Report Date: 13-Feb-24

Russell Vale Colliery Monthly Environmental Monitoring Report (2023/2024)

Environmental Protection Licence No. 12040

WOLLONGONG RESOURCES PTY LTD / RUSSELL VALE COLLIERY

Table of Contents

GLOSSARY OF TERMS AND ABBREVIATIONS

Abbreviations	
BAM	Beta-Attenuation Monitor
BOD	Biochemical Oxygen Demand
DDG	Dust Deposition Gauge
EPL	Environmental Protection Licence
g/m^2/month	Grams per square metre per month
KL/d	Kilolitres per day
LDP	Licence Discharge Point
NTU	Nephelometric
µg/m^3	Micrograms per cubic metre
mg/L	Milligrams per litre
TSS	Total Suspended Solids

Term	
Dry Weather Conditions	'Dry Weather Conditions', means less than ten millimetres of rain falling within a 24-hour period and is measured at a point on the premises.
Wet Weather Conditions	'Wet Weather Conditions', means anything other than Dry Weather Conditions.

1. INTRODUCTION

Wollongong Resources Pty Limited (WRPL) operates the Russell Vale Colliery in the Southern Coalfield of New South Wales (NSW). Russell Vale Colliery is an underground coal mine located at Russell Vale, approximately 8 kilometres (km) north of Wollongong and 70 km south of Sydney, within the local government areas (LGAs) of Wollongong and Wollondilly.

Mining as has been undertaken at Russell Vale Colliery since the 1880s. Continuous mining has been a feature since 1887 and surface facilities have operated at the Russell Vale site since this time.

The existing and workings are contained within Consolidated Coal Lease 745 and Mining Lease 1575.

The Russell Vale Collery Development Consent MP09_0013 was approved by the Independent Planning Commission of NSW on 8 December 2020.

This report is updated monthly and uploaded to the Wollongong Resources website (https://wollongongresources.net.au/monitoring-r/) within 14 days of the monitoring period ending.

2. REPORT SCOPE

WRPL have been issued an Environmental Protection Licence (EPL No. 12040) from the NSW Environment Protection Authority (EPA) for the the Russell Vale Collery. The EPL applies to the works approved under the Development Consent MP09_0013 associated with the operation of the Russell Vale Collery.

This EPL Pollution Monitoring Report provides the results of all pollution monitoring required to be measured or monitored by the licensee of EPL 12040 as required by Section 66 of the Protection of the Environment Operations Act 1997 (POEO Act) and with reference to EPA Publication Requirements for publishing pollution monitoring data (Environment Protection Authority, 2013).

Table 1 provides a summary of the EPL 12040 details.

Table 1 Licence Details

Licence Details	
Number:	12040
Copy of Licence	https://app.epa.nsw.gov.au/prpoeoapp/
Anniversary Date	19 May
Licensee	Wollongong Resources Pty Limited
Premises	Russell Vale Collery, Broker Street, Russell Vale NSW 2517
Scheduled Activity	Coal Works, Mining for Coal

3. REPORTING REQUIREMENTS

Under the *POEO Act*, holders of environment protection licences (licensees) must publish or make pollution monitoring data available to members of the public.

The *POEO Act* Section 66 requires

"66 Conditions requiring monitoring, certification or provision of information, and related offences

(1) **Monitoring** The conditions of a licence may require—
(a) monitoring by the holder of the licence of the activity or work authorised, required or controlled by the licence, including with respect to—
(i) the operation or maintenance of premises or plant, and
(ii) discharges from premises, and
(iii) relevant ambient conditions prevailing on or outside premises, and
(iv) anything required by the conditions of the licence, and
(b) the provision and maintenance of appropriate measuring and recording devices for the purposes of that monitoring, and
(c) the analysis, reporting and retention of monitoring data.

(2) **False or misleading information** A holder of a licence who supplies information, or on whose behalf information is supplied, to the appropriate regulatory authority under the conditions of the licence is guilty of an offence if the information is false or misleading in a material respect."

The primary objective of the pollution monitoring reporting requirements is that members of the public have access to the results of all pollution monitoring (which a licence specifies must be carried out) in a way that is meaningful to them. Data for the is presented on a monthly sampling period.

The monitoring data that must be published and/or made available on request is any data that is obtained as a result of a monitoring condition on a licence that relates to air, water (surface or groundwater), noise and/or land pollution. The data to be published or provided is limited to data that relates to pollutants generated, discharged, or emitted from the licensed premises.

The data is provided in tabular format that is easy for the public to understand. Tables definitively display raw data values, while graphs and charts are useful for overviews and visualisation of long-term trends.

A note will be included in this report to explain why any data may appear to be missing because there is no discharge or the level of pollutant being below the detection level of the measurement instrument.
It is possible from time to time that incorrect data may be published in good faith. As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading (refer to Section 5).

Table 2 provides a summary of the pollution monitoring requirements of EPL 12040

Table 2 EPL 12040

<table>
<tr><th>EPL Condition</th><th>Requirement</th><th>Report Reference</th></tr>
<tr><td colspan="3">Weather</td></tr>
<tr><td>M4.1</td><td>At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.
POINT 14
<table><tr><th>Parameter</th><th>Sampling method</th><th>Units of measure</th><th>Averaging period</th><th>Frequency</th></tr><tr><td>Rainfall</td><td>AM-4</td><td>millimetres</td><td>15 minutes</td><td>Continuous</td></tr></table></td><td>Section 4.1</td></tr>
<tr><td colspan="3">Water</td></tr>
<tr><td>P1.3</td><td>The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.
<table><tr><th>EPA Identi-fication no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>1</td><td>Discharge to waters
Discharge quality monitoring</td><td>Discharge to waters
Discharge quality monitoring</td><td>Underground drainage from coal stockpile and forested area. Concrete weir on energy dissipater in Rath's Gully labelled as "Point 1" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040"</td></tr><tr><td>2</td><td>Discharge to waters
Discharge quality monitoring
Volume monitoring</td><td>Discharge to waters
Discharge quality monitoring
Volume monitoring</td><td>Outlet from the water treatment plant pipeline into the Bellambi Gully stormwater by-pass channel. lat. -34.360085 long 150.893095</td></tr><tr><td>3</td><td></td><td>Discharge to waters</td><td>Water that seeps through the main stormwater control dam wall labelled as "Point 3" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040"</td></tr><tr><td>9</td><td></td><td>Discharge to waters</td><td>Gabion wall spillway on the main stormwater control dam labelled as point 9 on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040"</td></tr><tr><td>11</td><td>Ambient water quality monitoring
Volume monitoring</td><td></td><td>Bellambi Gully ambient water quality west of Princes Hwy labelled as point 11 on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040"</td></tr><tr><td>12</td><td>Ambient water quality monitoring
Volume monitoring</td><td></td><td>Bellambi Gully upstream ambient water quality labelled as point 12 on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040"</td></tr></table></td><td>Section 4.2</td></tr>
</table>

<table>
<tr><td>M2.5</td><td>Water and/ or Land Monitoring Requirements

POINT 1
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Electrical conductivity</td><td>millisiemens per centimetre</td><td>Monthly during discharge</td><td>In situ</td></tr><tr><td>pH</td><td>pH</td><td>Monthly during discharge</td><td>In situ</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td>Monthly during discharge</td><td>Grab sample</td></tr><tr><td>Turbidity</td><td>nephelometric turbidity units</td><td>Monthly during discharge</td><td>In situ</td></tr></table>
POINT 2
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Electrical conductivity</td><td>microsiemens per centimetre</td><td>Monthly during discharge</td><td>In situ</td></tr><tr><td>pH</td><td>pH</td><td>Monthly during discharge</td><td>In situ</td></tr><tr><td>Total suspended solids</td><td>milligrams per litre</td><td>Monthly during discharge</td><td>Grab sample</td></tr><tr><td>Turbidity</td><td>nephelometric turbidity units</td><td>Monthly during discharge</td><td>In situ</td></tr></table>
POINT 11,12
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Electrical conductivity</td><td>microsiemens per centimetre</td><td>Continuous</td><td>In situ</td></tr><tr><td>Turbidity</td><td>nephelometric turbidity units</td><td>Continuous</td><td>In situ</td></tr></table></td><td>Section 4.2</td></tr>
<tr><td>M2.5</td><td>The licensee must provide public access on its website to the real time monitoring data collected under the licence for points 11 and 12. The information must be made available from 14 April 2017.</td><td>Section 4.2.2</td></tr>
<tr><td>L3.1</td><td>For each discharge point or utilisation area specified below (by a point number), the volume/mass of:

a) liquids discharged to water; or;

b) solids or liquids applied to the area;

must not exceed the volume/mass limit specified for that discharge point or area.

