
(Point 33)	22/03/2021	53	0.13	14	25	206	7.79	0.51	0.1	7	0.41	7.4	4	18	10	19.9	16	<0.05	45
	23/03/2021	61	0.21	14	24	228	6.96	0.41	<0.1	6	0.36	7.7	4	18	12	18.6	7	<0.05	46
	24/03/2021	71	0.41	15	29	260	6.10	0.34	0.1	8	0.43	7.1	2	21	15	20.0	6	<0.05	12
	25/03/2021	78	0.37	23	34	292	6.35	0.29	0.1	12	0.34	7.4	4	23	15	20.5	4	<0.05	6
	26/03/2021	76	0.10	19	34	279	7.54	0.24	0.1	11	0.30	7.5	3	38	15	19.3	4	<0.05	10
	27/03/2021	75	0.10	20	34	287	6.85	0.23	0.1	10	0.28	7.4	3	28	13	18.4	4	<0.05	<5
	28/03/2021	81	0.06	22	37	313	7.43	0.14	0.1	11	0.26	7.4	3	29	16	19.8	4	<0.05	<5
	29/03/2021	85	0.07	23	39	327	7.52	0.16	0.1	11	0.24	7.5	3	29	16	19.6	2	<0.05	<5
	30/03/2021	87	0.04	25	39	339	7.55	0.22	0.1	13	0.23	7.4	3	29	17	19.6	2	<0.05	<5
	31/03/2021	90	0.06	24	41	347	6.94	0.20	0.1	12	0.21	7.4	2	27	17	18.2	2	<0.05	<5
	03/05/2021	233	2.14	42	61	618	6.05	0.58	0.2	19	0.25	7.6	9	56	13	16.5	8	<0.05	8
	07/05/2021	54	0.10	14	22	195	8.32	0.43	<0.1	7	1.17	7.3	4	18	11	18.8	6	<0.05	64
	08/05/2021	79	0.20	16	28	272	8.36	0.25	0.1	9	0.63	7.4	4	25	16	18.5	5	<0.05	14
	09/05/2021	86	0.22	21	30	285	8.34	0.22	0.1	10	0.38	7.3	3	25	16	16.9	3	<0.05	18
	10/05/2021	89	0.20	23	31	296	8.01	0.18	0.1	10	0.26	7.3	3	26	17	17.7	2	<0.05	<5
	11/05/2021	96	0.20	21	37	317	8.13	0.16	0.1	11	0.24	7.4	3	28	18	17.3	4	<0.05	<5
	13/05/2021	92	0.09	25	40	337	8.60	0.16	0.1	12	0.19	7.5	2	26	18	17.2	2	<0.05	<5
	05/11/2021	104	0.02	25	42	378	6.71	0.18	0.2	11	0.11	8.0	3	36	13	18.0	9	<0.05	13
	06/11/2021	104	0.12	25	29	312	6.65	0.18	0.1	10	0.08	7.4	2	25	13	20.1	5	<0.05	5
	08/11/2021	95	0.01	23	29	302	6.50	0.06	<0.1	8	0.05	7.4	2	27	11	23.1	3	<0.05	6
	15/11/2021	72	0.02	22	28	275	7.70	0.08	0.1	7	0.07	7.4	2	24	11	16.7	4	<0.05	6
	22/11/2021	84	0.02	20	35	323	7.86	0.06	0.1	9	0.14	7.5	3	28	15	19.3	6	<0.05	8
	25/11/2021	120	0.01	23	35	336	6.92	0.23	0.1	10	0.05	7.4	3	32	14	22.6	5	<0.05	<5
	26/11/2021	89	0.03	24	38	382	7.58	0.10	0.1	11	0.06	7.5	3	37	15	19.6	6	<0.05	20
	11/01/2022	91	0.02	20	26	301	6.40	<0.05	0.2	8	0.05	7.4	2	26	14	24.6	5	<0.05	49
	20/01/2022	124	0.02	23	34	337	7.61	0.07	0.2	11	0.04	7.4	3	27	12	22.4	5	<0.05	6
	02/02/2022	194	0.08	39	54	512	4.48	0.30	0.2	18	0.10	7.4	6	51	14	23.6	8	<0.05	<5
	28/02/2022	75	0.02	22	30	273	7.62	0.11	0.1	10	0.19	7.3	3	25	16	21.0	7	<0.05	<5
	01/03/2022	87	0.02	17	27	261	8.17	0.22	0.1	8	0.16	7.2	3	22	15	21.1	11	<0.05	14
(Point 34)	22/03/2021	47	0.02	14	27	204	9.43	0.48	<0.1	7	0.48	7.2	3	17	11	19.2	10	<0.05	59
	23/03/2021	31	0.07	10	18	155	8.45	0.50	<0.1	4	0.30	7.7	3	13	6	18.5	9	<0.05	527
	24/03/2021	59	0.08	16	30	259	8.24	0.21	0.1	8	0.36	7.1	3	21	16	18.7	6	<0.05	26
	25/03/2021	76	0.08	25	40	309	9.03	0.20	0.1	13	0.29	7.6	3	23	19	19.2	7	<0.05	12
	26/03/2021	88	0.07	24	42	334	9.34	0.15	0.1	12	0.24	7.7	3	33	20	18.3	4	<0.05	11
	27/03/2021	91	0.06	26	43	360	8.09	0.13	0.1	13	0.22	7.5	3	34	21	16.9	3	<0.05	<5
	28/03/2021	100	0.04	28	45	379	9.39	0.08	0.1	14	0.20	7.7	3	33	23	17.4	3	<0.05	<5
	29/03/2021	101	0.04	29	46	394	9.60	0.06	0.1	14	0.20	7.6	3	31	23	16.2	1	<0.05	8
	30/03/2021	109	0.02	31	45	412	9.06	0.08	0.1	16	0.21	7.6	3	33	25	17.7	4	<0.05	<5
	31/03/2021	115	<0.01	30	48	423	8.40	0.06	0.2	15	0.21	7.5	2	30	26	16.8	4	<0.05	<5
	03/05/2021	168	0.02	47	62	564	8.27	0.09	0.1	21	0.10	7.5	3	38	37	18.9	<1	<0.05	8
	07/05/2021	51	0.01	14	24	196	9.86	0.33	<0.1	7	0.87	7.6	4	17	14	18.2	6	<0.05	75
	08/05/2021	71	0.01	18	31	279	9.75	0.10	0.1	10	0.57	7.6	3	25	19	16.9	4	<0.05	15
	09/05/2021	88	0.01	25	36	321	9.59	0.13	0.1	12	0.37	7.6	3	26	21	16.0	2	<0.05	22
	10/05/2021	100	<0.01	29	40	354	9.49	0.09	0.1	14	0.27	7.5	3	28	24	17.7	1	<0.05	7
	11/05/2021	106	<0.01	29	50	381	9.64	0.06	0.1	15	0.22	7.6	3	32	25	15.8	<1	<0.05	<5
	13/05/2021	84	<0.01	33	52	411	9.53	<0.05	0.2	16	0.18	7.7	2	31	26	17.5	<1	<0.05	<5
	05/11/2021	160	<0.01	47	54	554	8.28	<0.05	0.1	21	0.10	7.7	4	38	35	18.1	3	<0.05	<5
	06/11/2021	168	0.03	46	57	544	7.84	0.13	0.1	19	0.08	7.5	3	39	34	17.9	3	<0.05	<5
	08/11/2021	159	0.01	47	58	563	7.32	<0.05	0.1	19	0.04	7.5	3	40	33	22.4	2	<0.05	<5
	15/11/2021	128	<0.01	41	48	495	9.15	<0.05	0.1	17	0.12	7.6	3	37	28	17.0	3	<0.05	6
	22/11/2021	110	0.01	30	39	395	9.02	<0.05	0.1	12	0.30	7.6	3	29	23	19.0	6	<0.05	9
	25/11/2021	160	0.02	38	43	469	7.74	0.07	0.1	16	0.11	7.3	3	35	27	19.5	4	<0.05	<5
	26/11/2021	118	<0.01	34	40	428	9.04	0.09	0.1	13	0.11	7.8	4	34	24	18.1	11	<0.05	44
	11/01/2022	125	0.02	34	35	425	7.94	<0.05	0.2	16	0.11	7.2	3	33	26	21.2	4	<0.05	6
	20/01/2022	143	0.01	31	42	426	9.51	<0.05	0.1	16	0.07	7.6	3	30	22	19.9	4	<0.05	6
	02/02/2022	192	0.05	47	47	514	7.02	<0.05	0.1	20	0.09	7.6	4	36	27	21.1	3	<0.05	<5
	28/02/2022	70	0.04	21	32	291	10.1	0.11	<0.1	11	0.19	7.6	3	24	17	23.0	7	<0.05	18
	01/03/2022	74	0.02	17	30	268	9.75	0.24	0.1	8	0.19	7.7	3	22	17	20.0	8	<0.05	35

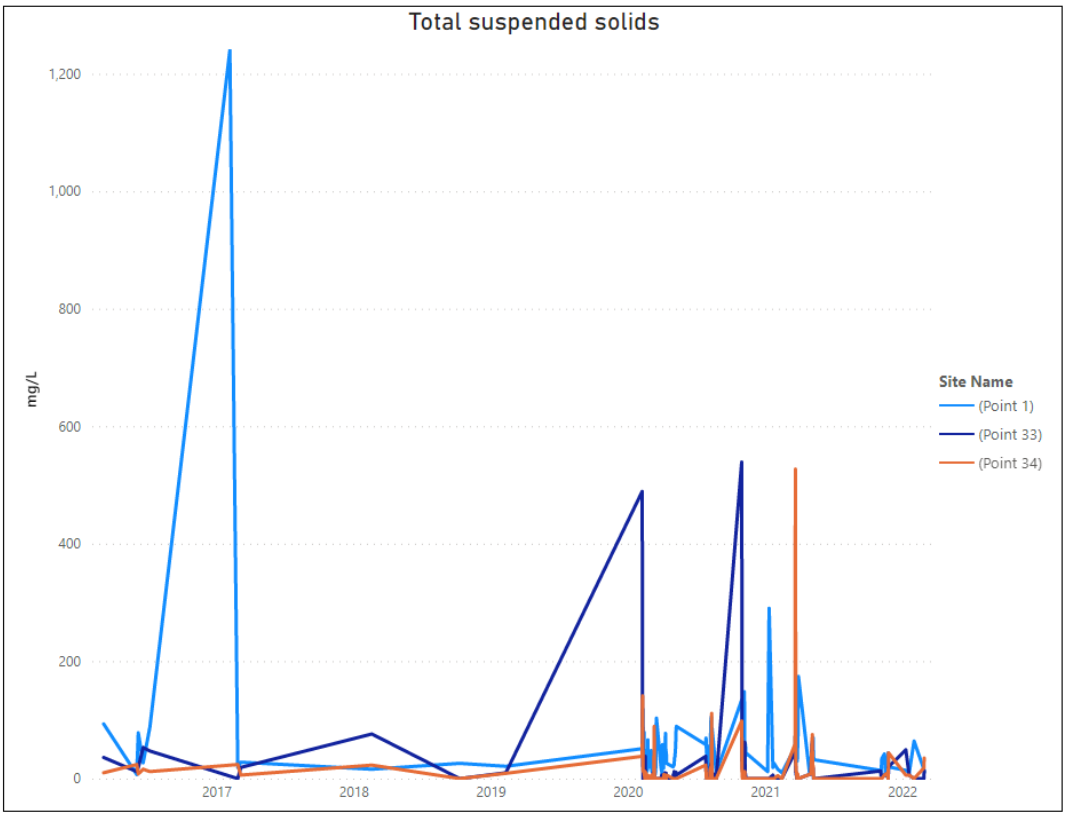

Alkalinity (as calcium carbonate)
mg/L
400
300
200
100
0
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

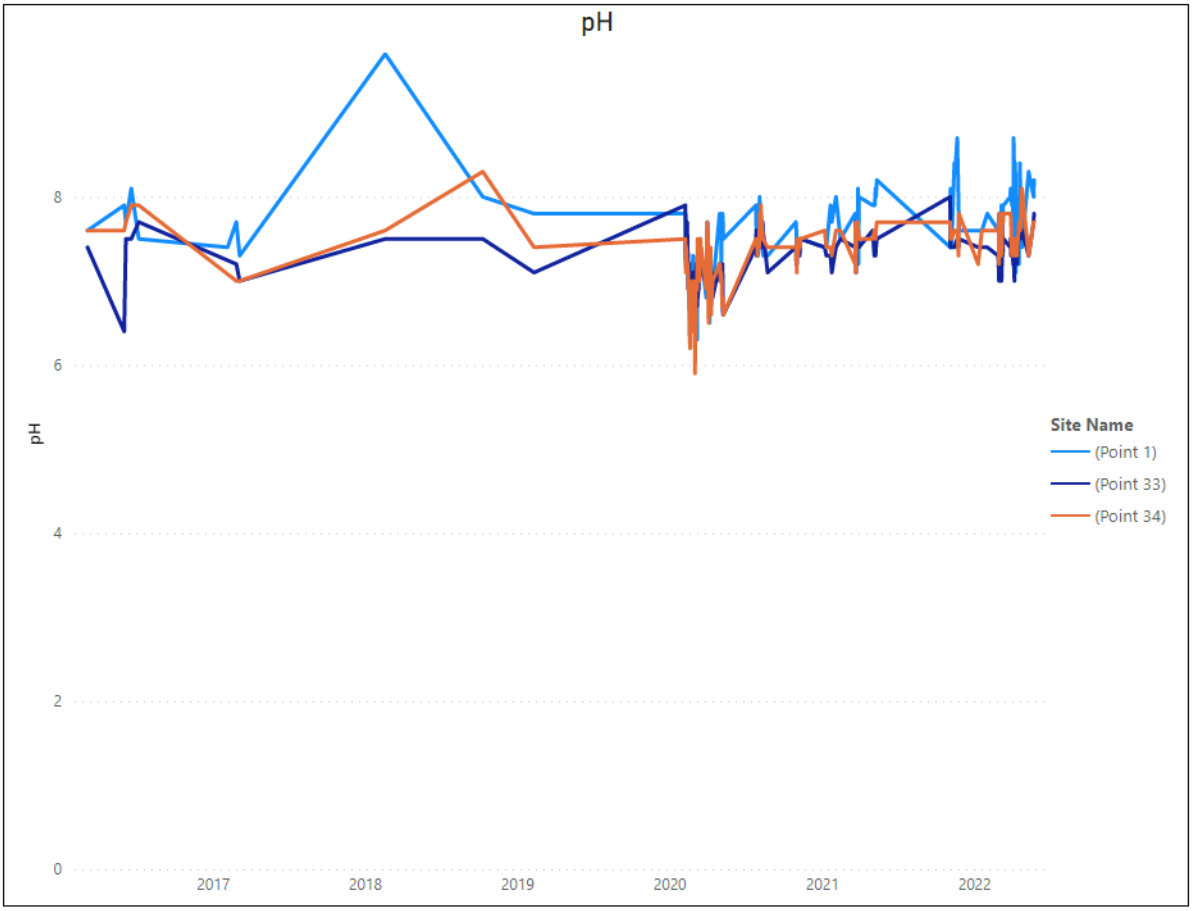

Fluoride
mg/L
0.5
0.4
0.3
0.2
0.1
0.0
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

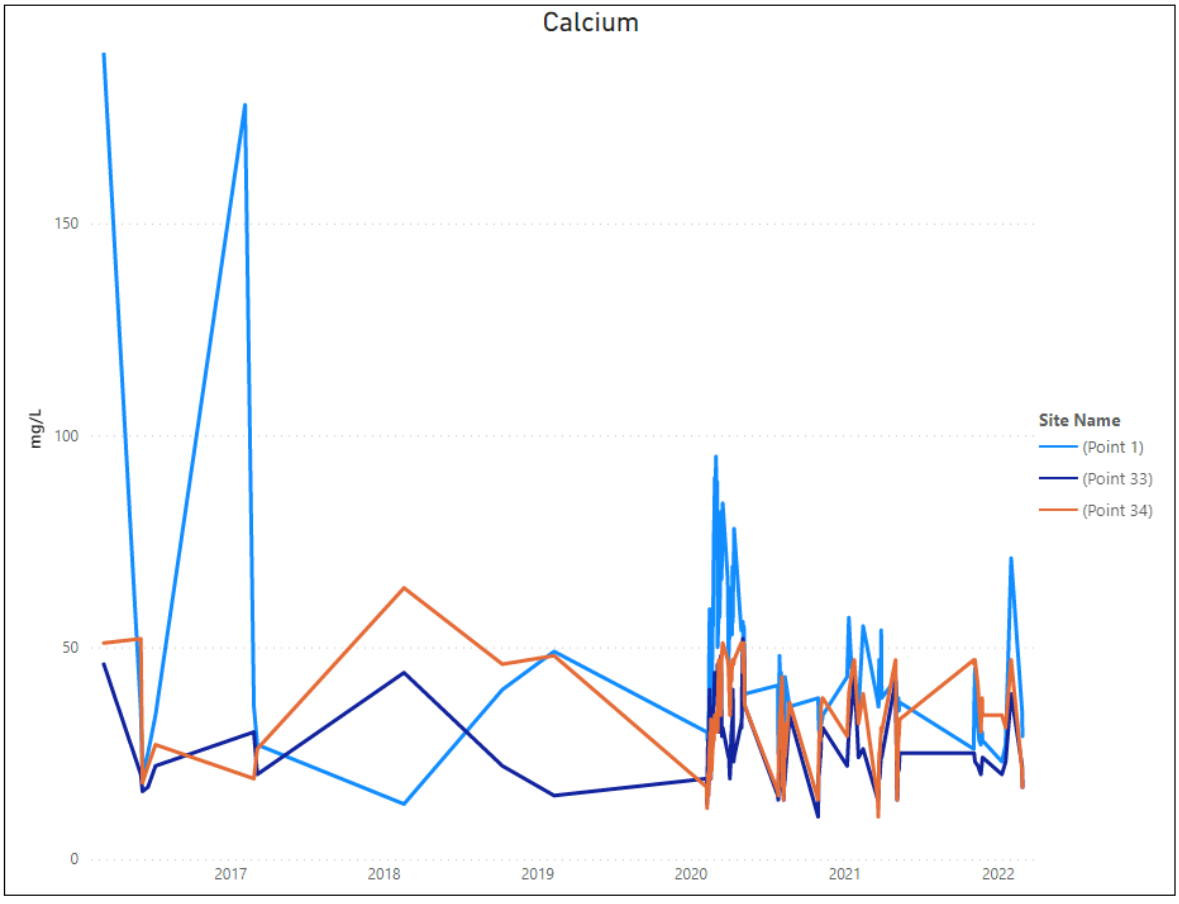

Total organic carbon
60
50
40
30
20
10
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

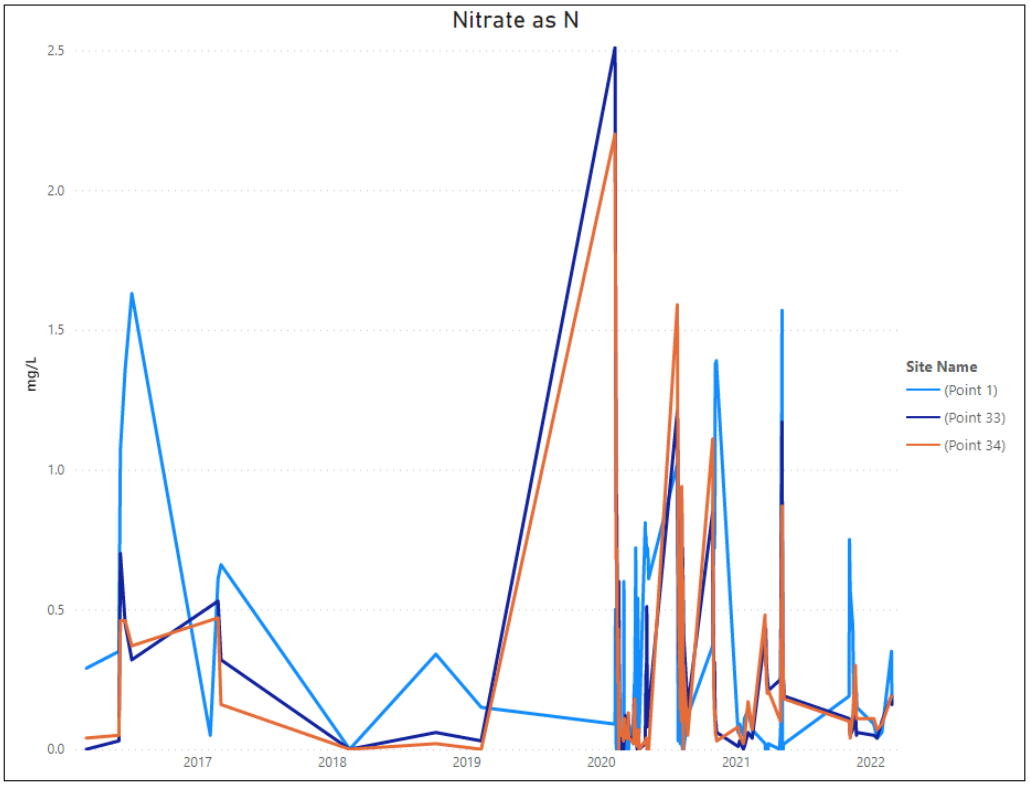

Ammonia
50
40
30
20
10
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

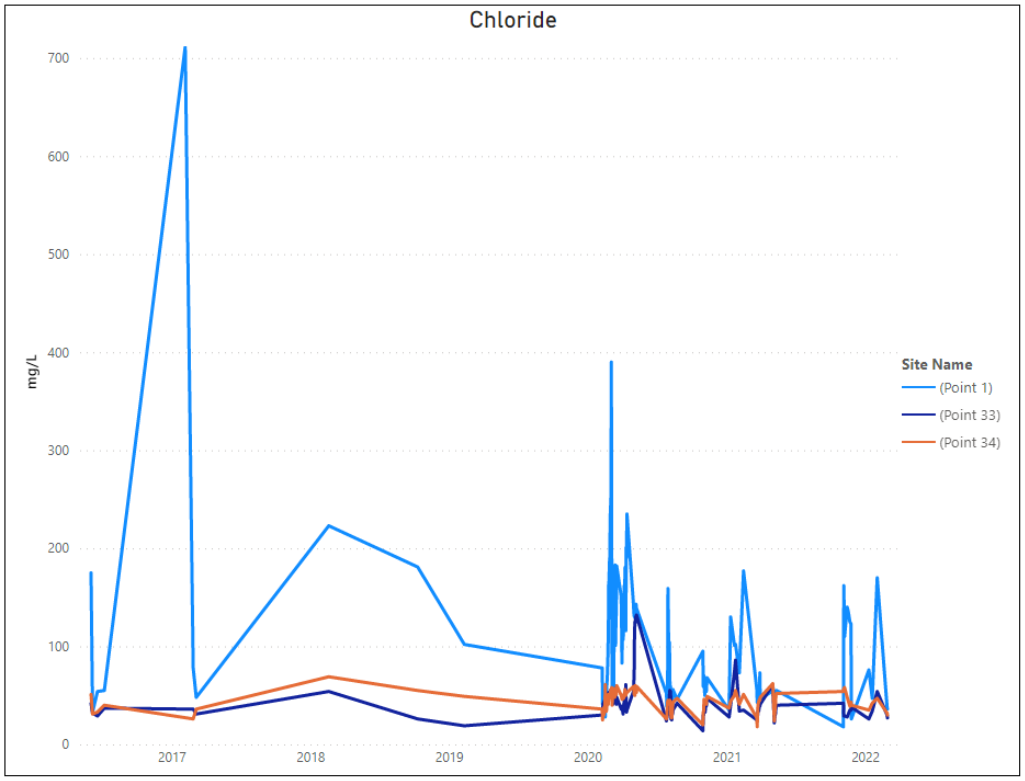

Magnesium
100
80
60
40
20
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

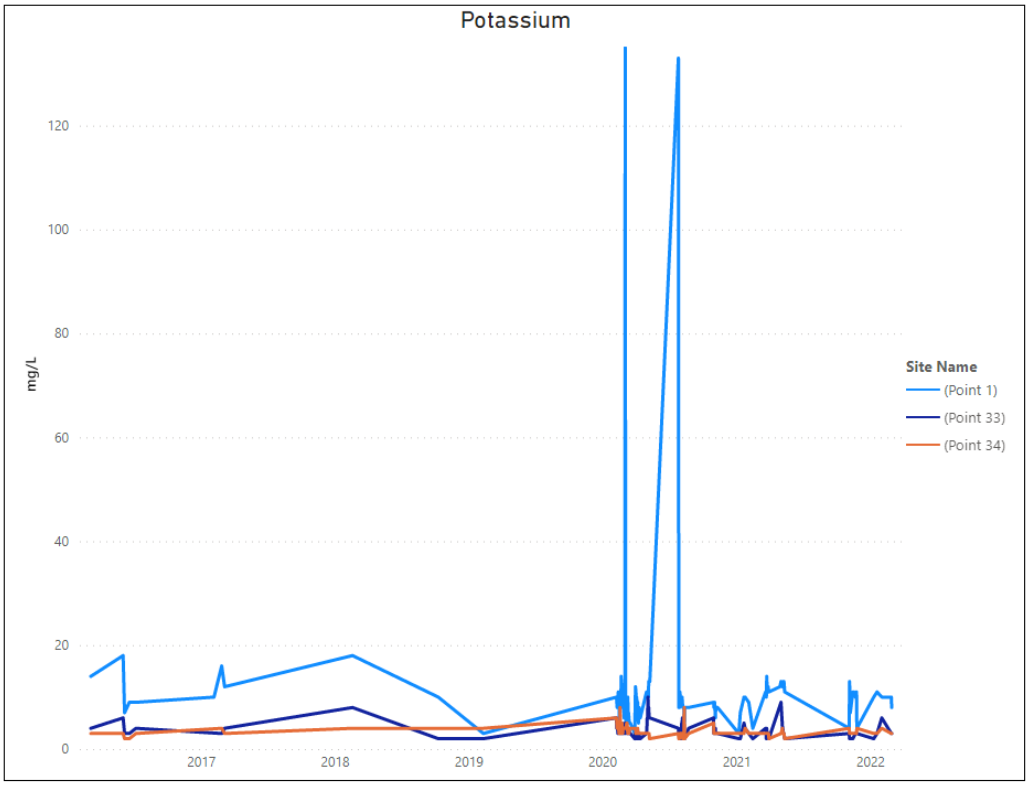

Total suspended solids
1,200
1,000
800
600
400
200
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

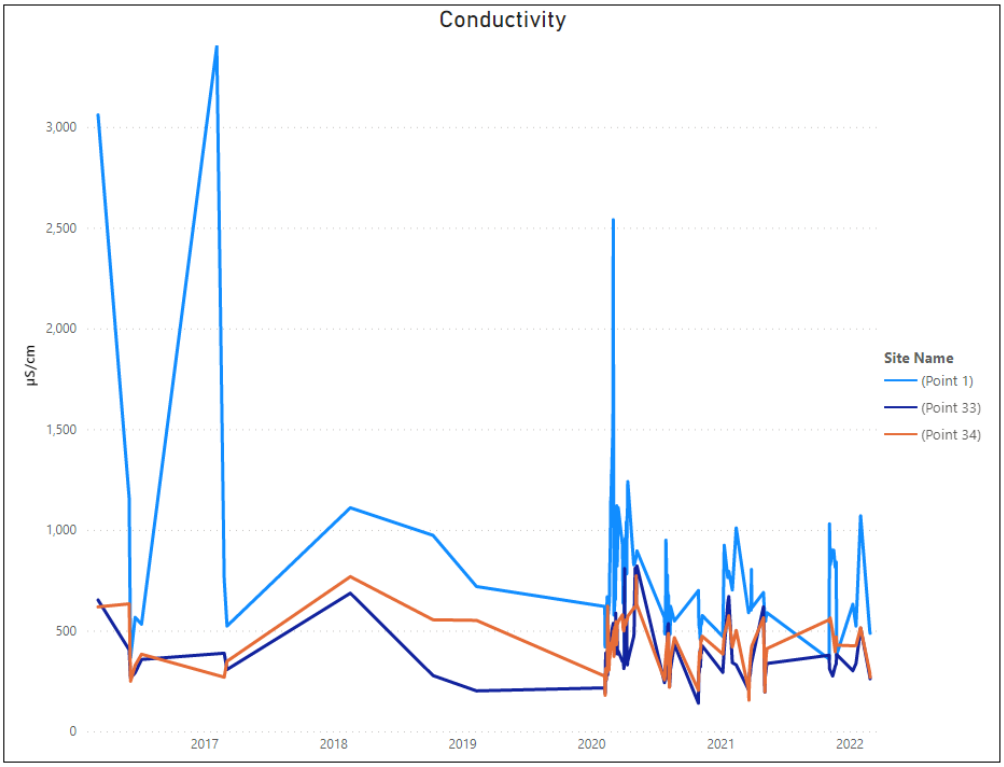

pH
8
6
4
2
0
pH
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

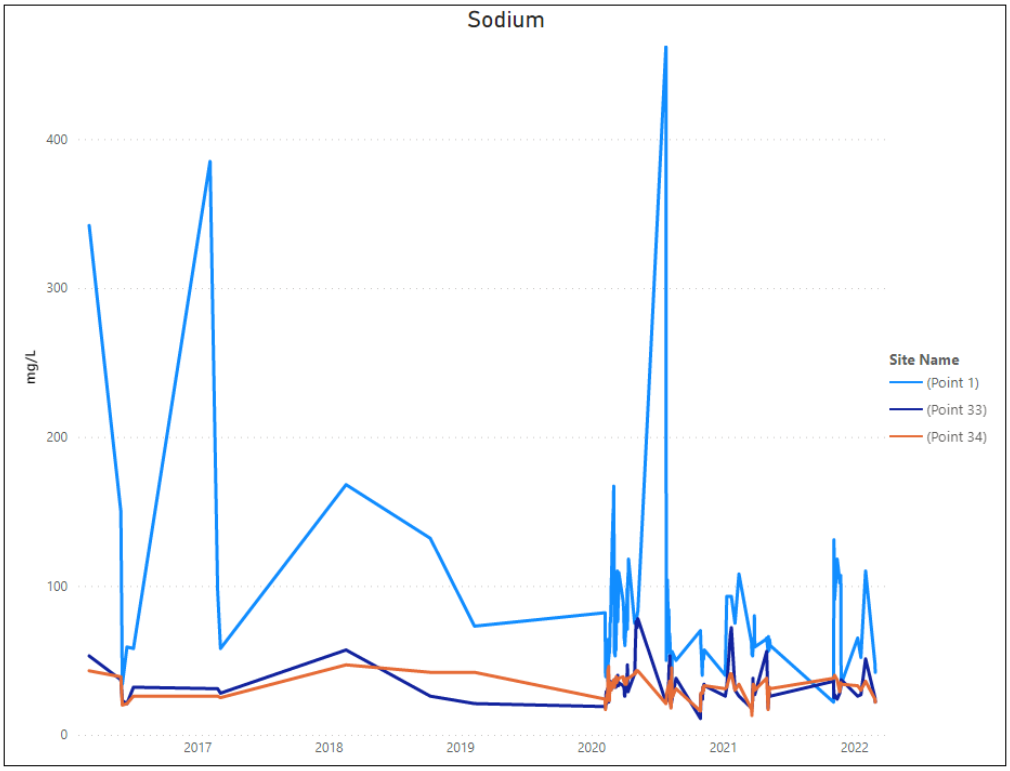

Calcium
150
100
50
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

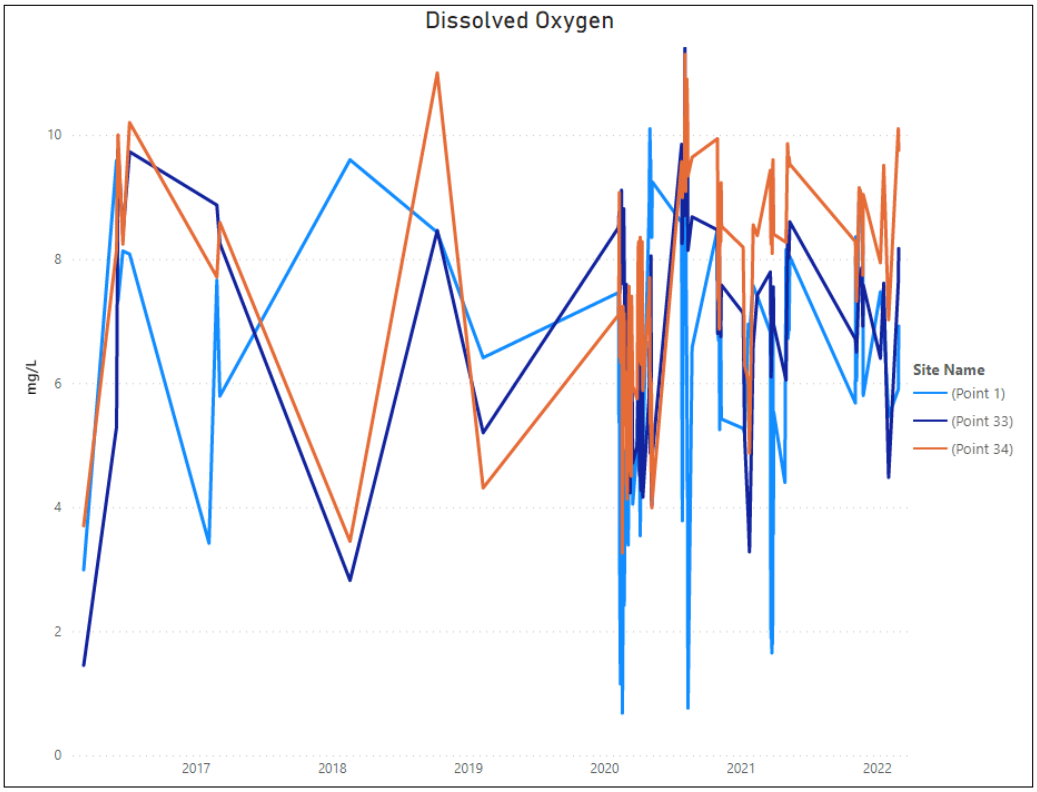

Nitrate as N
2.5
2.0
1.5
1.0
0.5
0.0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

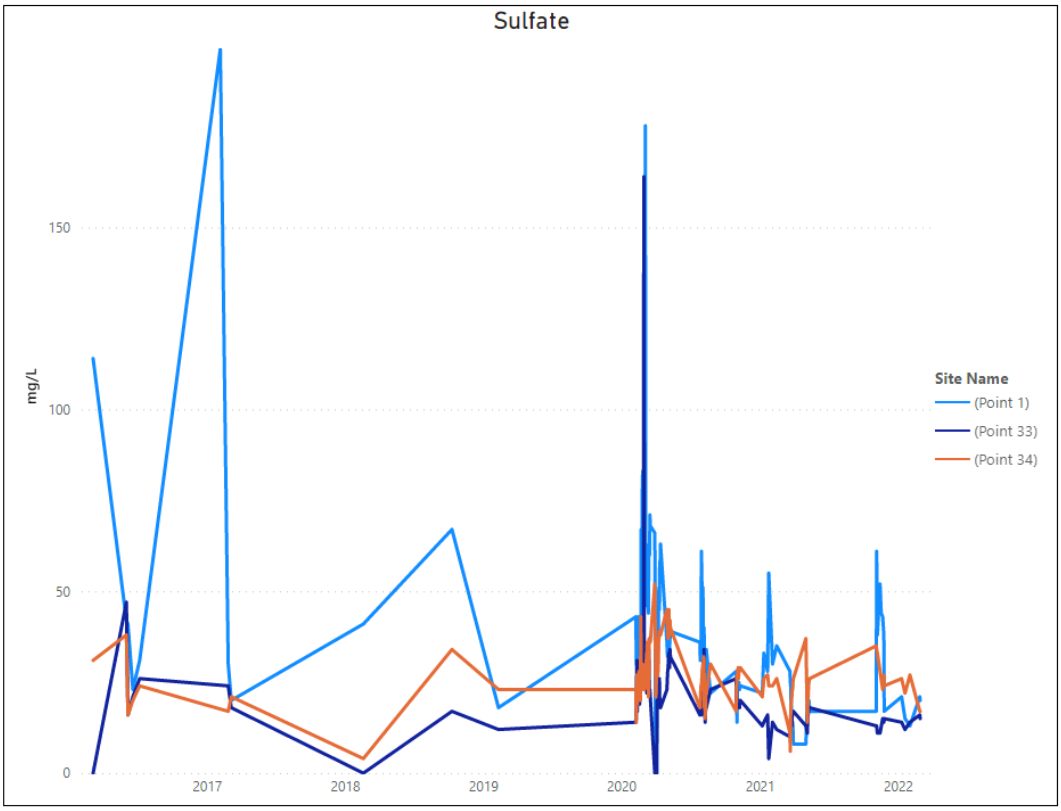

Chloride
700
600
500
400
300
200
100
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

