Rasp Mine

Broken Hill Operations Pty Ltd

Annual Review

REPORTING PERIOD

1 January 2024 – 31 December 2024

This page has been left blank intentionally.

Title Block

Name of Operation:	Rasp Mine
Name of Operator:	Broken Hill Operations Pty Ltd
Development consent / project approval:	PA 07_0018 (MOD1, MOD2, MOD3, MOD4, MOD5, MOD6, MOD7, MOD8, MOD9, MOD10, MOD11)
Name of holder of development consent / project approval:	Broken Hill Operations Pty Ltd
Mining Titles / Leases:	Consolidated Mining Lease 7 Mining Purpose Leases 183, 184, 185, 186
Name of holder of mining lease:	Broken Hill Operations Pty Ltd
Water licence:	WAL31065
Name of holder of water licence:	Broken Hill Operations Pty Ltd
AR Commencement Date: 01/01/2024	**AR End Date:** 31/12/2024
I, Devon Roberts, certify that this report is a true and accurate record of the compliance status of the Rasp Mine for the period 1 January 2024 to 31 December 2024 (Reporting Period as per PA 07_0018 Sch4 Cond3) and that I am authorised to make this statement on behalf of Broken Hill Operations Pty Ltd.	
Name of authorised reporting officer:	Devon Roberts
Title of authorised reporting officer:	Senior Environmental Advisor
Signature of authorised reporting officer:	
Date: 31 March 2025	

This page has been left blank intentionally.

CONTENTS

TABLES

FIGURES

1. STATEMENT OF COMPLIANCE

Table 1-1 lists the development consent and mining leases and confirms compliance as at the end of the reporting period. **Table 1.2** lists the non-compliances with relevant approval conditions for the reporting period.

Table 1-1 Statement of Compliance

Were all conditions of the relevant approval(s) complied with?	(Yes/No)
Project Approval 07_0018 (Consolidated MOD11)	No
Consolidated Mining Lease 7	Yes
Mining Purpose Lease 183	Yes
Mining Purpose Lease 184	Yes
Mining Purpose Lease 185	Yes
Mining Purpose Lease 186	Yes

Table 1-2 lists conditions that were identified as non-compliant and provides a comment outlining actions undertaken and where appropriate, addressed in this Annual Review. An Independent Environmental Audit was conducted in July 2023 and a copy of the report and Action Plan are available on the CBH Rasp Mine website. Non-compliances are reported in the Annual Review for the period 1 January 2024 to 31 December 2024.

Table 1-2 Non-Compliances

Relevant Approval	Relevant Condition	Condition description (summary)	Compliance Status	Comment	Annual Review Section
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	Power to the TEOM2 PM_{10} monitor was lost at 7pm on 7 January 2024 and not restored until 7:45am the following morning. Because of this the minimum data collection for the 24-hour period was no achieved and BHOP was non-compliant with Schedule 3 Condition 3 Table 2 of PA07_0018.	10
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	The 24-hour average of PM_{10} data for TEOM2 on 26 January 2024 was 100.6 ug/m^3 (data validated by Acoem ERS) exceeding the allowable level of 50 ug/m^3 PM10 dust averaged over a 24-hour period as specified by PA07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 4	The Proponent shall ensure that the project is operated in a manner that does not exceed the criteria listed in Tables 4 and 5.	Non-compliant	Monitoring results of dust levels at the Crusher Baghouse exceeded the Type 1 and 2 Substances criteria of 1mg/m3 specified by PA07_0018 Schedule 3 Condition 4 with a	10

				result of 1.124mg/m^3. This event is non-compliant with PA07_0018 Schedule 3 Condition 4.	
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	The 24-hour average of PM_{10} data for TEOM2 on 19 March 2024 was 64.0ug/m^3 exceeding the allowable level of 50ug/m^3 PM10 dust averaged over a 24-hour period as specified by PA07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	The 24-hour average of PM_{10} data for TEOM2 on 20 March 2024 was 71.5ug/m^3 exceeding the allowable level of 50ug/m^3 PM10 dust averaged over a 24-hour period as specified by PA07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	At approximately 12:40am on 6 May 2024 an unidentified individual disconnected power to the TEOM2 enclosure. As TEOM2 was not collecting data for 9 hours and 20 minutes, the data capture from TEOM2 for the 24-hour period was below the required 75% or 18 hours. Non-compliant with PA 07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	Dust deposition gauge 6 was found broken on 3 October 2024 and long-term monitoring of deposited dust was interrupted at this location as specified by PA07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 15	Unless the Secretary agrees otherwise, the Proponent must comply with the operating hours in Table 6.1.	Non-compliant	On 18 November 2024 production blast was fired outside of the hours between 6:45am and 7:15pm as specified by PA07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at	Non-compliant	At approximately 11am on 18 November 2024 power to the TEOM2 enclosure was lost. As TEOM2 was not collecting data for 10 hours, the data capture from TEOM2 for the 24-hour period was below the required 75% or 18 hours. Non-compliant	10