<table><tr><th>Point</th><th>Unit of Measure</th><th>Volume/Mass Limit</th></tr><tr><td>2</td><td>kilolitres per day</td><td>2500</td></tr></table></td><td></td></tr>
<tr><td colspan="3">Air Quality</td></tr>
<tr><td>P1.1</td><td>The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.</td><td>Section 4.3</td></tr>
</table>

	EPA identification no. / **Type of Monitoring Point** / **Type of Discharge Point** / **Location Description** 4 — Dust Monitoring — Dust Gauge located at 2 Broker Street and labelled as "Point 4" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040" 5 — Dust Monitoring — Dust Gauge located at the Water Board Compound labelled as "Point 5" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040" 6 — Dust Monitoring — Dust Gauge located at 30 West Street labelled as "Point 6" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040" 7 — Dust Monitoring — Dust Gauge located at 22 West Street labelled as "Point 7" on the map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040" 8 — Dust Monitoring — Dust Gauge located at on the property boundary at Midgely Street and labelled as "Point 8" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040" 14 — Meteorological Monitoring Station — Station located near Sydney Water tanks and labelled as "Point 14" on map titled "Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040	
M2.2	Air Monitoring Requirements: POINT 4,5,6,7,8 **Pollutant** / **Units of measure** / **Frequency** / **Sampling Method** Ash — grams per square metre per month — Monthly — Australian Standard 3580.10.1-2003 Combustible solids — grams per square metre per month — Monthly — Australian Standard 3580.10.1-2003 Insoluble solids — grams per square metre per month — Monthly — Australian Standard 3580.10.1-2003	Section 4.3

4. MONITORING

This report presents a summary of the monitoring programs completed in the 2023/2024 reporting period in accordance with the conditions of EPL 12040.

Monitoring locations are detailed on Figure 1.

Figure 1 Russell Vale Colliery Location of Monitoring/Discharge Points EPL 12040

4.1. Weather Monitoring

EPL Point 14 location description: The Automatic Weather Station (AWS) is located near Sydney Water tanks and labelled as "Point 14" on Figure 1.

Historical rainfall data (rolling 12 months) is presented in Figure 2. Refer to previous reports for commentary on historical data trends.

Note: AWS hardware issues. Data only recorded during daylight hours between the period of 26th March 2022 to 17th April 2022.

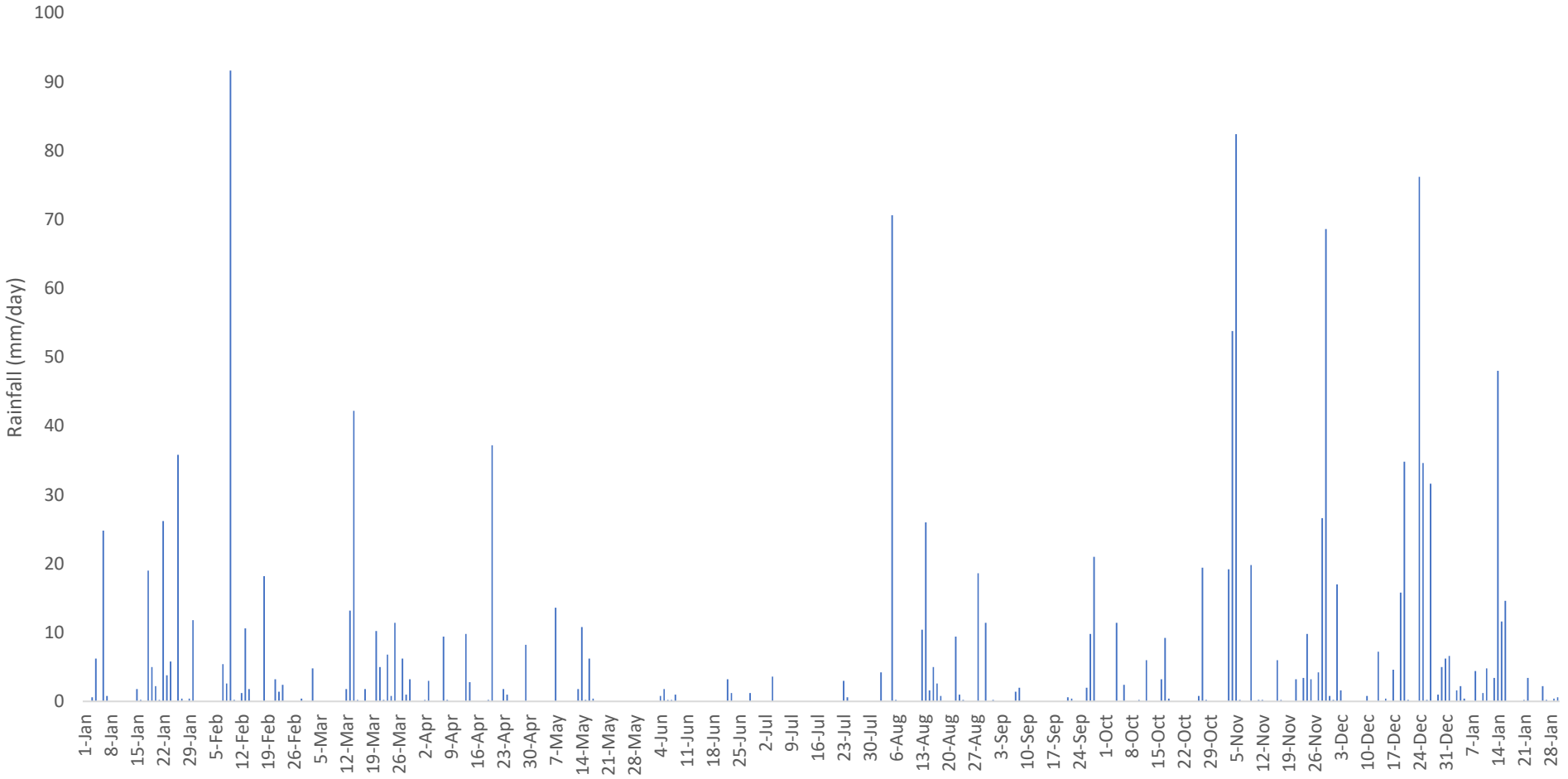

Figure 2 EPL Point 14 Historical Rainfall Data

4.2. Water

Water quality monitoring data is presented for Licensed Discharge Points (LDP) 1 and 2. Water volume data is presented for LDP 2.

Monthly and historical water quality data for LDP 11 and LDP 12 can be accessed via https://wollongongresources.net.au/monitoring-r/.

LDP 11 location description: Bellambi Gully ambient water quality west of Princess Hwy labelled as "Point-11" on Figure 1.

LDP 12 location description: Bellambi Gully upstream ambient water quality labelled as "Point 12" on Figure 1.