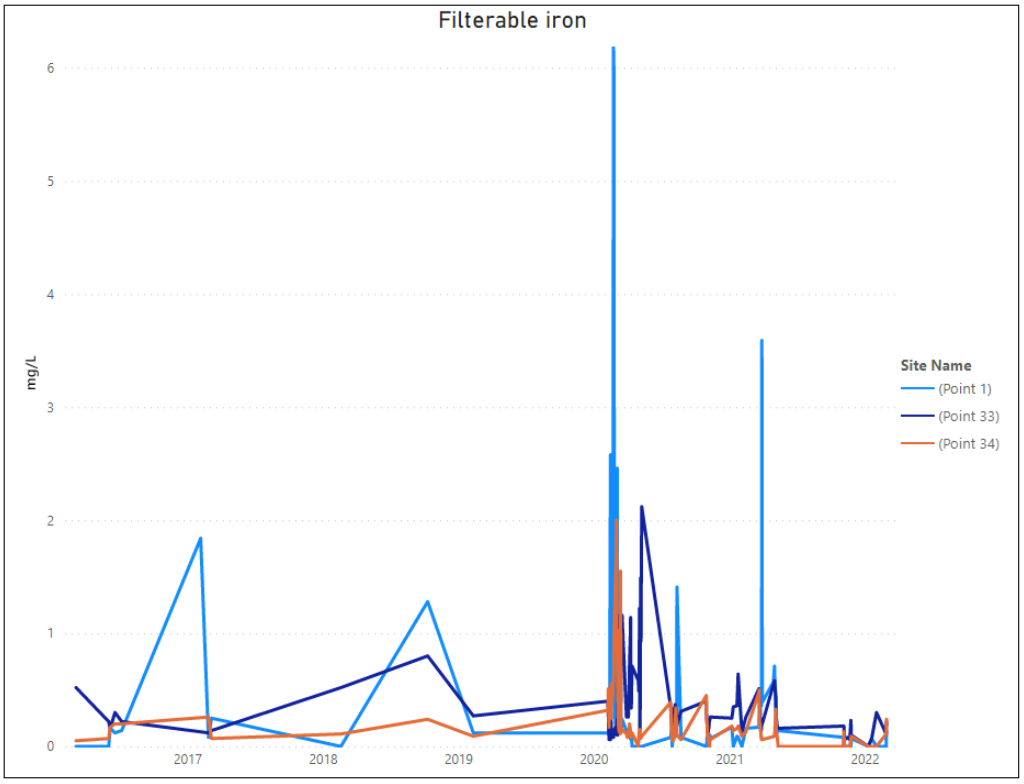

Potassium
120
100
80
60
40
20
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)


Conductivity
3,000
2,500
2,000
1,500
1,000
500
0
µS/cm
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)


Sodium
400
300
200
100
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)


Dissolved Oxygen
10
8
6
4
2
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)


Sulfate
mg/L
150
100
50
0
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)


Filterable iron
mg/L
6
5
4
3
2
1
0
2017
2018
2019
2020
2021
2022
Site Name
(Point 1)
(Point 33)
(Point 34)

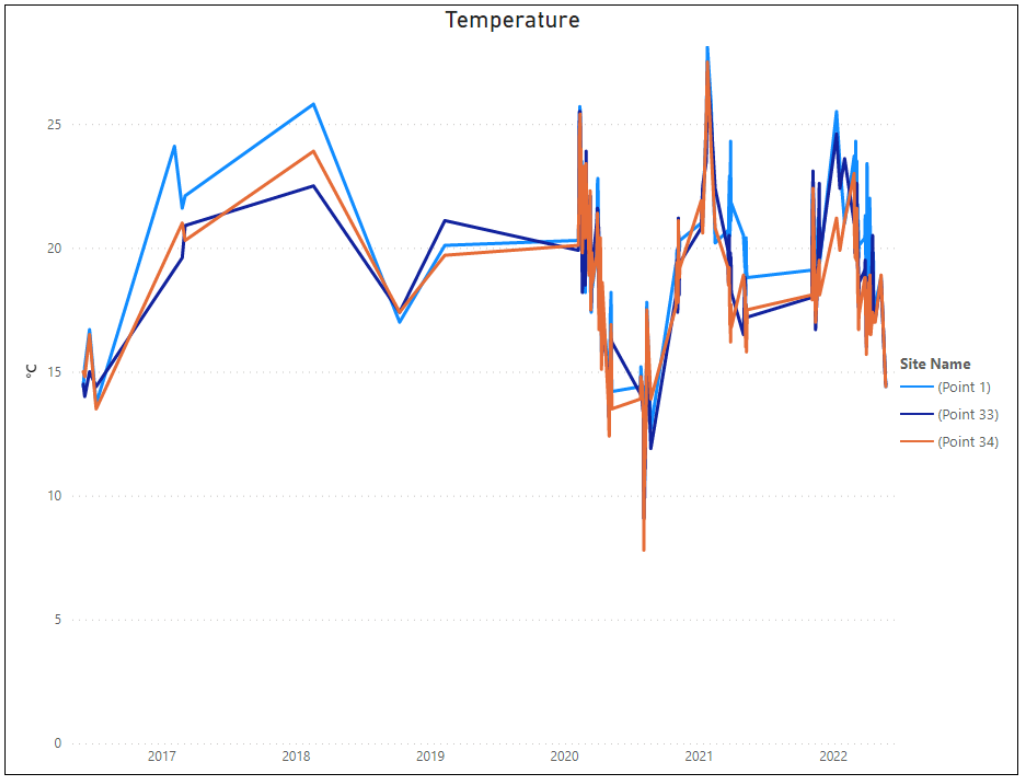


Table 2 Polishing Pond Results - Update to 2022

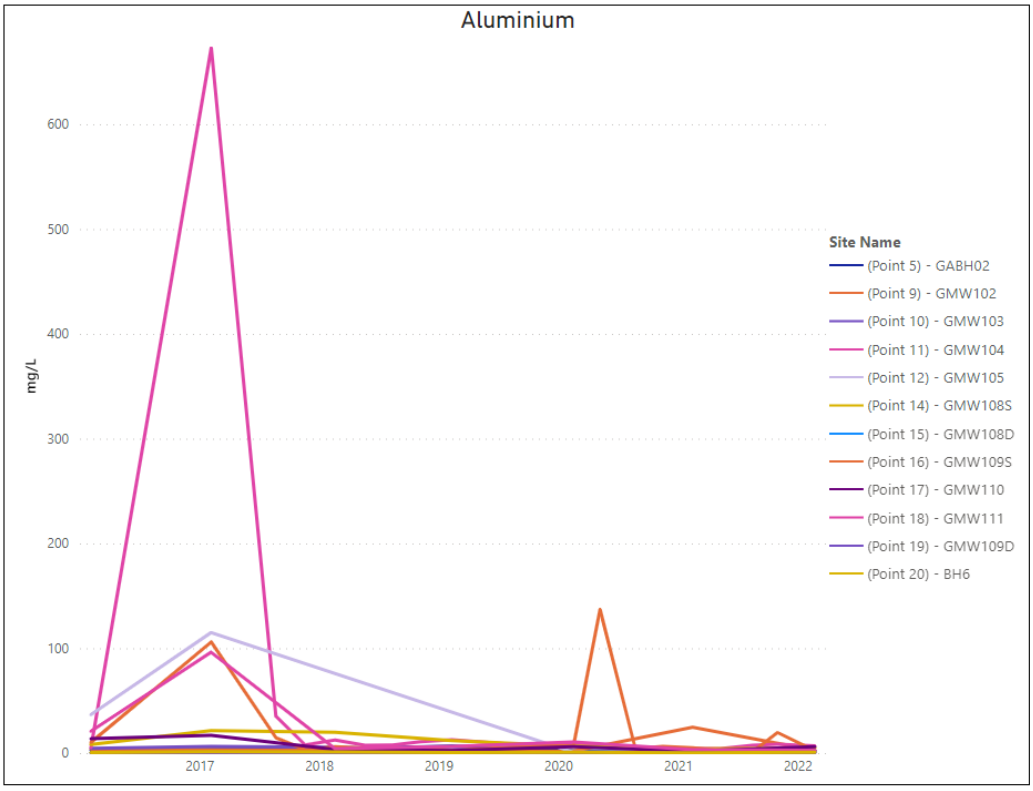
Date	time	Rainfall (mm)	Location PPL Council Turbidimeter (NTU)	PPL PH
8/03/2021	10.00am		24.2	8.13
9/03/2021	9.15am		8.6	7.77
30/04/2021	8.00am		4.47	8.07
25/10/2021	9.45am		15.53	8.34
4/11/2021	11am		5.54	8.09
13/11/2021	11.00am		17.47	8.02
14/11/2021	10.00am		21	8.04
15/11/2021				
18/11/2021	11.00am		9.8	8.2
19/11/2021	9.00am			
6/12/2021	8.30am		7.28	8.21
8/12/2021	11am		6.51	8.3
31/01/2022	8am		4.8	8.03
28/02/2022	8.30am		35.2	7.8

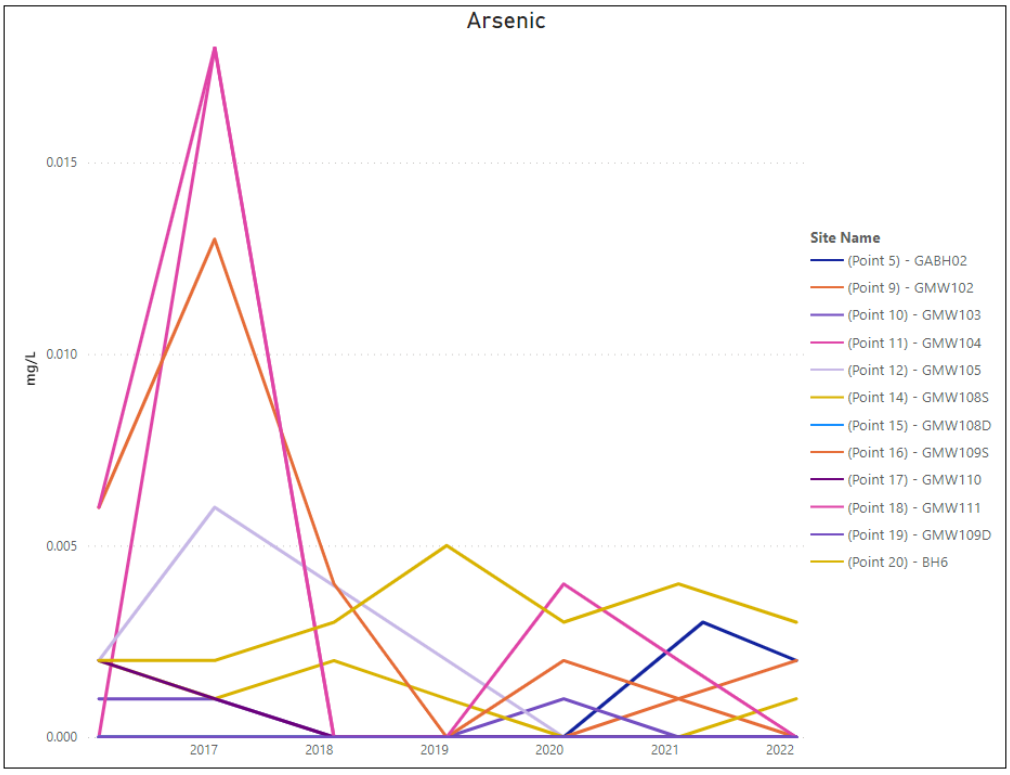
Appendix B: Groundwater

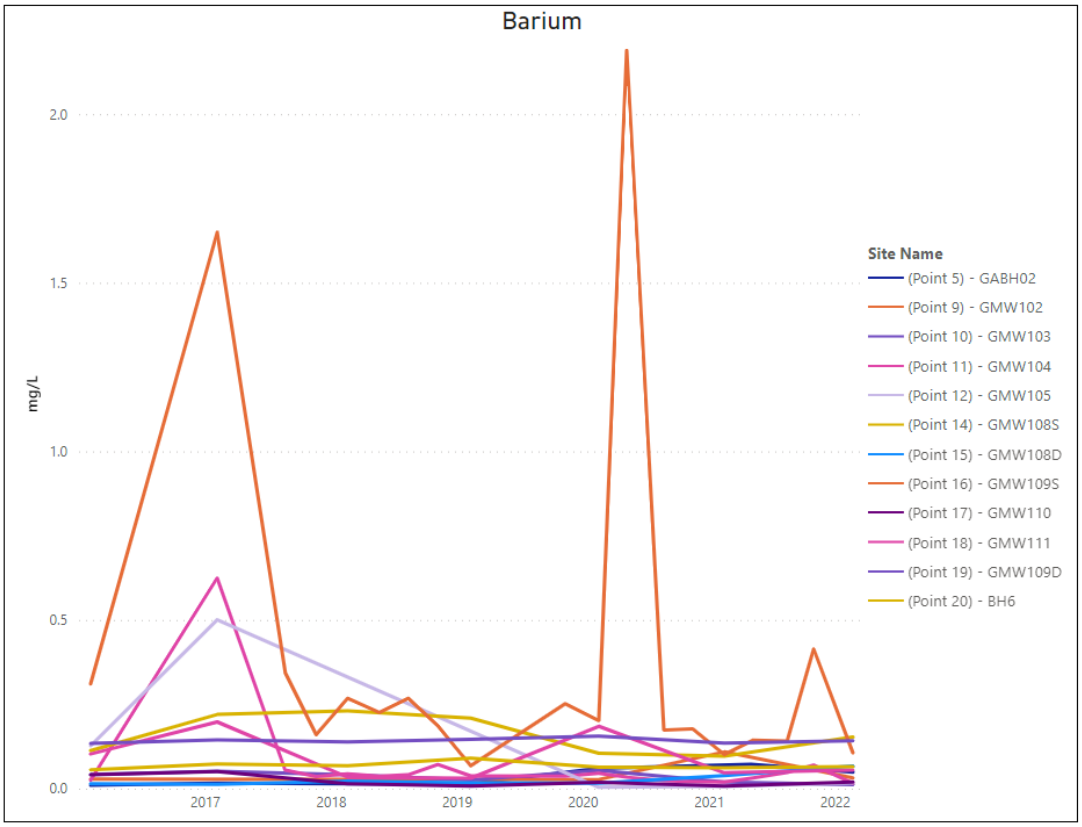
Results and Trends

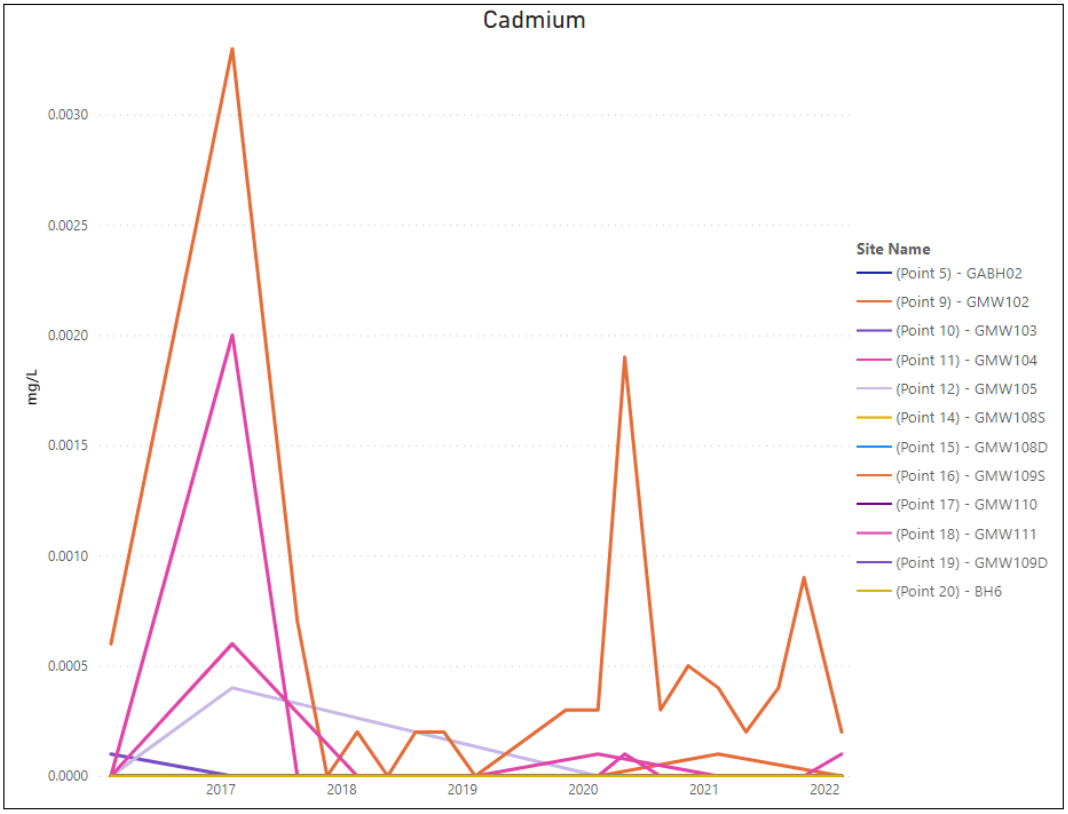
		Alkalinity (as calcium carbonate)	Aluminium	Ammonia	Arsenic	Barium	Benzene	Cadmium	Calcium	Chloride	Chromium (hexavalent)	Chromium (Total)	Cobalt	Conductivity	Copper	Depth	Ethyl benzene	Fluoride
Units		mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µS/cm	mg/L	Meters	µg/L	mg/L
Site Name	Sample Date																	
(Point 5) - GABH02	03/05/2021	881	0.88	0.90	0.003	0.072	<1	<0.0001	180	584	<0.01	0.004	0.004	4.68	0.004	7.23	<2	0.4
	10/05/2021	849		1.30					176	569				3440		6.32		
	16/08/2021	985		0.37					227	842				4150		4.91		
	01/11/2021	729		0.32					247	876				4410		5.09		
	17/02/2022																	
	23/02/2022	907	1.47	0.38	0.002	0.049	<1	<0.0001	278	898	<0.01	0.004	0.006	4440	0.005	4.67	<2	0.4
(Point 9) - GMW102	10/05/2021	122		<0.01					23	14				349		2.54		
	01/11/2021	86		<0.01					23	21				287		4.01		
	17/02/2022																	
	23/02/2022	122	2.59	0.21	<0.001	0.032	<1	<0.0001	29	18	<0.01	<0.001	<0.001	256	0.005	2.42	<2	0.2
(Point 10) - GMW103	10/05/2021	631		<0.01					119	114				1520		6.62		
	16/08/2021	571		<0.01					130	188				1680		7.68		
	01/11/2021	534		<0.01					151	221				1740		7.52		
	17/02/2022																	
	23/02/2022	612	0.52	0.05	<0.001	0.012	<1	<0.0001	139	109	<0.01	<0.001	<0.001	1610	0.004	6.76	<2	1.0
(Point 11) - GMW104	10/05/2021	375	4.13	<0.01		0.032		<0.0001	42	69		0.003	0.003	930	0.010	6.68		
	16/08/2021	400	7.32	0.01		0.048		<0.0001	49	88		0.004	0.005	973	0.012	7.07		
	01/11/2021	352	8.58	<0.01		0.070		<0.0001	52	102		0.014	0.016	1060	0.030	7.29		
	17/02/2022																	
	23/02/2022	141	6.96	0.01	<0.001	0.016	<1	0.0001	37	52	<0.01	0.002	0.006	486	0.017	6.57	<2	0.6
(Point 12) - GMW105	10/05/2021	43		0.01					7	38				231		8.32		
	16/08/2021	47		0.02					7	42				245		11.3		
	01/11/2021	30		0.03					5	34				221		11.2		
	17/02/2022																	
	23/02/2022	52	5.63	0.02	<0.001	0.017	<1	<0.0001	6	21	<0.01	0.003	0.003	107	0.008	10.42	<2	0.3
(Point 14) - GMW108S	10/05/2021	153		0.03					22	31				396		2.32		
	16/08/2021	451		0.14					115	518				2400		2.83		
	01/11/2021	243		0.06					58	224				1290		2.69		
	17/02/2022																	
	23/02/2022	157	4.85	0.03	0.001	0.153	<1	<0.0001	34	24	<0.01	0.003	0.003	374	0.015	1.52	<2	0.2
(Point 15) - GMW108D	10/05/2021	275		0.03					64	294				1530		1.82		
	16/08/2021	564		0.02					135	714				3160		2.26		
	01/11/2021	352		0.04					127	632				2930		2.24		
	17/02/2022																	
	23/02/2022	223	2.72	0.04	<0.001	0.067	<1	<0.0001	44	119	<0.01	0.002	0.002	780	0.007	1.52	<2	0.3
(Point 16) - GMW109S	10/05/2021	438	2.24	0.34		0.144		0.0002	170	233		0.002	0.027	2020	0.012	2.77		
	16/08/2021	229	1.24	0.30		0.141		0.0004	70	235		0.001	0.026	1290	0.014	3.42		
	01/11/2021	191	19.6	0.32		0.414		0.0009	78	246		0.025	0.056	1450	0.074	3.49		
	17/02/2022																	
	23/02/2022	202	2.24	0.32	0.002	0.106	<1	0.0002	47	78	<0.01	0.002	0.021	785	0.025	2.92	<2	0.1
(Point 17) - GMW110	10/05/2021	658		<0.01					191	787				4020		3.78		
	16/08/2021	653		<0.01					202	901				4100		4.13		
	01/11/2021	588		<0.01					206	902				4260		4.14		
	17/02/2022																	
	23/02/2022	537	6.05	<0.01	<0.001	0.020	<1	<0.0001	210	830	<0.01	0.003	0.005	3890	0.012	3.91	<2	0.4
(Point 18) - GMW111	10/05/2021	699		0.43					134	677				3240		4.62		
	16/08/2021	766		0.48					132	810				3500		6.32		
	01/11/2021	578		0.28					147	793				3770		6.59		
	17/02/2022																	
	23/02/2022	578	2.60	0.14	<0.001	0.055	<1	<0.0001	151	811	<0.01	0.002	0.002	3720	0.006	6.38	<2	0.4
(Point 19) - GMW109D	10/05/2021	255		0.11					96	452				1900		2.68		
	16/08/2021	260		0.10					105	512				1920		3.09		
	01/11/2021	225		0.09					106	512				1980		2.16		
	17/02/2022																	
	23/02/2022	202	0.08	0.04	<0.001	0.142	<1	<0.0001	110	514	<0.01	<0.001	<0.001	1950	0.001	2.85	<2	0.3
(Point 20) - BH6	10/05/2021	573		0.45					61	260				1770		1.25		
	16/08/2021	694		0.34					73	272				1890		1.63		
	01/11/2021	347		0.60					67	179				1450		1.50		
	17/02/2022																	
	23/02/2022	358	0.76	0.41	0.003	0.065	<1	<0.0001	46	233	<0.01	0.002	0.005	1330	0.006	1.30	<2	0.5

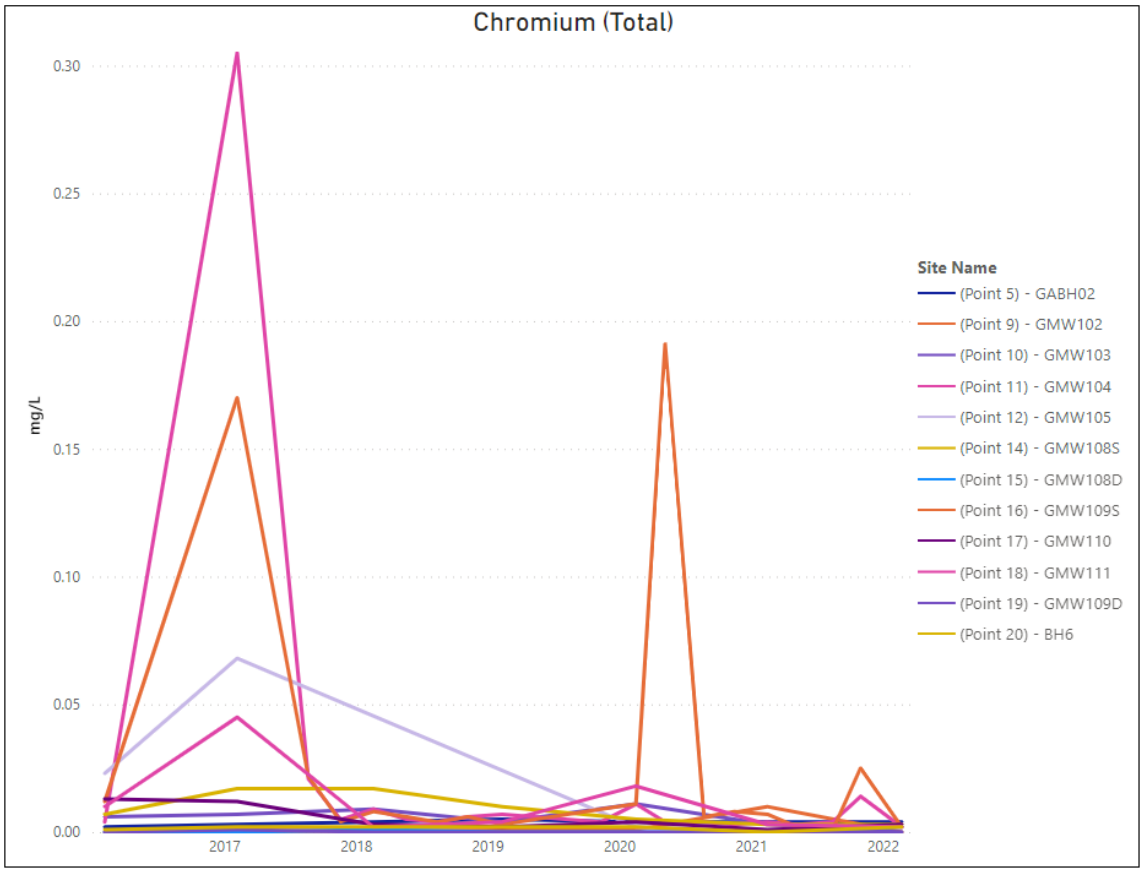
		Lead	Magnesium	Manganese	Mercury	Nitrate as N	Organochlorine Pesticides	Organophosphate Pesticides	pH	Polycyclic aromatic hydrocarbons	Potassium	Sodium	Sulfate	Toluene	Total Dissolved Solids	Total organic carbon	Total Petrolium Hydrocarbons	Total Phenolics	Xylene	Zinc
Units		mg/L	mg/L	mg/L	mg/L	mg/L	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	03/05/2021	0.002	91	3.45	<0.0001	0.06	<0.5	<0.5	3350	<0.5	29	370	87	<2	1930	21	57.77778	<0.05	<2	0.022
	10/05/2021		97						7.1		34	363	82		1920	<1				
	16/08/2021		134						6.7		18	499	126		2410	10				
	01/11/2021		133						6.8		16	453	114		2600	6				
	17/02/2022																0			
	23/02/2022	0.003	145	5.88	<0.0001	0.06	<0.5	<0.5	6.9	<0.5	15	520	114	<2	2500	10		<0.05	<2	0.019
(Point 9) - GMW102	10/05/2021		7						6.7		1	45	49		254	1				
	01/11/2021		7						6.7		<1	27	12		244	4				
	17/02/2022																0			
	23/02/2022	<0.001	9	0.040	<0.0001	0.09	<0.5	<0.5	6.4	<0.5	<1	26	17	<2	234	4		<0.05	<2	0.031
(Point 10) - GMW103	10/05/2021		48						7.3		1	159	76		810	<1				
	16/08/2021		52						7.0		<1	172	97		1080	3				
	01/11/2021		48						7.2		<1	150	89		953	<1				
	17/02/2022																0			
	23/02/2022	0.003	53	0.078	<0.0001	0.18	<0.5	<0.5	7.1	<0.5	<1	177	71	<2	954	3		<0.05	<2	0.015
(Point 11) - GMW104	10/05/2021	0.003	27	0.324					7.4		<1	122	42		502	<1				0.019
	16/08/2021	0.005	29	0.454					7.2		<1	132	52		648	3				0.020
	01/11/2021	0.012	30	1.16					7.4		<1	128	52		633	<1				0.065
	17/02/2022																0			
	23/02/2022	0.006	22	0.478	<0.0001	0.10	<0.5	<0.5	7.0	<0.5	1	61	32	<2	340	5		<0.05	<2	0.037
(Point 12) - GMW105	10/05/2021		3						6.3		<1	34	11		346	<1				
	16/08/2021		3						5.8		<1	37	13		230	4				
	01/11/2021		2						6.2		<1	32	10		392	5				
	17/02/2022																0			
	23/02/2022	0.003	4	0.147	<0.0001	1.19	<0.5	<0.5	6.0	<0.5	<1	27	7	<2	143	2		<0.05	<2	0.026
(Point 14) - GMW108S	10/05/2021		9						6.8		4	47	10		238	<1				
	16/08/2021		75						6.7		4	304	154		1450	4				
	01/11/2021		33						6.8		3	147	68		1010	7				
	17/02/2022																0			
	23/02/2022	0.005	15	0.108	<0.0001	0.07	<0.5	<0.5	6.9	<0.5	6	44	4	<2	380	11		<0.05	<2	0.018
(Point 15) - GMW108D	10/05/2021		38						6.8		6	194	87		845	<1				
	16/08/2021		88						6.6		2	447	205		1900	2				
	01/11/2021		75						6.7		3	348	171		1720	3				
	17/02/2022																0			
	23/02/2022	0.005	23	0.178	<0.0001	0.02	<0.5	<0.5	7.0	<0.5	6	99	35	<2	518	10		<0.05	<2	0.016
(Point 16) - GMW109S	10/05/2021	0.003	87	4.55					6.4		2	188	485		1550	<1				0.034
	16/08/2021	0.011	41	2.95					6.1		1	112	158		962	4				0.055
	01/11/2021	0.043	47	4.33					6.2		2	112	122		890	6				0.242
	17/02/2022																0			
	23/02/2022	0.018	35	2.01	<0.0001	<0.01	<0.5	<0.5	6.4	<0.5	2	83	100	<2	476	6		<0.05	<2	0.086
(Point 17) - GMW110	10/05/2021		150						6.7		2	455	344		2480	<1				
	16/08/2021		154						6.6		2	494	341		2620	2				
	01/11/2021		146						6.9		2	441	336		2600	<1				
	17/02/2022																0			
	23/02/2022	0.006	146	0.176	<0.0001	2.41	<0.5	<0.5	6.8	<0.5	2	470	304	<2	2550	6		<0.05	<2	0.029
(Point 18) - GMW111	10/05/2021		107						7.2		2	470	172		2080	<1				
	16/08/2021		112						7.2		2	502	171		2150	6				
	01/11/2021		109						7.0		2	476	210		2160	2				
	17/02/2022																0			
	23/02/2022	0.003	115	1.23	<0.0001	0.02	<0.5	<0.5	7.0	<0.5	2	527	195	<2	2310	4		<0.05	<2	0.024
(Point 19) - GMW109D	10/05/2021		53						6.8		1	196	26		1050	<1				
	16/08/2021		55						6.8		1	213	25		1730	4				
	01/11/2021		51						6.8		1	190	25		1210	<1				
	17/02/2022																0			
	23/02/2022	<0.001	54	0.174	<0.0001	0.17	<0.5	<0.5	7.1	<0.5	2	205	25	<2	1320	<1		<0.05	<2	0.011
(Point 20) - BH6	10/05/2021		43						7.0		3	271	40		999	<1				
	16/08/2021		49						7.0		2	308	68		1260	2				
	01/11/2021		34						6.9		3	181	34		820	12				
	17/02/2022																0			
	23/02/2022	0.004	35	0.985	<0.0001	0.04	<0.5	<0.5	6.8	<0.5	2	214	17	<2	726	12		<0.05	<2	0.017

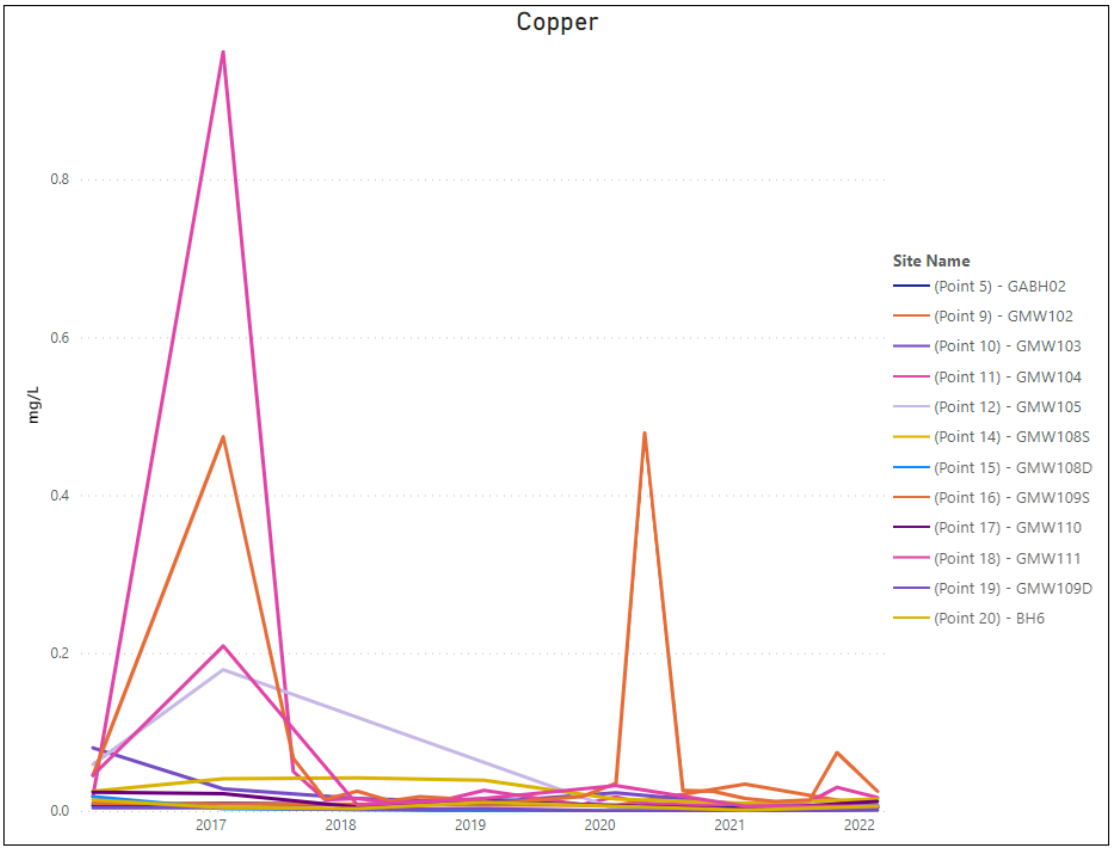

Aluminium
600
500
400
300
200
100
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

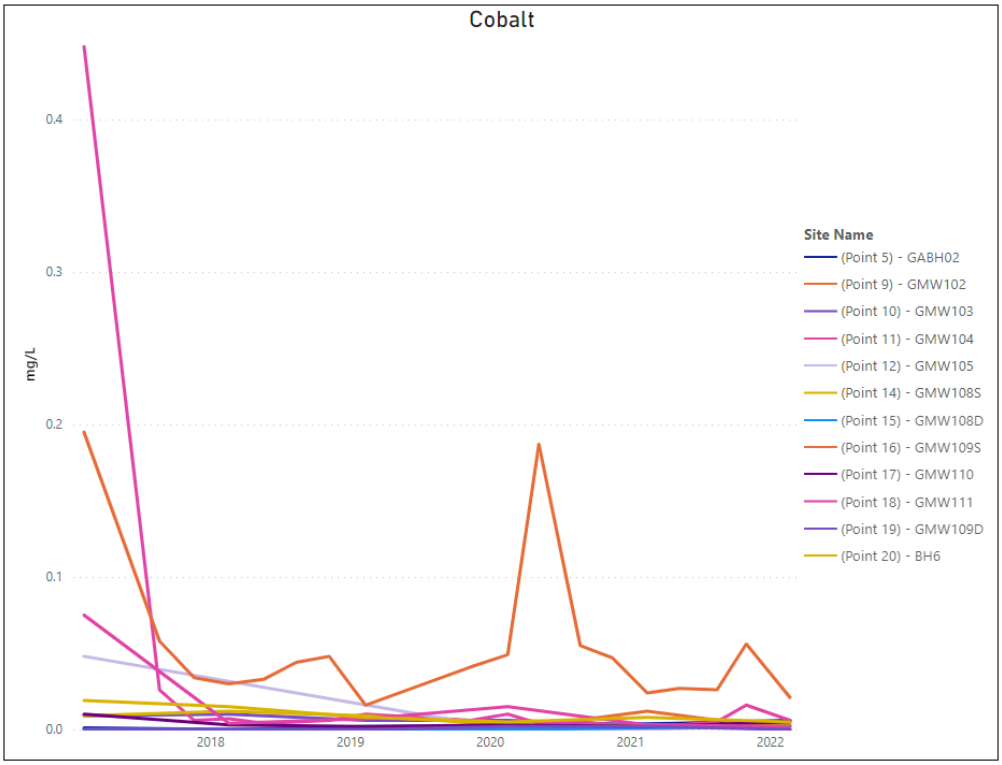

Arsenic
0.015
0.010
0.005
0.000
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