		any residence on privately-owned land.		with PA 07_0018 Schedule 3 Condition 3.	
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	At approximately 12am on 25 November 2024 power to the TEOM2 enclosure was lost. As TEOM2 was not collecting data for 16 hours, the data capture from TEOM2 for the 24-hour period was below the required 75% or 18 hours. Non-compliant with PA 07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 3 Condition 3	The Proponent shall ensure that all reasonable mitigation measures are employed so that particulate matter emissions generated by the project do not cause an exceedance of the criteria listed in Tables 1, 2 or 4 at any residence on privately-owned land.	Non-compliant	The 24-hour average of PM_{10} data for TEOM2 on 17 December 2024 was 133ug/m^3 exceeding the allowable level of 50ug/m^3 PM10 dust averaged over a 24-hour period as specified by PA07_0018 Schedule 3 Condition 3.	10
PA07_0018	Schedule 2 Condition 1	The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation or rehabilitation of the project.	Non-compliant	Minor off site release of potentially contaminated water from the Mill Events Pond to Holten Drive had the potential to cause harm to the environment.	10

1.1 Actions required from previous Annual Review

None required.

2. INTRODUCTION

2.1 Purpose

The Annual Review (AR) documents the environmental performance of the Rasp Mine for the reporting period 1 January 2023 to 31 December 2023. It has been prepared in accordance with the NSW Government *Post-approval requirements for State significant mining developments - Annual Review Guideline*, October 2015 to meet the requirements of the relevant mining leases, Project Approval 07_0018, and EPL 12559.

2.2 Location

The Rasp Mine is owned and operated by Broken Hill Operations Pty Ltd (BHO), a wholly owned subsidiary of CBH Resources Ltd (CBH) until it was sold to Broken Hill Mines Pty Ltd, on 13 October 2024. The Mine is located on Consolidated Mine Lease 7 (CML7) within the City of Broken Hill and includes several Mining Purposes Leases (183,184,185 and 186) with the entire Project extending over Western Land Leases and freehold properties.

The Rasp Mine consists of underground mining operations, a processing plant producing zinc and lead concentrates, a rail siding for concentrate dispatch to shipping facilities within Australia as well as other mining ancillary facilities. In the reporting period all concentrate product was placed in sealed containers and transported by rail either to port in South Australia or smelter operations in Port Pirie SA. Rasp Mine is approved to produce 500,000 tpa of ore and 8,450,000 tonnes of ore over the life of the Project to December 2026.

The Mine is located centrally within the City of Broken Hill (

Figure 2-1) and is surrounded by transport infrastructure, areas of commercial and industrial development and some residential housing. The Mine is bounded by Eyre Street to the southeast, Perilya Broken Hill Operations Pty Ltd (Perilya) North Mine to the east and Perilya's South Mine to the west, and the commercial centre of Broken Hill to the north. Two major State roads dissect CML7 - South Road (Silver City Highway SH22) to the southwest and Menindee Road (MR66) to the northeast. These roads form part of the existing road train and B-double routes through Broken Hill. Mawson's Quarry lies to the east of the existing processing plant. The Broken Hill railway station is located within CML7 on a surface exclusion with the main Sydney – Perth railway line also located within the Lease on various surface exclusions. Residential and commercial areas surround the mine with pastureland to the southeast. An aerial view of CML7 is provided in **Plan 1, Figure 2-1**.