4.2.1. Licensed Discharge Point (LDP) 1

LDP 1 location description: underground drainage from coal stockpile and forested area. Concrete weir on energy dissipater in Rath's Gully labelled as "Point 1" on Figure 1.

The water quality for LDP 1 is presented in Table 3.

Historical water quality data (rolling 12 months) is presented in Figure 3 and Figure 4. Refer to previous reports for commentary on historical data trends.

Table 3 LDP 1 Water Quality Data

Date of Monitoring/ Sampling	Date of results obtained	Date Published	EC (µS/cm) in-situ	pH (pH Units) in-situ	Turbidity (NTU)	TSS (mg/L) Grab sample	Comments
04/05/2023	11/05/2023	06/06/2023	507	8.0	4.1	<5	
06/06/2023	14/06/2023	03/07/2023	1216	7.8	1.5	<5	
07/07/2023	14/07/2023	04/08/2023	1336	7.8	30.1	18	
03/08/2023	10/08/2023	18/08/2023	1243	7.9	2.9*	<5	
07/09/2023	14/09/2023	03/10/2023	1360*	7.6	30.4	<5	
03/10/2023	11/10/2023	30/10/2023	1104	7.8	4.9*	<5	
02/11/2023	07/11/2023	30/11/2023	1619	7.8	18.9*	30	
06/12/2023	06/12/2023	12/01/2024	1218	7.8	14.5*	10	*
23/01/2024	30/01/2024	14/01/2024	1167	7.7	5.8*	6	

Result taken from ALS Sample

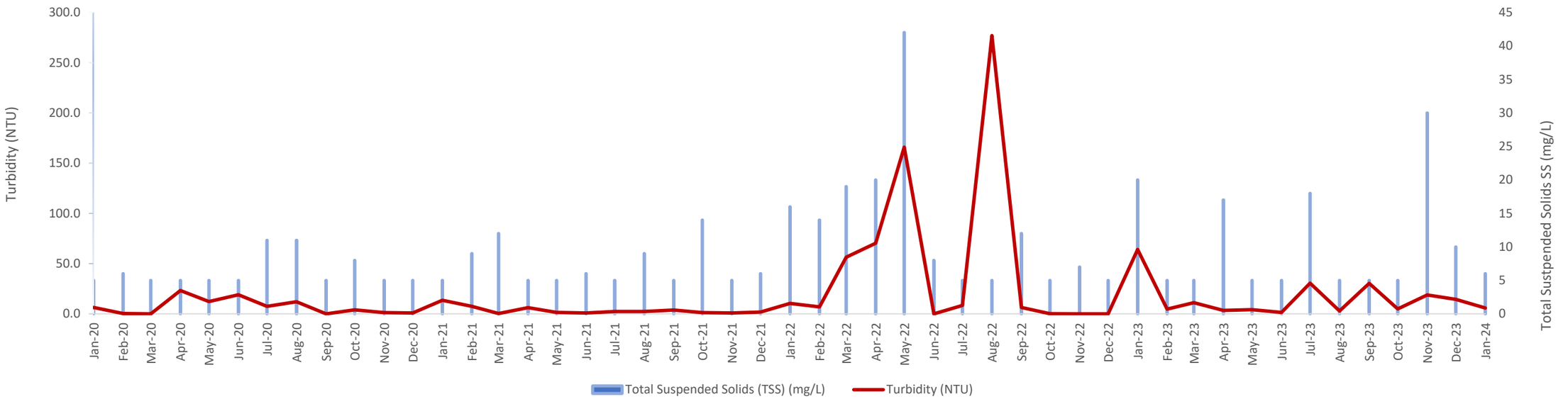

Figure 3 LDP 1 TSS and NTU Historical Data

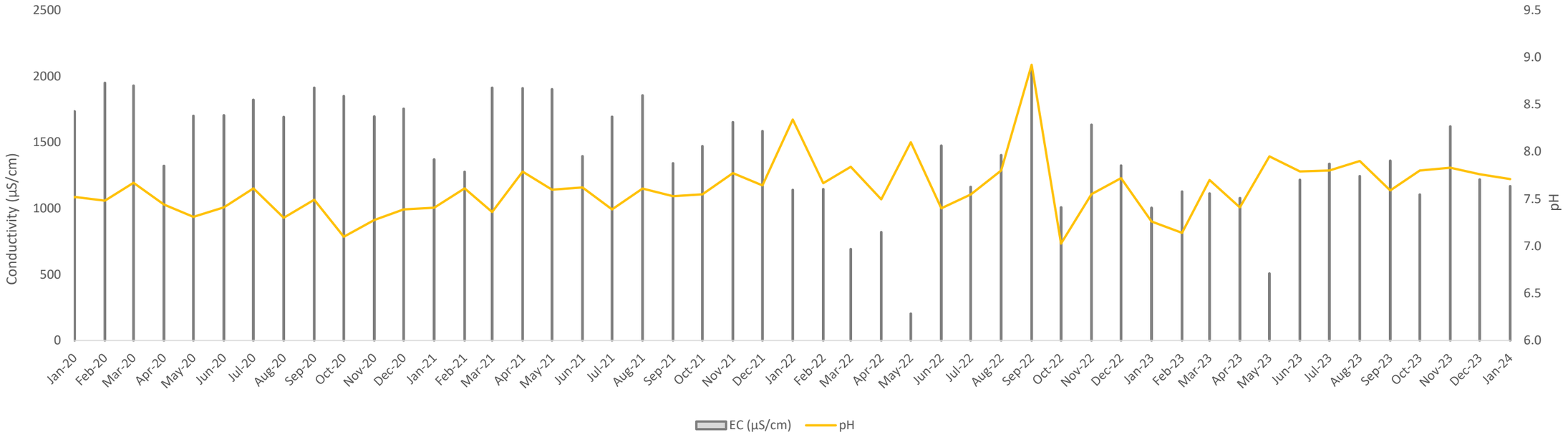

Figure 4 LDP 1 Conductivity and pH Historical Data

4.2.2. Licensed Discharge Point (LDP) 2

LDP 2 location description: Outlet from water treatment plant pipeline into the Bellambi Gully stormwater by-pass channel, labelled as "Point 2" on Figure 1.

The water quality data for LDP 2 is presented in Table 4.

Historical water quality data (rolling 12 months) is presented in Figure 5, Figure 3, Figure 6, and Figure 4. Refer to previous reports for commentary on historical data trends.

Table 4 LDP 2 Water Quality Data

Date of Monitoring/ Sampling	Date of results obtained	Date Published	EC (µS/cm) in-situ	pH (pH Units) in-situ	pH EPL 100 Percentile Lower Concentration Limit (pH units)	pH EPL 100 Percentile Upper Concentration Limit (pH units)	Turbidity (NTU) in-situ	TSS (mg/L) Grab Sample	TSS EPL 100 Percentile Concentration Limit (mg/L)	Comments
04/05/2023	11/05/2023	06/06/2023	1115	8.7	6.5	9.2	12.8	17	50	
06/06/2023	14/06/2023	03/07/2023	1625	9.0	6.5	9.2	10.5	11	50	
07/07/2023	14/07/2023	04/08/2023	1942	9.2	6.5	9.2	19.7	15	50	
03/08/2023	10/08/2023	18/08/2023	2112	9.1	6.5	9.2	17.3	14	50	
07/09/2023	14/09/2023	03/10/2023	2168	9.1	6.5	9.2	34.6	12	50	
03/10/2023	11/10/2023	30/10/2023	2373	9.0	6.5	9.2	12.7*	13	50	
2/11/2023	7/11/2023	30/112023	2696	9.2	6.5	9.2	6.3*	9	50	
06/12/2023	06/12/2023	12/01/2024	1678	9.2	6.5	9.2	6.9*	6	50	
23/01/2024	30/01/2024	14/02/2024	1223	9.2	6.5	9.2	2.4	9	50	