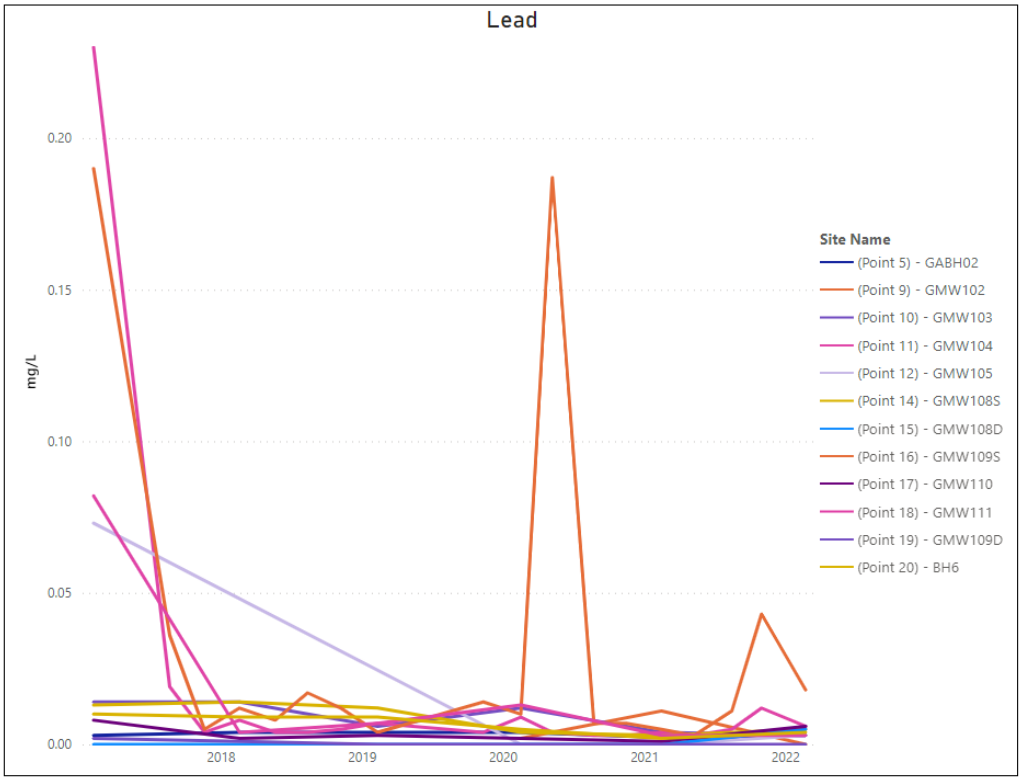

Barium
2.0
1.5
1.0
0.5
0.0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

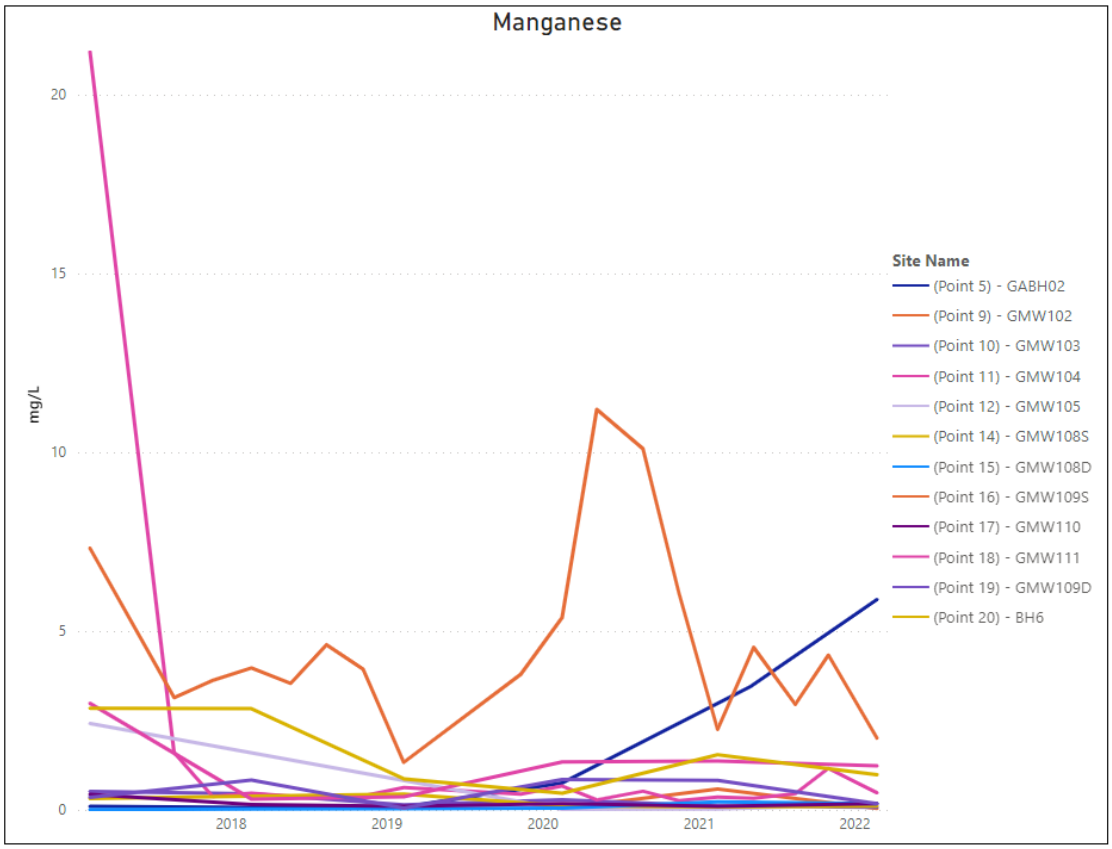

Cadmium
0.0030
0.0025
0.0020
0.0015
0.0010
0.0005
0.0000
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

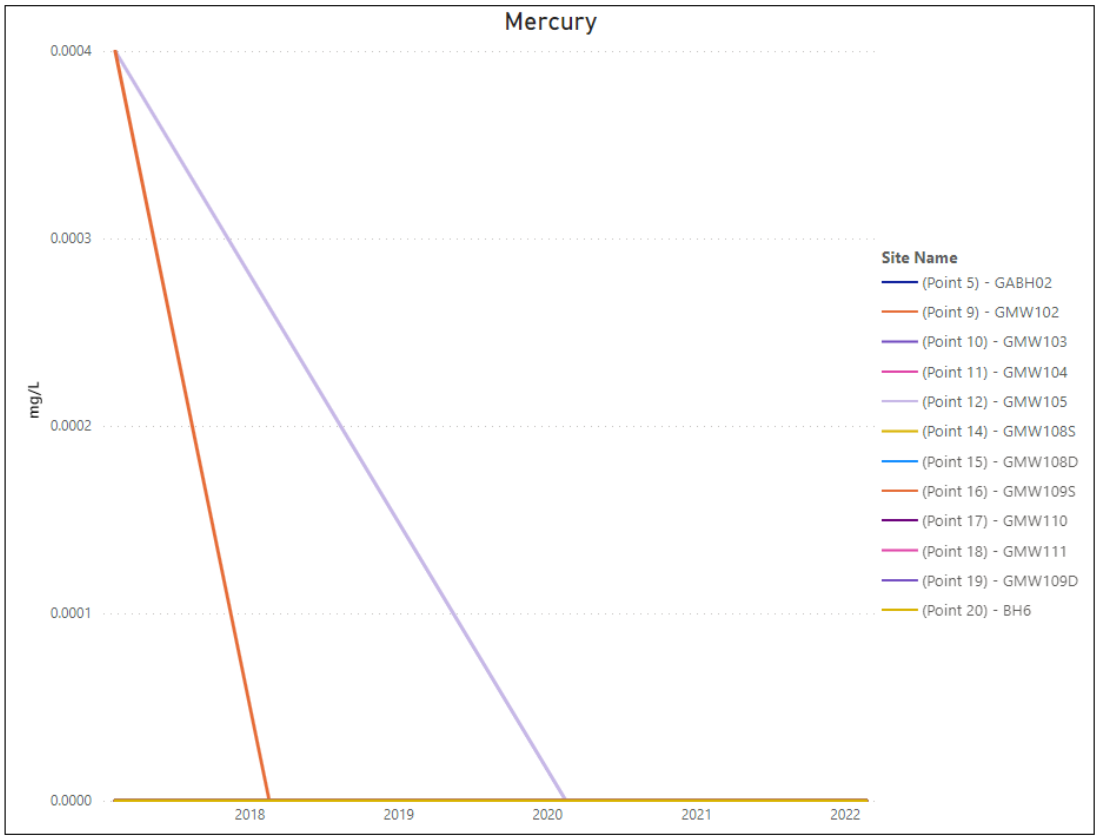

Chromium (Total)
mg/L
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

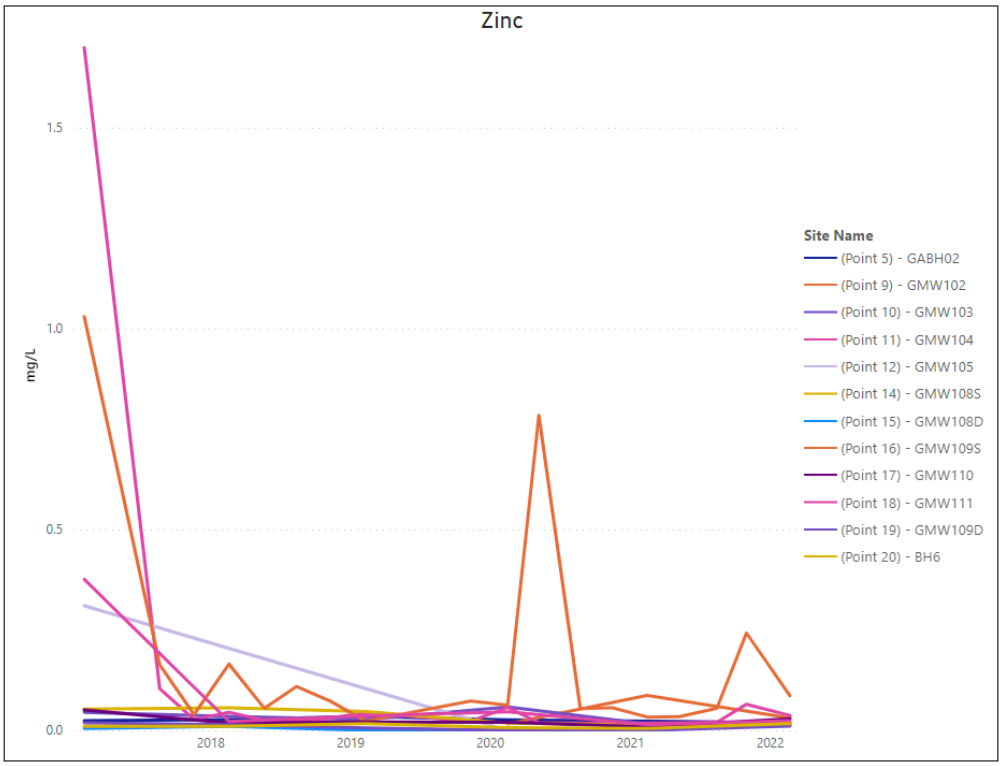

Copper
mg/L
0.8
0.6
0.4
0.2
0.0
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

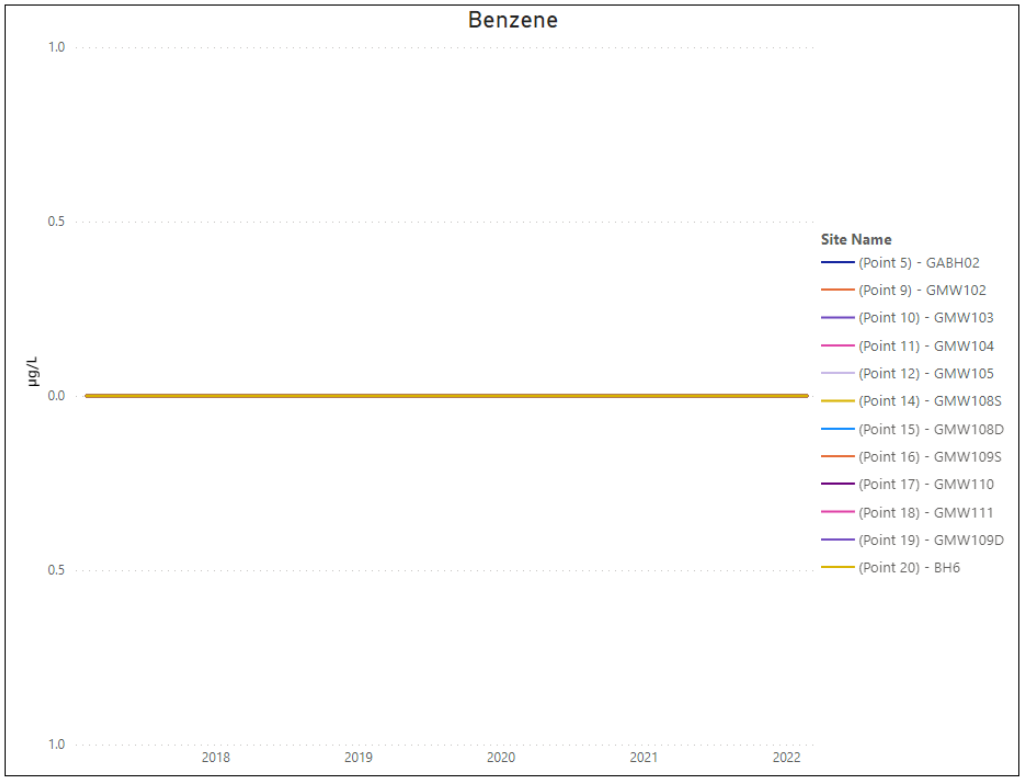

Cobalt
0.4
0.3
0.2
0.1
0.0
mg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

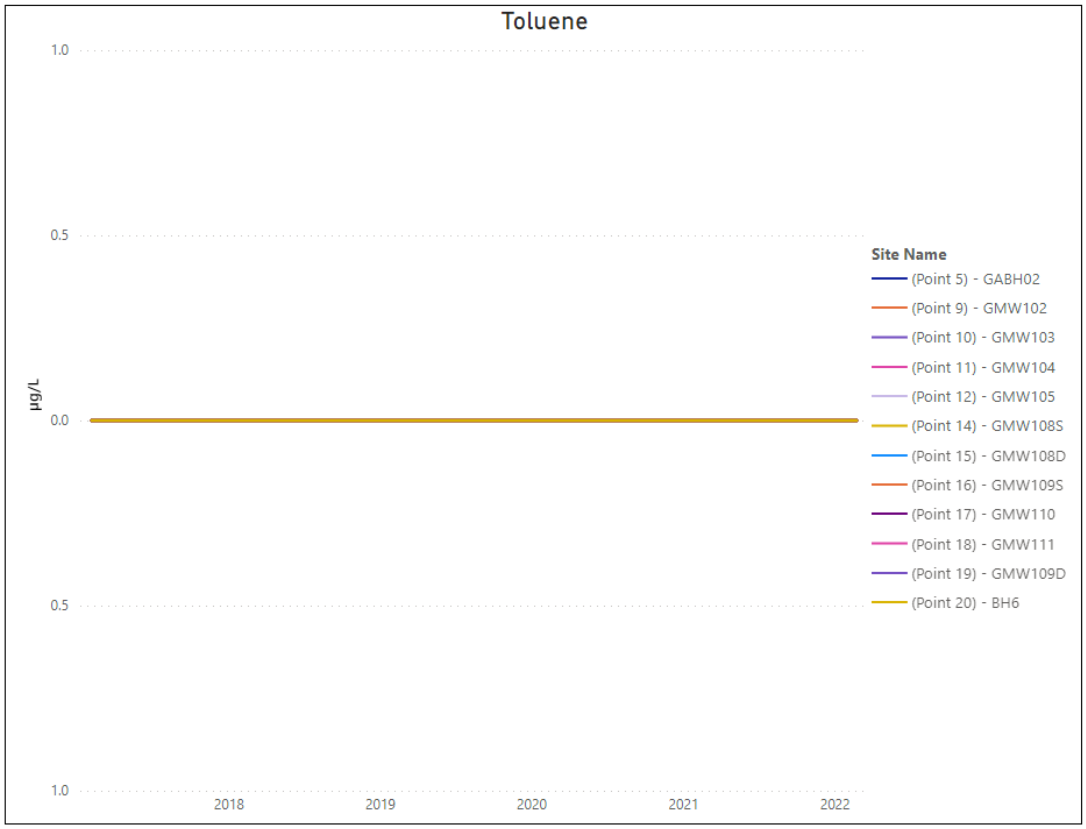

Lead
0.20
0.15
0.10
0.05
0.00
mg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

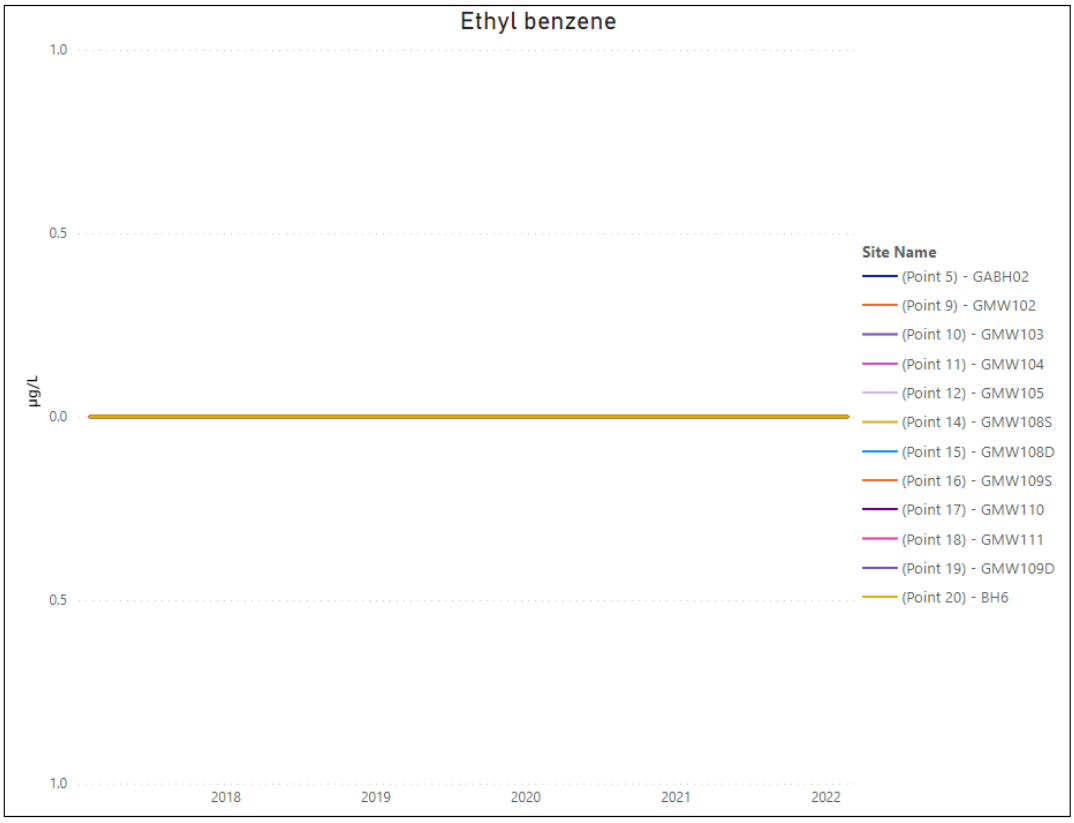

Manganese
20
15
10
5
0
mg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

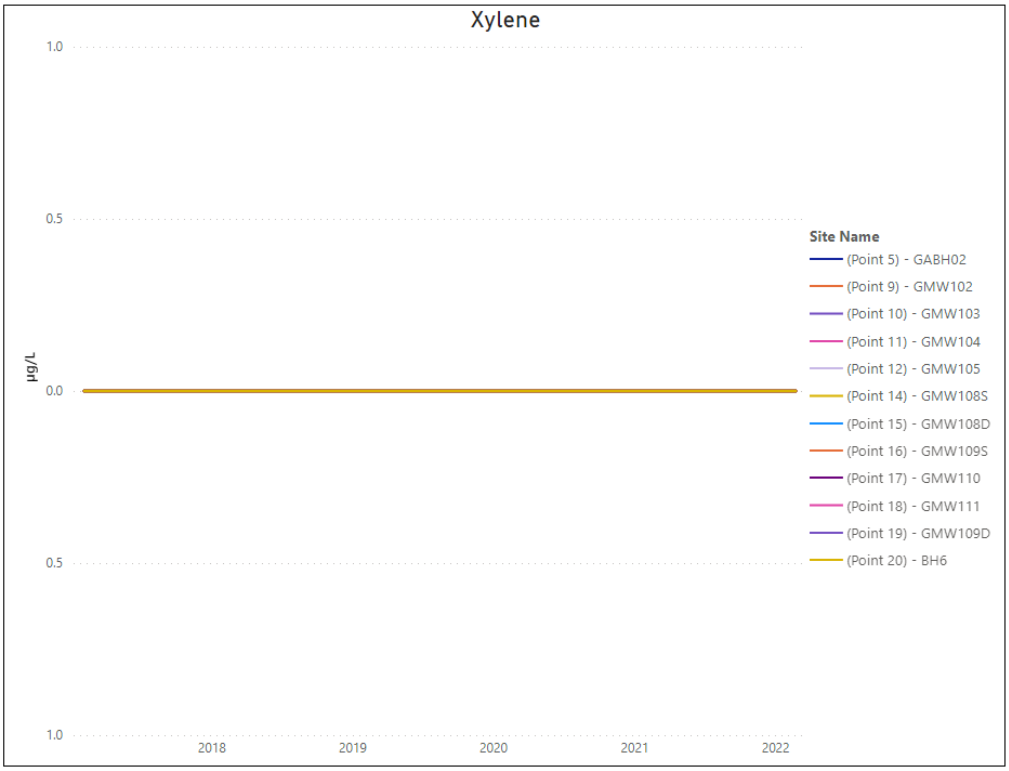

Mercury
0.0004
0.0003
0.0002
0.0001
0.0000
mg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

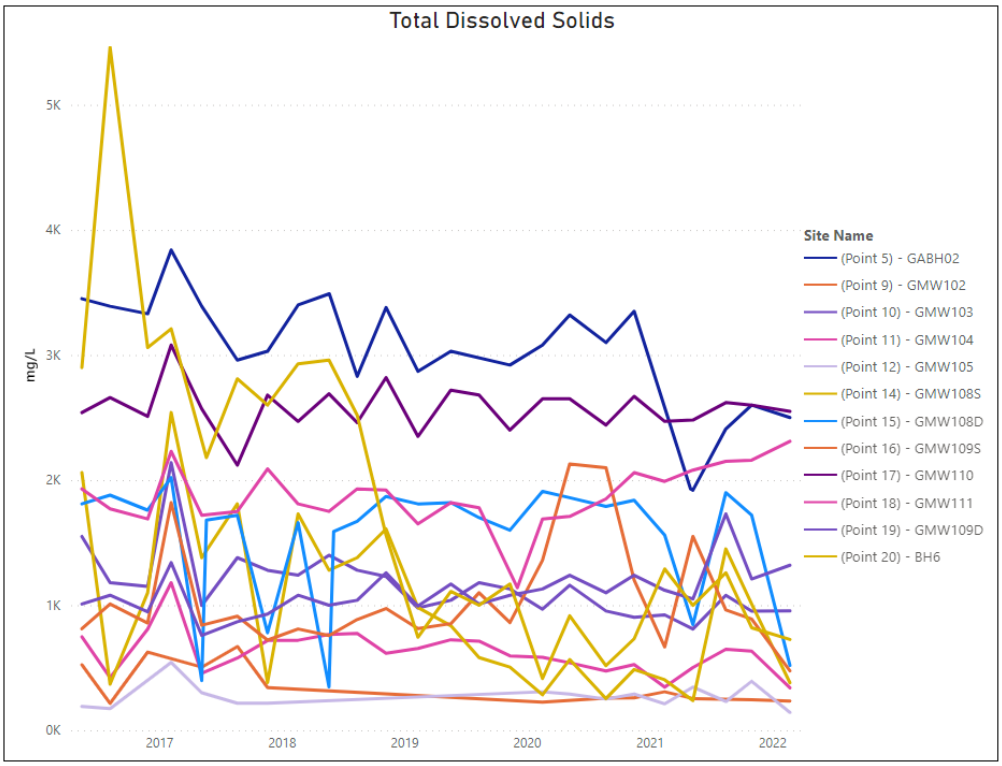

Zinc
1.5
1.0
0.5
0.0
mg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

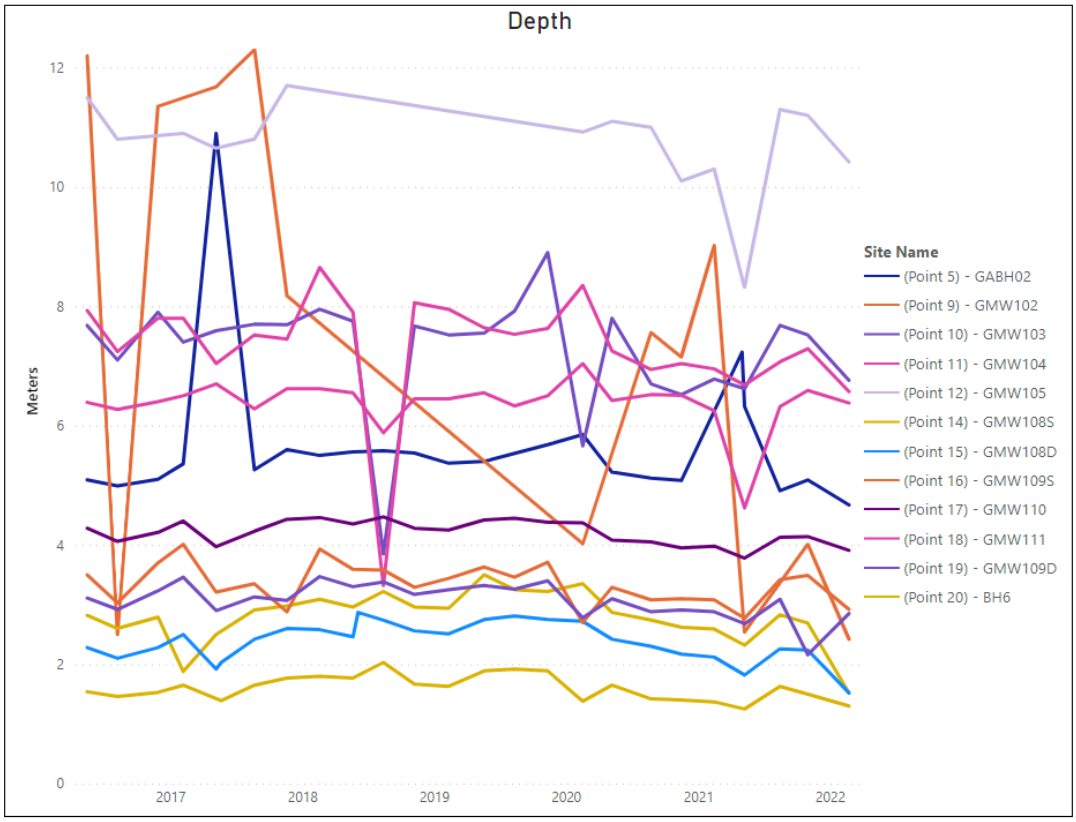

Benzene
1.0
0.5
0.0
0.5
1.0
µg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

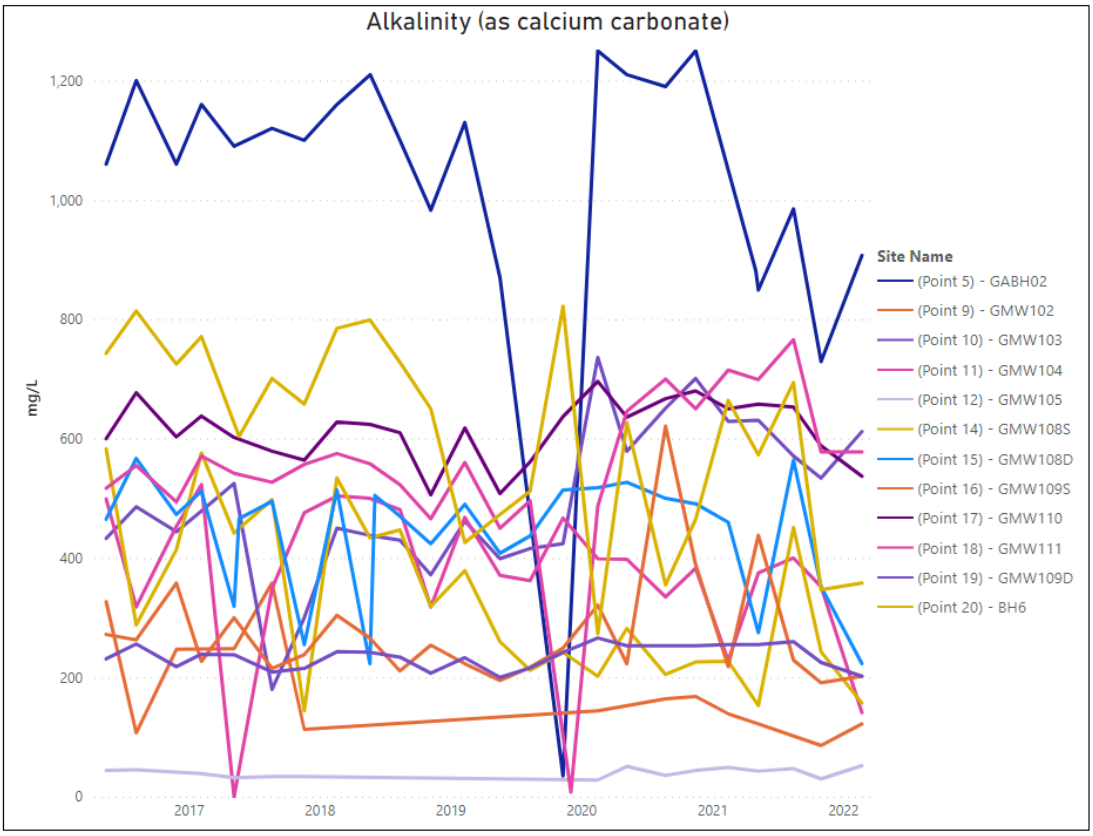

Toluene
1.0
0.5
0.0
0.5
1.0
µg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

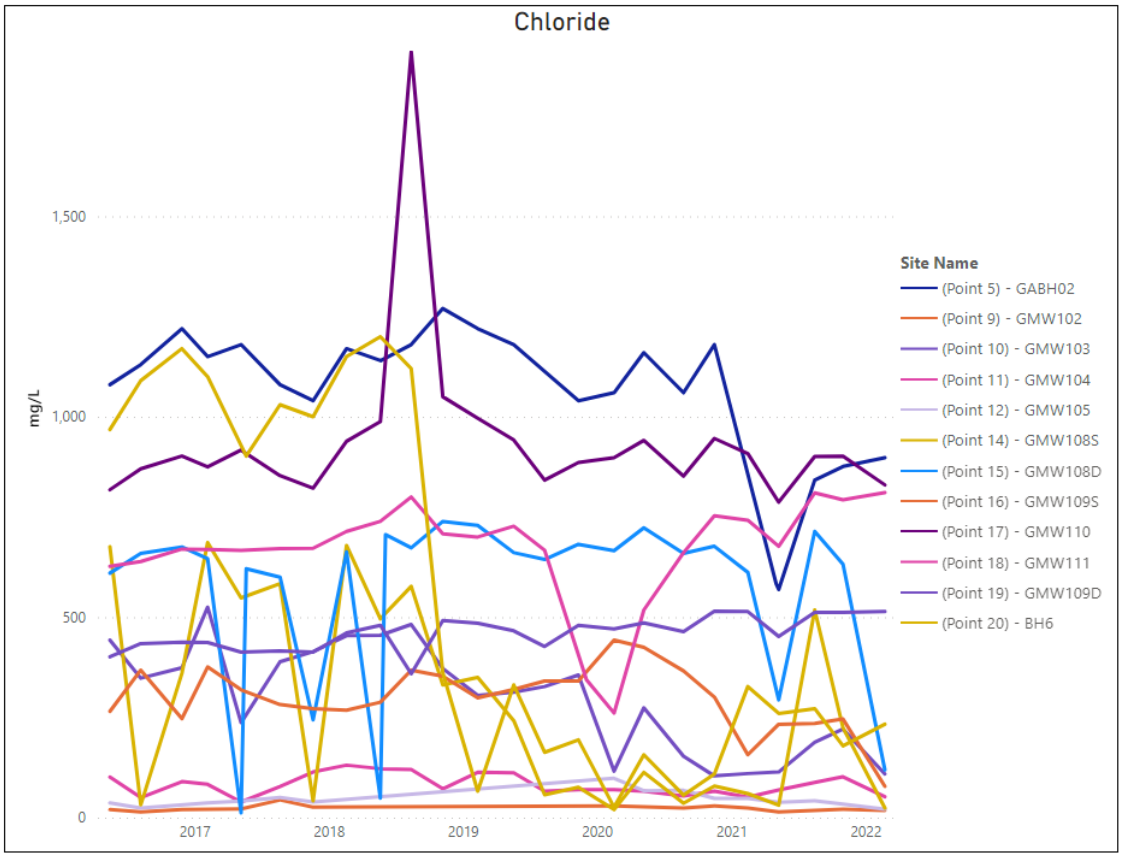

Ethyl benzene
1.0
0.5
0.0
0.5
1.0
µg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

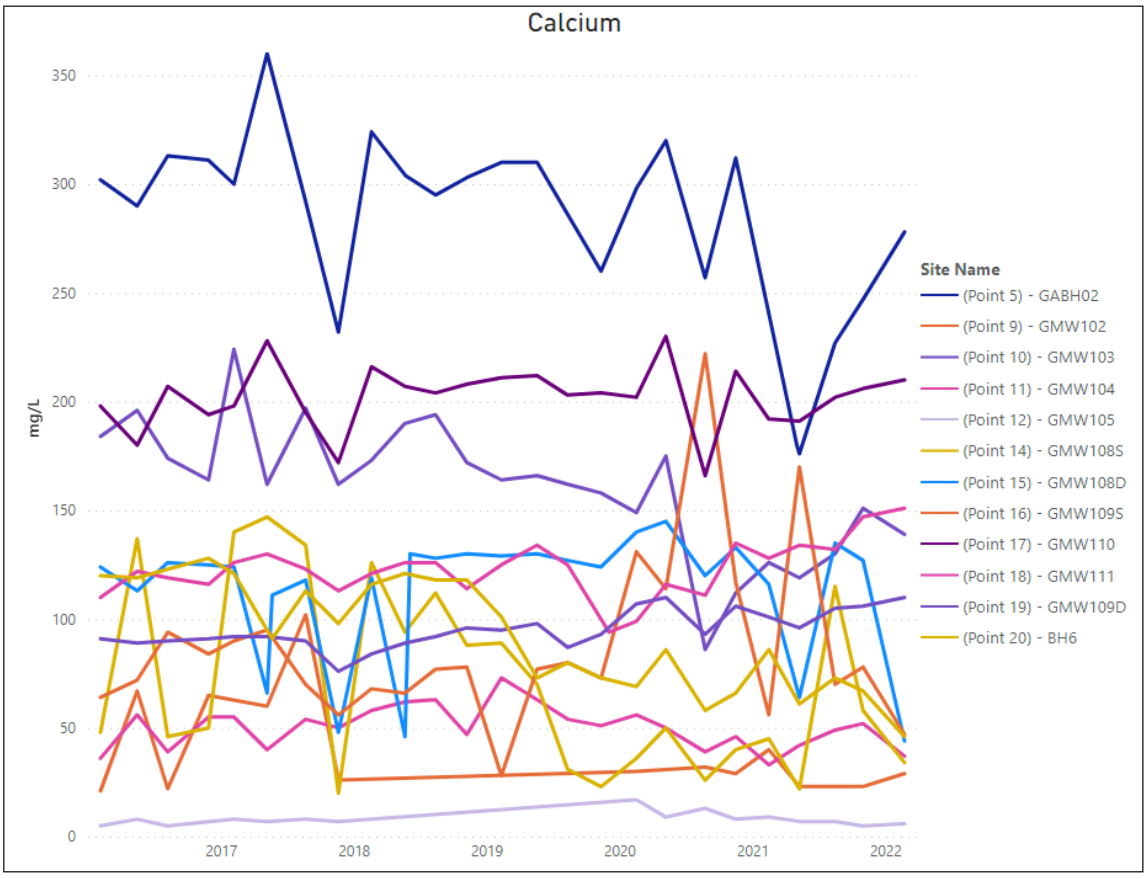

Xylene
1.0
0.5
0.0
0.5
1.0
µg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

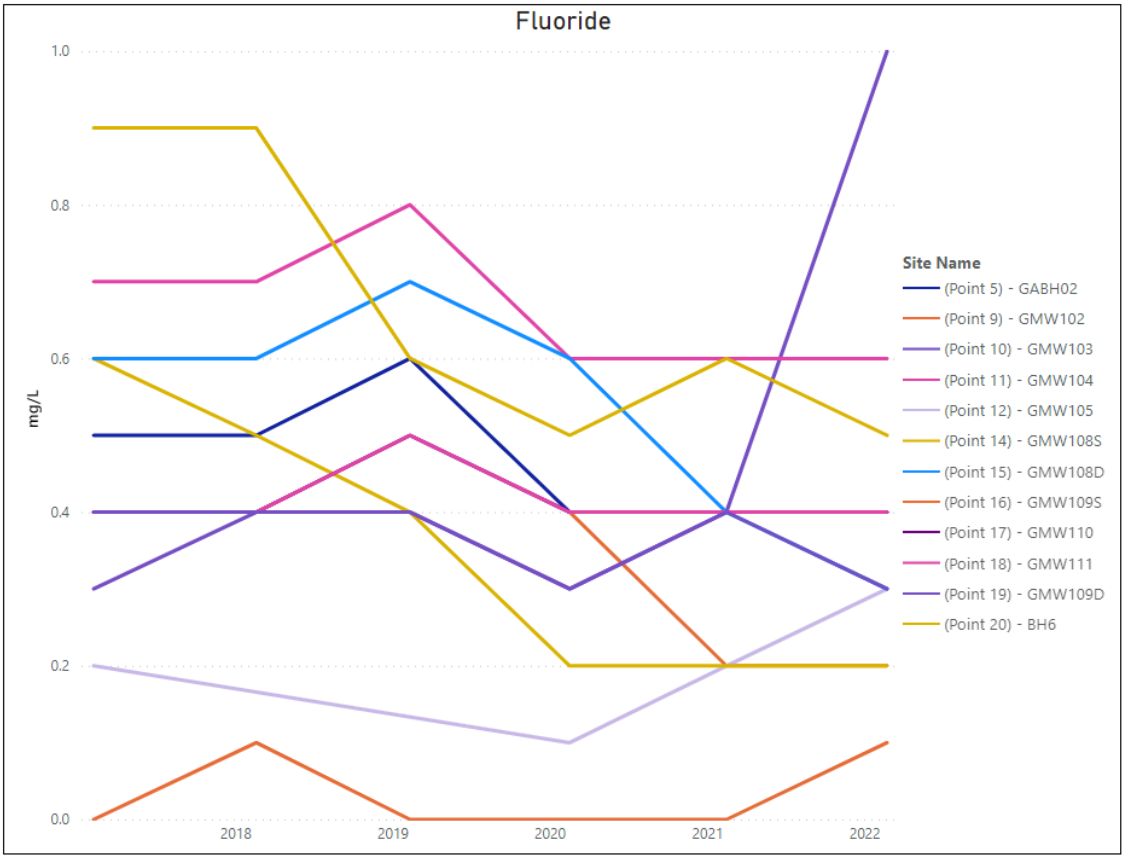

Total Dissolved Solids
5K
4K
3K
2K
1K
0K
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