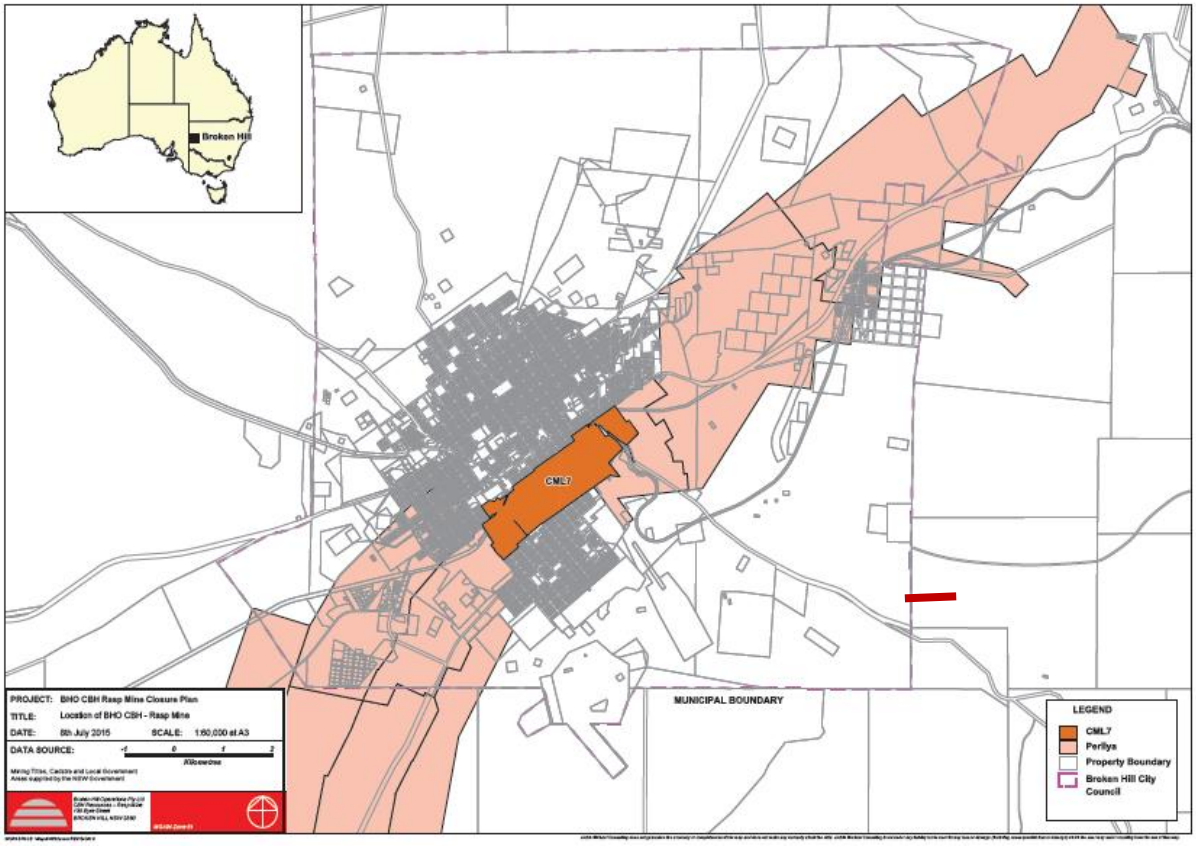
The mining leases occupy a central region of the historic Broken Hill Line of Lode ore body incorporating the original mine areas that commenced operations in the 1880s including a substantial amount of mining infrastructure from various mining phases. The Mine was the birthplace of Broken Hill Pty Ltd (BHP) in 1885. Subsequently several mining companies, including Broken Hill South and Minerals Mining and Metallurgy Ltd (MMM), have operated the mine. This past mining has left the mining lease highly modified and disturbed. The original landform has been significantly altered, the majority of native vegetation removed and soils have been degraded and covered with waste rock.

There are a number of heritage items on the site relating to historic mining activities and the site is recorded on the Register of National Estate for its heritage values. The people of Broken Hill consider the mine as an important historic site for its role in Broken Hill's history. The Broken Hill Miners Memorial and Broken Earth Café are located centrally within CML7.

The Project Area includes additional areas to the south-east located on Western Land leases or freehold properties owned or leased by BHO (highlighted in orange). Located in this area are the current Rasp Mine administration offices and stores.

The AR is distributed to a range of stakeholders that include government authorities and is available on the CBH website at: www.cbhresources.com.au.