- * Result taken from ALS Sample

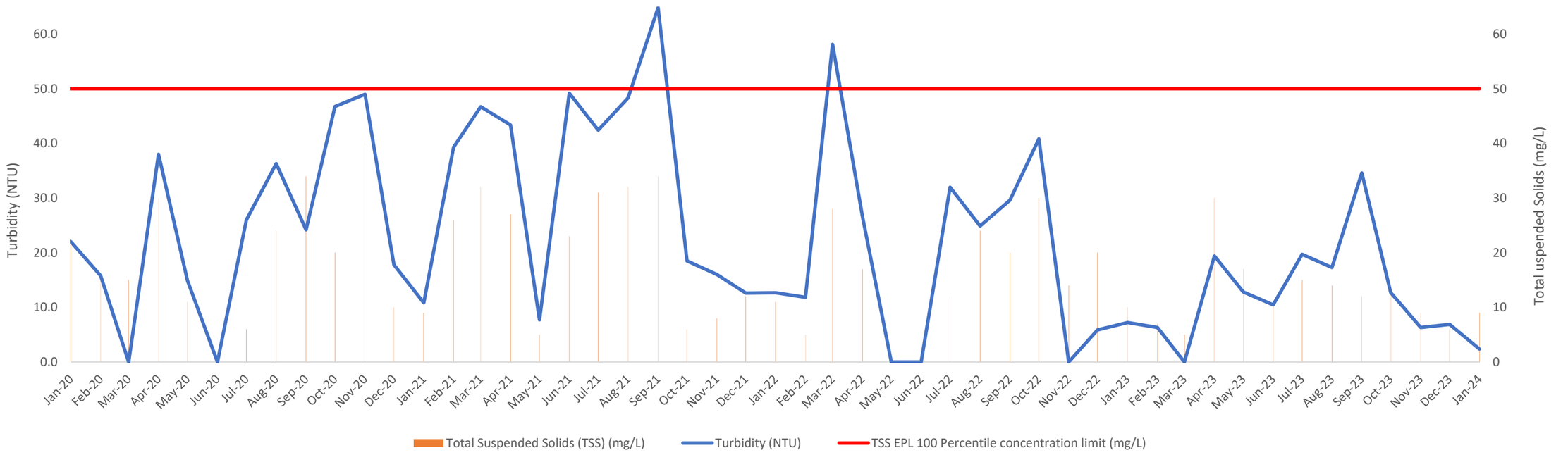

Figure 5 LDP 2 Total Suspended Solids and Turbidity Historical Data

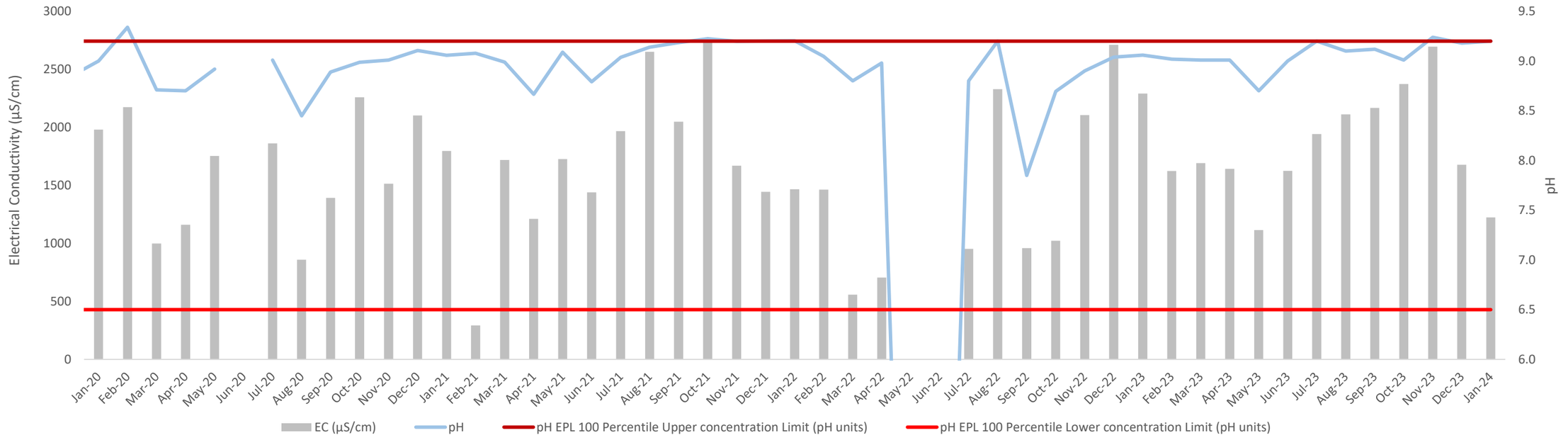

Figure 6 LDP 2 Conductivity and pH Historical Data LDP 11

Volume discharge for LDP 2 is presented in Table 5.

Historical data (rolling 12 months) is presented in Figure 7. Refer to previous reports for commentary on historical data trends.

Table 5 LDP 2 Discharge Volume

Monitoring Period	Average Flow (kL/day)	Min Flow (kL/day)	Max Flow (kL/day)	Volume Mass Limit (kL/day)	Comments
May - 23	403	0	2580	2500	Wet Weather Conditions
Jun - 23	57	0	484	2500	
Jul - 23	0	0	0	2500	No Discharge
Aug - 23	115	0	481	2500	
Sept - 23	0.2	0	6	2500	
Oct - 23	22	0	541	2500	
Nov – 23	11	0	82	2500	
Dec - 23	569	0	2303	2500	
Jan - 23	522	0	2273	2500	