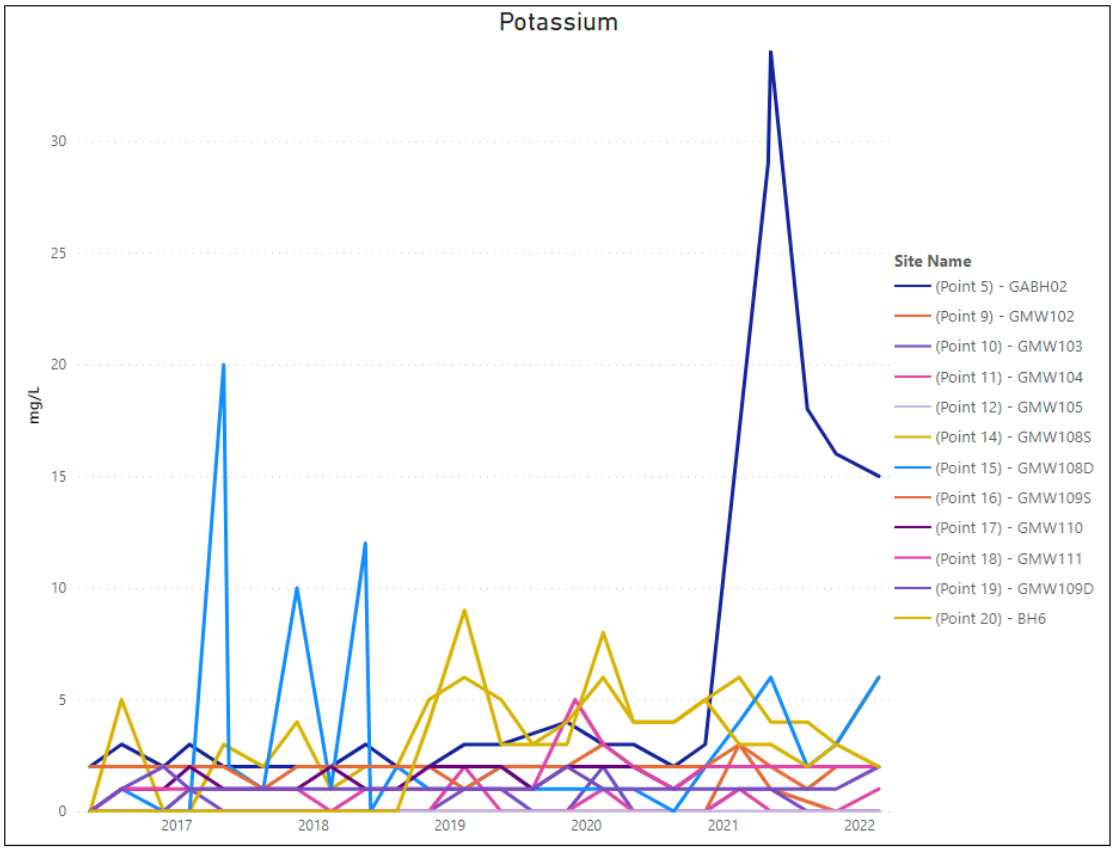

Depth
Meters
12
10
8
6
4
2
0
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

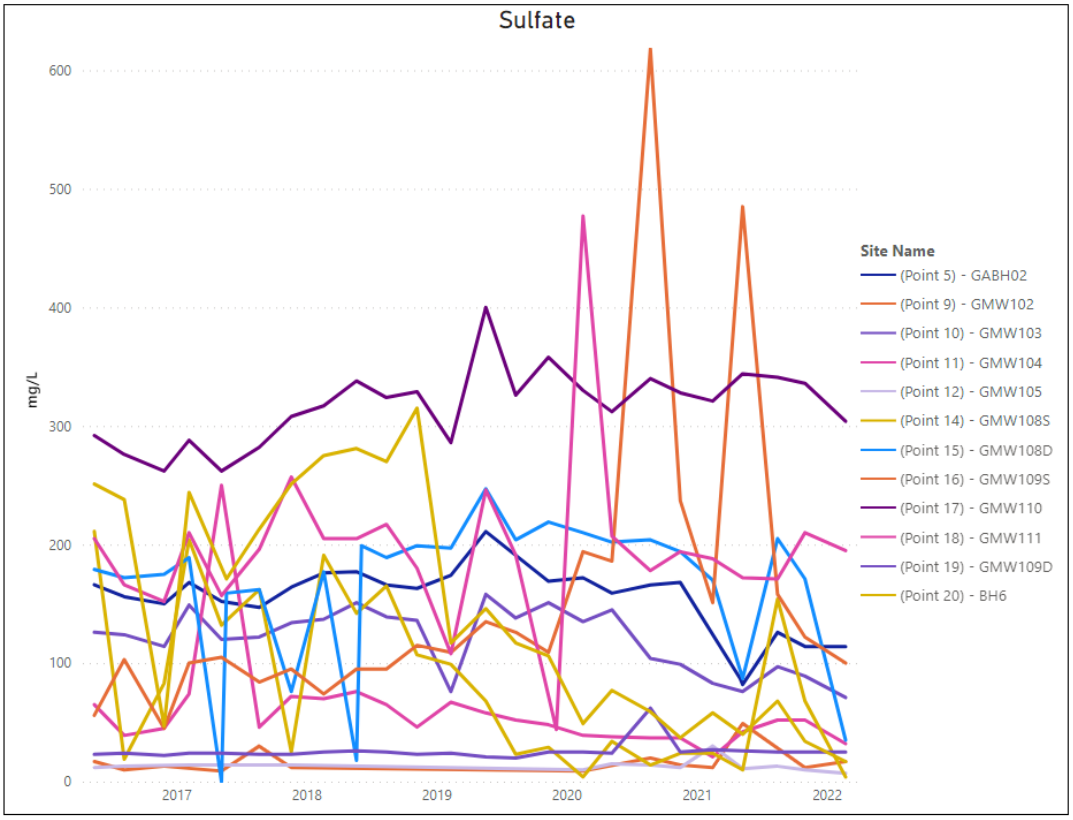

Alkalinity (as calcium carbonate)
mg/L
1,200
1,000
800
600
400
200
0
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

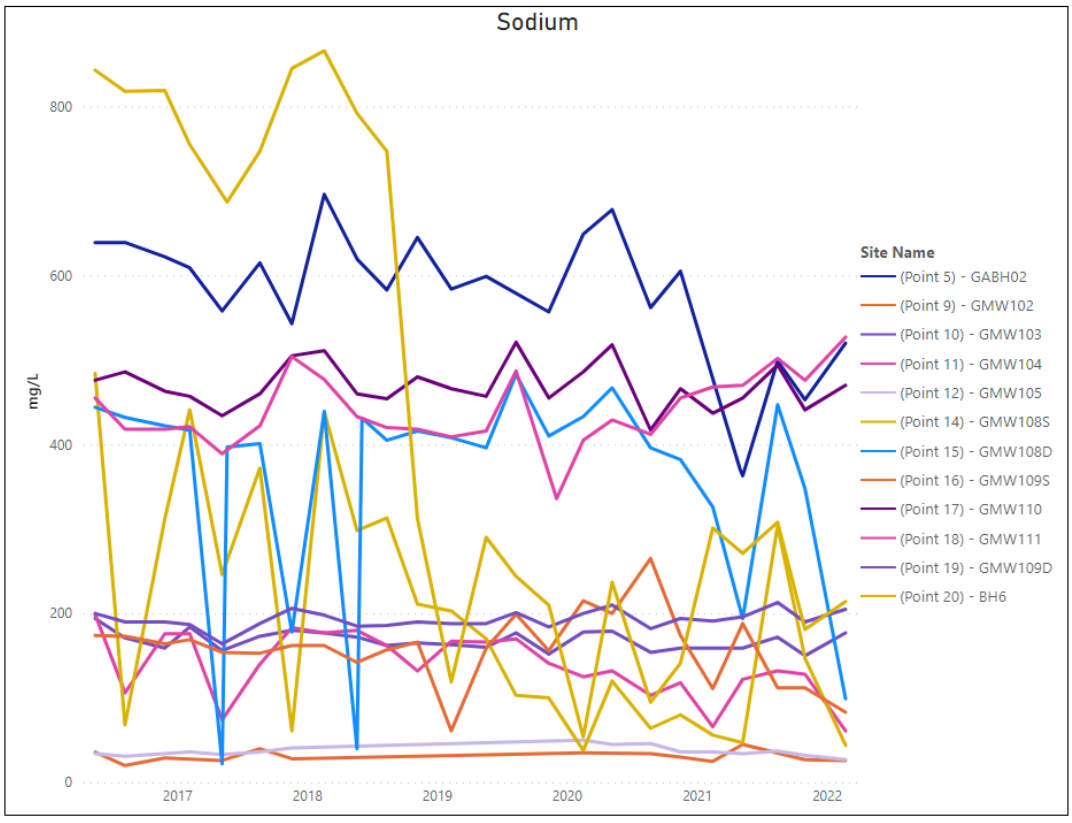

Chloride
1,500
1,000
500
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

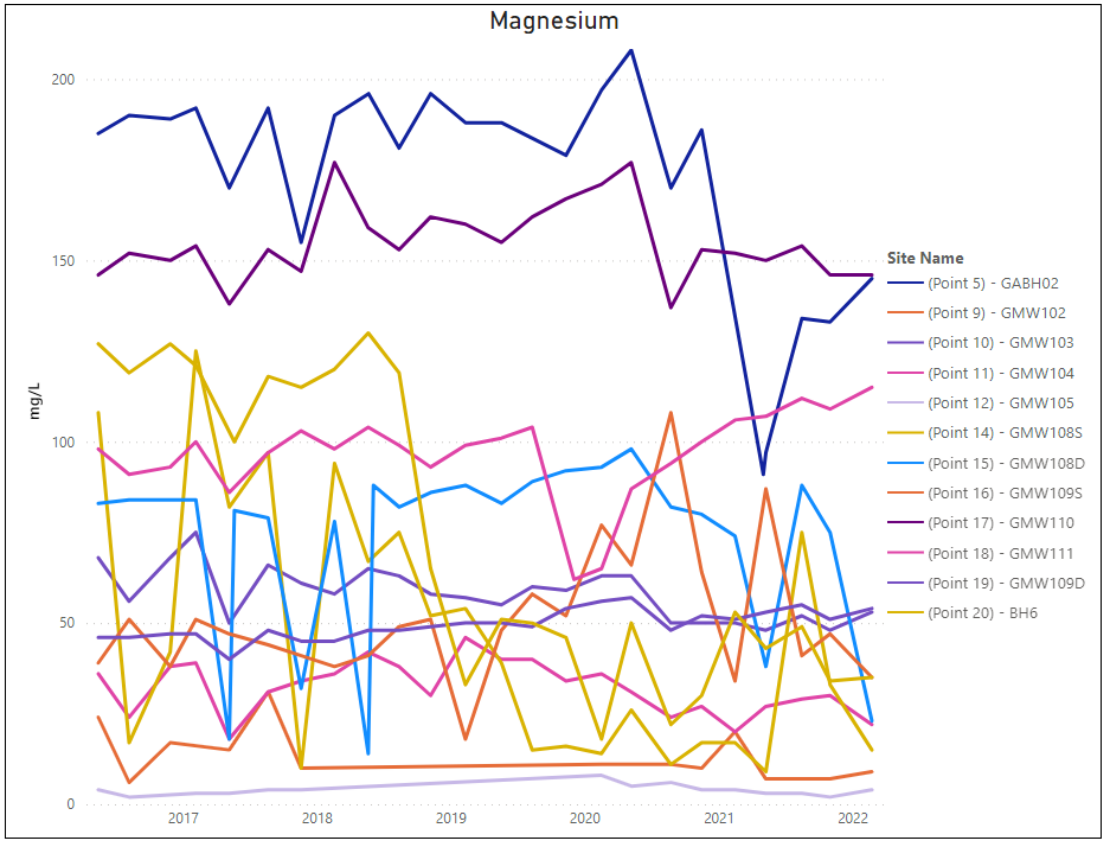

Calcium
350
300
250
200
150
100
50
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

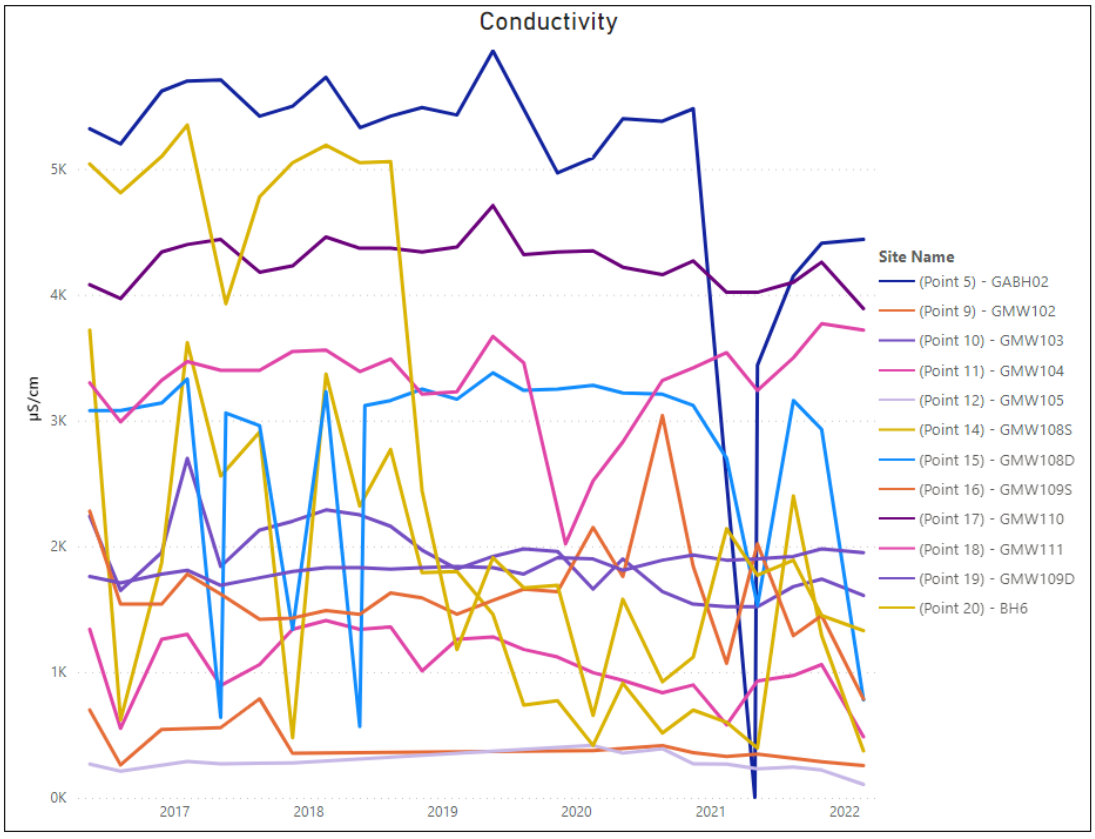

Fluoride
1.0
0.8
0.6
0.4
0.2
0.0
mg/L
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

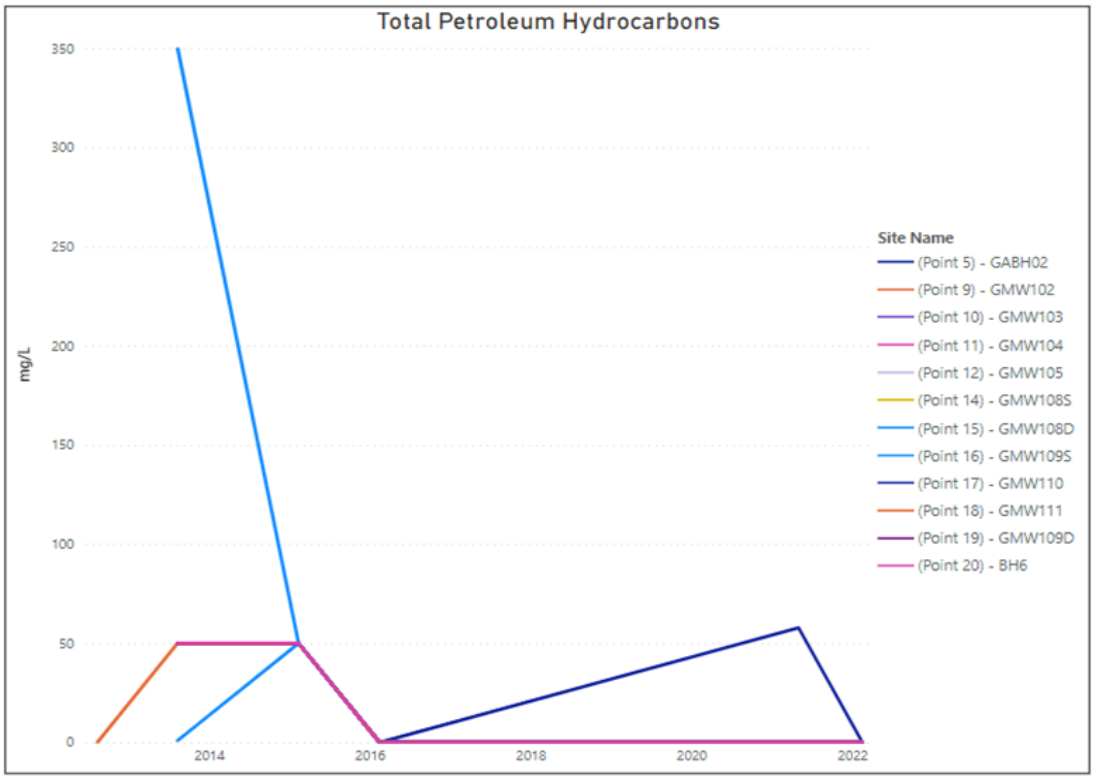

Potassium
30
25
20
15
10
5
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

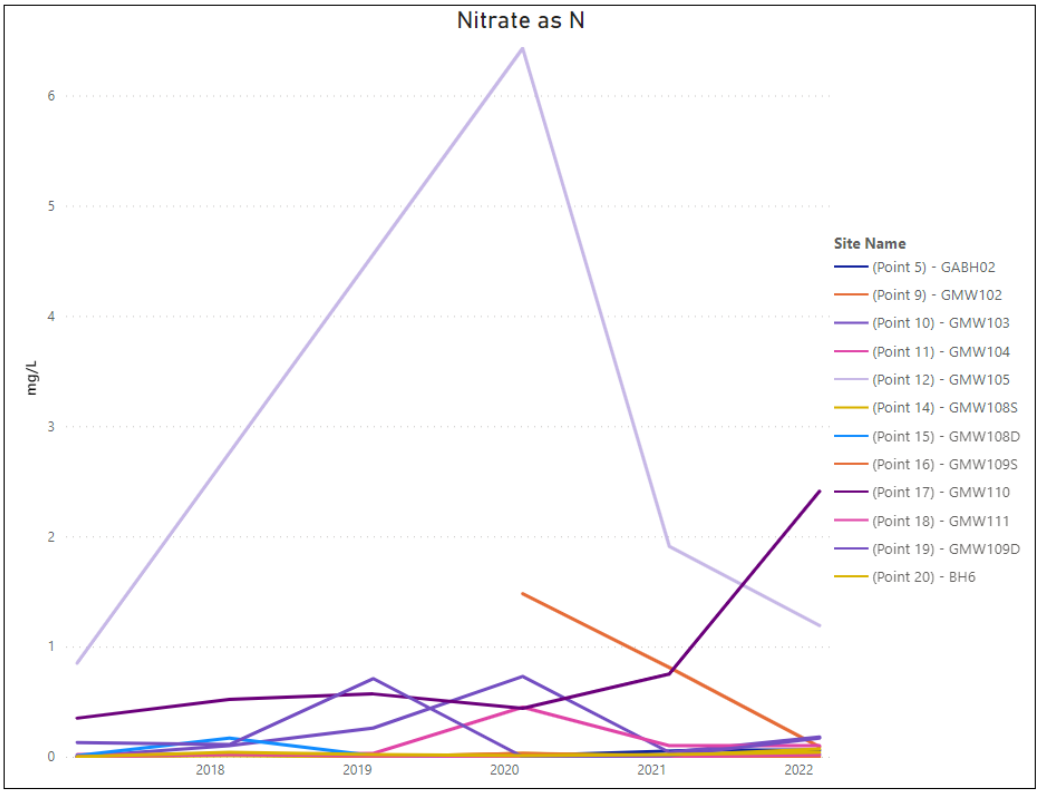

Sulfate
600
500
400
300
200
100
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

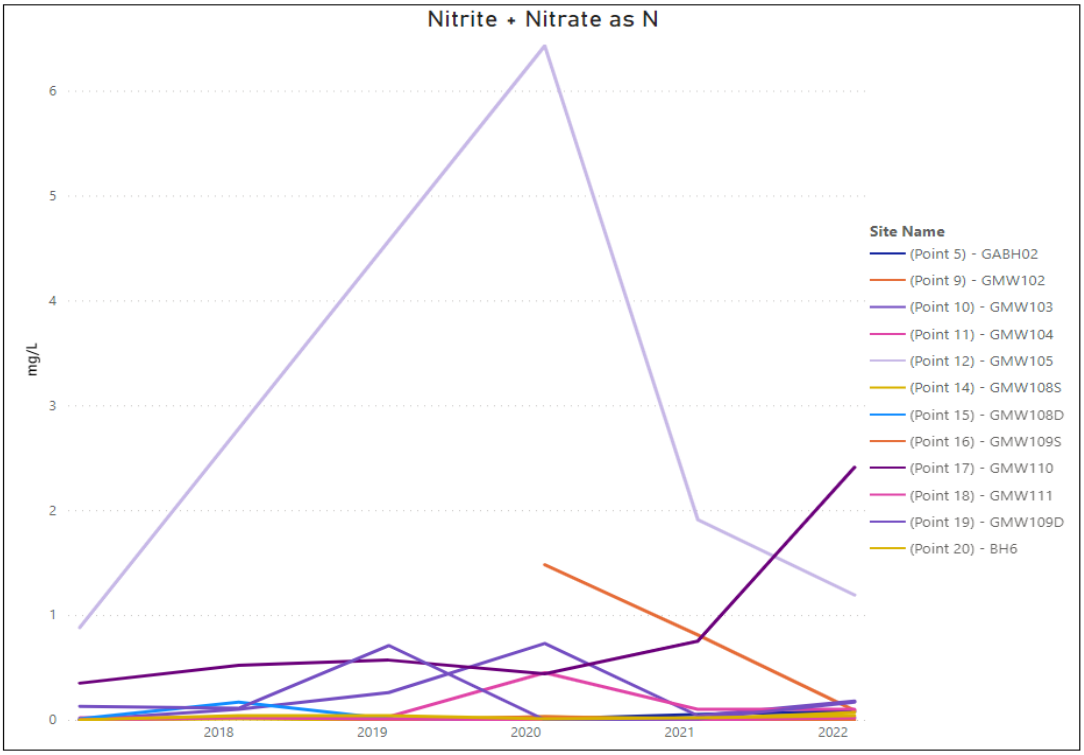

Sodium
800
600
400
200
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

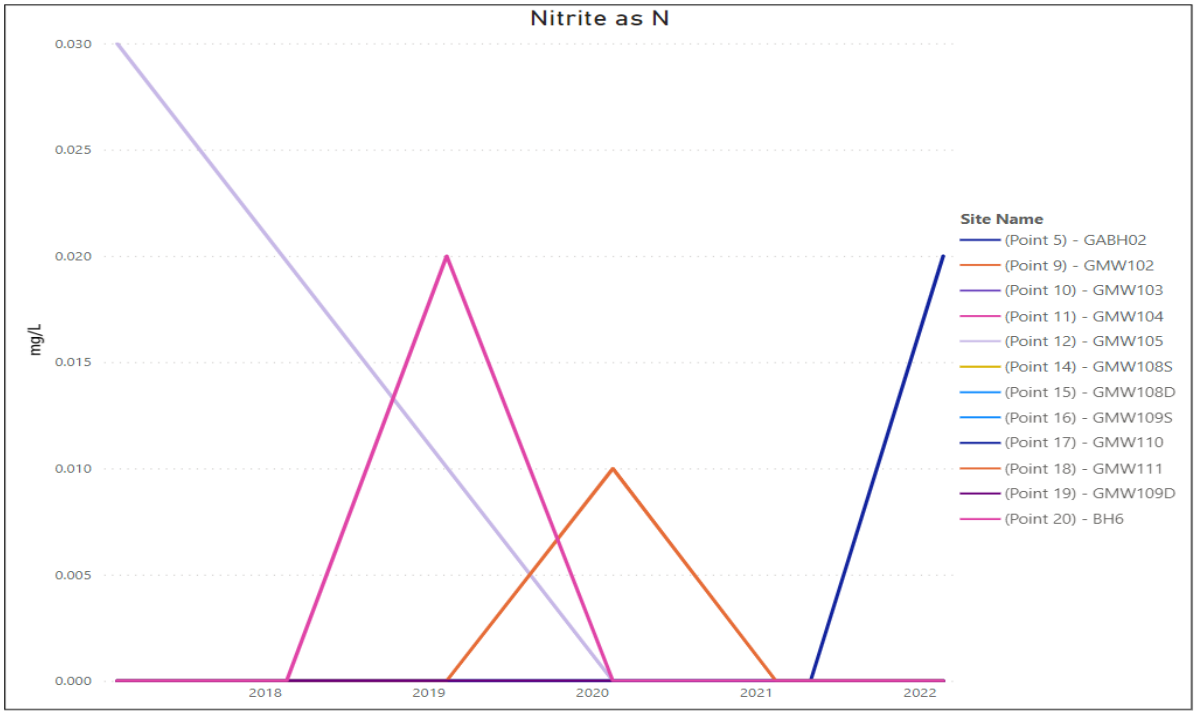

Magnesium
200
150
100
50
0
mg/L
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

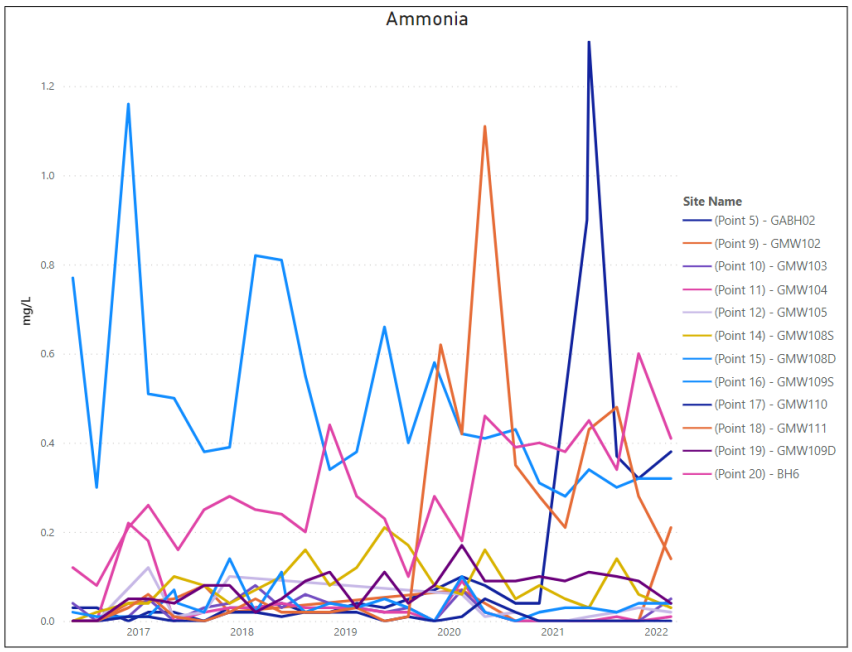

Conductivity
5K
4K
3K
2K
1K
0K
µS/cm
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

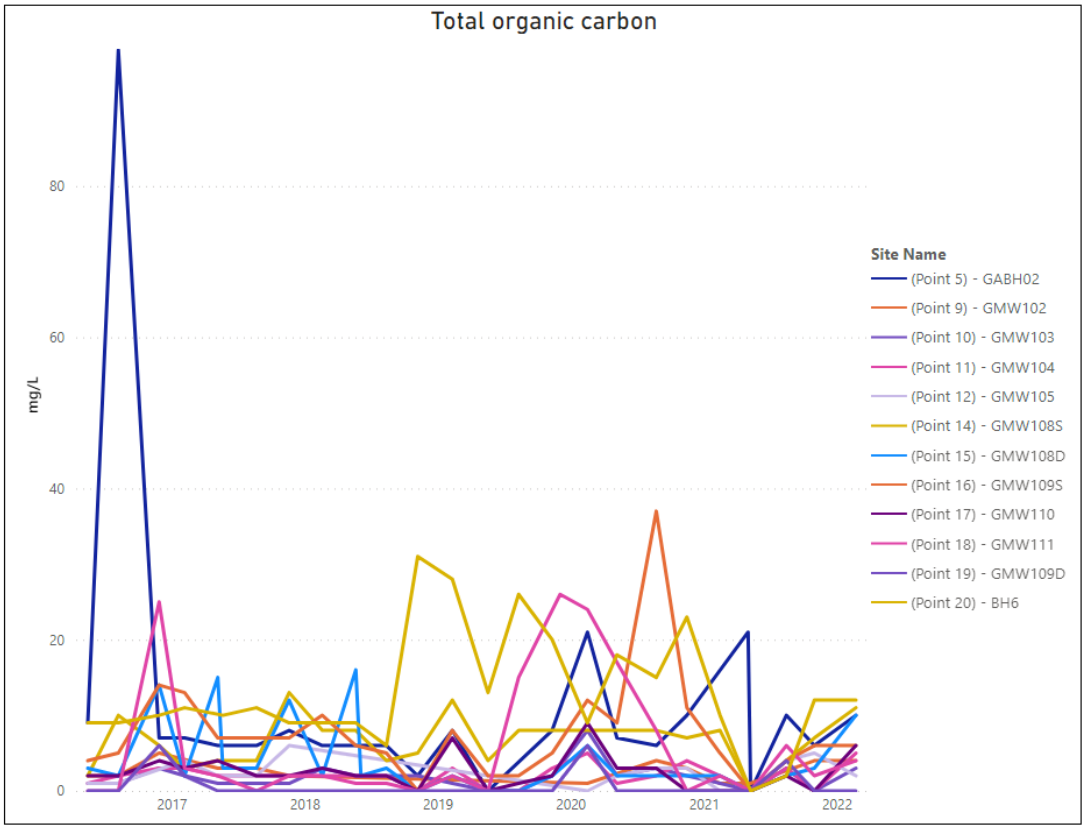

Total Petroleum Hydrocarbons
mg/L
350
300
250
200
150
100
50
0
2014
2016
2018
2020
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

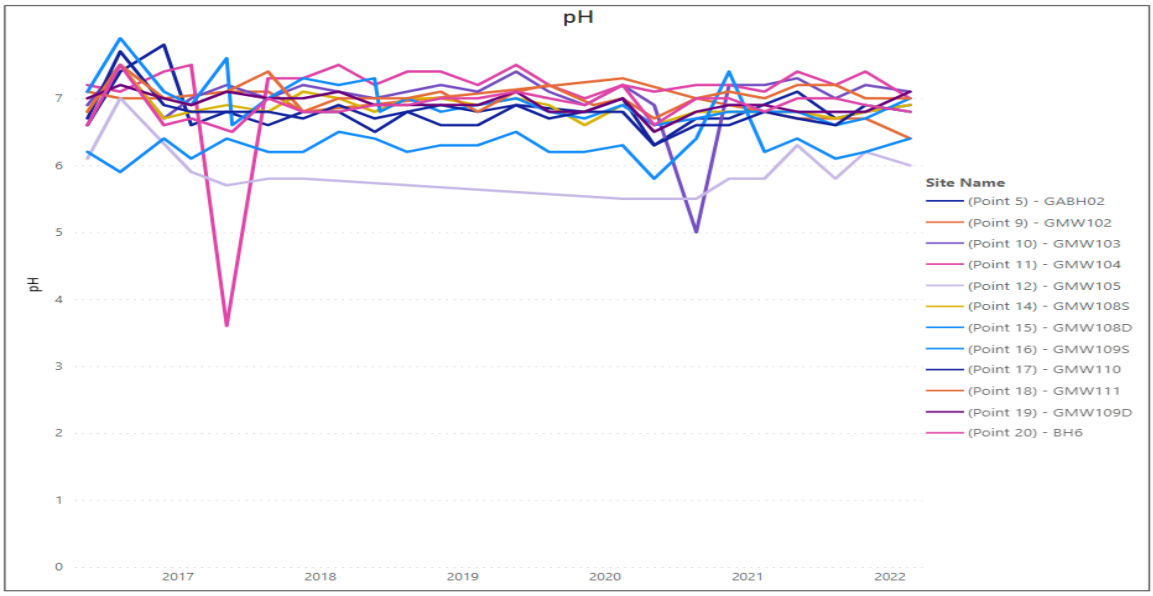

Nitrate as N
mg/L
6
5
4
3
2
1
0
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6


Nitrite + Nitrate as N
mg/L
6
5
4
3
2
1
0
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6


Nitrite as N
mg/L
0.030
0.025
0.020
0.015
0.010
0.005
0.000
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6


Ammonia
mg/L
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6


Total organic carbon
mg/L
80
60
40
20
0
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

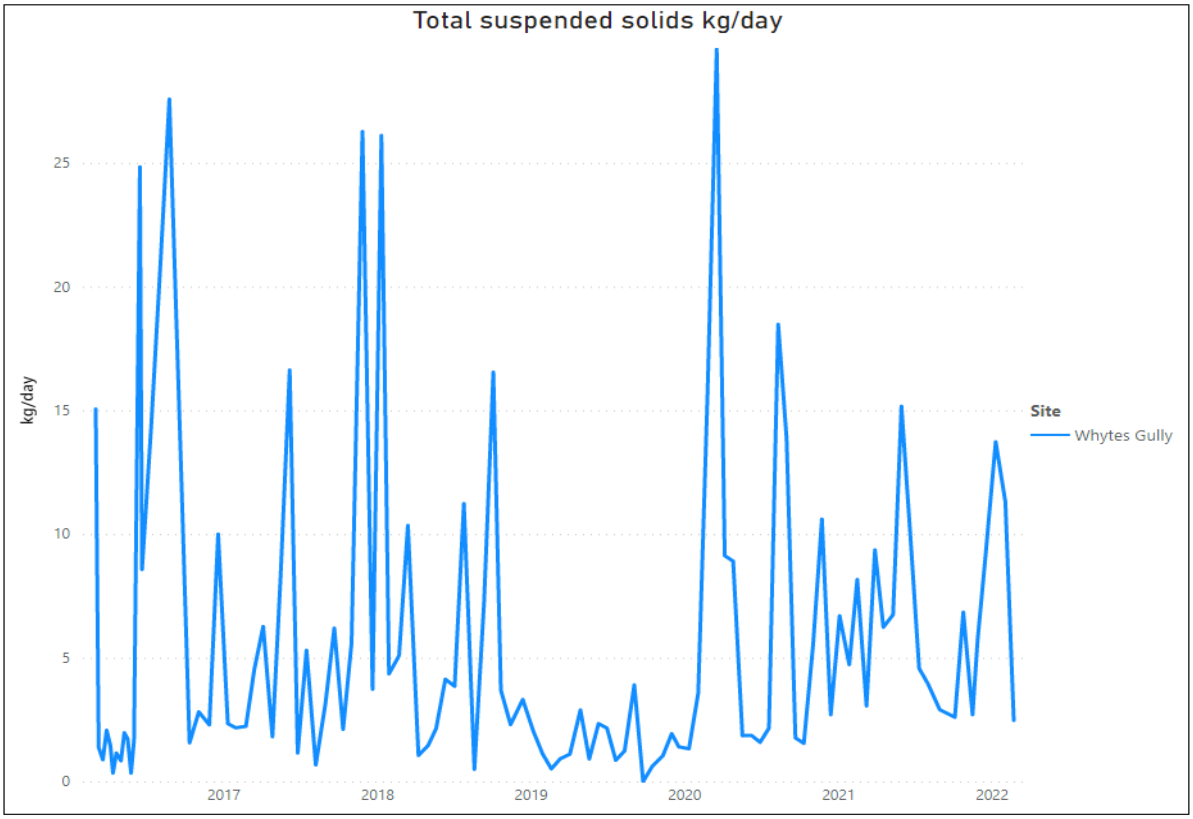

pH
pH
0
1
2
3
4
5
6
7
2017
2018
2019
2020
2021
2022
Site Name
(Point 5) - GABH02
(Point 9) - GMW102
(Point 10) - GMW103
(Point 11) - GMW104
(Point 12) - GMW105
(Point 14) - GMW108S
(Point 15) - GMW108D
(Point 16) - GMW109S
(Point 17) - GMW110
(Point 18) - GMW111
(Point 19) - GMW109D
(Point 20) - BH6