Figure 2-1 Location Map – Plan 1



2.2 Mine Level

The Rasp Mine is classified as a Level 1 Mine and in 2018 it was transitioned to a State Significant Development under the *EP&A Act* with development consent determined and authorised by the Minister for the Department of Planning and Environment.

2.3 Mine Contacts

Table 2-1 outlines the contacts for the Rasp Mine.

Table 2-1 Mine Contacts

Name	Title	Contact Details
Chris Chindanya	BHO General Manager Rasp Mine, Exploration and Strategy	08 8088 9111
Carlos Vanegas	BHO Manager Process Operations	08 8088 9102
Joel Sulicich	BHO HSET Manager	08 8088 9125
Devon Roberts	BHO Senior Environmental Advisor	08 8088 9126
Complaints Line	Health, Safety and Environment Office	08 8088 9211

3. APPROVALS, LICENCES AND PERMITS

3.1 Approvals

Table 3-1 provides a list of all current development consents, mining leases and licences held by the Rasp Mine.

Table 3-1 Rasp Mine - Current Approvals

Approval Number	Date Issued	Expiry	Purpose
Project Approval 07_0018 (Part 3A)	31 Jan 2011	31 Dec 2026	Mining production of 750,000 tpa from Western Mineralisation, Centenary Mineralisation and Main Lode Pillars. Construction and operation of minerals processing plant and rail load out facility. Supported by an EAR and PPR. MOD1 – relocation of primary ventilation shaft (March 2012) MOD2 – 24 hour operation of crusher (August 2014) MOD3 – Mining of Block 14 (Zinc & Main Lodes) (March 2015) MOD4 – Installation of Concrete Batching Plant and Extension to TSF2 (September 2017) MOD5 – Warehouse Extension, Cement Silo and adjustment of air quality monitoring (October 2018) MOD6 – New Tailing Storage Facility and Mine Portal (March 2022) MOD7 – Utilise, crush and screen waste rock in BHP Pit for Embankments construction (July 2019) MOD8 – Mining under a Perilya Sublease (April 2021) MOD9 – Extension of Underground Exploration (December 2021) MOD10 – Temporary tailings placement in TSF2 (December 2022) MOD11 – Ventilation Intake and Underground Exploration (March 2024)
CML7	17 Jan 2007	31 Dec 2026	Granted 8 Oct 1987. As per Schedule 2 of the Lease - Open cutting, shaft sinking, stoping, tunnelling, building of dams, extraction and obtaining minerals, generation of electricity, erecting dwellings, storage of fuels, dumping of ore, treatment and dumping of tailing, development of roads
MPL 183	24 Apr 2007	31 Dec 2026	Granted 4 Feb 1981. Dumping of ore and mine residues, treatment of tailing
MPL 184	24 Apr 2007	31 Dec 2026	Granted 4 Feb 1981. Dumping of ore and mine residues, treatment of tailing
MPL 185	24 Apr 2007	31 Dec 2026	Granted 4 Feb 1981. Dumping of ore and mine residues, treatment of tailing
MPL 186	24 Apr 2007	31 Dec 2026	Granted 4 Feb 1981. Dumping of ore and mine residues, treatment of tailing
EPL 12559 - NSW EPA	NA	Upon surrender, suspension or revocation.	Authorises the carrying out of scheduled activities: Crushing, grinding or separating >500,000 – 2,000,000T processed. Mining for minerals >500,000 – 2,000,000T produced.
Dangerous Goods Explosives – Work Cover	NA	24 Oct 2027	Store Manufacture

Approval Number	Date Issued	Expiry	Purpose
Refrigerant – Refrigerant Trading Council	NA	27 Mar 2027	Use of refrigerant
Water extraction 85WA752823 – NSW Water	NA	29 Mar 2027	To extract 370 ML for use on site or to send to Perilya Broken Hill Operations Pty Ltd.
Radiation #5063802 – NSW EPA	NA	26 July 2025	Sell and/or possess radiation apparatus. Sell and/or possess radioactive or items containing radioactive substances.

3.2 Rehabilitation Management Plan and Strategy

The Rasp Mine Rehabilitation Management Plan and Rehabilitation Strategy are available on the company website.

3.3 Management Plans

The Rasp Mine has developed several environmental management plans as required by PA07_0018. **Table 3-2** provides a list of these Plans together with the date last updated.