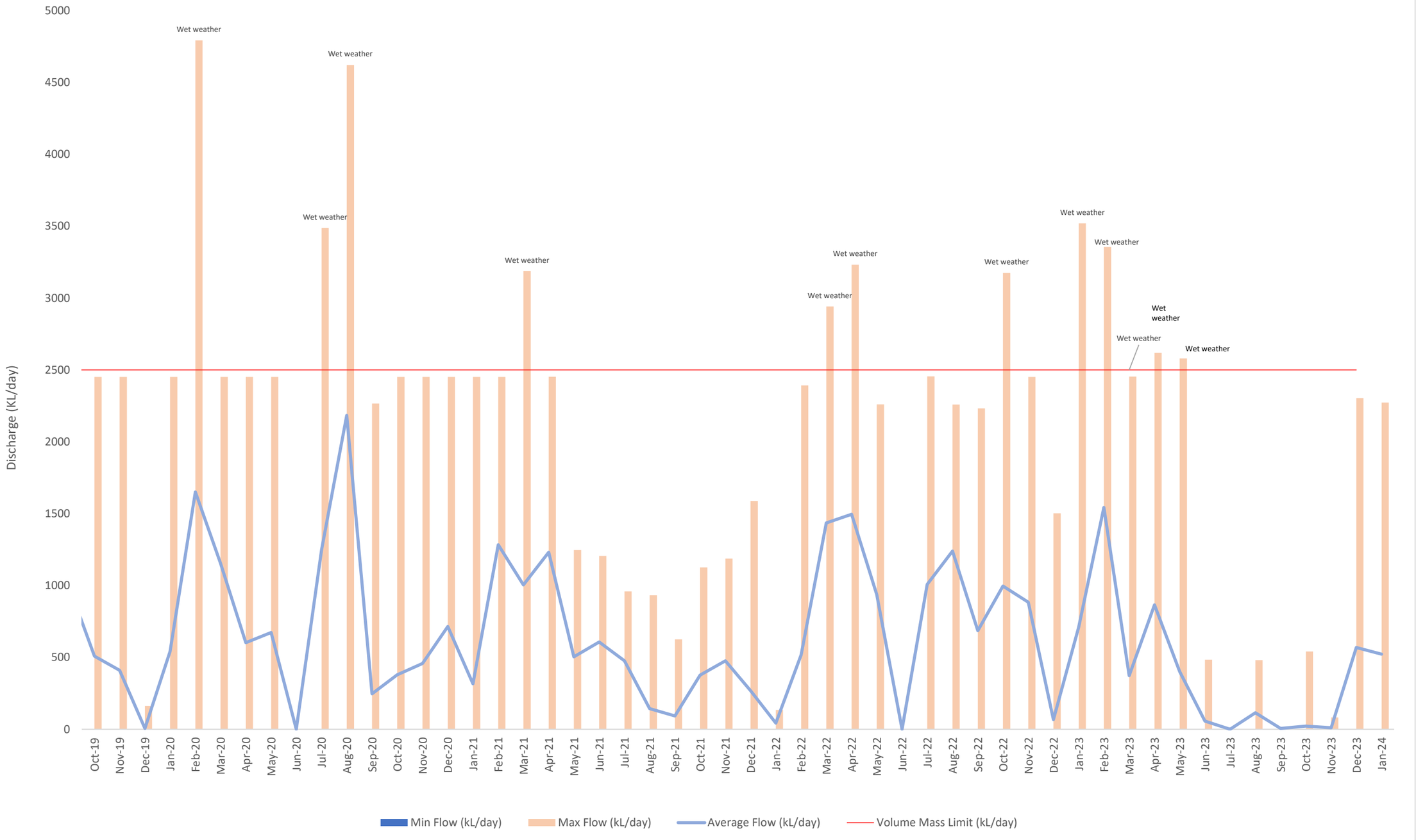

Figure 7 LDP 2 Historic Discharge Volume

4.2.3. Licensed Discharge Point (LDP) 11 and 12

LDP 11 location description: Bellambi Gully ambient water quality west of Princess Hwy labelled as "Point-11" on Figure 1.

LDP 12 location description: Bellambi Gully upstream ambient water quality labelled as "Point 12" on Figure 1.

The water discharge volume (rolling 12 months) is presented in Figure 8. It is noted there is currently a systems issues with the flow meters at LDP 11 & 12 related to volume calculation. This issue is currently in the process of being rectified.

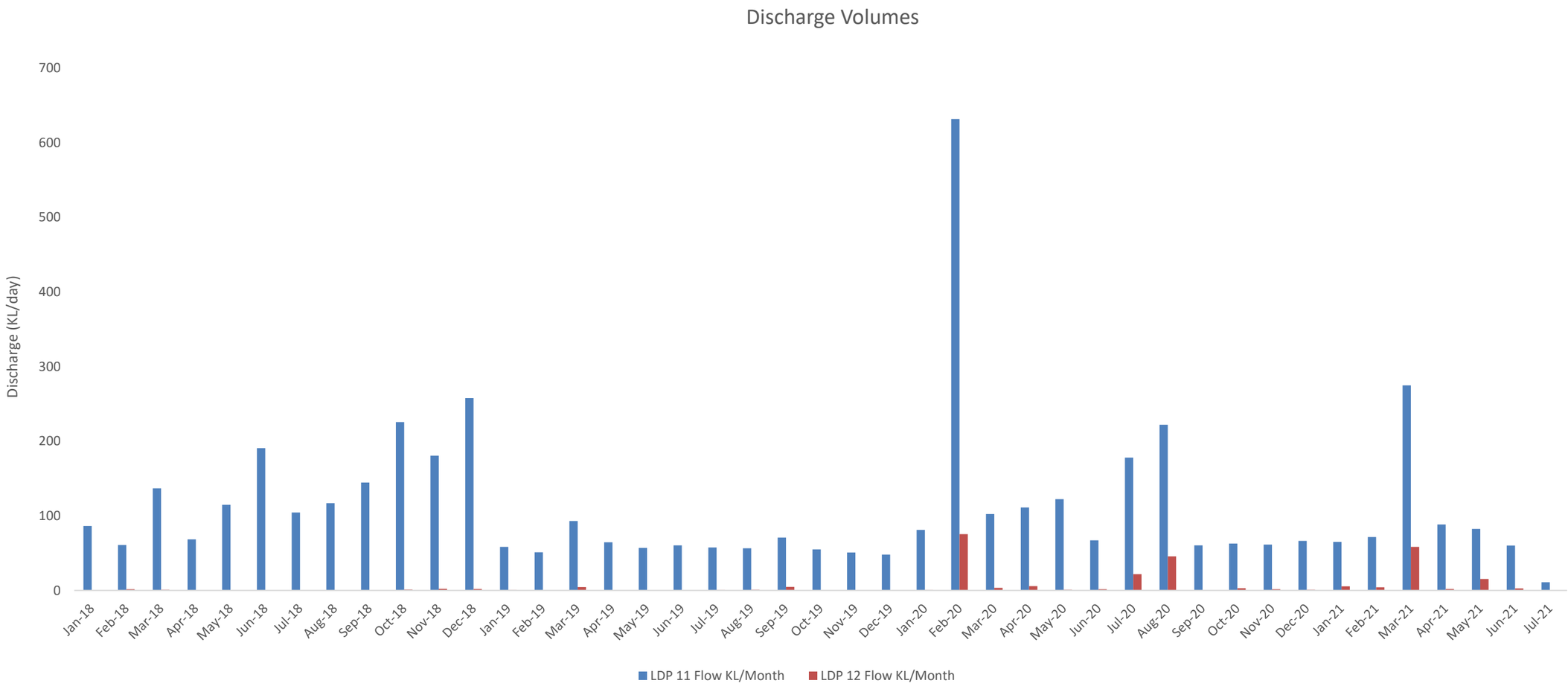

Figure 8 LDP 11 and 12 Water Discharge Volume

4.3. Air Quality

Air quality monitoring data is presented for EPL Points 4, 5, 6, 7 and 8 in Table 6, Table 7, Table 8, Table 9 and **Error! Reference source not found.**.

4.3.1. Point 4

Point 4 location description: dust gauge located at 2 Broker Street and Labelled as 'Point 4' on Figure 1.

The data for Point 4 is presented in Table 6.

Historical data (rolling 12 months) is presented in Figure 9. Refer to previous reports for commentary on historical data trends.

Table 6 Point 4 Results (g/m2)

Monitoring Period	Date Published	Ash	Combustible Solids	Insoluble Solids	Comments
May - 23	06/06/2023	0.1	0.1	0.2	
Jun - 23	03/07/2023	0.1	<0.1	0.2	
Jul- 23	27/08/2023	0.2	0.6	0.8	
Aug - 23	01/09/2023	0.2	0.2	0.4	
Sept - 23	03/10/2023	0.2	0.3	0.5	
Oct - 23	30/11/2023	0.7	0.7	1.4	
Nov - 23	12/01/2024	0.4	0.5	0.9	
Dec - 23	12/01/2024	0.2	<0.1	0.2	