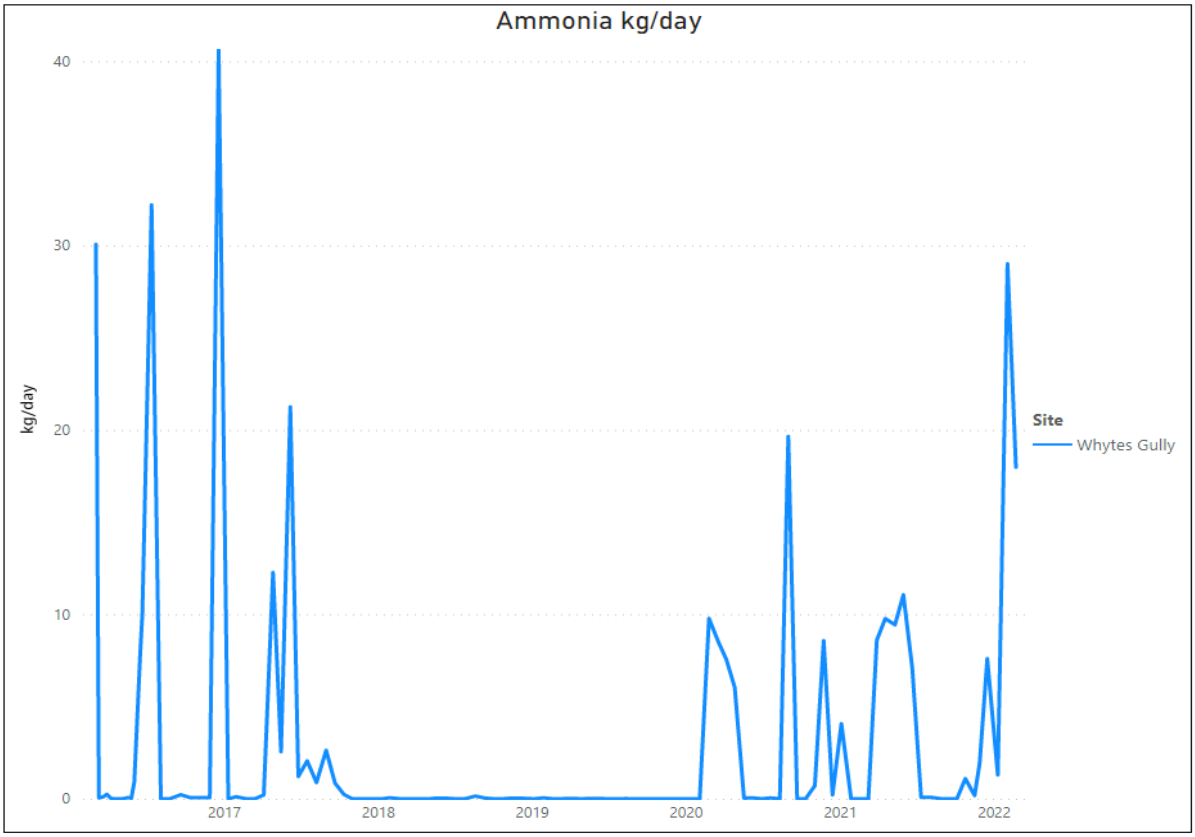
Appendix C: Trade Wastewater:
Tabulated Results and Trends

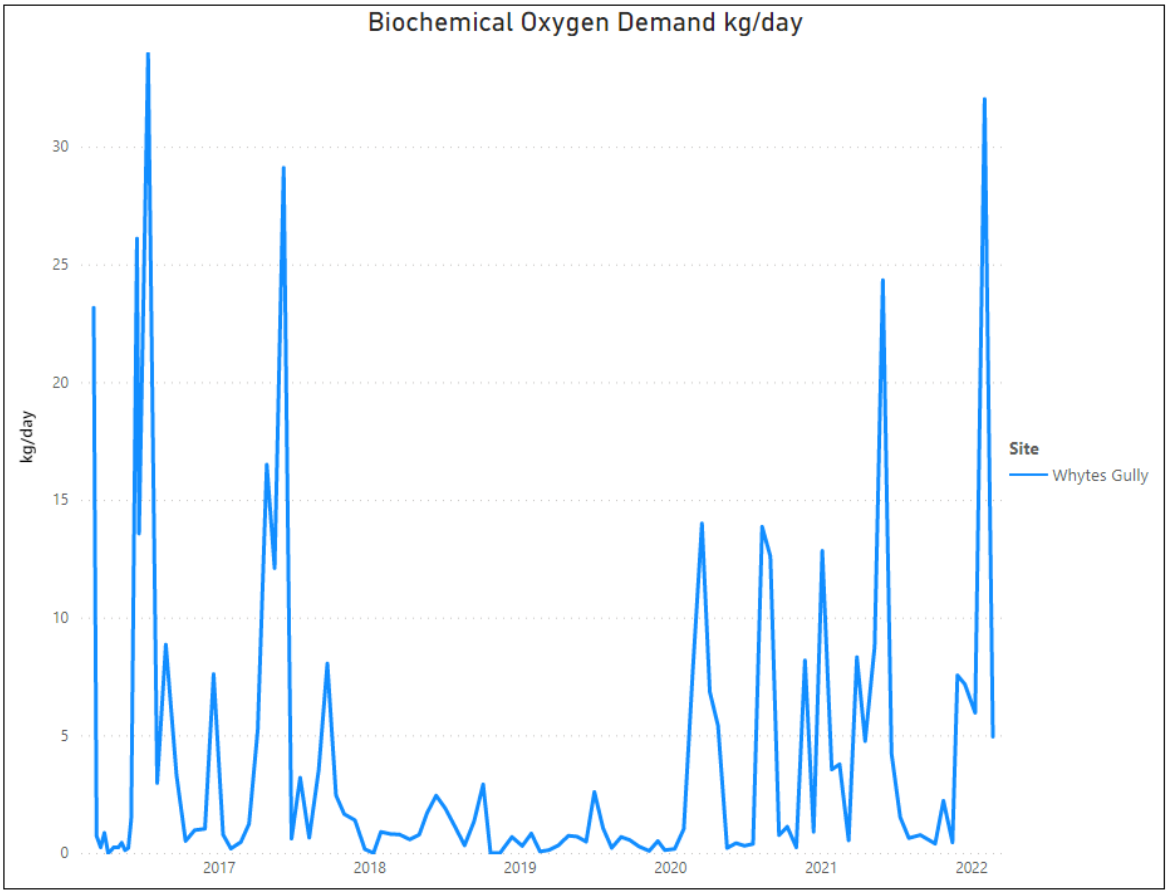
Date Sampled (Date)		09/03/2021	10/03/2021	30/03/2021	19/04/2021	20/04/2021	11/05/2021	12/05/2021	31/05/2021	01/06/2021	21/06/2021	22/06/2021	12/07/2021	13/07/2021	02/08/2021	03/08/2021	30/08/2021	31/08/2021
Compound Name	Units																	
Ammonia	mg/L		0.	33.1	32.9			28.		35.		18.5		0.6		1.1		0.
Biochemical Oxygen Demand	mg/L		7.	32.	16.			26.		77.		11.		12.		8.		10.
Electrical Conductivity @ 25°C	µS/cm		6,340.	3,820.	4,410.			3,250.		5,200.		3,820.		8,620.		10,100.		10,200.
Finish Time	hrs		0.	0.	0.			0.		0.		0.		0.		0.		0.
Temperature	°C		34.	23.		20.		22.		14.		14.		16.		19.		17.
Total Dissolved Solids (Calc.)	mg/L		4,120.	2,480.	2,870.			2,110.		3,380.		2,480.		5,600.		6,560.		6,630.
Total suspended solids	mg/L		40.	36.	21.			20.		48.		26.		36.		50.		38.
Volume Discharged	kL		76.3	260.	297.			337.		316.		384.		127.		79.		76.4
Volume Discharged (corrected)	kL		76.3	260.	297.			337.		316.		384.		127.		79.		76.4
Meter Reading (start)	kL		46,027.76	51,482.71	57,510.9			65,067.51		72,316.5		79,889.73		83,024.2		84,830.21		86,848.65
Meter Reading (finish)	kL		46,104.06	51,742.32	57,807.68			65,404.12		72,632.29		80,274.1		83,150.87		84,909.26		86,925.08
pH (start)	pH	7.5		7.8		7.5	7.7		7.6		8.5		7.3		7.1		7.2	
pH (finish)	pH		7.5	8.3		8.		8.4		8.5		7.6		7.4		7.3		7.2
Ammonia kg/day	kg/day		0.	8.606	9.7713			9.436		11.06		7.104		0.0762		0.0869		0.
Biochemical Oxygen Demand kg/day	kg/day		0.5341	8.32	4.752			8.762		24.332		4.224		1.524		0.632		0.764
Total Dissolved Solids (Calc.) kg/day	kg/day		314.356	644.8	852.39			711.07		1,068.08		952.32		711.2		518.24		506.532
Total suspended solids kg/day	kg/day		3.052	9.36	6.237			6.74		15.168		9.984		4.572		3.95		2.9032

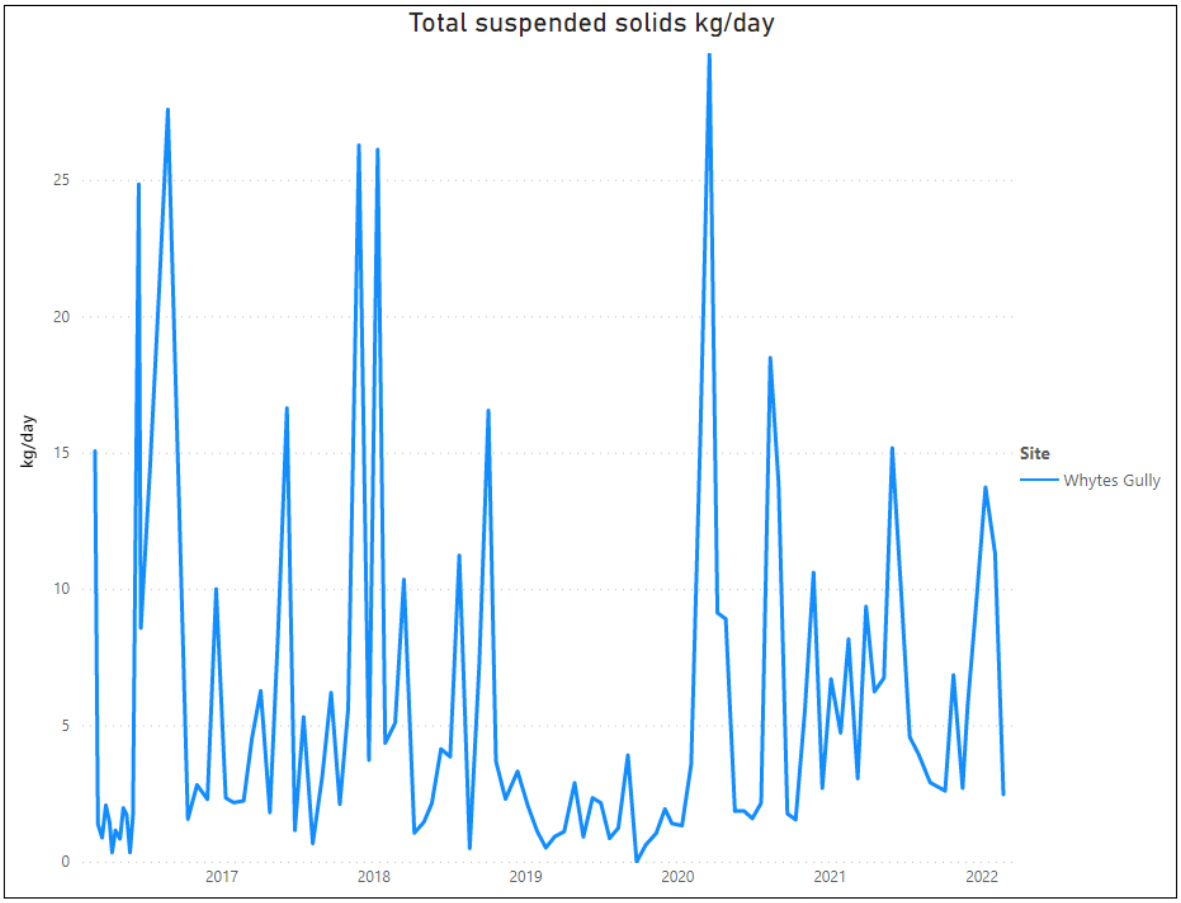
Date Sampled (Date)		05/10/2021	06/10/2021	25/10/2021	26/10/2021	16/11/2021	17/11/2021	29/11/2021	30/11/2021	16/12/2021	17/12/2021	10/01/2022	11/01/2022	02/02/2022	03/02/2022	22/02/2022	23/02/2022
Compound Name	Units																
Ammonia	mg/L		0.		5.9		1.2	9.5			29.7		5.		92.4		72.8
Biochemical Oxygen Demand	mg/L		7.		12.		3.	37.			28.		23.		102.		20.
Electrical Conductivity @ 25°C	µS/cm		10,700.		7,910.		6,470.	5,280.			5,360.		2,110.		5,980.		6,370.
Finish Time	hrs		0.		0.		0.	0.			0.		0.		0.		0.
Temperature	°C		18.		25.		19.		22.		25.		28.		26.		27.
Total Dissolved Solids (Calc.)	mg/L		6,960.		5,140.		4,200.	3,430.			3,480.		1,370.		3,890.		4,140.
Total suspended solids	mg/L		46.		37.		18.	28.			35.		53.		36.		10.
Volume Discharged	kL		56.5		185.		150.	204.			256.		259.		314.		247.
Volume Discharged (corrected)	kL		56.5		185.		150.	204.			256.		259.		314.		247.
Meter Reading (start)	kL		89,349.67		91,603.16		95,407.91	98,912.83			103,582.66		107,484.02		114,004.38		119,437.13
Meter Reading (finish)	kL		89,406.21		91,788.13		95,558.01	99,117.16			103,838.87		107,743.31		114,317.95		119,683.95
pH (start)	pH	7.3		7.4		7.2			7.8	7.6		7.7		8.3		8.2	
pH (finish)	pH		7.3		7.4		7.4		7.7		7.4		7.7		8.3		8.
Ammonia kg/day	kg/day		0.		1.0915		0.18	1.938			7.6032		1.295		29.0136		17.9816
Biochemical Oxygen Demand kg/day	kg/day		0.3955		2.22		0.45	7.548			7.168		5.957		32.028		4.94
Total Dissolved Solids (Calc.) kg/day	kg/day		393.24		950.9		630.	699.72			890.88		354.83		1,221.46		1,022.58
Total suspended solids kg/day	kg/day		2.599		6.845		2.7	5.712			8.96		13.727		11.304		2.47

Trade Wastewater Graphs


Total suspended solids kg/day
kg/day
25
20
15
10
5
0
2017
2018
2019
2020
2021
2022
Site
Whytes Gully


Ammonia kg/day
kg/day
40
30
20
10
0
2017
2018
2019
2020
2021
2022
Site
Whytes Gully


Biochemical Oxygen Demand kg/day
kg/day
30
25
20
15
10
5
0
2017
2018
2019
2020
2021
2022
Site
Whytes Gully


Total suspended solids kg/day
kg/day
25
20
15
10
5
0
2017
2018
2019
2020
2021
2022
Site
Whytes Gully

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		%v/v	%v/v	l/h			Meters	Meters
Monitoring Point ID	Sample ID	Sample Date												
21	LFG MW1	15/03/2021	79.8	1015	0	0	0	0.2	0.2	0	0	0.03	2.9	10.2
		22/04/2021	79.1	1009	0	0	1	0.1	0.1	0	0	0.05	2.71	10.2
		12/05/2021	78.9	1011	0	0	1	0.1	0.2	0.2	0	0.02	2.6	10.2
		7/06/2021	79.2	1018	0	0	0	0	0	0	0	0	2.55	10.2
		16/07/2021	79.2	990	0	0	0	0.1	0.1	0	0	0.05	2.81	10.2
		23/08/2021	79.8	1003	0	0	0	0.1	0.4	1.5	0	0.03	5.18	10.2
		16/09/2021	80	1023	0	0	0	0.2	0.2	0	0	0.07	3.59	10.2
		25/10/2021	78.9	1015	0	0	2	5.1	5.2	0	0	0.03	3.6	10.2
		15/11/2021	79	1006	0	0	1	2.1	2.4	0	0	0.03	3.37	10.2
		13/12/2021	78.8	1014	0	0	0	1.1	1.4	0	0	0.03	2.99	10.2
		24/01/2022	77.9	1007	0	0	0	0.9	0.9	2.8	0	0.05	3.19	10.2
		15/02/2022	79.4	1017	0	0	1	0.2	0.2	0	0	0.05	2.81	10.2
22	LFG MW2	15/03/2021	85.2	1019	0	0	0	4.7	4.7	0	0	0.02	DRY	10.36
		22/04/2021	81.6	1009	0	0	0	1.6	1.6	0.1	0	0.03	10.11	10.36
		12/05/2021	83.7	1011	0	0	0	3.1	3.1	0	0	0.02	8.64	10.36
		7/06/2021	80	1017	0	0	0	0.8	0.8	0.1	0	0.03	9.84	10.36
		16/07/2021	80	990	0	0	0	0.7	0.7	0	0	0.02	DRY	10.36
		23/08/2021	79.6	1003	0	0	0	0.1	3.8	0.1	0	0.05	0	10.36
		16/09/2021	81.1	1021	0	0	0	0.5	0.5	0.1	0	0.05	DRY	10.36
		25/10/2021	83.1	1013	0	0	1	1.5	1.5	0.1	0	0.1	DRY	10.36
		15/11/2021	84.7	1005	0	0	1	2.5	2.7	0.1	0	0.03	DRY	10.36
		13/12/2021	82.8	1012	0	0	0	1.7	1.7	0	0	0.03	10.04	10.36
		24/01/2022	78.9	1007	0	0	0	0.02	0.03	0.2	0	-0.02	9.67	10.36
		15/02/2022	80.7	1017	0	0	0	0.8	0.8	0.1	0	0.05	10.28	10.36
23	LFG MW3	15/03/2021	80	1021	0	0	0	2.4	2.4	0	0	0.09	5.62	10.52
		22/04/2021	79.9	1004	0	0	0	2	2	0	0	-0.09	6.03	10.52
		12/05/2021	84.3	1011	0	0	0	1	1	0.2	0	0	3.86	10.52
		7/06/2021	79.5	1013	0	0	0	3.3	3.3	0.1	0	0.09	5.51	10.52
		16/07/2021	79.8	987	0	0	0	4	4	0	0	0.02	5.41	10.52
		23/08/2021	81.6	1003	0	0	0	3.7	9.8	0	0	0.05	7.52	10.52
		16/09/2021	81.6	1017	0	0	0	3.7	3.7	0	0	0.05	5.75	10.52
		25/10/2021	82.4	1009	0	0	1	1.6	1.6	0	0	0.07	5.44	10.52
		15/11/2021	80.1	1001	0	0	0	0.4	0.4	0	0	0.03	5.24	10.52
		13/12/2021	82.9	1009	0	0	0	3.6	3.7	0	0	0.02	5.72	10.52
		24/01/2022	83.7	1007	0	0	0	4.9	4.9	0.2	0	0.05	6.01	10.52
		15/02/2022	83.5	1017	0	0	1	5.5	5.5	0.1	0	0.02	5.28	10.52
24	LFG MW4	15/03/2021	80.5	1021	0	0	0	0.5	0.5	0.1	0	0.05	DRY	9.27
		22/04/2021	82.1	1003	0	0	0	8.2	8.2	0	0	0.03	DRY	9.27
		12/05/2021	81.3	1011	0	0	0	3.2	3.2	0.2	0	0.03	DRY	9.27
		7/06/2021	82.4	1013	0	0	0	7.9	7.9	0.1	0	0.09	DRY	9.27
		16/07/2021	84	986	0	0	0	11.8	11.8	0.1	0	0.09	DRY	9.27
		23/08/2021	84.5	1003	0	0	0	10.7	10.7	0.1	0	0.02	0	9.27
		16/09/2021	79.9	1016	0	0	0	0.2	0.3	0	0	0.03	DRY	9.27
		25/10/2021	81.8	1004	0	0	1	2.9	2.9	0.1	0	0.05	DRY	9.27
		15/11/2021	80.3	999	0	0	0	0.8	0.8	0	0	0.05	DRY	9.27
		13/12/2021	82.1	1008	0	0	0	3.6	3.6	0	0	0.02	DRY	9.27
		24/01/2022	82.8	1007	0	0	0	6.8	6.8	0.2	0	0	DRY	9.27
		15/02/2022	82.1	1017	0	0	0	4.1	4.1	0	0	-0.05	DRY	9.27
25	LFG MW5	15/03/2021	84.7	1021	0	0	0	8.9	8.9	0.1	0	0.02	9.3	12.03
		22/04/2021	83.4	1003	0	0	0	8.6	8.6	0.1	0	0.07	9.39	12.03
		12/05/2021	83.3	1011	0	0	0	7.3	7.3	0.1	0	0.03	8.04	12.03
		7/06/2021	84.6	1012	0	0	0	10.1	10.1	0.1	0	0.05	8.52	12.03
		16/07/2021	85.4	985	0	0	0	10.4	10.4	0.1	0	0.02	10.03	12.03
		23/08/2021	79.7	1003	0	0	0	0	3.7	0.1	0	0	12.4	12.03
		16/09/2021	79.8	1015	0	0	0	9.5	9.5	0	0	-0.09	11.31	12.03
		25/10/2021	79.1	1007	0	0	1	8.3	8.3	0	0	0.05	11.11	12.03
		15/11/2021	82.1	999	0	0	1	9.7	9.8	0	0	0.02	10.61	12.03
		13/12/2021	84.4	1007	0	0	0	9.3	9.3	0	0	0.02	10.61	12.03
		24/01/2022	79.5	1007	0	0	0	0.8	0.8	0.1	0	0.07	10.37	12.03
		15/02/2022	79.5	1017	0	0	1	0.4	0.4	0	0	0.09	10.4	12.03
26	LFG MW6	15/03/2021	79.8	1021	0	0	0	0.2	0.2	0.1	0	0.05	DRY	10.85
		22/04/2021	79.7	1000	0	0	0	2.6	2.6	0	0	0.03	DRY	10.85
		12/05/2021	79.4	1011	0	0	0	2.6	2.6	0.2	0	0.07	DRY	10.85
		7/06/2021	80	1012	0	0	0	1.4	1.4	0.1	0	0.01	DRY	10.85
		16/07/2021	81.5	986	0	0	0	6.8	6.8	0.1	0	0.02	DRY	10.85
		23/08/2021	81.7	1003	0	0	0	4	4	0.1	0	0.03	0	10.85
		16/09/2021	80.7	1015	0	0	0	0.2	0.2	0.1	0	0.09	DRY	10.85
		25/10/2021	80.8	1007	0	0	1	1.6	1.6	0	0	0.05	DRY	10.85
		15/11/2021	79.5	998	0	0	1	0.1	0.1	0	0	0.03	DRY	10.85
		13/12/2021	80.3	1006	0	0	0	3.4	3.4	0	0	0.03	DRY	10.85
		24/01/2022	80	1007	0	0	1	3.1	3.1	0.1	0	0.05	DRY	10.85
		15/02/2022	79.4	1017	0	0	1	0.1	0.1	0	0	0.05	DRY	10.85
27	LFG MW7	15/03/2021	79.3	1021	0	0	0	0	0	0	0	0.03	7.4	12.33
		22/04/2021	79.2	1004	0	0	0	0.6	1.5	0.2	0	0.03	7.21	12.33
		12/05/2021	80.6	1011	0	0	0	2.4	3.2	0.1	0	0.07	7.06	12.33
		7/06/2021	80.1	1012	0	0	0	0.5	0.6	0.1	0	0.05	7.1	12.33
		16/07/2021	79.7	987	0	0	0	1.1	1.1	0.1	0	0.03	7.25	12.33
		23/08/2021	80.7	1003	0	0	0	1	1.1	0	0	0.05	9.69	12.33
		16/09/2021	80.7	1015	0	0	0	0.7	1.4	0	0	0	7.93	12.33
		25/10/2021	80.3	1000	0	0	1	0.1	0.5	0.1	0	0.05	7.97	12.33
		15/11/2021	80.1	999	0	0	1	0.4	0.5	0	0	0.07	7.9	12.33
		13/12/2021	80.2	1007	0	0	0	0.8	0.8	0	0	0.02	7.65	12.33
		24/01/2022	81	1007	0	0	0	2.5	3.1	0.2	0	0.07	8.38	12.33
		15/02/2022	79.9	1017	0	0	0	0.1	0.1	0	0	0.08	7.25	12.33

28	LFG MW8	15/03/2021	79.4	1021	0	0	0	0.7	0.7	0	0	0.03	7.61	10.37
		22/04/2021	78.1	1004	0	0	0	0.7	0.7	0	0	0.02	7.42	10.37
		12/05/2021	78.8	1011	0	0	0	0.2	0.3	0	0	0.02	6.43	10.37
		7/06/2021	79.3	1013	0	0	0	0.1	0.1	0	0	0.03	7.5	10.37
		16/07/2021	79	987	0	0	0	0.4	0.5	0	0	0	7.55	10.37
		23/08/2021	80	1003	0	0	0	0.1	0.1	0	0	0.03	9.23	10.37
		16/09/2021	79.4	1016	0	0	0	0.5	0.6	0	0	0.05	7.65	10.37
		25/10/2021	79.9	1008	0	0	1	0.3	0.3	0	0	0.01	7.4	10.37
		15/11/2021	79.5	1000	0	0	0	0.1	0.2	0	0	0.07	7.09	10.37
		13/12/2021	79.7	1007	0	0	0	0.1	0.1	0	0	0.03	6.52	10.37
		24/01/2022	78.9	1007	0	0	0	0.1	0.4	0.1	0	0.03	7.16	10.37
		15/02/2022	79.1	1017	0	0	0	0.1	0.1	0	0	-0.03	6.69	10.37
29	LFG MW9	15/03/2021	79	1021	0	0	0	3.8	3.8	0.1	0	0.03	6.04	10.7
		22/04/2021	78.1	1004	0	0	0	1.9	1.9	0	0	0.03	5.83	10.7
		12/05/2021	79.6	1011	0	0	0	0.8	0.8	0	0	0.17	4.03	10.7
		7/06/2021	78.3	1013	0	0	0	2.4	2.4	0.1	0	0.1	6.16	10.7
		16/07/2021	78.8	987	0	0	0	1.1	1.1	0.1	0	-0.02	6.1	10.7
		23/08/2021	79.4	1003	0	0	0	0.8	1.2	0.1	0	-0.05	9.58	10.7
		16/09/2021	79.4	1016	0	0	0	1.1	1.1	0	0	0.07	6.62	10.7
		25/10/2021	80.4	1008	0	0	0	1.6	1.6	0	0	0.1	5.56	10.7
		15/11/2021	79.5	1000	0	0	0	0.1	0.1	0.1	0	0.05	4.15	10.7
		13/12/2021	80	1007	0	0	0	1.3	1.3	0	0	0.02	4.72	10.7
		24/01/2022	81.9	1007	0	0	0	3.2	3.3	0.1	0	0.12	5.17	10.7
		15/02/2022	80.5	1017	0	0	0	2.1	2.1	0.1	0	0	4.64	10.7
30	LFG MW10	15/03/2021	81.3	1021	0	0	0	3.5	3.5	0.1	0	0.05	9.6	12.38
		22/04/2021	80	1004	0	0	0	2.4	2.4	0	0	-0.02	9.83	12.38
		12/05/2021	79	1011	0	0	0	0.5	0.5	0	0	0.12	9.03	12.38
		7/06/2021	79.3	1014	0	0	0	1.1	1.1	0	0	0	9.57	12.38
		16/07/2021	79.5	988	0	0	0	1.4	1.4	0	0	0.02	9.96	12.38
		23/08/2021	79.4	1003	0	0	0	1.1	1.1	0	0	0.05	12.14	12.38
		16/09/2021	79.8	1016	0	0	0	1.4	1.4	0.1	0	0.02	9.28	12.38
		25/10/2021	82.2	1008	0	0	0	2.1	2.1	0	0	0.1	10.12	12.38
		15/11/2021	80.6	1000	0	0	0	3.2	3.2	0	0	0.02	9.92	12.38
		13/12/2021	81	1007	0	0	0	3.1	3.1	0	0	0.03	9.85	12.38
		24/01/2022	81.9	1007	0	0	1	3.3	5.7	0.1	0	0.12	10.61	12.38
		15/02/2022	82	1017	0	0	0	3.9	3.9	0	0	0	9.88	12.38
31	LFG MW11	15/03/2021	80.5	1015	0	0	0	4.2	4.2	0	0	0.03	5.16	9.36
		22/04/2021	79.7	1004	0	0	0	3.4	3.4	0	0	0.05	5.24	9.36
		12/05/2021	80.1	1011	0	0	1	1.1	1.1	0	0	0.05	3.16	9.36
		7/06/2021	78.8	1014	0	0	0	1.8	1.8	0	0	0.05	5.28	9.36
		16/07/2021	79.7	988	0	0	0	2.4	2.4	0	0	0	5.08	9.36
		23/08/2021	80.8	1003	0	0	0	1.5	4.4	0	0	0.07	7.46	9.36
		16/09/2021	81.4	1016	0	0	0	3.3	3.3	0.1	0	-0.03	5.38	9.36
		25/10/2021	83.6	1009	0	0	1	6.1	6.1	0	0	0.03	6.76	9.36
		15/11/2021	84.4	1000	0	0	1	10.5	10.5	0	0	0.02	4.15	9.36
		13/12/2021	81	1008	0	0	0	7.7	7.7	0	0	0.05	4.84	9.36
		24/01/2022	80.5	1007	0	0	0	6	6	0	0	0.02	5.44	9.36
		15/02/2022	79.3	1017	0	0	1	7.8	7.8	0.1	0	-0.02	4.66	9.36
32	LFG MW12	15/03/2021	85.5	1015	0	0	0	11.1	11.1	0	0	0.07	4.82	10.46
		22/04/2021	83.7	1004	0	0	0	7.7	7.7	0	0	0.03	4.94	10.46
		12/05/2021	90.5	1011	0	0	0	5.9	5.9	0	0	0.03	3.78	10.46
		7/06/2021	83.6	1015	0	0	0	7.1	7.1	0	0	0.03	4.98	10.46
		16/07/2021	81.4	988	0	0	0	8	8	0	0	0.03	4.89	10.46
		23/08/2021	82.2	1003	0	0	0	4.6	4.6	0	0	0.02	6.96	10.46
		16/09/2021	84.2	1016	0	0	0	7	7	0	0	0.03	5.1	10.46
		25/10/2021	87.6	1009	0	0	0	7.2	7.2	0	0	-0.03	4.84	10.46
		15/11/2021	86.3	1000	0	0	0	6.4	6.4	0.1	0	0.1	4.48	10.46
		13/12/2021	83.8	1008	0	0	0	6.2	6.2	0.1	0	0.02	4.75	10.46
		24/01/2022	83.4	1007	0	0	0	4.8	4.8	0	0	-0.02	5.61	10.46
		15/02/2022	83	1017	0	0	0	6.6	6.6	0	0	0.03	4.73	10.46

Table 2: Accumulation – Buildings

Location	DateFormatted Sample Number	15/03/2021 ppm	23/04/2021 ppm	17/05/2021 ppm	08/06/2021 ppm	14/07/2021 ppm	30/08/2021 ppm	17/09/2021 ppm	18/10/2021 ppm	16/11/2021 ppm	17/12/2021 ppm	31/01/2022 ppm	22/02/2022 ppm
Crib Room	Operations HUB Crib Room	2.4	2	2	3.9	2.7	0.1	2.9	1.7	1	0.9	3.4	2.3
Glengarry Cottage	Glengarry Front Office	2.8	2	4.2	3.2	3.9	1.1	3.6	0.9	1.4	1	3.1	9.8
	Glengarry Hallway	2.6	2	3.8	3.7	3.9	1.1	3.6	1.1	1.4	0.9	3.8	8.9
	Glengarry Kitchen	2.7	2	4.1	3.2	3	1.1	4.1	1.2	1.6	0.8	4.1	12.3
	Glengarry Managers Office	2.9	2	4.2	3.1	4.5	1.1	4.1	0.9		1	3.5	10.3
	Glengarry Meeting Room	2.6	2	3.8	3.2	3.4	1.1	3.8	1.2	1.5	0.8	7.8	7.7
	Glengarry Operations HUB	2.7	2	3.6	3.2	3.4	0.9	3.9	1.1	1.4	0.9	7.5	9.6
	Glengarry Store	2.6	2	3.8	3.6	2.9	0.9	2.8	1.1	1.6	0.8	4	9.8
	Max reading gardens	2.4	2	2.4	4.4	6	1.1	3.6	0.9	1.5	0.9	2.1	2.2
Ops Office	Ops HUB	2.5	2	2	3.3	2.7	1.1	3.3	2	1.1	1	3.5	3.2
Recycle Centre	Recycle Shop Eastern Area	2.4	2	1.7	3.9	2.6	1.6	2.4	1	0.8	1.4	2.4	2.4
	Recycle Shop Western Area	2.4	2	1.7	4.1	2.8	1.7	2.4	1.1	0.8	0.7	2.4	2.4
SWERF	SWERF	2.4	2	2.1	4.3	2.4	1.1	2.6	0.9	0.9	0.6	2.3	2.3
Weighbridge	Weighbridge	2.4	2	1.7	2.9	2.3	2.4	2.3	1.1	1.1	1.1	2.2	2.4

Table 3: Surface Gas Results

Date		15/03/2021	23/04/2021	17/05/2021	8/06/2021	14/07/2021	30/08/2021	17/09/2021	18/10/2021	16/11/2021	17/12/2021	31/01/2022	22/02/2022
Units		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Location	Sample Number												
Transect 2	1							7.1	1.5	1.4	1.2	2.2	
	2							5.8	2.3	1.3	1.5	2.5	
	3							10.5	8.3	1.4	1.5	2.3	
	4							6.8	6.9	1.2	1.4	2	
Transect 3	1						1.1	6.6	10.4	1.5	2.2	3.9	
	2						5.8	8.5	5.9	1.6	4.2	57.8	
	3						3.1	1.6	7.9	1.3	2.2	2.6	
	4						1.5	7	5.4	1.2	1.8	2.2	
	5						1.5	10.2	16.6	1			
Transect 4	1	2.2	2	11.8	15.6	9.7	2.9	8.4	6.6	1.4	2.1	2.7	
	2	2.3	2	7.2	10.5	13	2.1	8.4	4.2	1.3	1.4	2.4	
	3	2.1	2.1	6.1	12.5	8.9	1.6	1.6	2.4	1.2	1.3	2.2	
	4	2.4	14.2	1.2	12.5	11.7	0.9	1.6	1.9	1.6	0.9	2.3	
	5	2.4	3.8			10.2	1.2						
	6	2.9	5.6			12.8							
	7	6.1	4.5			5.5							
Transect 5	1			1.7		24.9	4.1	7.1	2.1	1.2	2.7		
	2			7		4.1	3.4	6.3	0.9	1.4	2.5		
	3			2.5		3.2	10.8	9.3	1.2	1	2.3		
	4			4.5		6.2	2.1	4.9	12.3	1.3	2		
	5			2.9		6.3			2.2				
	6			3.7		15.2							
Transect 6	1	2.7	5.1	1.7	45.3	12.1	160	4.2	2.5	3.1	1.9	4.4	
	2	2.4	2.6	2	13.6	12.6	1.6	4.1	13.1	1.4	3	3.1	
	3	2.4		4.2	9.8	15.8	6.4	7.1	3.3	1	3.6	3.5	
	4	2.3		8.5	9.7	12.6	6.2	7.8	5.3	1.2	2.2	3.3	
	5	2.4		4.9	18	13.3	4.6	14.6	5.6	1.2	3.3	3.3	
	6	2.4		4.3		13.7	3.4		11.5				
	7	2.5		1.7		16.5			10.2				
	8	6.8											
Transect 7	1	382.3	380	18.4		1005	40.9	13.3	86.9	1.6			
	2	490.7	542.8	807		138.6	20.2	9.4	9.9	1.9			
	3	580.3	145.1	24.1		16.8	7.3	10.3	22.3	2.9			
	4	180.6	4.9	26.5		14.7	13.1	9.1	3.1	6.3			
	5	15.4	52	3.2		15.8	4		17.8	1.6			
	6	40.1	784	7.5		13.7			19.6				
	7	24.3		2.8									
	8	304.7											
Transect 8	1	24.3		39.9	213.6	53.8			16.1				
	2	304.7		52	29.3	38.4			11.2				
	3			11.2	42.9	45.9			17.1				
	4			6.1	430.3	19.6			16.9				
	5			4		72.1			18.3				
	6			5.2		36.3							
	7			7.9									
Transect 9	1		33.1			33.9							
	2		37.8			32.5							
	3		130			168							
	4		70.1			26.2							
	5		22.8			13.1							
	6		6.6			21.2							
Transect 10	1	2.7	10.2	2.3	3.1	2.2	1	3.3	2.9	3.3	1.4	2	9.8
	10	17.2	2.8	5.4	29.6	15.4	2	6.2	15.9	0.4	8.9	2.5	12
	11	6.8	2.6	3.5	6.3	7.1	2.1	2.7	3.4	0.3	1.8	2.3	4.2
	12	2.6	65.7	15.5	13.6	2.6	1.6	2.3	2.5	0.6	1.6	2.2	
	13	2.7	22.9	31.8	4.7	2.6	3.1	2.5	3.4	0.6			
	14	16.2	31.5	3.7			1.6			0.6			
	15	7	17.7	12.4						2.3			
	16	2.7								10.9			
	2	2.4	4.8	2.1	3.4	2.2	0.9	3.6	2.9	0.6	1.3	2	3.4
	3	2.4	4.8	2.3	17.3	2.3	0.8	3.3	2.2	0.6	1.4	2.1	2.8
	4	2.4	3.7	2.3	10.9	12.9	1.7	3.2	1.4	1.2	1.8	2	2.7
	5	2.5	12.3	4.3	29.5	2.9	1.1	6.8	6.5	0.8	1.7	2	2.7
	6	46.2	19.3	7.2	24.7	19.6	5	6.7	3.5	1.3	15.6	33.6	6.1
	7	43.3	3.4	42.6	12.4	6.8	2.2	5	47.7	73.4	3	2.2	11.3
	8	3.9	22	70.4	18.2	14.1	1.9	5.5	1.6	0.6	6.5	2.2	7.2
	9	3.9	44.6	9.9	8.7	11.2	45.2	3.6	2.8	0.2	2.2	3.3	4.3
Transect 11	1	2.6	2.8	3.9	8.9	11.9	2.4	5.8	1.1	1.2	1.7	2.4	9.2
	2	6.1	8.3	3.4	17.2	4.2	2	8.1	5.7	1.9	1.4	2.8	4.6
	3	10.3	25.2	3.7	11.6	14.5	4.5	1.1	45.8	3.3	3.9	2.9	3.4
	4	34.6	56.2	7.2	10.3	11	10.2	8.3	16.8	3.6	5.5	2.3	28.2
	5	10.9	42.7	83.3	12.8	17.3	4.6	4.6	6.8	14.3	5.7	20.6	21.6
	6	2.5	34.5	195.2	40.6	12.4	1.6	19.8	14.2	5.9	2.4	9.2	11
	7	7.2	23.8	35.2	50.3	16.3	2.9	6.1	8.8	4.7	1.4	5.8	
	8	6	26.8	10.3	22.6	25.8		7.1	20.6	3.9	74.3	2.6	
Transect 12	1	61.9		57.2	20.3	20.8	14.2	4.2	10.3	12	12.3	5.2	43.4
	2	130.5		43.1	16.3	21.8	23.7	7.1	11.5	18.8	12.5	7.3	33.1
	3	36.6		355	28.9	213	110.1	6.8	15.1	7.9	17.8	5.4	10.6
	4	58.8		20.9	16.4	37.6	12.6	5.6	24.2	2.5	5.5	14.5	23.1
	5	18.8		45.9	16.2	12.4	7.6	6.6	12.5	6.3	10.3	6.6	16.6
	6			17.4	23.4	5		8.9	31.8	23.3		9.7	27.8
	7			13.87	25.2	49.1		8.4	92.7	33.4			
	8					23.6		9.4	1.7				
Transect A	1	5.2	2.1	3.1	3.1	2.2	8.6	1.6	1.3	5.8	17.1	2.5	2.3
	2	5.7	2.1	2.7	3.3	2.2	4.3	1.8	7.2	4.6	2.8	2.9	2.3
	3	6.4	2.1	2.7	3.1	2.2	3.8	1.9	1.3	4.6	2.3	3.2	2.3
	4	4.5	2.1	2.85	3.2	2.2	5.3	2.1	1.3	2.5	0.8	2.8	2.3
	5			3	3.1			2.5	1.2				
	6			3.4									
Transect B	1	3.1											
	2	4.2											
Transect C	1	3.1	2.1	3.7	3	2.1	3.9	2.4	1.3	1.9	1.5	2.8	2.3
	2	3.2	2.1	4.8	3	2.1	3.7	2.8	1.3	4.6	1	2.3	2.3
	3	9.3	2.1	5.5	2.8	2.1	4.8	3.6	1.1	4	0.8	4.8	2.2
	4	8.3	2	5.5	3.7	2.1	2	3	1.1	4.2	0.8	3.3	2.5
	5	7	2.1	7.4	3	2.2	17.1	3.2	1.1	14.3	2.5	12.6	2.2
	6	15.1	2.1	7.1	3	2.4	4.5	3.4	5.2	6.3	6.5	12.2	2.2
	7	7.2	5.1	14.9	3.7	2.2	19.1	2.4	31.3	6.8	1	11.1	2.2
	8	20	2.7	22.9	3.2	2.2	5.7	2.2	15.6	1.2	0.9	7.4	2.2
	9					2.6							
Transect D	1	2.5	2.2	3	2.9	2.5	1.4	1.8	3.3	3.5	1.3	10.5	2.1
	2	3.8	2.1	2.8	3.3	2.6	1.3	2	5.1	2.5	1.2	5.3	2.1
	3	2.9	2.3	2.5	3.3	2.5	1.5	2.5	11.8	4	0.8	7.6	2.1
	4	2.5	2.1	2	3.2	2.7	1.7	4.2	5.9	2.1	1	3.5	2.2
	5	2.6		2.2	5.1	2.3	1.5	3	9.1	2.6	0.8	4.9	2.2
	6								2.3	2.3			