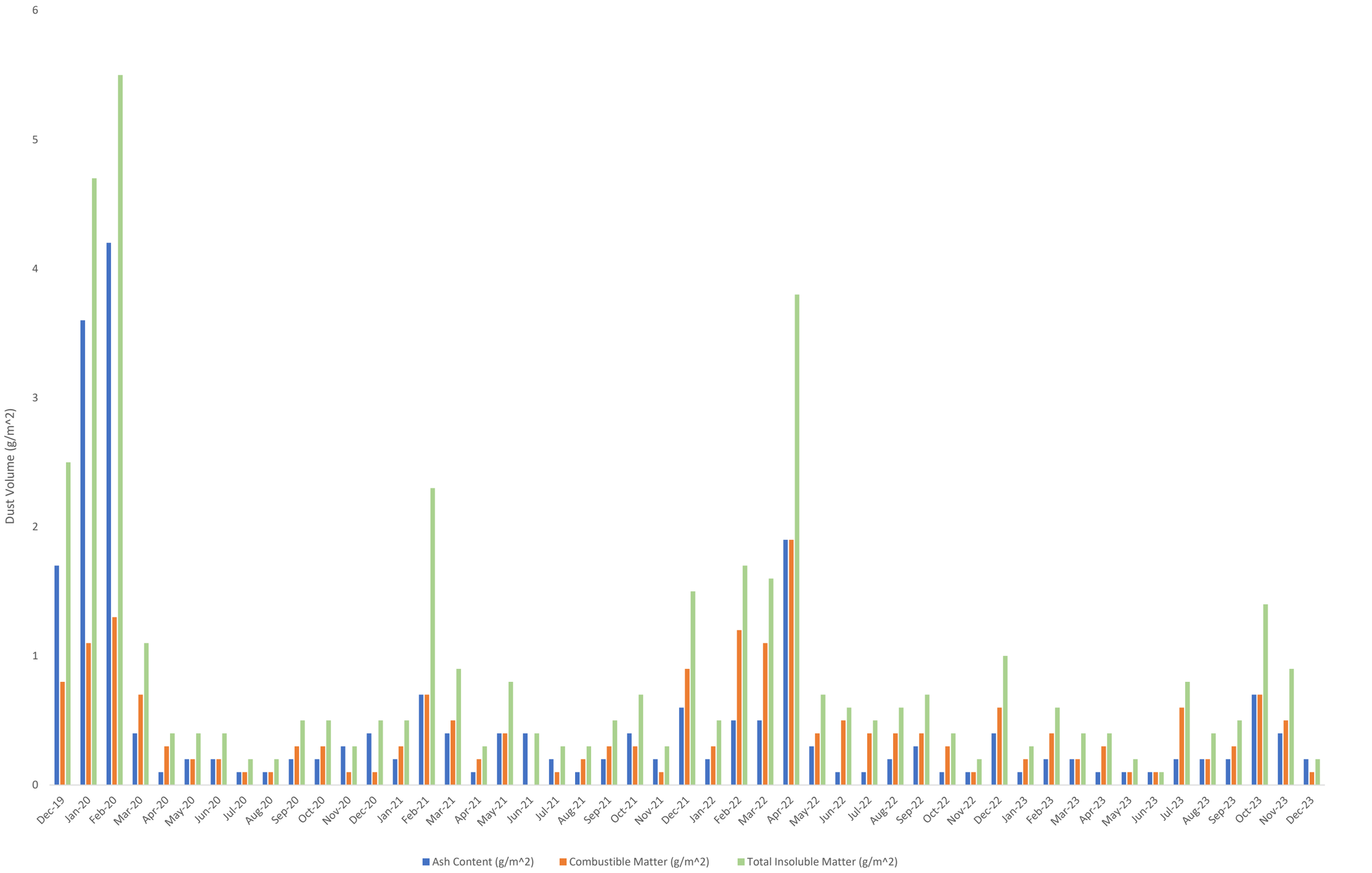

Figure 9 Point 4 Historical Results

4.3.2. Point 5

Point 5 location description: dust gauge located at the Water Board Compound labelled as 'Point 5' on Figure 1.

The data for Point 5 is presented in Table 7.

Historical data (rolling 12 months) is presented in Figure 10. Refer to previous reports for commentary on historical data trends.

Table 7 Point 5 Results (g/m2)

Monitoring Period	Date Published	Ash	Combustible Solids	Insoluble Solids	Comments
May-23	06/06/2023	0.3	0.6	0.9	
Jun-23	03/07/2023	0.1	0.4	0.5	
Jul-23	27/08/2023	-	-	-	DDG Bottle Broken
Aug-23	01/09/2023	0.1	0.2	0.3	
Sept-23	03/10/2023	0.1	0.1	0.3	
Oct - 23	20/11/2023	0.8	1.0	1.8	
Nov - 23	12/01/2024	0.4	0.2	0.6	
Dec -23	12/01/2024	0.2	0.3	0.5	

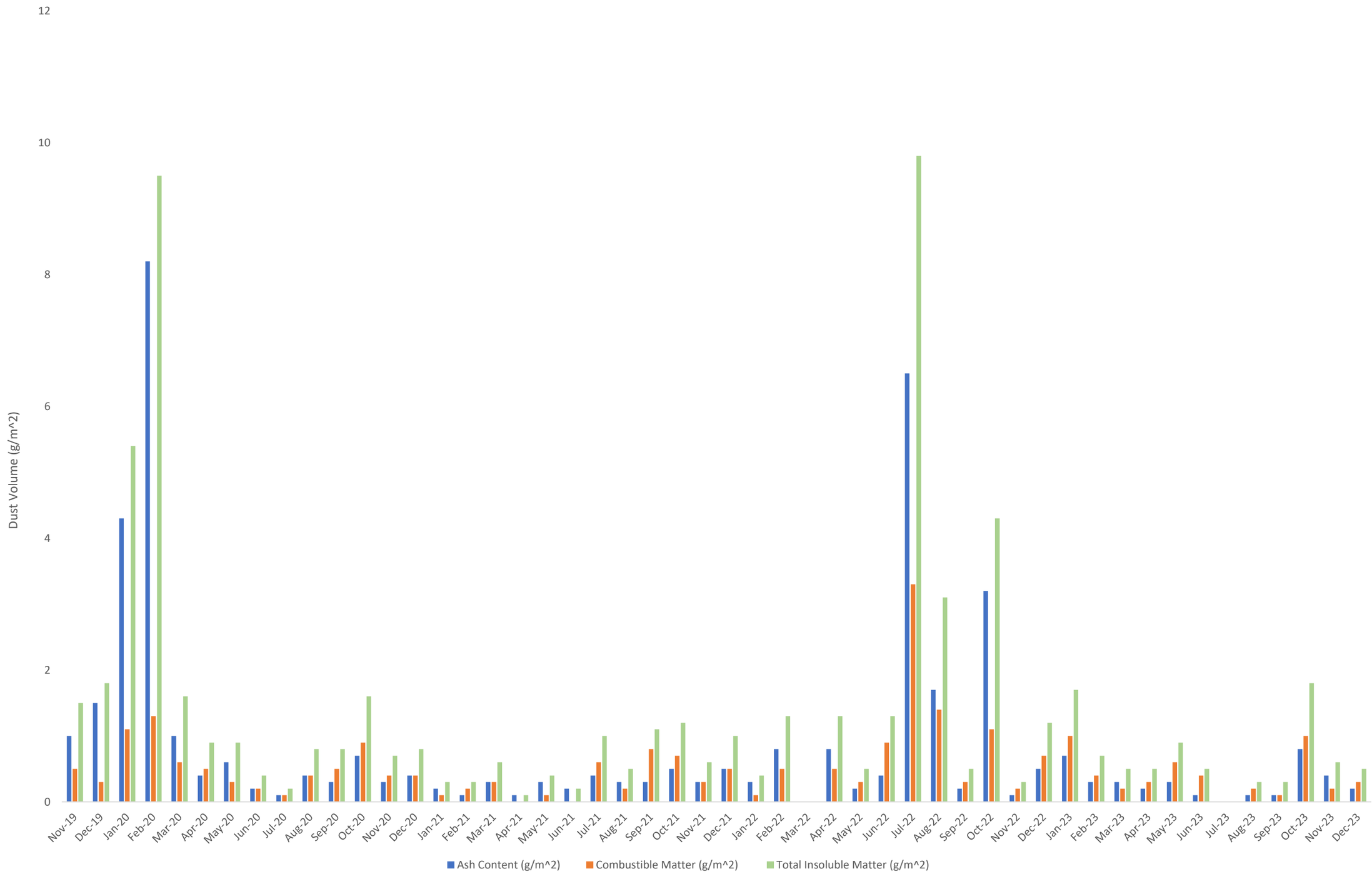

Figure 10 Point 5 Historical Results

4.3.3. Point 6

Point 6 location description: dust gauge located at 30 West Street labelled as 'Point 6' on Figure 1.