Transect E	1	5.5	2.3	3.5	2.3	2.3	1.4	2.6	4	3.7	1	5.1	2.1
	2	5.7	2.8	3.8	2.4	2.2	1.2	2.3	6.1	2.1	1.2	7.4	2.1
	3	4.1	2.9	3.4	2.5	2.2	2.3	1.8	3.9	2.8	1.2	5.4	2.1
	4	3.3	4.1	3.3	2.5	2.3	1.7	1.7	8.5	2.4	1.1	6.9	2.2
	5	5.7	4.1	3.4	2.6	2.4	1.9	1.5	9.1	2.6	1	8.4	2.2
	6		2.6	4.1	2.7	2.3	1.3	1.5	7.6	6.2	1	6.6	
	7		2.1	4				2.1	7.3				
Transect F	1	3.1	2	1.9	3.1	2.4	1	2.4	1.6	10.4	0.8	4.2	2
	2	3	2	3.6	3	2.4	1	2	1.5	2.4	1.1	2.4	2
	3	3.9	2.1	3.2	2.4	2.4	1.2	2.1	1.3	3	1.1	2.4	2
	4	6	2.1	3.5	2.2	2.6	1	2.1	1.4	1.7	1.4	2.6	2
	5	3.1	2.1	7	2.1	4.7	1.1	2.3	7.2	1.3	1.5	2.5	2
	6	2.5	2.1	7.9	2.1	2.6	1.2	2.2	1.9	2.8	1.3	2.3	2.1
	7		2.1	10.1	2.6	2.3	1.2	2.1	3.3	2.2	1.5	2.3	2.1
	8		2.2	9.5		2.2	1.1	2.3	3.3	2		2.4	2.1
Transect G	1	5.1	2.1	2.6	44.3	3.2	0.6	2.4	1.2	2.5	1	3	2
	2	6.2	2.1	2.7	2.5	3	0.7	3.7	1.2	3.1	0.9	4.9	2
	3	3.8		2.1	2.7	2.3	0.7	1.6	3.7	2.2	1.1	2.6	2
	4	7.6		1.9	1.9	2.3	0.7	1.7	7.8	5.3	1.3	3.6	2
	5				1.7	2.3	1.3	1.8	1.6	2.2	1.2	3.8	2
	6				2.2	2.8	0.7	2.6	1.4	2.4	1.2	3.6	2
	7				1.9	3.6	0.7		1.6	2.1			
	8				2					4.4			
Transect H	1	2.7	12.6	5.9	3.6	3	0.6	2.5	3.9	4	0.8	2.4	2.4
	2	2.8	2.7	2.3	3.3	2.6	0.7	2.5	2	4.5	0.9	5.9	5.9
	3	2.6	678	2.1	3.6	2.3	0.4	2.8	2.2	5.3	0.9	5.1	5.1
	4	2.6	2.2	2.2	3.3	2.5	0.3	2.3	1.5	2.4	2.5	4.3	4.3
	5	2.9	2.2	1.7	3.2	2.4	0.6	2.6	1.8	3.8	1.2	2.9	2.9
	6	2.9	2	2	3.4	13.3	0.3	2.4	1.6	3.5	1	4	4
	7			2.1				2.6		1.7		3.2	
	8			2.1									
Transect I	1	6.5	2	2.8	98.8	6.8	1.8	3.2	8.4	2	1.6	5.2	2.3
	2	3	2	2.7	2.6	2.3	1.4	2.5	1.9	3.6	0.8	2.3	2.2
	3	3.5	2	2.6	2.1	2.2	1.5	2.2	1.9	4.6	0.5	2.4	2.2
	4	5.5	2	2.7	2.6	2.2	1.3	2.1	2.7	2	0.5	2.8	2.2
	5	4.3	2	2.6	2.5	2.2	1.3	2.2	1.7	2.6	0.9	2.3	2.2
	6	3.9	3.3	2.6	2.3	3.7	1.3	2	2.6	3.4	0.7	2.6	2.2
	7			2.3								2.2	
Transect J	1	3.6	2.1	1.6	6.3	16.4	1.8	2.3	1.2	4.1	0.9	2.3	2.3
	2	3.7	2.1	1.2	3.5	2.3	1.9	1.6	1.3	3.9	0.9	2.5	2.3
	3	2.8	2.1	1	2.8	2.2	1.7	1.5	1.4	4.5	1.6	2.7	2.2
	4	2.8	2.1	1	2.4	3.1	1.7	1.4	1.4	1.8	0.9	2.7	2.2
	5	2.7	2.2	1.2	2.4	2.1	1.7	1.4	1.4	1.6	0.8	2.8	2.2
	6	3.4	2.2				1.7	1.3	1.5	1.4	1		
Transect K	1	2.7	2.2	1.8	4.3	5.3	2.2	2.5	1.2	4.1	1.6	2.6	2.6
	2	2.7	2.2	2.9	2.9	2.5	1.9	1.6	1.4	3.9	1.2	2.6	2.6
	3	2.8	2.2	3	2.1	30.3	3.2	5.1	1.2	4.5	69.9	10.8	10.8
	4	2.7	3.7	3	7	2.5	1.6	1.9	0.8	1.8	1.3	2.3	2.3
	5	5	2.9	3	2	228	2	2.4	0.8	1.6	1	2.5	2.5
	6	2.6	2.1	3.1	88.8	2.4	2.3	2	1.2	1.4	0.9		2.3
Transect L	1	3	2.1	3.3	2.2	3.3	1.9	1.9	0.8	1.2	0.9	2.4	2.2
	2	3.5	2.1	3.2	3.3	37.9	5.1	19.8	9.8	1.2	160	2.4	2.1
	3	2.6	2.2	7.4	16.6	2.2	92	2.2	9.9	2.1	3.3	2.2	2.1
	4	2.6	2.5	6.1	436	6.9	68.2	2.5	6	1.3	3.4	2.2	2.1
	5	3.8	8.3	3.8	105.3	25.5	18.2	8.3	96.3	1.5	3.7	2.7	2.1
	6			1160	104.1	45.2			1.2	1.5			2.1
	7			450									
	8			4400									
Transect M	1	3.2	2.2	7.8	7.8	2.7	8.4	2.1	3	1.4	3.9	5.1	2
	2	5.7	4.2	4.2	46.5	2.1	4.1	1.9	73.2	1.4	8.8	7.6	2
	3	6.1	11.8	5.7	2.6	2.2	35.9	2.1	1.2	2.9	1.3	12.3	2.1
	4	3.8	2.9	3.4	2.5	2.8	0.9	1.9	1.6	1.4	50.7	2.6	2.5
	5	4.3	2.4	3.6	2.1	2.1	0.7	2.1	9.4	1.4	3.2		
	6			3.1	2.1	2.2			1.4	1.4	1.8		
	7			3.5									
Transect N	1	50.2	3.1	2.9	1.9	2.1	1.2	4	1.6	2	1.9	2.9	2.1
	2	5.3	2.2	3	1.9	2.1	0.8	2.2	4.6	1.8	1.4	2.5	2.1
	3	6.4	2.1	3.2	1.9	2.2	3.5	2	2	1.6	1.3	7.8	2
	4	4.2	2.7	2.9	1.9	2.1	5.7	2.2	2.2	2	4.5	4.3	2
	5		2.2	3	18	2.6	2.1	2	2.5	2.3	8.8		
	6					94.3		1.9	2.6		1.8		
181 Reddalls Rd, fenceline adjoining landfill	1	2.9	2.1	3.1	2.2	2.3	1.4	2.2	1.4	1.3	1		
	3	2.8	2.1	3.1	2.2	2.2	1.6	2	1.6	1.2	1		
	5	2.8	2.1	4.5	2.4	2.3	1.6	2.2	1.7	1.2	0.9		
	7	2.7	2.1	3.1	2.5	2.3	1.8	1.8	1.4	1.1	0.5		
	8	2.8	2.1	2.9	2.5	2.3	1.8	2.1	1.4	1.2	0.6	2.1	
181 Reddalls Rd, Immediate gardens max value	1		2.1	2.8	2.4	2.3	1.9	2	1.5	1.1	0.7	2.1	
	2	2.9	2.1	3.2	2.2	2.2	1.4	2.1	1.5	1.2	1.1		
	4	2.8	2.1	3.1	2.3	2.3	1.5	2	1.6	1.1	1		
	6	2.7	2.1	3.1	2.4	2.3	1.7	2.1	1.5	1	0.6		
Methane Blank (Post testing)	1	2.4	2.4	1.7	2.9	2.2	2.2	2.1	1.1	1	1.1	1.8	2.1
Methane Blank (Pre testing)	1	2.4	2.4	1.3	2.8	2.3	2.3	2.1	1	0.8	1.1	1.9	2.3

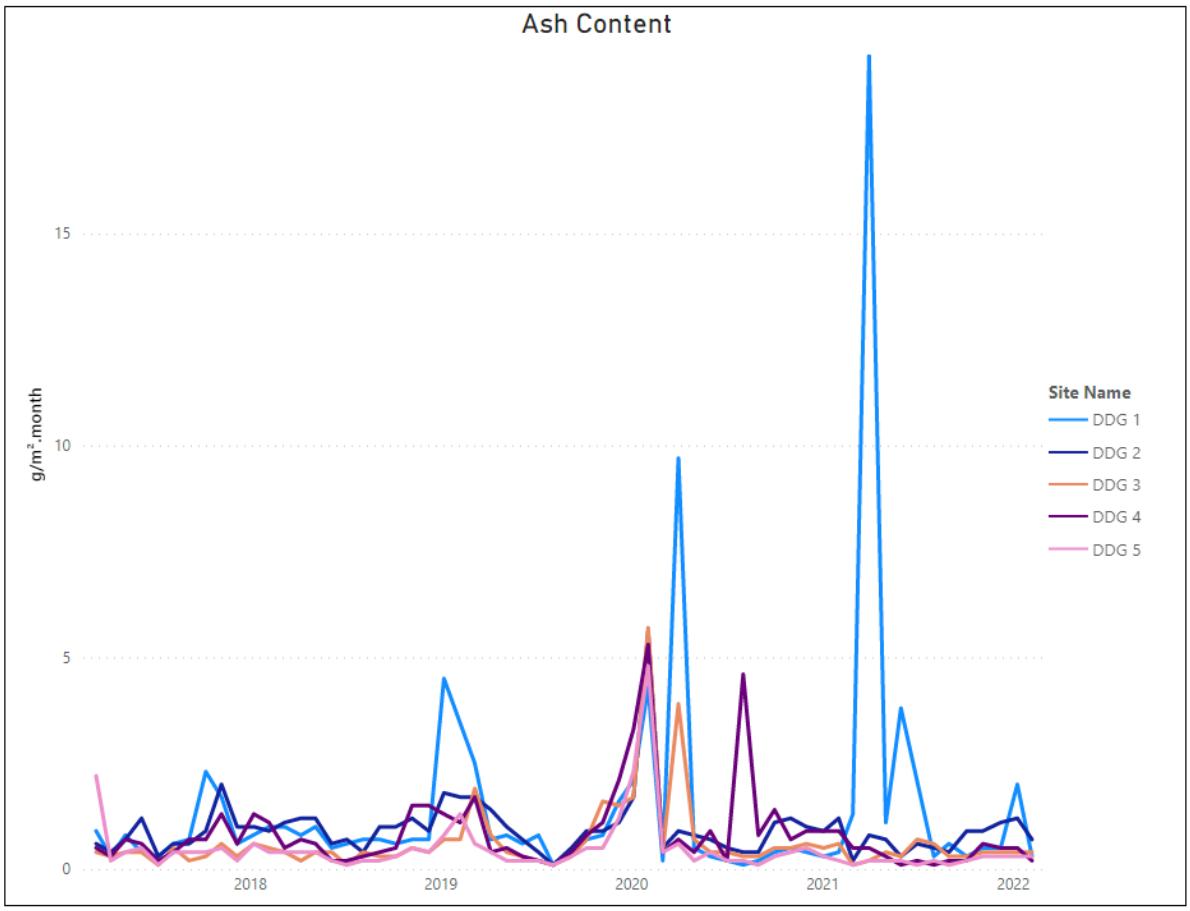
Appendix E: Dust : Tabulated Data and Trends

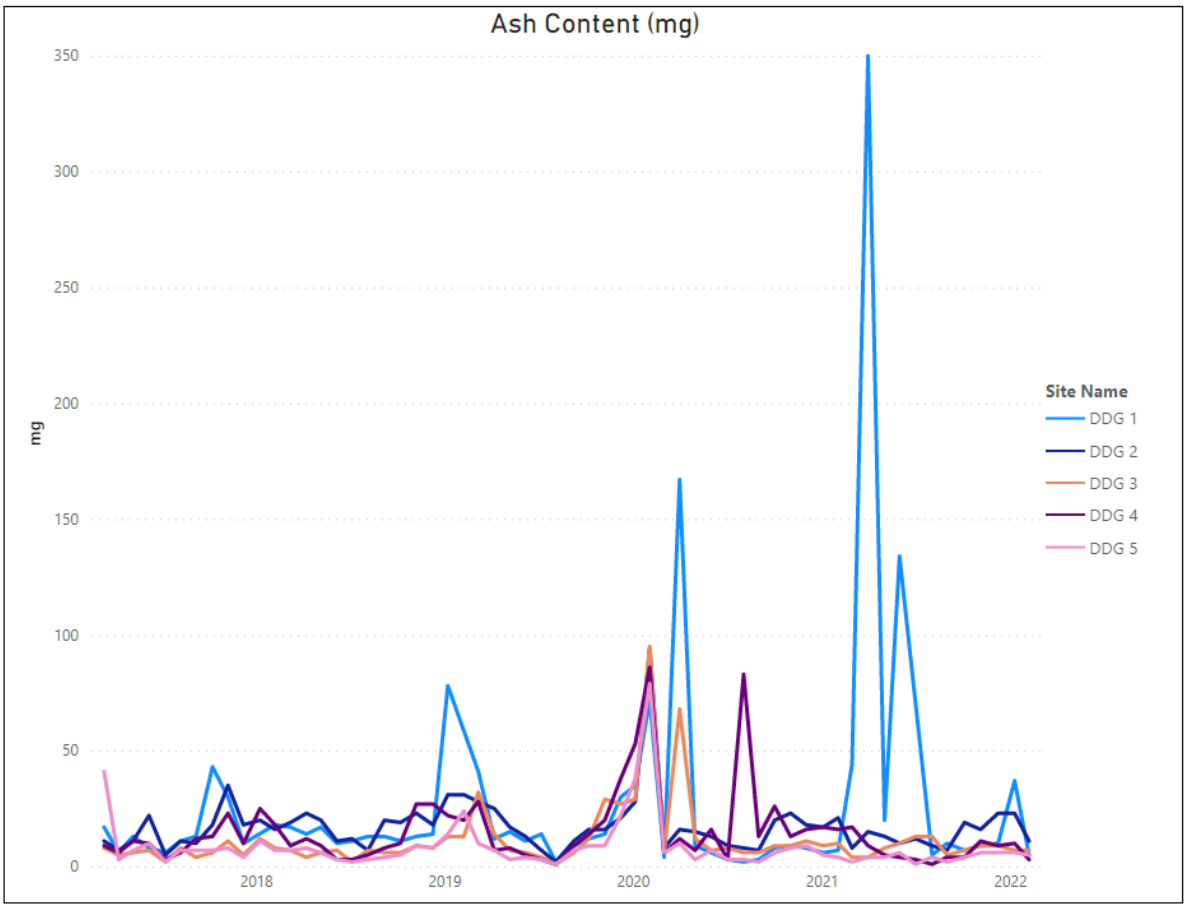
Table 1 Respirable Dust

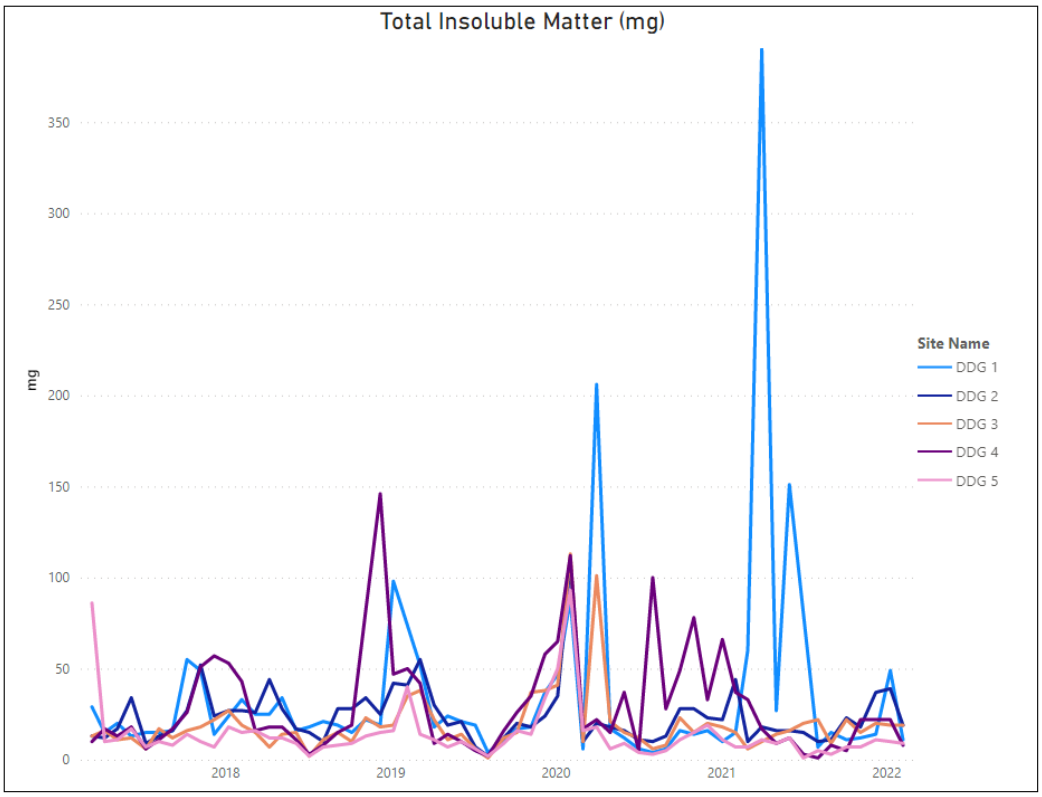
		PM10	PM10 (mass per filter)	Total Suspended Particulates	Total Suspended Particulates (mass per filter)
Units		µg/m³	mg/filter	µg/m³	mg/filter
Site Name	Sample Date				
Glengarry Cottage PM10	08/03/2021	34.3	50.0		
	20/04/2021	40.3	60.0		
	10/05/2021	19.5	29.0		
	07/06/2021	19.9	30.3		
	12/07/2021	14.6	22.4		
	23/08/2021	10.7	16.1		
	15/09/2021	3.9	6.0		
	25/10/2021	16.3	24.7		
	15/11/2021	7.8	11.8		
	01/12/2021	20.9	31.1		
	10/01/2022	25.7	37.8		
	02/02/2022	12.4	18.4		
Glengarry Cottage TSP	08/03/2021			64.7	95.4
	20/04/2021			88.0	132
	10/05/2021			45.1	68.0
	07/06/2021			48.0	73.5
	12/07/2021			36.2	56.1
	23/08/2021			24.0	36.2
	15/09/2021			10.9	16.9
	25/10/2021			37.7	57.6
	15/11/2021			17.0	25.7
	01/12/2021			45.0	67.4
	10/01/2022			52.9	78.7
	02/02/2022			35.4	53.1
Landfill PM10	09/03/2021	16.2	24.0		
	21/04/2021	13.1	19.7		
	11/05/2021	6.1	9.2		
	08/06/2021	3.2	4.8		
	13/07/2021	5.7	8.6		
	25/08/2021	0.8	1.3		
	16/09/2021	3.8	5.8		
	26/10/2021	11.8	17.7		
	16/11/2021	7.9	11.9		
	02/12/2021	13.3	19.5		
	11/01/2022	14.7	21.7		
	03/02/2022	13.0	19.2		
Landfill TSP	09/03/2021			33.5	49.9
	21/04/2021			24.7	37.5
	11/05/2021			9.9	15.1
	08/06/2021			6.7	10.2
	13/07/2021			8.9	13.5
	25/08/2021			3.8	5.8
	16/09/2021			10.3	15.8
	26/10/2021			27.7	41.9
	16/11/2021			18.4	28.0
	02/12/2021			24.7	36.6
	11/01/2022			21.1	31.5
	03/02/2022			21.7	32.4

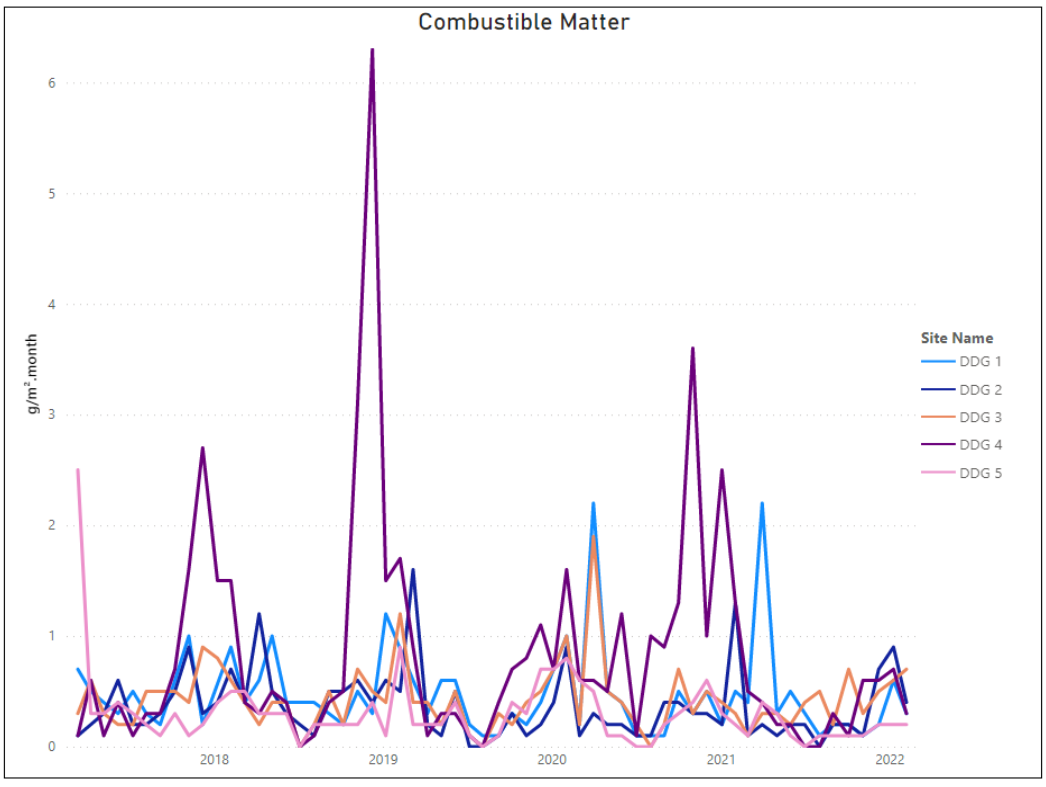
Table 2 Total Insoluble Matter

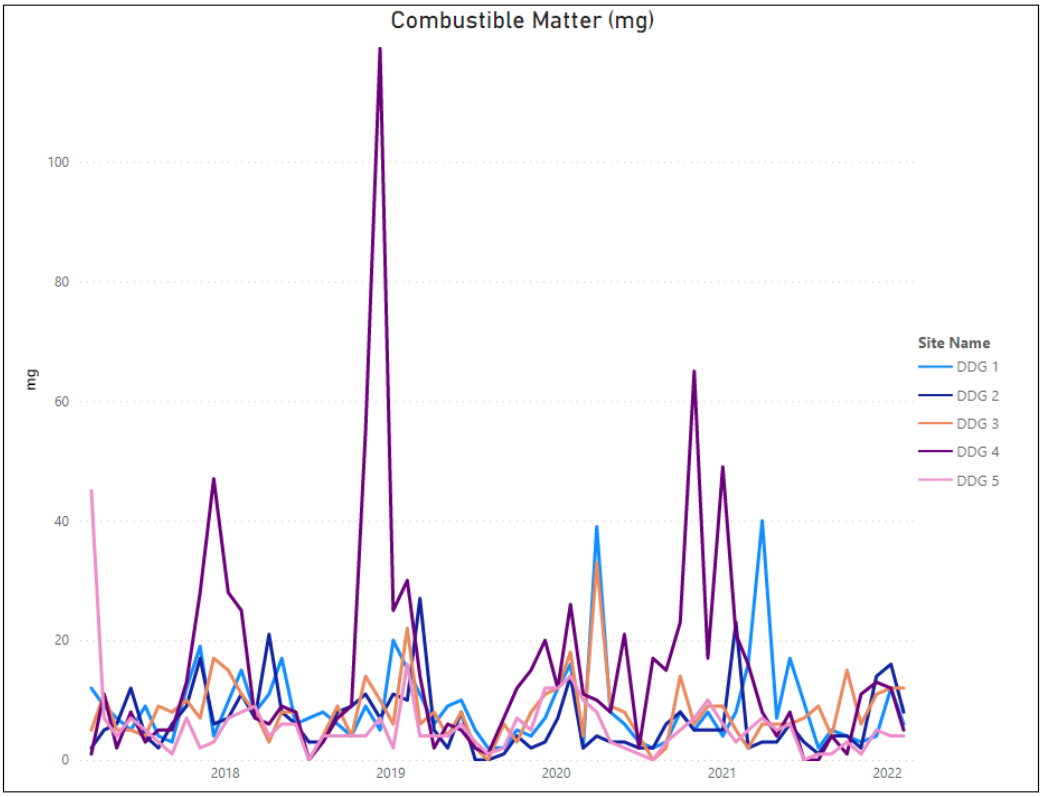
Sample Date	Chemical Name	Units	DDG 1	DDG 2	DDG 3	DDG 4	DDG 5
01/04/2021	Total Insoluble Matter	g/m².month	21.4	1.0	0.5	0.9	0.6
03/05/2021	Total Insoluble Matter	g/m².month	1.4	0.8	0.7	0.5	0.5
01/06/2021	Total Insoluble Matter	g/m².month	4.3	0.5	0.5	0.3	0.3
02/07/2021	Total Insoluble Matter	g/m².month		0.8	1.1	0.2	0.1
03/08/2021	Total Insoluble Matter	g/m².month	0.4	0.5	1.1	0.1	0.3
01/09/2021	Total Insoluble Matter	g/m².month	0.8	0.6	0.5	0.5	0.2
05/10/2021	Total Insoluble Matter	g/m².month	0.5	1.1	1.0	0.3	0.3
05/11/2021	Total Insoluble Matter	g/m².month	0.6	1.0	0.7	1.2	0.4
09/12/2021	Total Insoluble Matter	g/m².month	0.7	1.8	0.9	1.1	0.5
10/01/2022	Total Insoluble Matter	g/m².month	2.6	2.1	1.0	1.2	0.5
07/02/2022	Total Insoluble Matter	g/m².month	0.6	1.1	1.1	0.5	0.5

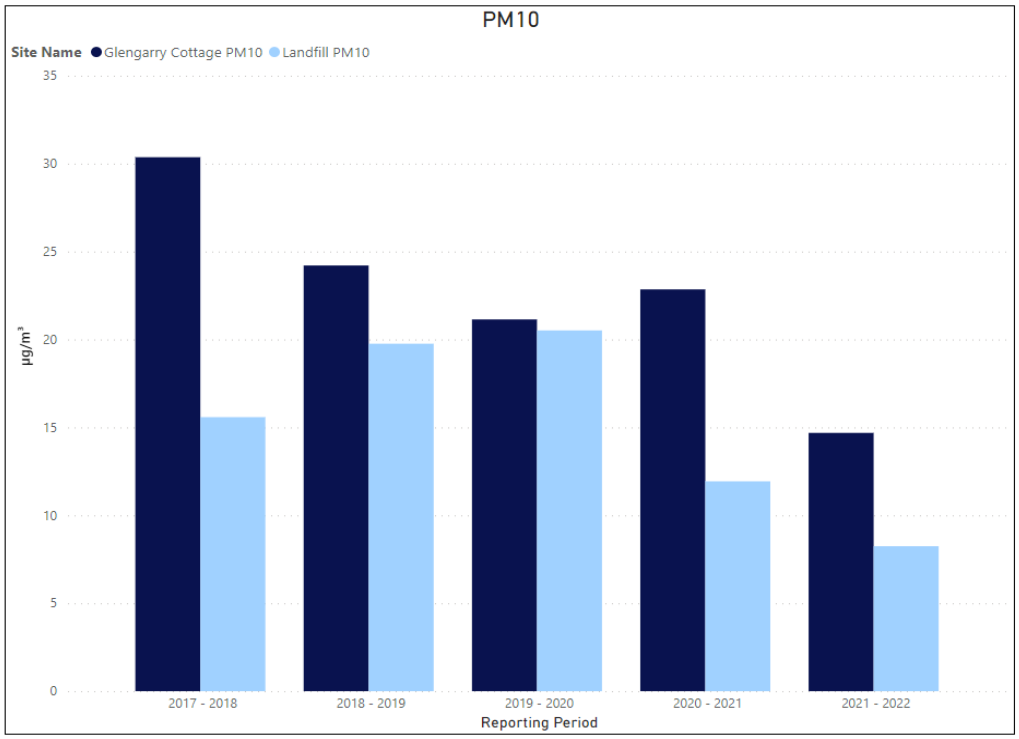


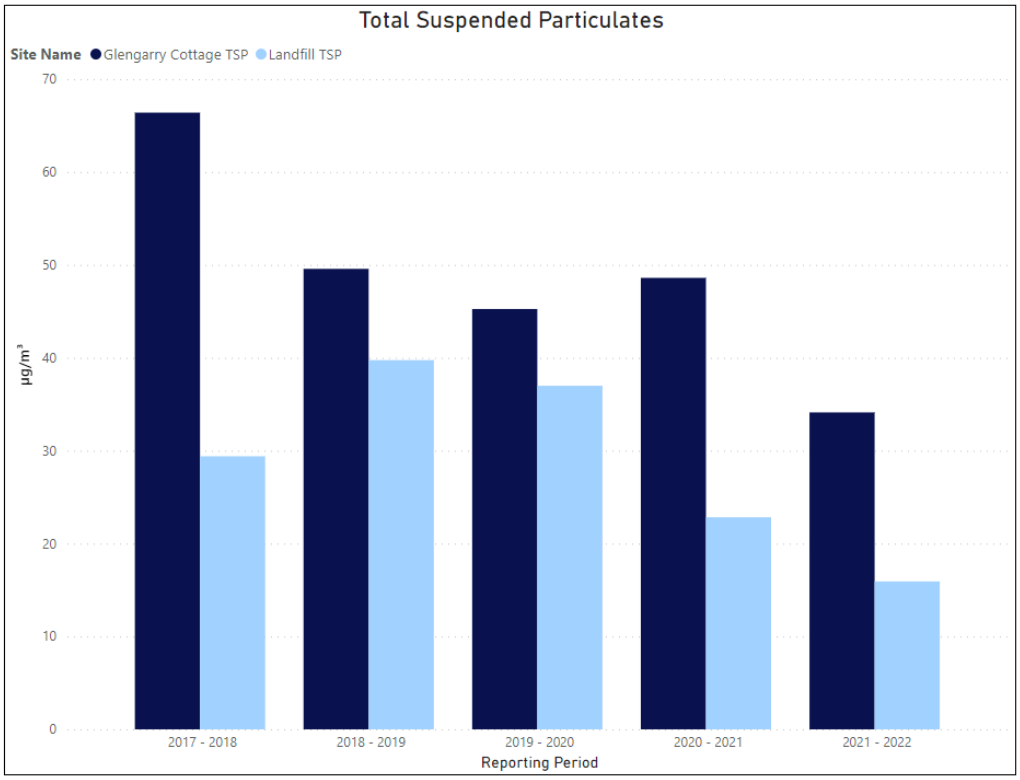

Ash Content (mg)
350
300
250
200
150
100
50
0
mg
2018
2019
2020
2021
2022
Site Name
DDG 1
DDG 2
DDG 3
DDG 4
DDG 5


Total Insoluble Matter (mg)
mg
350
300
250
200
150
100
50
0
2018
2019
2020
2021
2022
Site Name
DDG 1
DDG 2
DDG 3
DDG 4
DDG 5


Combustible Matter
g/m².month
6
5
4
3
2
1
0
2018
2019
2020
2021
2022
Site Name
DDG 1
DDG 2
DDG 3
DDG 4
DDG 5


Combustible Matter (mg)
mg
100
80
60
40
20
0
2018
2019
2020
2021
2022
Site Name
DDG 1
DDG 2
DDG 3
DDG 4
DDG 5


PM10
Site Name
Glengarry Cottage PM10
Landfill PM10
35
30
25
20
15
10
5
0
µg/m³
2017 - 2018
2018 - 2019
2019 - 2020
2020 - 2021
2021 - 2022
Reporting Period


Total Suspended Particulates
Site Name
Glengarry Cottage TSP
Landfill TSP
70
60
50
40
30
20
10
0
µg/m³
2017 - 2018
2018 - 2019
2019 - 2020
2020 - 2021
2021 - 2022
Reporting Period

Appendix F: **Odour** & Complaints

TRIM Link	Type of complaint	Name	Date of report / incident	Day of the week	Time	Complaint	Address
email record	odour	Deborah Chin	2/03/2021	Tuesday	7:20	Caller affected by offensive odour early this morning in the home (just before 5am), but it didn't hang around for long. However, the caller went for a walk up Fairloch Avenue from around 7:20-8am and found that offensive odour was impacting the area. The wind during the walk was South-South-Easterly. Odour described as more like green waste than rotten refuse.	27 Ben Nevis Rd , FARMBOROUGH HEIGHTS NSW 2526
email record	odour	Rudi Truninger	2/03/2021	Tuesday	7:10	The complainant is affected by offensive odour between 7:10 and 9 am.	12 Highview Drive, Farmborough Heights
email record	odour	Jair Graham	2/03/2021	Tuesday	6:30	Caller affected at home at 18 Highview Dr, Farmborough Heights this morning at 6.30am; and now at 4.05pm. Odour "smells like a tip; like rotting garbage". At 6.30am the odour was very strong and there was no wind. At 4.05pm caller	18 Highview Drive, Farmborough Heights

						turned his car aircon onto recycle because the odour is so strong and making caller feel nauseous. Again "very strong" but the nature of the odour makes it 'stomach turning'.	
email record	odour	Jair Graham	4/03/2021	Thursday	8:00	Odour affecting caller at home at 18 Highview Dr Farmborough Heights. Smells like rotting garbage. Wind has changed direction and odour is not as strong as 10 minutes ago. Breeze is probably SW. Odour first noticed around 8am when caller first went outside.	18 Highview Drive, Farmborough Heights
email record	odour	Barry Wooten	7/03/2021	Sunday	8:30	Experiencing a bad odour. The air is dead still, no wind and cloudy. The smell has been here for the last 30 mins.	20 Highview Drive Farmborough Heights
email record	odour	Rudi Truninger	7/03/2021	Sunday	9:00	Complainant wishes to lodge a complaint about bad odours. Time of: First noticed 9:00 am gone by 9:45 am Strength: strong Had to close windows.	12 Highview Drive Farmborough Heights

email record	odour	Rudolf Dreessen	7/03/2021	Sunday	8:00	Very bad smell coming from Kembla Grange. Sour, hot organic material. This has happened before. Caller mentions it does not smell like a tip.	93 Fairloch Ave, Farmborough Heights
email record	odour	Bea Horacek	7/03/2021	Sunday	8:30	Very offensive odour which has now permeated throughout the house. It is a sweet/ off smell .	56 Fairloch Ave, Famborough Heights
	odour	Barry Wooten	9/03/2021	Tuesday	8:35	Experiencing a bad odour. The air is dead still, no wind and clear sky. The smell has been here for the last 10 mins.	20 Highview Dr, Farmborough Heights
	odour	Rudi Truninger	9/03/2021	Tuesday	8:45	Complainant wishes to lodge a complaint about bad odours. Time: First noticed 8:45 am gone by 9:30 am Strength: weak	12 Highview Dr, Farmborough Heights
	odour	Supressed	10/03/2021	Wednesday	6:30	Caller is reporting of offensive odour coming from their premises. Caller said that odour is mainly early in the mornings and also, when there is cloud cover, then the odour stays throughout the day. Caller noticed the odour around 06:30 am this morning when caller went for a walk. The odour became stronger around 07:30 am. Odour is strong	Ashley Ave, FARMBOROUGH HEIGHTS NSW 2526

						when there is no wind.	
	odour	Barry Wooten	14/03/2021	Sunday	12:30	Complainant noticed odour at 12:30pm and it stuck around until 1:10pm	20 Highview drive, Farmborough Heights
	odour	Rudi Truninger	14/03/2021	Sunday	13:45	The complainant is affected by offensive odour which started at 1:45pm and dissipated around 2:00pm	12 Highview drive, Farmborough Heights
	odour	Rebecca Phillips	13/03/2021	Saturday	8:45 AM	Caller advises the odour smells like a rotting fruit type of smell, advises it putrid. States the odour has occurred on the 13/03/2021 at 08:45AM, 14/03/2021 10:00AM and this morning (15/03/2021) at approximately 11:00AM	360 Farmborough Road, Farmborough Heights NSW
	odour	Jair Graham	16/03/2021	Tuesday	12:10 PM	Caller advised there is a strong odour of rotting vegetation today starting at 12:10. It smells like rotting garbage. There is no breeze and it is cloudy and rainy.	18 Highview Dr Farmborough Heights NSW
	odour	Barry Wooten	16/03/2021	Tuesday	1:45 PM	There is the foulest of smells just arrived at 13:45 today at my house. It is putrid. Overcast, light SW winds.	20 Highview Drive, Farmborough Heights

	odour	Rudi Truninger	16/03/2021	Tuesday	12:15 PM	The complainant is affected by offensive odour impacting 12 Highview Drive FARMBOROUGH HEIGHTS NSW 2526, between 12:15 pm and by 13:15 pm	12 Highview Drive, Farmborough Heights
	odour	Barry Wooten	21/03/2021	Sunday	19:21	The complainant is affected by an offensive odour. There was no wind and the complainant experienced the odour outside their home during a break in the rain.	20 Highview Drive, Farmborough Heights NSW
	odour	Annette Luccitti	26/03/2021	Friday	8:35 AM	Strong stench which is an ongoing problem. Wind is still.	69 Fairloch Ave, FARMBOROUGH HEIGHTS NSW 2526
	odour	Rudi truninger	30/03/2021	Tuesday	8:00	I wish to lodge a complaint about bad odours. Time: First noticed 8 am Strength: distinct, very strong at about 10:30 am and still going	12 Highview Drive, Farmborough Heights NSW
	odour	Sam Luccitti	3/04/2021	Saturday	8:00 AM	Strong rotten grass/vegetation and rubbish odour. Caller advised he noticed the smell this morning and it is an on going issue.	69 Fairloch Avenue Farmborough Heights
	odour	Barry Wooten	5/04/2021	Monday	9:10 AM	Odour came in open balcony door at 9:10 this morning. Again very still and sunny. I had to go out so no idea how long it lingered. Not smelt rest of day when When I was home. But I went out later in the evening and when I returned the	20 Highview drive, Farmborough Heights

						smell had returned, albeit not as strong as the morning. Time 7:30 pm	
	odour	Andrew Grimm	8/04/2021	Thursday	8:00 AM	This morning there is a strong mouldy odour coming from an unknown source impacting Ashley Ave Farmborough Heights.	43 Ashley Avenue Farmborough Heights
Reported to EPA and Council CR0057593	odour	Arthur Donachy	8/04/2021	Thursday	8:00 AM	Odour affecting caller at home at 200 Farmborough Rd Farmborough Heights this morning. Odour often present in the mornings and is generally worse after rain. Present now at 8.53am after rain overnight.	200 Farmborough Rd, Farmborough Heights
	odour	Bea Horacek	9/04/2021	Friday	2:00 PM	Caller is reporting septic/sweet odor and they noticed first on Friday afternoon around 14:00 and yesterday at 09:30 and this morning since 06:.00. Caller stated it is health and safety issue.	56 Fairloch Avenue, Farmborough Heights
	odour	Rebecca Lea	9/04/2021	Friday	2:30 PM	Caller affected by offensive odour, first noticed at their home today from around 2:30pm. However, the caller also noticed the odour when driving in the Farmborough Heights area at around 10am today. Caller describes odour as a rotting greenwaste odour. Wind thought to be a light Southerly.	24 Stanley Avenue Farmborough Heights

	odour	Supressed	9/04/2021	Friday	5:00 PM	Caller affected by a pungent rotten odour. The caller first noticed the odour upon arrival home on Friday evening. The odour then continued to impact the caller through the whole weekend, despite changes in wind direction (wind generally Southerly).	Supressed
Z21/74613	odour	Supressed /George Mu-Sing	9/04/2021	Friday		Our residence at Fairloch Ave has once again been subjected to a foul garbage odour and smell from the Whites Gully Dump just west of our property. The unacceptable smell was noticed on 3 recent days: 9th , 11th and 12th April 2021.	Fairloch Ave, Farmborough Heights
	odour	Sarah Nolen	10/04/2021	Saturday		Offensive odour from local tip affecting resident at 19 Bristol Parade, Farmborough Heights NSW. Caller said the tip odour was whole of last Saturday - 10/04/21, and Sunday - 11/04/21 and also today - 12/04/21. Caller said on the weekend the odour was very strong. Today the odour is strong there is slight breeze outside.	19 Bristol Parade Farmborough Heights
	odour	Deborah Chin	10/04/2021	Saturday	10:00 AM	Caller advised that the odour that started yesterday morning 10/04/21 at approximately 10:00 and went on for 45 minutes. However after that period, the smell	27 Ben Nevis Rd, Farmborough Heights

						went away. Yesterday's breeze was a westerly gentle breeze. The caller noticed the smell again, today 11/04/21 at 10:30 and it is still persisting now (11:12). The wind today is a west south west fresh breeze.	
	odour	Peter Leonard	10/04/2021	Saturday	10:00 AM	Caller advised there is air pollution in the area, a strong rotting garbage smell is wafting around. Advised that this has been an ongoing for a while, the smell often spreads in the area.	60 Fairloch Avenue, Farmborough Heights
	odour	Annette Luccitti	10/04/2021	Saturday	Morning	Odour started yesterday and is still strong today. Started sometime in the morning on 10/4. Smells like rotting grass.	69 Fairloch Avenue Farmborough Heights
	odour	Tony Roberts	11/04/2021	Sunday	8:00	Reporting the obnoxious smell of Methane, rotting garbage and tip smell throughout the property. Caller advised it is also embedded into the cloths on the cloths line. First noticed today at approx 08:00. Caller advised even the dog would not leave the house.	277 farmborough Rd, Farmborough heights
	odour	Barry Wooten	12/04/2021	Monday	1:00 PM	I would like to report a bad odour. Started about 13:00 and stayed till about 14:00. I was in the back yard working. Also had a contractor on, my roof who complained about the bad smell. Wind	20 Highview Drive, Farmborough Heights

						7kph from SSE. Fine and sunny. Smelt like a deodorizer had been used to mask the smell?	
	odour	Supressed	13/04/2021	Tuesday	1:35 PM	Very strong odour of rotting green waste. Odour is affecting caller at home at Farmborough Rd, Farmborough Heights. Present now, caller has just returned home: 1.35pm on 13/4/21. Wind is southerly. Odour was also present yesterday when caller returned home at about the same time and was gone by about 8pm but wind had changed direction. Odour is present most times when a southerly is blowing. Caller has had this problem fairly frequently (depending on wind direction) since the beginning of the year.	Farmborough Rd
Z21/78186	odour	Supressed	16/04/2021	Friday	8:15 PM	Odour has come into the house and caller will need to close windows shortly to keep the odour out of the house even though it is a lovely weather outside. The odour is unpleasant even though the property is a long way from the site. Type Of Odour : Smells like a dump.	Farmborough Road, Farmborough Heights.

Z21/84120	odour	Rudi Truninger	21/04/2021	Wednesday	9:45 AM	On 21/4/21, bad odours was noticed at 9:45am and gone by 10:30pm, the strength is strong	12 Highview Drive, Farmborough Heights
Z21/84120	odour	Supressed	23/04/2021	Friday	10:30 AM	The caller is affected by very strong offensive odour on 23/4/2021 at 10:30am impacting Fairloch Avenue, Farmborough Heights, NSW 2526.	Fairloch Avenue Farmborough Heights
Z21/85245	odour	Tony Roberts	25/04/2021	Sunday	8:00 AM	Is like a tip and gases, rotten food and composted green waste. Resident removed clothes off the clothes line this morning and the clothes smell like the tip and methane gas and all the clothes need to be rewashed.	277 Farmborough Road Farmborough Heights
Z21/86600	odour	Sigmund Osiadacz	26/04/2021	Monday	8:30 AM	Odour affecting caller at home at 77 Fairloch Ave, Farmborough Heights. First noticed at 8.30am today (Mon, 26/4/21) when caller opened the house. Was initially 'very strong' but over 30 minutes it weakened noticeably and is now only 'distinct' now (9am) and dissipating. Weather: No wind. Clear skies, sunny. Caller notices two odours are present this morning. One like chemicals and one like rotting garbage. Odour strength: 'Very strong' at 8.30am (5 out of 6)	77 Fairloch Avenue Farmborough Heights

						and now at 9am is 'distinct' (3 out of 6)	
Z21/91711	odour	Bea Horacek	3/05/2021		9:30 AM	Noxious sweet off smell. There is hardly any wind. It started at 9:30am and was still present at time of call at 10:13am on 3/5.	56 Fairloch Ave, Farmborough Heights NSW
Z21/92909	odour	Sam Luccitti	3/05/2021		9:30 AM	Odour is a vegetation and garbage smell. The caller first noticed it at about 9:30am today.	69 Fairloch Avenue Farmborough Heights
Z21/92909	odour	Julie Murphy	2/05/2021		10:00 AM	Caller states there is a terrible odour today, and was smelly yesterday too though not nearly as bad. Affecting the caller at her home in Loch Carron Avenue. Weather today is clear warm and sunny, no wind whatsoever. Smell is the “usual odour” – rotting garbage.	4 Loch Carron Avenue Farmborough Heights
Z21/95244	odour	Rudi Truninger	3/05/2021		8:15	The complainant reports offensive odour. The emailed complaint indicated time of odour impact as 8:15pm to 11:15pm. Complainant indicated the air was quite still, no noticieable wind. However, the odour was wafting - eg it was present at one part of the home but not another,	12 Highview Drive Farmborough Heights

						then later present there. Ongoing issue.	
Z21/95244	odour	Barry Wooten	3/05/2021		8:30	Monday morning 3rd May 2021 at about 8.30 am back to the Monday morning smell thing. Weather fine, no clouds and no noticeable wind. There must be some reason Mondays at about 8.30am seems to reoccur.	20 Highview Drive, Farmborough Heights
Z21/109861	odour	Barry Wooten	17/05/2021		11:55 AM	Complainant went out at 8:.30 am today , 17/5 with no odour present but when they arrived home at 11:55 am the usual Kembla Grange smell was apparent. Wind SW maybe 15 kph, sunny, fine. Smells like a tip	20 Highview Drive, Farmborough Heights
Z21/109861	odour	Rebecca Phillips	21/05/2021		2:25 PM	Tip-like odours again affecting caller at home today Fri 21/5/21. First noticed when the caller went outside. The smell is strong and the weather is cloudy with a slight southerly breeze.	360 Farmborough Rd, Farmborough Heights
Z21/109861	odour	Supressed	22/05/2021		9:00 AM	Caller said there is a bad garden and food waste odour. Caller said this has been going on for months. Type Of Odour : Caller says it smells like rotten food waste and vegetables wastes.	Fairloch Avenue Farmborough Heights

	odour	Barry Wooten	10/06/2021		10:15 AM	Report of a foul odour experienced this morning at Farmborough Heights . Complainant had a visitor at 10:15 am this morning and when they opened the front door the smell was quite evident. The visitor was quite amazed complainant have to put up with such a smell. Weather: overcast, sprinkling rain, slight SW wind.	20 Highview Drive Farmborough Heights
	odour	Rudi truninger	10/06/2021		10:00 AM	I wish to lodge a complaint about bad odours. Time: First noticed 10:00 am gone by 10:30 am Strength: distinct	12 Highview drive Farmborough Heights
Z21/132563	odour	Sam Luccitti	20/06/2021		2:47 PM	Caller reporting a rotting vegetation and dumped waste type odour. Caller advised that the odour went through his bathroom window and said he needs to have his windows closed in order to prevent the odour getting inside his property. He called up this morning about this issue, however he is calling back to say the smell is still the same and it has not disappeared.	69 Fairloch Avenue Farmborough Heights
Z21/132563	odour	Barry Wooten	21/06/2021		8:23 AM	Called to report there is a putrid and vile odour which smells like rotten food. Caller is not certain of exactly where the odour is coming from. A similar issue occurred earlier in the year but it was	20 Highview Drive Farmborough Heights

						eventually resolved but now the same odour problem seems to have returned again. The weather today is rainy, overcast and sprinkling and although it appears still it can be seen from the smoke stacks in the area that the wind is blowing south westerly.	
Z21/132563	odour	Jair Graham	20/06/2021		9:30 AM	Landfill and garbage odour. Caller advised today 20/06/21 the odour is very vile and almost as bad as it was prior to a month or two ago. Over the last month or two the odour from the tip had improved meaning that the smell was not prominent everyday. Cannot get away from the smell today and is getting worse as the day goes on possibly because of the humid weather. Caller is feeling nauseous and has mild headache due to the smell but is not serious.	18 Highview Drive Farmborough Heights
Z21/132563	odour	Sam Luccitti	20/06/2021		8:45 AM	Caller reporting a rotting vegetation and dumped waste type odour that went through his bathroom window and said he needs to have his windows closed in order to prevent the odour getting inside his property.	69 Fairloch Avenue Farmborough Heights
Z21/132563	odour	Barry Wooten	19/06/2021		1:15 PM	Reporter is complaining of a bad odour. SW wind and the odour is fairly strong.	20 Highview Drive Farmborough Heights

	odour	Steve Moore	28/06/2021		4:04 PM	Caller reporting odour that he likens to the smell from a greenwaste/organics bin. The odour was not present during the morning but became present following a wind change to SSW. Sometimes the odour is strong enough to warrant closing windows of house, however the odour was not that strong today.	11 Gerard Avenue, Farmborough Heights
Z21/151560	odour	Barry Wooten	6/07/2021		9:45 AM	Caller reporting bad odour like a garbage dump, experienced at 9:45am when out the front of his residence. Weather conditions were fine and sunny with a slight westerly wind.	20 Highview Drive, Farmborough Heights
Z21/151561	odour	Supressed	6/07/2021		11:04 AM	Caller reporting a terrible smell occurring. Smell was occurring once or twice a week in summer.	Farmborough Heights. Specific address not provided
CR	odour	Robyn can be contacted on 0417 844 504.	8/08/2021		4pm	REPORT OF ODOUR AT WHYTES GULLY TIP:Offensive smell from Whytes Gully, The smell of rotting food is so offensive and has been going on for last week. Robyn tried to go for a walk and had to return home. Robyn would like the problem to be fixed. Thank you	
Z21/195804	odour	Suppressed	5/09/2021		12:00 PM	Pungent smell starting at approximately 12:00pm until approximately 17:00pm	Fairloch Avenue, Farmborough Heights
	odour	Suppressed	13/09/2021		8:10 AM	Strong odour in the area. Unable to go outside as the odour makes them	Iola Avenue, Farmborough Heights

						feel sick. SW wind, 4-16 knots.	
	odour	Barry Wooton	14/09/2021		1:30 PM	Terrible smell present. Winds SW, overcast, partly sunny. Also apparent on 13/09/2021 at 11:30am with the same weather conditions.	20 Highview Drive, Farmborough Heights
	odour	Barry Wooton	4/10/2021		8:45 AM	Offensive odour commencing at 8:45am and worsening until 9:30am. No wind apparent but weather app showed WSW at 5kmh. Fine and sunny.	20 Highview Drive, Farmborough Heights
	odour	Barry Wooton	4/10/2021		8:45 AM	Offensive odour commencing at 8:45am and worsening until 9:30am. No wind apparent but weather app showed WSW at 5kmh. Fine and sunny.	20 Highview Drive, Farmborough Heights
	odour	Suppressed	2/11/2021		6:00 AM	Strong odour. Very strong and putrid. Odour dissipated after 1-2 hours.	Highview Drive, Farmborough Heights
	odour	Suppressed	14/11/2021		8:00 AM	Strong smell of foul food and rubbish when outside. Smell is overbearing and callers family have had to pack up and leave area today.	Stanley Avenue, Farmborough Heights
	odour	Anonymous	14/11/2021		8:30 AM	Very strong odour. Ongoing issue for years. Strong today when windows open.	Unknown
	odour	Anonymous	7/12/2021	Tuesday	5.30-6.30am		
	odour	Anonymous	7/12/2021	Tuesday	5.30-6.30am		
	odour	Anonymous	7/12/2021	Tuesday	5.30-6.30am		
	odour						

	odour		27/12/2021			Caller advised has called up multiple times in the last week in regards to a Rotting food type of smell in the area. The smell is coming form the tip. Caller advised the smell is most likely coming form the Bingo Recycling Centre - Kembla Grange. It is a bin smell and is really bad. Today has been worse than other days. The smell only lasted around 30 minutes this morning, but was bad when it was in the air. Last Saturday/Sunday was the worst. Caller is not wanting to get them in trouble, but is wanting the smell to be controlled.	Fairloch Ave, Farmborough Heights
	odour		27/12/2021			The complainant is affected by BAD odour in the air at Farmborough Heights 2526, on 27th Dec 2021, started at 7:15 am and continuing for most of the day the weather condition is overcast/rain on and off, wind Southerly winds.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		27/12/2021			The complainant is reported offensive odour coming from Wollongong Whites Gully Rubbish Dump or Soilco. The complainant first noticed the odour at 8:00 am on 27/12/2021and the strength varied between very strong to weak.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526

	odour		29/12/2021			Offensive odour from Soilco Kembla Grange, 61 Reddalls Rd, KEMBLA GRANGE, NSW, 2526 affecting resident at Fairloch Ave FARMBOROUGH HEIGHTS NSW 2526. Caller said the odour was very bad last night at 11 pm when the machine was turned on at their premises at 11 pm. The odour penetrated inside the house. Caller had to close all windows of the house. Odour lasted for half an hour.	Fairloch Ave, Farmborough Heights
	odour		6/01/2022 6:00			Bad odor complaint in Farmborough Heights in Highview Drive. From the Christmas period until now there have been at least seven days where the odor coming from the Whytes Gully Tip has been awful. It smells like garbage and is enough to make you feel nauseous. These past seven times have occurred mainly in the morings (6-9am), after any rain or if the humidity is high.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		9/01/2022			The complainant is affected by offensive odour in the air impacting Highview Drive Farmborough Heights 2526 on 9/01/2022 between 7:30 and 10:30.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526

	odour		9/01/2022			Pungent, Sickly sweet odour from Soilco in Kembla Grange. Caller can smell a fertilizer smell in the back-ground. Caller noticed a strong smell this morning. Ongoing issue. Caller advised that when they first moved in approximately 4 years ago, there was no odour. The odour started around November 2020. After they reported the odour, and the press were involved, the odour disappeared for several months, but then started again. Caller advised that her daughter won't go outside because of the smell and they have to close up the house.	Stanley Avenue, FARMBOROUGH HEIGHTS
	odour					The odour got better during the middle of last year, however since December 2021 it has become worse again, particularly after it rains. Complainant said the other day they could smell an odour while driving towards Whytes Gully tip from the East, however when they reached the tip there was no odour. Complainant just wanted to report the odour and does not require a call back with details of EPA actions.	Kingfisher Place Farmborough Heights NSW 2526

	odour		10/01/2022			Resident of Farmborough Heights affected by strong, offensive rotten refuse odour attributed to the Whytes Gully waste facility. The caller was impacted by the odour at around 2am, infiltrating the home. The caller was compelled to close the windows to avoid the odour continuing to come in. No wind, very still air. The odour is still present at time of call to Environment Line but it isn't as intense. Caller has noted an increase in the odour intensity in the last few months and is fed up with it. The caller has also made a complaint directly to Council today.	Highview Drive FARMBOROUGH HEIGHTS
CR10 5212	odour	Graham Pemberton 42713095	10/01/2022			Odour complaint refer to CR105212	
	odour		10/01/2022 5:30			Very bad odour coming from the FOGO at Soilco Kembla Grange. The odour has been occurring since last Monday every morning starting at 05:30. The odour	HIGHVIEW DRIVE FARMBOROUGH HEIGHTS NSW 2526

						was very strong last Monday where caller felt like vomiting. Caller has also detected the odour as far as the Berkeley shopping centre.	
	odour		11/01/2022			Caller affected by offensive odour from early this morning, odour still present at time of call. The air is very still. Logged as an issue for Soilco as odour described as rotting green waste odour - noting that Whytes Gully tip is alternate possibility. Caller finding odour events have been frequent lately, affecting amenity and ability to enjoy their home.	FARMBOROUGH HEIGHTS
	odour		11/01/2022			Two reports received by email to info@environment.nsw.gov.au on 1/01/2022. The complainants are affected by offensive odour in the air suspected to being coming from the local tip.	
	odour		11/01/2021			The complainant is affected by offensive odour in the air coming from the Whytes Gully Tip on 11/01/2022 starting from 7:30am. The complainant is impacted at Highview Drive Farmborough Heights NSW 2526.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526
CR01 05784	odour	Barry Wooten 42711288	12/01/2022			Odour complaint refer to CR0105784	

	odour		12/01/2022 8:50			Very strong, unpleasant odour affecting caller at home again at Fairloch Ave, Farmborough Heights. First noticed ten minutes ago at 8.50am. Weather: No wind and cloudy. Source could be either of two local waste facilities: SoilCo or the Council landfill at Reddalls Road.	Fairloch Ave, Farmborough Heights
	odour		12/01/2022 8:40			Putrid odour like sickly rotten egg gas coming from Whytes Gully waste facility. The odour is so strong caller felt like vomiting and had to shut the house up.	Highview Drive FARMBOROUGH HEIGHTS
	odour		12/01/2022 8:00			The following two reports were received by email to info@environment.nsw.gov.au on 12/01/2022. The complainants who are impacted by offensive odour coming from the Whytes Gully Waste and Resource Recovery facility located at LOT 502 Reddalls Road, Kembla Grange NSW 2526, on 12/01/2021 at about 8am in the morning.	

	odour		12/01/2022 8:45			Bad odour affecting caller at home at Highview Drive, Farmborough Heights. Today the odour was first noticed at 8.45am but this odour has been present all day every day since Christmas Day and has been reported to the EPA by neighbours. Odour is like a combination of rotting green waste and a sweet odour and is identical to the odour which affected the suburb last year when SoilCo was identified as the source. Odour is overpowering and has infiltrated the house. Weather: No breeze, overcast, has been raining.	Highview Drive FARMBOROUGH HEIGHTS
	odour		12/01/2022 7:00			Very bad odour coming from Whytes Gully waste facility from 07:00 and is still ongoing now. Scale 5/6	Ben Nevis Road FARMBOROUGH HEIGHTS
	odour		12/01/2022 7:00			Very bad odour coming from Whytes Gully waste facility from 07:00 and is still ongoing now. Scale 5/6	Ben Nevis Road FARMBOROUGH HEIGHTS
	odour		11:18 on 29/12/21 11:05 on 01/01/22 05:05 on 03/01/22 23:10 on 3/01/22 19:45 on 09/01/22 04:00 on 10/01/22			Odour coming from the FOGO at Soilco Kembla Grange. Caller has a list of dates when the odour occurred. 11:18 on 29/12/21 lasted for 10 mins moderate smell 11:05 on 01/01/22 lasted for 10 mins moderate smell	Ben Nevis Road FARMBOROUGH HEIGHTS

						05:05 on 03/01/22 lasted for one hour and again at 23:10 for 10 mins 19:45 on 09/01/22 time not noted how long odour occurred moderate smell 04:00 on 10/01/22 lasted for two hours moderate smell	
	odour		12/01/2022 9:00			I'd like to complain about the smell emanating from either the Whytes Gully tip or Soilco in Kembla Grange. I first noticed the smell today when it started to rain at 9am. The wind is from the SE 15km per hour. I do not require an outcome but would like you to investigate the source and take preventative action.	Stanley Avenue FARMBOROUGH HEIGHTS
	odour		12/01/2022 13:25			Dear EPA, I wish to lodge a complaint about bad odours. Time: First noticed 1:25 pm ongoing Strength: strong horrible smell Source: Whytes Gully	Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		12/01/2022 13:00			Foul Dump type smell, leachate? Light in the morning when there was zero wind and strong at 13:00 with SW wind. Weather: Raining Prevailing Wind: SW strong Notes: Notified WCC ref: CR0105784, I am 100% sure it's originating from WCC Whytes Gully.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526

	odour		14/01/2022 5:30			am writing with another odour complaint coming from the Whytes Gully Tip. This morning from 5:30am until now there has been a very strong, nauseating garbage smell throughout Farmborough Heights. There was no wind, however everything is humid and wet again, which is the same as the other times the smell has been strong these past few weeks.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		15/1/22 6:39 16/1/22 9:32			Two reports received by email to info@environment.nsw.gov.au on15/01/2022 at 6:39 PM and 16/01/2022 at 9:32 AM. The complainants are impacted by offensive odour in the air suspected to originate from the soilco organics recycling on Dapto Road, Kembla Grange NSW 2526, or the Whytes Gully Waste and Resource Recovery Centre located on LOT 502 Reddalls Road, Kembla Grange NSW 2526.	Highview Drive FARMBOROUGH HEIGHTS NSW 2526 Panorama Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		15/01/2022 7:50			Caller advised after getting up to have his breakfast he noticed the smell was already overbearing and caller has not yet been outside and the smell is already in the house. Caller is unable to close up all the windows due to the weather	FAIRLOCH AVENUE FARMBOROUGH HEIGHTS NSW 2526

						been hot and needed some ventilation into the house. Caller advised the weather is still with no breeze at all.	
	odour		17/01/2022 16:46			Report received by email to info@environment.nsw.gov.au on 17/01/2022 at 4:46 PM. The complainant reported offensive odour in the air suspected to be originating from the Soilco processing plant at Kembla grange The odour is affecting the complainant's dwelling home at Farmborough Road, Farmborough Heights. The complainant's email report is attached.	330 FARMBOROUGH ROAD FARMBOROUGH HEIGHTS NSW 2526
	odour		18/01/2022 10:59			Complaint regarding the smell from Whytes Gully refuse tip that has been occurring for almost two weeks now. The smell has become so strong that we haven't been able to open our windows and we've had to blast the air con just to get rid of it (causing a large energy bill no doubt). It has also caused both my husband and I to become physically sick when we've gone outside into our own backyard, as it honestly stinks like sewage/rotting meat. This smell has been recurring for a	56 IOLA AVENUE FARMBOROUGH HEIGHTS NSW 2526

						year now and myself and our neighbours are really getting over it. We're preparing to put our house on the market and have heard that the smell has already deterred buyers from purchasing other houses Farmborough Heights which is incredibly disappointing. We will be making further complaints if the smell deters potential buyers away from our house. Can you please tell me what the plan is for controlling this absolute stink? I know we are not the only residents who have made complaints so far. (email attached)	
	odour		18/01/2022 13:32			Resident of Fairloch Av Farmborough Heights is affected by offensive rotting green waste odour attributed to the Soilco premises. The odour infiltrated the home through open window, caller compelled to close up the home. There is no wind, very still air, some rain.	69 FAIRLOCH AVENUE FARMBOROUGH HEIGHTS NSW 2526
	odour		19/01/2022 10:13			Report received by email to info@environment 19/1/21, 10:13 about odour complaint coming from Wollongong Whytes Gully Rubbish Dump or Soilco. See email attached. The odour was first noticed on	12 Highview Drive FARMBOROUGH HEIGHTS NSW 2526

						19/1/21 at 3am and on and off until 9:30am, the strength is distinct.	
	odour		18/01/2022 17:51			Foul Dump type odour impacting Farmborough Heights	20 Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		19/01/2022 9:24			Resident of Highview Dr Farmborough Heights is impacted by strong, offensive, rotten refuse odour. The odour was present yesterday, during the night and is also very strong this morning. Wind from the South-Southwest. Raining yesterday but dry today.	14 Highview Drive FARMBOROUGH HEIGHTS
	odour		19/01/2022 10:28			Caller affected at home in Highview Drive Farmborough Heights by a strong, offensive, rotting greenwaste odour attributed to Soilco. The caller continues to be affected by the odour while out walking on Farmborough trail, further up the mountain, at time of call to Environment Line (around 10:30). No wind at present, weather dry but overcast.	11 Highview Drive FARMBOROUGH HEIGHTS

	odour		19/01/2022 17:20			Odour Farmborough Heights. Date: Wednesday 19 th Jan 2022 Time: 1:00 strong odour, came through open windows. Continued most of night, on and off, until around 8:30. Started again at 16:30 and continued. Odour Description: Foul Dump type smell. Weather: Overcast/raining/night . Prevailing Wind: Mostly nil to slight South	20 Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		22/01/2022 8:37			Report received by email to info@environment.nsw.gov.au on 22/01/2022 at 8:37 AM. The complainant is affected by offensive odour coming from the Whytes Gully Tip on 22/1/2022 at 8:00am impacting Highview Drive Farmborough Heights NSW 2526. The complainant's email report is attached	12 Highview Drive FARMBOROUGH HEIGHTS NSW 2526
	odour		22/01/2022 8:54			Sickly waste odour coming from the Whytes Gully Waste and Resource Recovery Centre.Caller has to have all the windows shut and noticed the odour since 7AM this morning.	14 Highview Drive FARMBOROUGH HEIGHTS

CR01 09148	odour	Graham Pemberton 42713095 0412766575	31/01/2022			Customer called to report a rotten egg gas type smell coming from the tip, when asked if it ws the tip or soil co he did say he could not be certain, but would like this addressed as he can not open his windows today	
WC 115484	odour	Barry Wooton	5/02/2022			Smell coming from tip is severe this morning. Even with all the doors and windows closed the smell is invading home/garage. Ongoing issues but it is the worst it has ever been. Mike McKeon (council staff) told caller no matter what time to call and he will go out and see what is happening for himself.	
CRO1 10814	odour	Barry Wooton 0431 928016 baz35w@gmail.com	7/02/2022			Non urgent but can Mike McKeon please call Barry back about the weekend/tip issues he has spoken to Della this morning which he said thank you for	20 Highview Drive FARMBOROUGH HEIGHTS NSW 2526
CR01 10727	odour	Geoffrey Jones 0418 715 045	7/02/2022		10.26 am	Smell is very bad from FOGO recycling area at Whtyes Gully Tip since the beginning of the month, and everyday from then. It used to be in the morning now it lasts into the evening as well . The issue was reported to Council before last year and cutomer was told by paul Scully that the issue will be looked into. It stopped for a little while and started	274 Farmborough Road Farmborough Heights

						again from this month.	
CRO112944	odour	Amanda Welsh 0402489545 m.awelsh@bigpond.com	16/02/2022			Transferred from CRO112934 incorrectly raised online Whytes Gully odour complaint. Over the last week there has been a foul smell that has been coming from the tip/waste depot. We cant haveour windos or door open because of the smell it is very unpleasant and something needs to be done about it. We live about 2km away from the depot	40 Rosina Street Kembla Grange NSW 2526
CR012869	odour	Charnel Slater charnelslater@hotmail.com 0401 208198	16/02/2022			Customer called to complain about the increasing offensive odour coming from the Whytes Gully tip. Particularly worsending over the past 6-8 months. Smell very strong at times at the their premises - depending on wind directins and temperatures. Would like matter addressed by Council	197A Farmborough Road Farmborough Heights

Appendix G Annual Return (2020-2021) (TO BE ATTACHED)

Annual Return

WOLLONGONG CITY COUNCIL

Licence 5862

A. Statement of Compliance - Licence Details

ALL Licence holders must check that the Licence details in Section A are correct.

If there are changes to any of these details, you must advise Environment Protection Authority (EPA) and apply as soon as possible for a variation to your Licence or for a Licence transfer.

Licence variation and transfer application forms are available on the EPA website at: http://www.epa.nsw.gov.au/licensing-and-regulation/licensing or from regional offices of the EPA, or by contacting by telephone 02 9995 5700.

If you are applying to vary or transfer your Licence, you must still complete and submit this Annual Return.

A1. Licence holder

Licence number	: 5862
Licence holder	: WOLLONGONG CITY COUNCIL
Trading name (if applicable)	:
ABN	: 63 139 525 939
ACN	:
Reporting period	: From: 29-5-2020 To: 28-5-2021

A2. Premises to which Licence Applies (if applicable)

Common name (if any)	: WHYTES GULLY WASTE DISPOSAL FACILITY
Premises	: REDDALLS ROAD KEMBLA GRANGE 2526 NSW

A3. Activities to which Licence Applies

Waste disposal (application to land)

A4. Other Activities (if applicable)

A5. Fee-Based Activity Classifications

Note that the fee based activity classification is used to calculate the administrative fee.

Fee-based activity	Activity scale	Unit of measure
Waste disposal by application to land	> 0.00	capacity

A6. Assessable Pollutants (if applicable)

Note that the identification of assessable pollutants is used to calculate the **load-based fee.**
The following assessable pollutants are identified for the fee-based activity classifications in the licence:

B. Monitoring and Complaints Summary

B1. Number of Pollution Complaints

Pollution Complaint Category	Complaints
Air	97
Water	0
Noise	0
Waste	0
Other	0
Total complaints recorded by the licensee during the reporting period	**97**

B2. Concentration Monitoring Summary

For each concentration monitoring point identified in your licence, details are displayed below. If concentration monitoring is not required by your licence, **no data** will appear below.
If data was provided from an uploaded file, the file name will be displayed below instead of any data.
Note that this does not exclude the need to conduct appropriate concentration monitoring of assessable pollutants as required by load-based licensing (if applicable).

Discharge & Monitoring Point 1

Stormwater monitoring and discharge point, Outlet at Reddalls Road - Monitoring point identified at E297772 N6184025.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Ammonia	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Conductivity	microsiemens per centimetre					
Dissolved Oxygen	milligrams per litre					

Filterable iron	milligrams per litre					
Fluoride	milligrams per litre					
Magnesium	milligrams per litre					
Nitrate	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Temperature	degrees Celsius					
Total organic carbon	milligrams per litre					
Total Phenolics	milligrams per litre					
Total suspended solids	milligrams per litre					

Monitoring Point 3

Surface gas monitoring. Areas where intermediate or final cover has been placed.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 4

Gas accumulation monitoring. Inside all buildings within 250 metres of deposited waste.