The data for Point 6 is presented in table 8.

Historical data (rolling 12 months) is presented in Figure 11. Refer to previous reports for commentary on historical data trends.

Table 8 Point 6 Results (g/m2)

Monitoring Period	Date Published	Ash	Combustible Solids	Insoluble Solids	Comments
May-23	06/06/2023	0.2	0.3	0.5	
Jun-23	03/07/2023	<0.1	0.1	0.1	
Jul-23	27/08/2023	<0.1	0.1	0.1	
Aug-23	01/09/2023	0.1	0.1	0.2	
Sept-23	03/09/2023	0.2	0.1	0.3	
Oct - 23	30/11/2023	0.5	0.4	0.9	
Nov - 23	12/01/2024	0.9	1.1	2.0	
Dec - 23	12/01/2024	0.2	0.2	0.4	

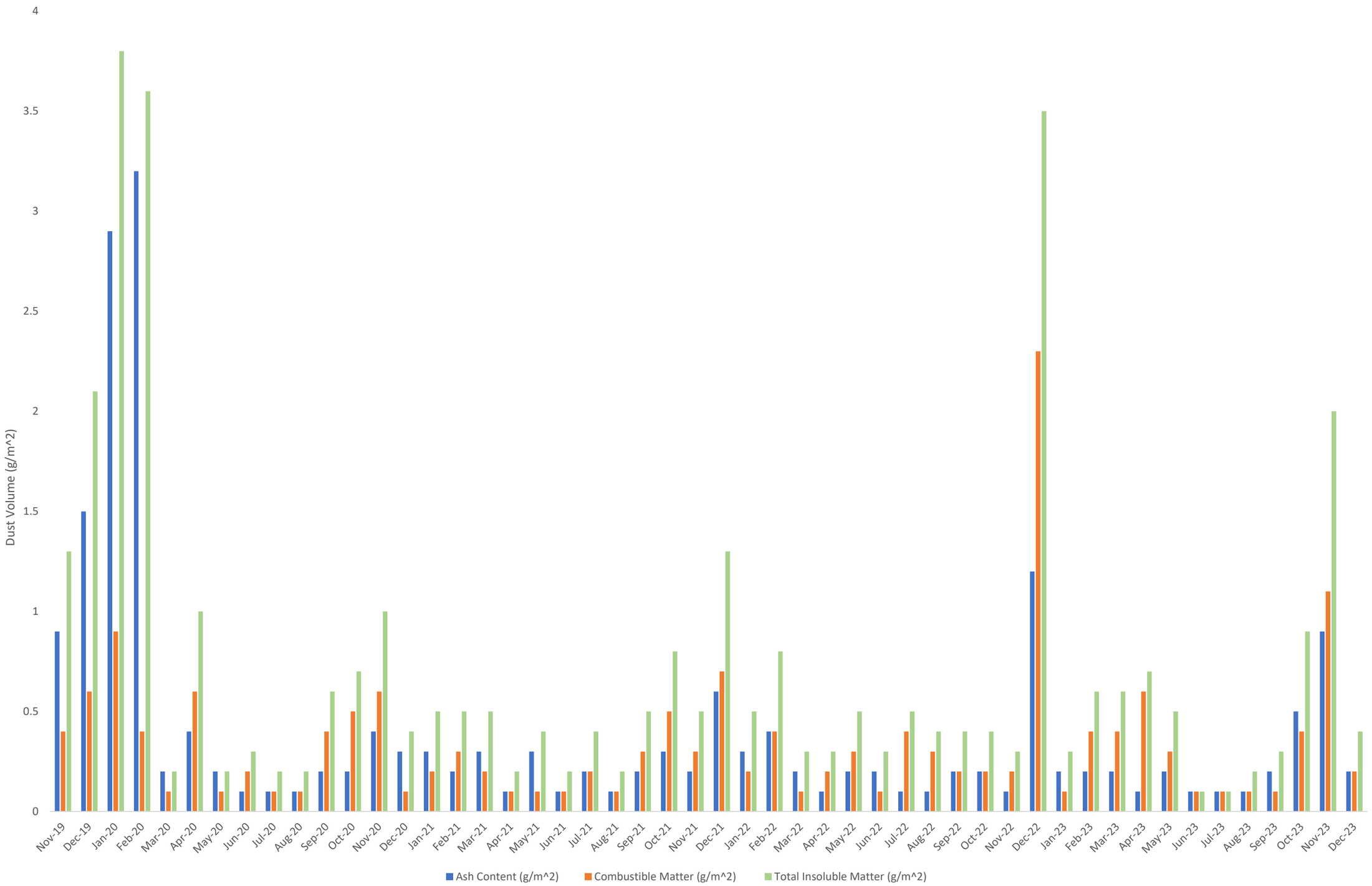

Figure 11 Point 6 Historical Results

4.3.4. Point 7

Point 7 location description: dust gauge located at 22 West Street labelled as 'Point 7' on Figure 1.

The data for Point 7 is presented in table 9.

Historical data (rolling 12 months) is presented in figure 12. Refer to previous reports for commentary on historical data trends.

Table 9 Point 7 Results (g/m2)

Monitoring Period	Date Published	Ash	Combustible Solids	Insoluble Solids	Comments
May-23	06/06/2023	0.3	0.5	0.8	
Jun-23	03/07/2023	0.1	0.2	0.3	
Jul-23	27/08/2023	0.1	0.3	0.4	
Aug-23	01/09/2023	0.2	0.1	0.3	
Sept-23	03/10/2023	0.2	0.1	0.3	
Oct - 23	30/11/2023	0.5	0.4	0.9	
Nov-23	12/01/2023	0.4	0.4	0.8	
Dec- 23	12/01/2023	0.2	0.2	0.4	

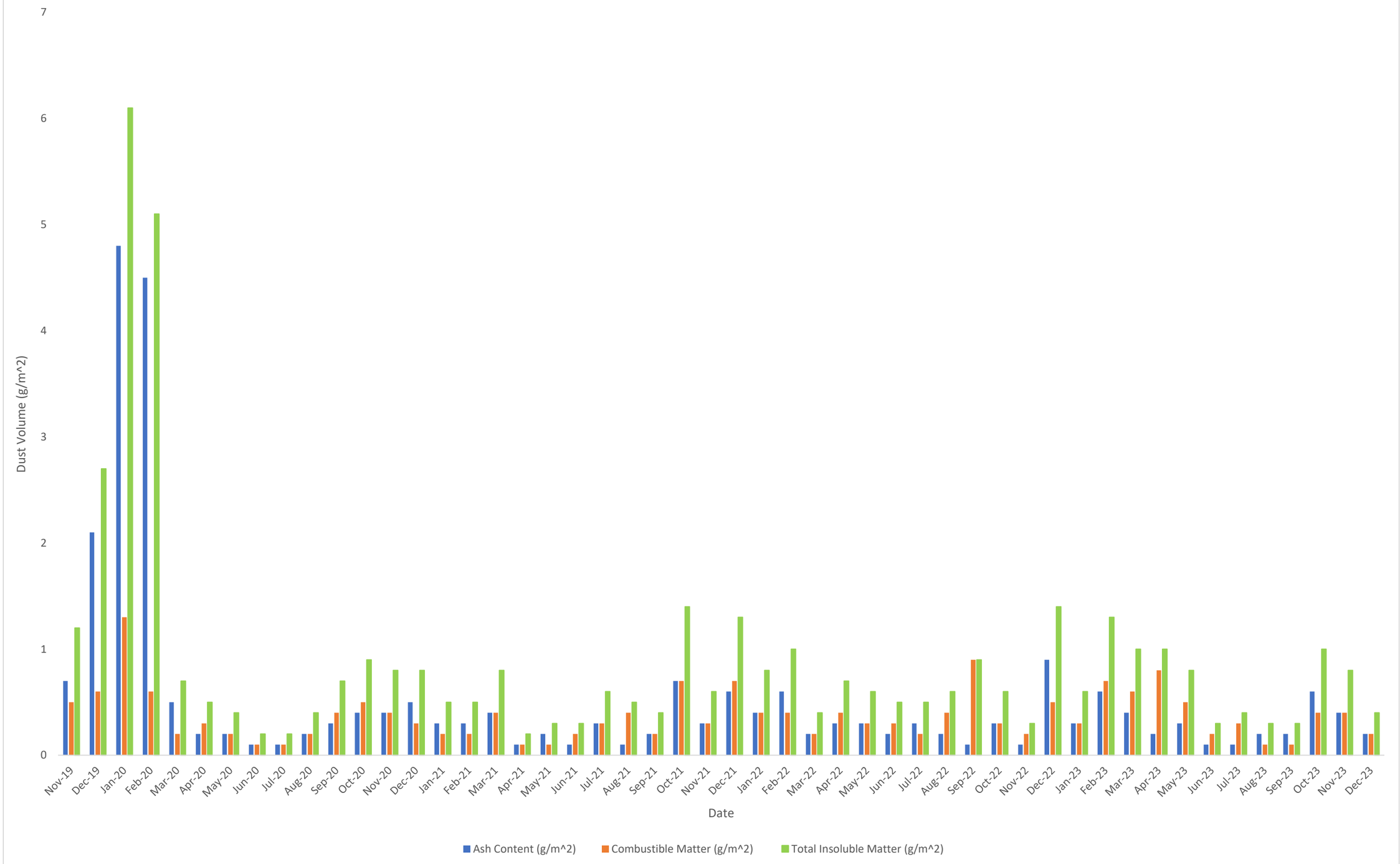

Figure 12 Point 7 Historical Results

4.3.5. Point 8

Point 8 location description: dust gauge located at the property boundary at Midgely Street labelled as 'Point 8' on Figure 1.

The data for Point 7 is presented in Table 10.

Historical data (rolling 12 months) is presented in Historical Results Figure 13. Refer to previous reports for commentary on historical data trends.

Table 10 Point 8 Results (g/m2)

Monitoring Period	Date Published	Ash	Combustible Solids	Insoluble Solids	Comments
May-23	06/06/2023	0.2	0.3	0.5	
Jun-23	03/07/2023	0.1	<0.1	0.1	
Jul-23	27/08/2023	0.1	0.3	0.3	
Aug-23	01/09/2023	0.1	<0.1	0.1	
Sept-23	03/10/2023	0.2	0.1	0.3	
Oct - 23	30/11/2023	0.3	0.5	0.8	
Nov-23	12/01/2024	0.2	0.3	0.5	
Dec-23	12/01/2024	0.5	0.7	1.2	

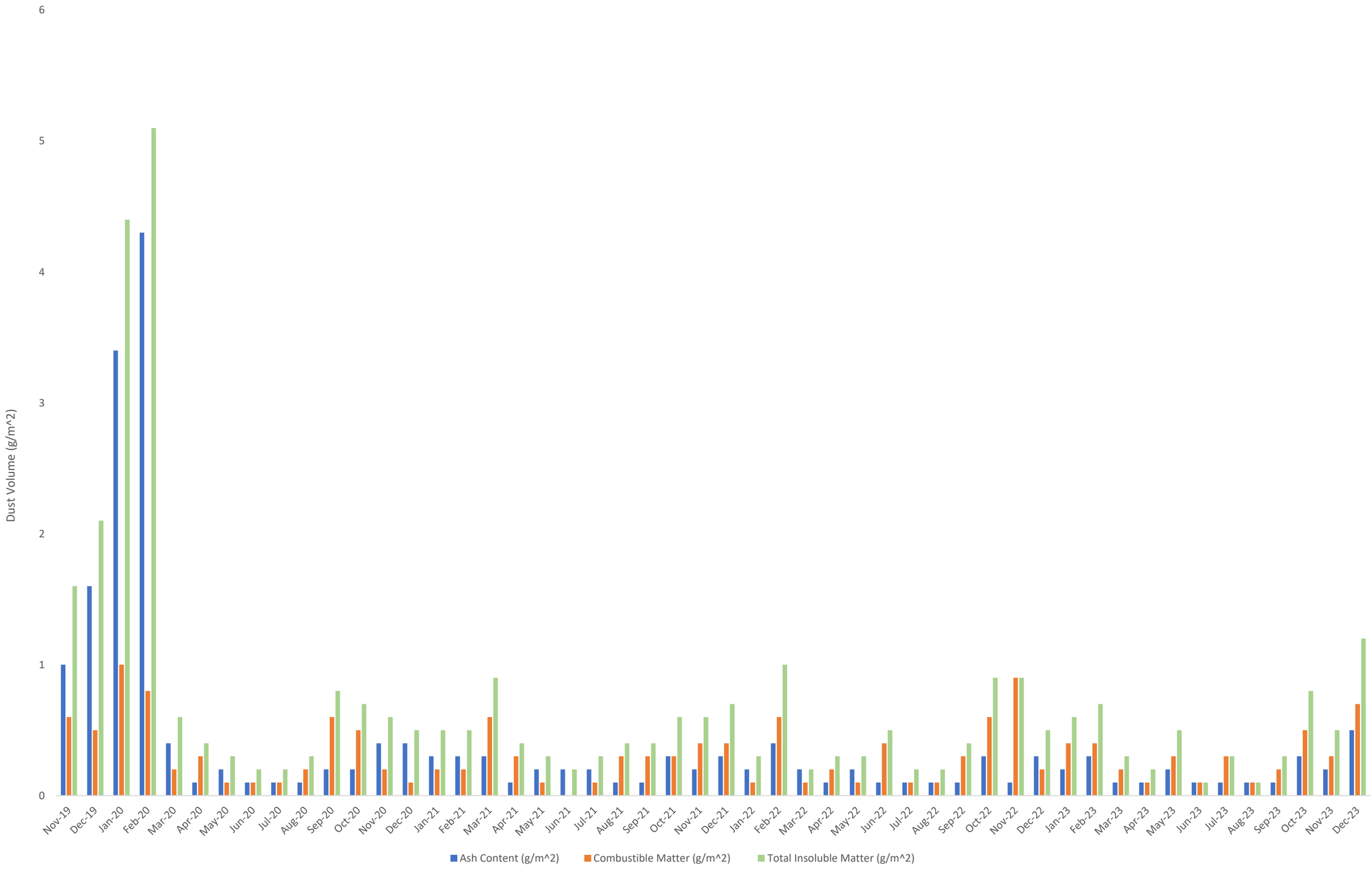

Figure 13 Point 9 Historical Results

5. CORRECTION LOG

It is possible from time to time for incorrect data to get published in good faith.
As soon as practicable after the licensee becomes aware that the published pollution monitoring data is incorrect or misleading, licensees must then publish a correction log to correct this data that is incorrect or misleading.

There are no matters included in the correction log for this reporting period.