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 5

Groundwater quality monitoring , Monitoring point labelled GABH02 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297754.9 N6184377

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					

Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 9

Groundwater quality monitoring, Monitoring point labelled GMW102 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297952.6 N6184807

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					

Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					

Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 10

Groundwater quality monitoring, Monitoring point labelled GMW103 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298470.2 N6184603

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					

Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					

Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 11

Groundwater quality monitoring, Monitoring point labelled GMW104 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297597.9 N6184508

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					

Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 12

Groundwater quality monitoring. Monitoring point labelled GMW105 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298433.3 N6184397

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					

Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 13

Groundwater quality monitoring, Monitoring point labelled GMW106 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298356.8 N6184294

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					

Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					

Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 14

Groundwater quality monitoring, Monitoring point labelled GMW108S on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297870.2 N6184262

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					

Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					

Zinc	milligrams per kilogram					

Monitoring Point 15

Groundwater quality monitoring. Monitoring point labelled GMW108D on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297871.4 NS184262

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					

Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 16

Groundwater quality monitoring. Monitoring point labelled GMW109S on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297605.7 N6184068

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					

Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 17

Groundwater quality monitoring. Monitoring point labelled GMW110 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297572.6 N6184266

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					

Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					

Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 18

Groundwater quality monitoring. Monitoring point labelled GMW111 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297588.6 N6184385

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					

Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					

Zinc	milligrams per kilogram					

Monitoring Point 19

Groundwater quality monitoring, Monitoring point labelled GMW109D on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297604.9 N6184068

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					

Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					
Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 20

Groundwater quality monitoring. Monitoring point labelled BH6 on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297807.4 N6184052

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Aluminium	milligrams per litre					
Arsenic	milligrams per litre					
Barium	milligrams per litre					
Benzene	milligrams per litre					
Cadmium	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Chromium (hexavalent)	milligrams per litre					
Chromium (total)	milligrams per litre					
Cobalt	milligrams per litre					
Conductivity	microsiemens per centimetre					
Copper	milligrams per litre					
Ethyl benzene	micrograms per litre					
Fluoride	milligrams per litre					
Lead	milligrams per litre					
Magnesium	milligrams per litre					
Manganese	micrograms per litre					
Mercury	milligrams per litre					
Nitrate	milligrams per litre					
Nitrite	milligrams per litre					
Nitrogen (ammonia)	milligrams per litre					

Organochlorine pesticides	milligrams per litre					
Organophosphate pesticides	milligrams per litre					
pH	pH					
Polycyclic aromatic hydrocarbons	milligrams per litre					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Standing Water Level	metres					
Sulfate	milligrams per litre					
Toluene	milligrams per litre					
Total dissolved solids	milligrams per litre					
Total organic carbon	milligrams per litre					
Total petroleum hydrocarbons	milligrams per litre					
Total Phenolics	milligrams per litre					
Xylene	milligrams per litre					
Zinc	milligrams per kilogram					

Monitoring Point 21

Subsurface gas monitoring. Monitoring point labelled LFG MW1 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298084 N6184278

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 22

Subsurface gas monitoring. Monitoring point labelled LFG MW2 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298202 N6184228

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 23

Subsurface gas monitoring. Monitoring point labelled LFG MW3 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298297 N6184244

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 24

Subsurface gas monitoring. Monitoring point labelled LFG MW4 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298376 N6184303

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 25

Subsurface gas monitoring. Monitoring point labelled LFG MW5 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298438 N6184381

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 26

Subsurface gas monitoring, Monitoring point labelled LFG MW6 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298376 N6184303

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 27

Subsurface gas monitoring, Monitoring point labelled LFG MW7 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298470 N6184553

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 28

Subsurface gas monitoring, Monitoring point labelled LFG MW8 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298376 N6184303

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 29

Subsurface gas monitoring, Monitoring point labelled LFG MW9 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298465 N6184645

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 30

Subsurface gas monitoring, Monitoring point labelled LFG MW10 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298448 N6184684

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 31

Subsurface gas monitoring, Monitoring point labelled LFG MW11 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298400 N6184695

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 32

Subsurface gas monitoring, Monitoring point labelled LFG MW12 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 6 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E298351 N6184701

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume					

Monitoring Point 33

Stormwater monitoring point, Downstream monitoring point labelled 4 on Figure 13 titled "Proposed Surface Water Monitoring Locations" dated 26 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297767 N6183396

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Ammonia	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Conductivity	microsiemens per centimetre					
Dissolved Oxygen	milligrams per litre					
Filterable Iron	milligrams per litre					
Fluoride	milligrams per litre					
Magnesium	milligrams per litre					
Nitrate	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Temperature	degrees Celsius					
Total organic carbon	milligrams per litre					
Total Phenolics	milligrams per litre					
Total suspended solids	milligrams per litre					

Monitoring Point 34

Stormwater monitoring point, Upstream monitoring point labelled 6 on Figure 13 titled "Proposed Surface Water Monitoring Locations" dated 26 March 2012 (Whytes Gully New Landfill Cell EA - Volume IV). E297495 N6184504

Pollutant	Unit of measure	No. of samples required	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre					
Ammonia	milligrams per litre					
Calcium	milligrams per litre					
Chloride	milligrams per litre					
Conductivity	microsiemens per centimetre					
Dissolved Oxygen	milligrams per litre					
Filterable Iron	milligrams per litre					
Fluoride	milligrams per litre					
Magnesium	milligrams per litre					
Nitrate	milligrams per litre					
pH	pH					
Potassium	milligrams per litre					
Sodium	milligrams per litre					
Sulfate	milligrams per litre					
Temperature	degrees Celsius					
Total organic carbon	milligrams per litre					
Total Phenolics	milligrams per litre					
Total suspended solids	milligrams per litre					

Name of the uploaded file containing point data ▼
Whytes Gully Return 2021.pdf

B2 Concentration Monitoring Comments
See attached spreadsheet for compliance data to address the points above.

B3. Volume or Mass Monitoring Summary

For each volume or mass monitoring point identified in your licence, details are displayed below. If volume or mass monitoring is not required by your licence, **no data** will appear below.
If data was provided from an uploaded file, the file name will be displayed below instead of any data.
Note that this does not exclude the need to conduct appropriate volume or mass monitoring of assessable pollutants are required by load-based licensing (if applicable).

C. Statement of Compliance - Licence Conditions

C1. Compliance with Licence Conditions

Were all conditions of the licence complied with (including monitoring and reporting requirements)?	**No**

C2. Details of Non-Compliance with Licence

Licence condition number not complied with ▼
L2 Concentration Limits
Summary of particulars of the non-compliance ▼
Exceedances of Total Suspended Solid limit for discharge at Monitoring Point 1.
Further details on particulars of non-compliance, if required ▼
Dates were as follows: 13/8/20, 31/10/20-3/11/20, 22/3/21-26/3/21, 29/3/21-31/3/21, 7/5/21-9/5/21
Number of times occurred ▼
26
Date(s) when the non-compliance occurred, if applicable ▼
see above
Cause of non-compliance ▼
A series of heavy rainfall events (close together) that broke the previous drought conditions resulting in excessive flows into the stormwater management system. Subsequently, the system overflowed with higher than normal TSS levels. pH was in range.
Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼
Water in the storage pond was flocculated and biologically treated to stabilise the system. The ponds are also in the process of being desilted to increase capacity. Details are provided in the attached annual report
Action taken or that will be taken to prevent a recurrence of the non-compliance ▼
The stormwater management plan is being updated to include proactive and long term strategies to prevent reoccurence in the future. This includes a comprehensive water balance. Details are provided in the attached annual report.
Uploaded Document Name ▼
Uploaded Document Description ▼

Licence condition number not complied with ▼
R2.3
Summary of particulars of the non-compliance ▼
Methane levels recorded over 500 ppm on 4 occasions.
Further details on particulars of non-compliance, if required ▼
A variation bringing in changes to R2 (Notification of Environmental Harm) was introduced during this reporting period resulting in this as a non-compliance.
Number of times occurred ▼
4
Date(s) when the non-compliance occurred, if applicable ▼
8/9/20, 15/3/21, 23/4/21
Cause of non-compliance ▼
Change in License via a new Variation .
Action taken or that will be taken to mitigate any adverse effects of the non-compliance ▼
All readings recorded over 500 ppm will be reported in the future within 24 hours. Regular sampling was undertaken and levels returned to < 500 ppm by the next monthly sampling event.
Action taken or that will be taken to prevent a recurrence of the non-compliance ▼
A new data management system has been put in place that will notify any non-compliance levels in data as soon as received. New gas infrastructure being put in place to collect methane thus minimising the chance of this recurrence. Further detail and location of the new infrastructure is provided in the annual report.
Uploaded Document Name ▼
Uploaded Document Description ▼

D. Statement of Compliance - Load Based Fee Calculation

Annual Return

WOLLONGONG CITY COUNCIL

Licence 5862

If you are not required to monitor assessable pollutants by your licence, **no data** will appear below.

If assessable pollutants have been identified on your licence, the following worksheets for each assessable pollutant will determine your load based fee for the licence fee period to which this Annual Return relates.

Loads of assessable pollutants must be calculated using any of the methods provided in EPA's Load Calculation Protocol for the relevant activity. A Load Calculation Protocol would have been already sent to you with your licence. If you require additional copies, you can download the Protocol from the EPA's website or you can contact us on telephone 02 9995 5700.

You are required to keep all records used to calculate licence fees for four years after the licence fee was paid or became payable, whichever is the later date.

E. Statement of Compliance - Requirement to Prepare PIRMP

Have you prepared a Pollution Incident Response Management Plan (PIRMP) as required under section 153A of the Protection of the Environment Operations (POEO) Act 1997?	**Yes**

Is the PIRMP available at the premises?		**Yes**
Is the PIRMP available in a prominent position on a publicly accessible website?		**Yes**
Address of the web page where the PIRMP can be accessed ▼		
https://wollongong.nsw.gov.au/your-council/plans-and-reports/waste-site-reports		
Has the PIRMP been tested?		**Yes**
The PIRMP was last tested on	**14-4-2021**	
Has the PIRMP been updated?		**Yes**
The PIRMP was last updated on	**14-4-2021**	
Number of times the PIRMP was activated in this reporting period?		**0**
The PIRMP was activated on		

F. Statement of Compliance - Requirement to Publish Pollution Monitoring Data

Are there any conditions attached to your licence that require pollution monitoring to be undertaken as required under section 66(6) of the Protection of the Environment Operations (POEO) Act 1997?	**Yes**

Do you operate a website?	**Yes**
Is the pollution monitoring data published on your website in accordance with the EPA's written requirements for publishing pollution monitoring data?	**Yes**
Address of the web page where the pollution monitoring data can be accessed ▼	
https://wollongong.nsw.gov.au/your-council/plans-and-reports/waste-site-reports	

G. Statement of Compliance - Environment Management System and Practices

Do you have an ISO 14001 certified Environmental Management System (EMS) OR any other system that EPA considers is equivalent to the accountability, procedures, documentation and record keeping requirements of an ISO 14001 certified EMS?	**No**
Have you conducted an assessment of your activities and operations to identify the aspects that have a potential to cause environmental impacts and implemented operational controls to address these aspects?	**Yes**
Have you established and implemented an operational maintenance program, including preventative maintenance?	**Yes**
Do you keep records of regular inspections and maintenance of plant and equipment?	**Yes**
Do you conduct regular (at least yearly) environmental audits at the premises that are conducted by a competent and independent person?	**Yes**
Have you undertaken an independent environmental audit covering documented environmental practices, procedures and systems in place during the annual return period?	**Yes**
Have you established and implemented an environmental improvement or management plan?	**Yes**
Do you train staff in environmental issues that may arise from your activities and operations at the premises and keep records of this?	**Yes**

H. Signature and Certification

This Annual Return may only be signed by person(s) with legal authority to sign it as set out in following categories: an individual, a Company, a Public authority or a Local council.

It is an offence under section 66 of the Protection of the Environment Operations Act 1997 to supply any information in this form that is false or misleading in a material respect, or to certify a statement that is false or misleading in a material respect. There is a maximum penalty of $250,000 for a corporation and $120,000 for an individual.

I/We

- declare that the information in the Monitoring and Complaints Summary in Section B of this Annual Return application is correct and not false or misleading in a material respect, and
- certify that the information in the Statement and Compliance in sections A, C, D, E, F, G and H and any other pages attached to Section C is correct and not false or misleading in a material respect.

Signature	DocuSigned by:
Name	Greg Doyle

Position	General Manager
Date	19 August 2021

Declaration

I declare that the information in the Monitoring and Complaints Summary in section B of this Annual Return is correct and not false or misleading in a material respect, and

I certify that the information in the Statement of Compliance in section A,C,D,E,F and G and any pages attached to Section C is correct and not false or misleading in a material respect.

WG Concentration
Monitoring Summary
92 28/5/2020-28/5/2021
For each monitoring point identified in your licence complete all the details for each pollutants listed in the tables provided below

Discharge & Monitoring Point 1

Stormwater monitoring and discharge point, Outlet at Reddalls Road - Monitoring point labelled 1 on Figure 13 titled 'Proposed Surface Water Monitoring Locations' dated 26 March 2012 (Whytes Gully New Landfill Cell 6A - Volume IV) EO97777 N6182972

Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	1	52	73	196.4038	359
Ammonia	milligrams per litre	1	52	<0.01	2.0089	6.42
Calcium	milligrams per litre	1	52	21	37.3885	57
Chloride	milligrams per litre	1	52	35	62	177
Conductivity	microsiemens per centimetre	1	51	458	809.4314	1010
Dissolved Oxygen	milligrams per litre	1	52	0.76	6.0612	9.76
Filterable Iron	milligrams per litre	1	52	<0.05	0.2813	3.59
Fluoride	milligrams per litre	1	52	<0.1	0.2885	0.5
Magnesium	milligrams per litre	1	52	10	18.5192	42
Nitrate	milligrams per litre	1	52	<0.01	0.3237	1.57
pH	pH	1	51	7.2	7.8843	8.2
Potassium	milligrams per litre	1	52	3	11.7308	133
Sodium	milligrams per litre	1	52	34	69.0769	482
Sulfate	milligrams per litre	1	52	8	26.2308	61
Temperature	milligrams per litre	1	51	9.1	18.2608	28.1
Total Organic Carbon	milligrams per litre	1	52	4	21.5	60
Total Phenolics	milligrams per litre	1	52	<0.05	<0.05	<0.05
Total suspended solids	milligrams per litre	1	52	7	58.1538	290

Monitoring Point 10

Groundwater quality monitoring, Monitoring point labelled GMW103 on Figure 15 titled "Current Site Investigation Locations" dated 6 March

Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	609	653	701
Aluminium	milligrams per litre	1	1	2.49	2.49	2.49
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	1	0.02	0.02	0.02
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	80	110.75	128
Chloride	milligrams per litre	4	4	104	120.25	150
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	0.003	0.003	0.003
Cobalt	milligrams per litre	1	1	0.003	0.003	0.003
Conductivity	microsiemens per centimetre	4	4	1520	1555	1640
Copper	milligrams per litre	1	1	0.008	0.008	0.008
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.4	0.4	0.4
Lead	milligrams per litre	1	1	0.004	0.004	0.004
Magnesium	milligrams per litre	4	4	48	49.5	50
Manganese	micrograms per litre	1	1	0.11	0.11	0.11
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.04	0.04	0.04
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	<0.01	<0.01	<0.01
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	5	6.675	7.3

Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	<1	0.5	1
Sodium	milligrams per litre	4	4	104	102.75	106
Standing water Level	metres	4	4	6.82	6.895	6.78
Sulfide	milligrams per litre	4	4	76	96.5	104
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	810	897.75	954
Total organic carbon	milligrams per litre	4	4	<1	1.5	3
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.018	0.018	0.018

Monitoring Point 11						
Groundwater quality monitoring. Monitoring point labelled (MW11) on Figure 13 titled "Current Site Investigation Locations" dated 8 March						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	328	336.25	343
Aluminium	milligrams per litre	1	4	4.73	4.73375	5.94
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	4	0.02	0.0245	0.033
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	4	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	39	40	40
Chloride	milligrams per litre	4	4	84	88	89
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	4	0.003	0.00325	0.004
Cobalt	milligrams per litre	1	4	0.003	0.00325	0.005
Conductivity	microsiemens per centimeter	4	4	591	611.25	630
Copper	milligrams per litre	1	4	0.007	0.00725	0.01
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.6	0.6	0.6
Lead	milligrams per litre	1	4	0.003	0.00325	0.004
Magnesium	milligrams per litre	4	4	30	34.5	37
Manganese	micrograms per litre	1	4	0.29	0.36525	0.52
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.1	0.1	0.1
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	<0.01	<0.01	<0.01
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	7.1	7.225	7.4
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	<1	0.75	1
Sodium	milligrams per litre	4	4	88	102.25	122
Standing water Level	metres	4	4	6.89	6.94125	7.04
Sulfide	milligrams per litre	4	4	31	34.25	42
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	348	460	536
Total organic carbon	milligrams per litre	4	4	<1	2	4
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
zinc	milligrams per kilogram	1	4	0.018	0.01745	0.019

Monitoring Point 12
Groundwater quality monitoring. Monitoring point labelled (MW12) on Figure 13 titled "Current Site Investigation Locations" dated 8 March

Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	36	43	49
Aluminium	milligrams per litre	1	1	1.78	1.78	1.78
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	1	0.037	0.037	0.037
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	7	9.25	13
Chloride	milligrams per litre	4	4	38	56.5	68
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	<0.001	<0.001	<0.001
Cobalt	milligrams per litre	1	1	<0.001	<0.001	<0.001
Conductivity	microsiemens per centimeter	4	4	331	348.25	391
Copper	milligrams per litre	1	1	0.002	0.002	0.002
ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.2	0.2	0.2
Lead	milligrams per litre	1	1	<0.001	<0.001	<0.001
Magnesium	milligrams per litre	4	4	3	4.25	6
Manganese	micrograms per litre	1	1	0.037	0.037	0.037
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	1.91	1.91	1.91
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	<0.01	0.0025	0.02
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	5.5	5.65	6.3
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	<1	<1	<1
Sodium	milligrams per litre	4	4	34	38	46
Standing Water Level	meters	4	4	8.22	9.93	11
Sulfate	milligrams per litre	4	4	11	19.75	30
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	312	374.5	346
Total organic carbon	milligrams per litre	4	4	<1	1.5	3
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
zinc	milligrams per kilogram	1	1	0.008	0.008	0.008

Monitoring Point 13						
Groundwater quality monitoring. Monitoring point labelled (MW13) on Figure 13 titled "Current Site Investigation Locations" dated 8 March						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	Dry	Dry	Dry
Aluminium	milligrams per litre	1	1	Dry	Dry	Dry
Arsenic	milligrams per litre	1	1	Dry	Dry	Dry
Barium	milligrams per litre	1	1	Dry	Dry	Dry
Benzene	milligrams per litre	1	1	Dry	Dry	Dry
Cadmium	milligrams per litre	1	1	Dry	Dry	Dry
Calcium	milligrams per litre	4	4	Dry	Dry	Dry
Chloride	milligrams per litre	4	4	Dry	Dry	Dry
Chromium (hexavalent)	milligrams per litre	1	1	Dry	Dry	Dry
Chromium (total)	milligrams per litre	1	1	Dry	Dry	Dry
Cobalt	milligrams per litre	1	1	Dry	Dry	Dry
Conductivity	microsiemens per centimeter	4	4	Dry	Dry	Dry
Copper	milligrams per litre	1	1	Dry	Dry	Dry
ethyl benzene	micrograms per litre	1	1	Dry	Dry	Dry
Fluoride	milligrams per litre	1	1	Dry	Dry	Dry

Lead	milligrams per litre	1	1	Dry	Dry	Dry
Magnesium	milligrams per litre	4	4	Dry	Dry	Dry
Manganese	micrograms per litre	1	1	Dry	Dry	Dry
Mercury	milligrams per litre	1	1	Dry	Dry	Dry
Nitrate	milligrams per litre	1	1	Dry	Dry	Dry
Nitrite	milligrams per litre	1	1	Dry	Dry	Dry
Nitrogen (ammonia)	milligrams per litre	4	4	Dry	Dry	Dry
Organochlorine pesticides	milligrams per litre	1	1	Dry	Dry	Dry
Organophosphate pesticides	milligrams per litre	1	1	Dry	Dry	Dry
pH	pH	4	4	Dry	Dry	Dry
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	Dry	Dry	Dry
Potassium	milligrams per litre	4	4	Dry	Dry	Dry
Sodium	milligrams per litre	4	4	Dry	Dry	Dry
Standing Water Level	meters	4	4	Dry	Dry	Dry
Sulfate	milligrams per litre	4	4	Dry	Dry	Dry
Toluene	milligrams per litre	1	1	Dry	Dry	Dry
Total dissolved solids	milligrams per litre	4	4	Dry	Dry	Dry
Total organic carbon	milligrams per litre	4	4	Dry	Dry	Dry
Total petroleum hydrocarbons	milligrams per litre	1	1	Dry	Dry	Dry
Total Phenolics	milligrams per litre	1	1	Dry	Dry	Dry
Xylene	milligrams per litre	1	1	Dry	Dry	Dry
Zinc	milligrams per kilogram	1	1	Dry	Dry	Dry

Monitoring Point 14						
Groundwater quality monitoring. Monitoring point labelled GMW08 on Figure 15 titled "Current Site Investigation Locations" dated 8						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	153	302.75	327
Aluminium	milligrams per litre	1	1	3.94	3.94	3.94
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	1	0.048	0.048	0.048
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	22	30.25	45
Chloride	milligrams per litre	4	4	31	51.5	79
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	0.003	0.003	0.003
Cobalt	milligrams per litre	1	1	0.002	0.002	0.002
Conductivity	microsiemens per centimeter	4	4	368	550.75	848
Copper	milligrams per litre	1	1	0.01	0.01	0.01
ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.2	0.2	0.2
Lead	milligrams per litre	1	1	0.003	0.003	0.003
Magnesium	milligrams per litre	4	4	9	13.5	17
Manganese	micrograms per litre	1	1	0.082	0.082	0.082
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.01	0.01	0.01
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	0.03	0.0525	0.08
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	6.8	6.8	6.8
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	4	4.75	6
Sodium	milligrams per litre	4	4	47	67.75	80
Standing Water Level	meters	4	4	3.33	3.5675	3.74
Sulfate	milligrams per litre	4	4	10	18	24
Toluene	milligrams per litre	1	1	<2	<2	<2

Total Dissolved solids	milligrams per litre	4	4	338	365.5	406
Total organic carbon	milligrams per litre	4	4	<1	5.75	8
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.013	0.013	0.013

Monitoring Point 13						
Groundwater quality monitoring monitoring point labelled (MW13B) on Figure 13 titled "Current Site Investigation Locations" dated 0						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	275	401.5	500
Aluminium	milligrams per litre	1	1	0.35	0.35	0.35
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	1	0.029	0.029	0.029
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	84	108.25	133
Chloride	milligrams per litre	4	4	294	500.5	817
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	<0.001	<0.001	<0.001
Cobalt	milligrams per litre	1	1	0.001	0.001	0.001
Conductivity	microsiemens per centimeter	4	4	1530	3540	3210
Copper	milligrams per litre	1	1	<0.001	<0.001	<0.001
ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.4	0.4	0.4
Lead	milligrams per litre	1	1	<0.001	<0.001	<0.001
Magnesium	milligrams per litre	4	4	38	66.5	82
Manganese	micrograms per litre	1	1	0.228	0.228	0.228
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	<0.01	0.03	0.03
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	8.7	8.775	8.8
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	<1	3	6
Sodium	milligrams per litre	4	4	194	304.5	396
Standing Water Level	metres	4	4	1.82	2.1025	2.3
Sulfide	milligrams per litre	4	4	87	193.75	304
Toluene	milligrams per litre	1	1	<2	<2	<2
Total Dissolved solids	milligrams per litre	4	4	845	1508.75	1940
Total organic carbon	milligrams per litre	4	4	<1	1.5	2
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	<0.005	<0.005	<0.005

Monitoring Point 16						
Groundwater quality monitoring monitoring point labelled (MW16B) on Figure 13 titled "Current Site Investigation Locations" dated 0						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	218	416.5	621
Aluminium	milligrams per litre	1	4	2.24	4.4475	6.34
Arsenic	milligrams per litre	1	1	0.001	0.001	0.001
Barium	milligrams per litre	1	4	0.101	0.149	0.177

Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	4	0.0003	0.0004	0.0005
Calcium	milligrams per litre	4	4	56	141.25	222
Chloride	milligrams per litre	4	4	137	268.25	368
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	4	0.003	0.0058	0.008
Cobalt	milligrams per litre	1	4	0.024	0.0365	0.053
Conductivity	microsiemens per centimeter	4	4	1070	1662.5	3040
Copper	milligrams per litre	1	4	0.012	0.0148	0.018
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	<0.1	<0.1	<0.1
Lead	milligrams per litre	1	4	0.003	0.0055	0.007
Magnesium	milligrams per litre	4	4	34	39.25	108
Manganese	micrograms per litre	1	4	3.35	5.7425	10.1
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	0.28	0.34	0.43
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	8.2	8.6	7.4
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	3	3.25	3
Sodium	milligrams per litre	4	4	111	184.5	265
Standing water Level	metres	4	4	3.77	3.9075	3.1
Sulfate	milligrams per litre	4	4	151	373.75	818
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	667	1379.25	2100
Total organic carbon	milligrams per litre	4	4	<1	13.25	37
Total petroleum hydrocarbons	milligrams per litre	1	3	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	4	0.033	0.0443	0.058

Monitoring Point 17						
Groundwater quality monitoring, Monitoring point labeled GWW11 on Figure 15 titled "Current Site Investigation Locations" dated 8 March						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	650	662.75	680
Aluminium	milligrams per litre	1	1	1.83	1.83	1.83
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	1	0.008	0.008	0.008
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	196	196.75	214
Chloride	milligrams per litre	4	4	797	873.25	948
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	0.001	0.001	0.001
Cobalt	milligrams per litre	1	1	0.002	0.002	0.002
Conductivity	microsiemens per centimeter	4	4	4020	4117.5	4270
Copper	milligrams per litre	1	1	0.003	0.003	0.003
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.4	0.4	0.4
Lead	milligrams per litre	1	1	0.001	0.001	0.001
Magnesium	milligrams per litre	4	4	137	148	170
Manganese	micrograms per litre	1	1	0.048	0.048	0.048
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.73	0.73	0.73
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	<0.01	0.005	0.02
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	6.6	6.675	6.8
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	1	1.75	3
Sodium	milligrams per litre	4	4	417	443.75	466
Standing Water Level	meters	4	4	3.78	3.94	4.05
Sulfate	milligrams per litre	4	4	321	333.75	344
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	2440	2515	2670
Total organic carbon	milligrams per litre	4	4	<1	0.75	3
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.009	0.009	0.009

Monitoring Point 18						
Groundwater quality monitoring, Monitoring point labeled GWW11 on Figure 15 titled "Current Site Investigation Locations" dated 8 March						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	650	681	715
Aluminium	milligrams per litre	1	1	3.11	3.11	3.11
Arsenic	milligrams per litre	1	1	0.003	0.003	0.003
Barium	milligrams per litre	1	1	0.047	0.047	0.047
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	111	121	126
Chloride	milligrams per litre	4	4	691	708.25	730
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	0.003	0.003	0.003
Cobalt	milligrams per litre	1	1	0.003	0.003	0.003

Conductivity	microsiemens per centimeter	4	4	3340	3380	3540
Copper	milligrams per litre	1	1	0.008	0.008	0.008
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.4	0.4	0.4
Lead	milligrams per litre	1	1	0.003	0.003	0.003
Magnesium	milligrams per litre	4	4	94	101.75	107
Manganese	micrograms per litre	1	1	1.37	1.37	1.37
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	0.21	0.3175	0.43
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	7	7.075	7.2
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	1	1.75	2
Sodium	milligrams per litre	4	4	412	451.25	476
Standing Water Level	meters	4	4	4.82	5.675	6.52
Sulfate	milligrams per litre	4	4	173	183	194
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	1850	1995	2080
Total organic carbon	milligrams per litre	4	4	<1	2.5	8
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.014	0.014	0.014

Monitoring Point 19

Groundwater quality monitoring. Monitoring point labelled GWW108D on Figure 15 titled "Current Site Investigation Locations" dated 6 March 2013 (Whytes Gully New Landfill Cell 6A - Volume IV), E297604.9 N6184068

Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	252	254	255
Aluminium	milligrams per litre	1	1	0.03	0.03	0.03
Arsenic	milligrams per litre	1	1	<0.001	<0.001	<0.001
Barium	milligrams per litre	1	1	0.135	0.135	0.135
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	90	99	106
Chloride	milligrams per litre	4	4	452	486.25	515
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	<0.001	<0.001	<0.001
Cobalt	milligrams per litre	1	1	0.002	0.002	0.002
Conductivity	microsiemens per centimeter	4	4	1890	1902.5	1920
Copper	milligrams per litre	1	1	<0.001	<0.001	<0.001
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.4	0.4	0.4
Lead	milligrams per litre	1	1	<0.001	<0.001	<0.001
Magnesium	milligrams per litre	4	4	48	51	53
Manganese	micrograms per litre	1	1	0.824	0.824	0.824
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.01	0.01	0.01
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	0.09	0.0975	0.11
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	6.8	6.85	6.9
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5

Potassium	milligrams per litre	4	4	1	1	1
Sodium	milligrams per litre	4	4	100	106.75	108
Standing Water Level	metres	4	4	2.69	2.6925	2.97
Sulfide	milligrams per litre	4	4	35	35	60
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	1050	1137.5	1240
Total organic carbon	milligrams per litre	4	4	<1	<1	<1
Total petroleum hydrocarbons	milligrams per litre	1	3	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	<0.005	<0.005	<0.005

Monitoring Point 20						
Groundwater quality monitoring. Monitoring point labelled BH8 on Figure 15 titled "Current Site Investigation Locations" dated 6 March						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	308	514.25	664
Aluminium	milligrams per litre	1	1	0.03	0.03	0.03
Arsenic	milligrams per litre	1	1	0.004	0.004	0.004
Barium	milligrams per litre	1	1	0.053	0.053	0.053
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	58	67.75	86
Chloride	milligrams per litre	4	4	56	168	327
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	<0.001	<0.001	<0.001
Cobalt	milligrams per litre	1	1	0.008	0.008	0.008
Conductivity	microsiemens per centimeter	4	4	824	1488.5	2140
Copper	milligrams per litre	1	1	0.001	0.001	0.001
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.6	0.6	0.6
Lead	milligrams per litre	1	1	0.003	0.003	0.003
Magnesium	milligrams per litre	4	4	22	37	53
Manganese	micrograms per litre	1	1	1.54	1.54	1.54
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.01	0.01	0.02
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammoniacal)	milligrams per litre	4	4	0.38	0.435	0.45
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	6.8	6.95	7
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	3	3.75	5
Sodium	milligrams per litre	4	4	95	302	301
Standing Water Level	metres	4	4	1.25	1.36	1.45
Sulfide	milligrams per litre	4	4	37	48.5	59
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	517	884.5	1260
Total organic carbon	milligrams per litre	4	4	<1	13	33
Total petroleum hydrocarbons	milligrams per litre	1	3	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.005	0.005	0.005

Monitoring Point 21						
Subsurface gas monitoring. Monitoring point labelled LFG MW1 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 22						
Subsurface gas monitoring. Monitoring point labelled LFG MW2 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 23						
Subsurface gas monitoring. Monitoring point labelled LFG MW3 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 24						
Subsurface gas monitoring. Monitoring point labelled LFG MW4 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 25						
Subsurface gas monitoring. Monitoring point labelled LFG MW5 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 26						
Subsurface gas monitoring. Monitoring point labelled LFG MW6 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 27						
Subsurface gas monitoring. Monitoring point labelled LFG MW7 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 28						
Subsurface gas monitoring. Monitoring point labelled LFG MW8 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 29						
Subsurface gas monitoring. Monitoring point labelled LFG MW9 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 3						
Surface Gas Monitoring. Areas where intermediate or final cover has been placed						
Pollutant	Unit of Measure	No of samples required by licence	No. of samples collected and analysed	Lowest sample value	Mean of sample	Highest sample value
Methane	percent by volume	12	12	0.0001	0.0018170005	0.44

Monitoring Point 30						
Subsurface gas monitoring. Monitoring point labelled LFG MW10 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 31						
Subsurface gas monitoring. Monitoring point labelled LFG MW11 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 32						
Subsurface gas monitoring. Monitoring point labelled LFG MW12 on Figure 14 titled "Proposed Landfill Gas Monitoring Locations" dated 8						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Methane	percent by volume	12	12	<0.1	<0.1	<0.1

Monitoring Point 33						
Stormwater monitoring point. Downstream monitoring point labelled 4 on Figure 13 titled "Proposed Surface Water Monitoring Locations"						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Alkalinity (as calcium carbonate)	milligrams per litre	1	51	34	99.8373	233
Ammonia	milligrams per litre	1	51	<0.01	0.1363	2.14
Calcium	milligrams per litre	1	51	10	23.8078	44
Chloride	milligrams per litre	1	51	14	37	86
Conductivity	microsiemens per centimeter	1	51	140	339.2603	609
Dissolved Oxygen	milligrams per litre	1	51	3.38	7.7881	11.4
Filterable Iron	milligrams per litre	1	51	0.1	0.2667	0.64
Fluoride	milligrams per litre	1	51	<0.1	0.1176	0.2
Magnesium	milligrams per litre	1	51	5	10.7843	19
Nitrate	milligrams per litre	1	51	<0.01	0.3585	1.31
pH	pH	1	51	7.1	7.4137	7.8
Potassium	milligrams per litre	1	51	2	3.3941	9
Sodium	milligrams per litre	1	51	11	29.8627	72
Sulfate	milligrams per litre	1	51	4	17.8471	34
Temperature	milligrams per litre	1	51	9.1	17.4059	27.1
Total Organic Carbon	milligrams per litre	1	51	2	5.9412	16
Total Phenolics	milligrams per litre	1	51	<0.05	<0.05	<0.05
Total suspended solids	milligrams per litre	1	51	<5	21.7059	539

Monitoring Point 34						
Stormwater monitoring point. Upstream monitoring point labelled 6 on Figure 13 titled "Proposed Surface Water Monitoring Locations"						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Alkalinity (as calcium carbonate)	milligrams per litre	1	51	31	106.451	200
Ammonia	milligrams per litre	1	51	<0.01	0.0676	2.37
Calcium	milligrams per litre	1	51	10	28.8824	47
Chloride	milligrams per litre	1	51	18	40.3196	62
Conductivity	microsiemens per centimeter	1	51	155	373.5883	574
Dissolved Oxygen	milligrams per litre	1	51	4.87	8.9049	11.3
Filterable Iron	milligrams per litre	1	51	<0.05	0.1524	0.5
Fluoride	milligrams per litre	1	51	<0.1	0.1098	0.2
Magnesium	milligrams per litre	1	51	4	13.2941	21
Nitrate	milligrams per litre	1	51	<0.01	0.3392	1.59
pH	pH	1	51	7.1	7.5098	7.9
Potassium	milligrams per litre	1	51	2	3	8
Sodium	milligrams per litre	1	51	13	28.8235	45
Sulfate	milligrams per litre	1	51	6	23.549	37
Temperature	milligrams per litre	1	51	7.8	17.0784	27.5
Total Organic Carbon	milligrams per litre	1	51	<1	4.8863	35

Total Phenolics	milligrams per litre	1	51	<0.05	<0.05	<0.05
Total suspended solids	milligrams per litre	1	51	<5	21.8431	537

Monitoring Point 4						
Gas accumulation monitoring. Inside all buildings within 250 meters of deposited waste						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Methane	percent by volume	12	12	0.000189	0.000295	0.00088

Monitoring Point 5						
Groundwater quality monitoring , Monitoring point labelled GA9H03 on Figure 15 titled "Current Site Investigation Locations" dated 6 March						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	849	1042.5	1250
Aluminium	milligrams per litre	1	1	0.88	0.88	0.88
Arsenic	milligrams per litre	1	1	0.003	0.003	0.003
Barium	milligrams per litre	1	1	0.073	0.073	0.073
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Calcium	milligrams per litre	4	4	178	231.25	312
Chloride	milligrams per litre	4	4	589	848.25	1180
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	0.004	0.004	0.004
Cobalt	milligrams per litre	1	1	0.004	0.004	0.004
Conductivity	microsiemens per centimeter	4	4	4.88	3576.17	5480
Copper	milligrams per litre	1	1	0.004	0.004	0.004
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.4	0.4	0.4
Lead	milligrams per litre	1	1	0.002	0.002	0.002
Magnesium	milligrams per litre	4	4	91	126	186
Manganese	micrograms per litre	1	1	3.45	3.45	3.45
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.06	0.06	0.06
Nitrite	milligrams per litre		1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	0.04	0.57	1.3
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	6.7	842.925	3350
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	2	17	34
Sodium	milligrams per litre	4	4	360	475	605
Standing Water Level	meters	4	4	5.08	5.9075	7.23
Sulfate	milligrams per litre	4	4	82	125.75	168
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	1920	2575	3350
Total organic carbon	milligrams per litre	4	4	<1	9.25	21
Total petroleum hydrocarbons	milligrams per litre	1	2	<20	26.6889	<100
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.023	0.023	0.023

Monitoring Point 9						
Groundwater quality monitoring, Monitoring point labelled GMW103 on Figure 15 titled "Current Site Investigation Locations" dated 6 March						
Pollutant	**Unit of Measure**	**No of samples required by licence**	**No. of samples collected and analysed**	**Lowest sample value**	**Mean of sample**	**Highest sample value**
Alkalinity (as calcium carbonate)	milligrams per litre	4	4	122	148.25	168
Aluminium	milligrams per litre	1	1	24.8	24.8	24.8
Arsenic	milligrams per litre	1	1	0.001	0.001	0.001

Barium	milligrams per litre	1	1	0.109	0.109	0.109
Benzene	milligrams per litre	1	1	<1	<1	<1
Cadmium	milligrams per litre	1	1	0.0001	0.0001	0.0001
Calcium	milligrams per litre	4	4	30	31	40
Chloride	milligrams per litre	4	4	14	22.75	38
Chromium (hexavalent)	milligrams per litre	1	1	<0.01	<0.01	<0.01
Chromium (total)	milligrams per litre	1	1	0.01	0.01	0.01
Cobalt	milligrams per litre	1	1	0.012	0.012	0.012
Conductivity	microsiemens per centimeter	4	4	329	360.25	415
Copper	milligrams per litre	1	1	0.004	0.004	0.004
Ethyl benzene	micrograms per litre	1	1	<2	<2	<2
Fluoride	milligrams per litre	1	1	0.2	0.2	0.2
Lead	milligrams per litre	1	1	0.011	0.011	0.011
Magnesium	milligrams per litre	4	4	7	13	20
Manganese	micrograms per litre	1	1	0.587	0.587	0.587
Mercury	milligrams per litre	1	1	<0.0001	<0.0001	<0.0001
Nitrate	milligrams per litre	1	1	0.81	0.81	0.81
Nitrite	milligrams per litre	1	1	<0.01	<0.01	<0.01
Nitrogen (ammonia)	milligrams per litre	4	4	<0.01	<0.01	<0.01
Organochlorine pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
Organophosphate pesticides	milligrams per litre	1	1	<0.5	<0.5	<0.5
pH	pH	4	4	6.7	6.85	7
Polycyclic aromatic hydrocarbons	milligrams per litre	1	1	<0.5	<0.5	<0.5
Potassium	milligrams per litre	4	4	<1	1	3
Sodium	milligrams per litre	4	4	25	33.5	45
Standing Water Level	meters	4	4	2.54	6.5675	9.03
Sulfate	milligrams per litre	4	4	12	23.75	49
Toluene	milligrams per litre	1	1	<2	<2	<2
Total dissolved solids	milligrams per litre	4	4	254	270	308
Total organic carbon	milligrams per litre	4	4	1	3.25	4
Total petroleum hydrocarbons	milligrams per litre	1	2	<100	<20	<20
Total Phenolics	milligrams per litre	1	1	<0.05	<0.05	<0.05
Xylene	milligrams per litre	1	1	<2	<2	<2
Zinc	milligrams per kilogram	1	1	0.087	0.087	0.087