Table 3-2 Status of Environmental Management Plans

Environmental Management Plan	Condition	Approved
Environment Management Strategy	Sched 4 Cond 1	01-Jul-23
Air Quality Management Plan	Sched 3 Cond 11	10-Aug-22
Community Lead Management Plan	Sched 3 Cond 13	24-Nov-23
Noise and Blast Management Plan	Sched 3 Cond 20	26-July-23
Site Water Management Plan	Sched 3 Cond 23	04-Mar-22
Waste Management Plan	Sched 3 Cond 33	09-Feb-24
Rehabilitation Strategy	Sched 3 Cond 34A	21-Nov-23

4. OPERATIONS SUMMARY

During the reporting period, an application to modify the Project Approval (MOD11) for a Ventilation Intake and Underground Exploration was submitted.

Preparation of the Kintore Pit TSF3 for receiving tailings was completed in February 2024.

Construction of the TSF2 tailings stockpile (approved under MOD10) began in April 2023 and was completed in February 2024 as Kintore Pit TSF3 became available for tailings disposal.

On 31 October 2024, Broken Hill Mines took over ownership of Broken Hill Operations Pty Ltd (Rasp Mine).

With the resumption of development works in November approximately 18,401 tonnes of waste rock was produced which remained underground for backfill, and 85,584 tonnes or waste rock from surface stockpiles were placed in underground backfill.

Table 4-1 outlines the production summary for the reporting period.

Table 4-1 Production Summary – Cumulative

Material	Approved Limit	At end of 2023 (end previous reporting period)	End of reporting period
Waste rock	NA	3,462,614	3,481,015
Ore	500,000	6,814,479	7,209,207
Processing waste (Tailings)	NA	5,942,824	6,293,381
Product (Concentrates)	NA	813,260	857,431

4.1 Exploration

4.1.1 Surface exploration

No surface exploration was undertaken in 2024.

No surface exploration is planned in 2025.

4.1.2 Underground exploration

Diamond drilling was suspended after 13 November 2023 following the announcement that Rasp Mine would undergo staged closure late in 2024 and no underground exploration was completed in 2025.

Central Deep Hole Drilling were mobilised to site in December 2024 to conduct underground exploration from 2025.

Underground exploration in 2025 will continue to focus on the Main Lode including the Western Mineralisation, Siberia and Blackwoods North, and potentially Centenary.

4.2 Construction

4.2.1 New buildings / structures

No new buildings were constructed in 2024.

Preparation works in the Kintore Pit TSF3 were completed in February 2024.

Use of the TSF2 tailings stockpile (approved under MOD10) was completed February 2024, coinciding with the Kintore Pit TSF3 becoming available for tailings disposal.

4.2.2 Roads and fencing

Routine maintenance of roads was undertaken as required which includes the application of dust suppressant to infrequently used roads.

Boundary fencing was also inspected and repaired.

4.3 Mining

4.3.1 Mine access

All mining is conducted underground and the mine is accessed via the box cut and new underground portal entrance completed in 2023.

Mining activities included mining of the Western Mineralisation and Main Lode Pillars.

Mining activities were undertaken as follows and met the requirements of the Project Approval:

- Underground operations, 24 hours per day, 7 days per week;
- Truck haulage of ore from underground to ROM Pad 24 hours per day, 7 days per week;
- Production rock blasting between 6.45 am to 7.15 pm, 7 days per week;
- Development blasting concurrently with production blasting where practicable;
- Ventilation fans, 24 hours per day, 7 days per week;

4.3.2 Mining method and sequence

A variety of production methods are utilised, including open stoping (OS), uphole benching, room and pillar and uphole pillar retreat mining. OS is the most prevalent method used in the Western Mineralisation, uphole stoping (with room and pillar) and uphole pillar retreat in the Main Lode Pillars.

The ore was blasted using a bulk emulsion explosive and extracted using load haul dump vehicles (LHD's) either conventionally or under remote control and transported to loading points where mine trucks transported ore to the ROM pad.

A total 395,202 t of ore was mined during the reporting period. This resulted in approximately 9,870 truck movements to the ROM pad. **Figure 4-2** provides a long section indicating location of the stopes mined. A vertical distance of 64 m was maintained (in the Zinc Lodes) from South Rd/Bonanza Street.

4.3.3 Void backfilling

Waste rock was used to backfill mined out stopes with a total of 103,985 t placed during the reporting period. This includes Cemented Rock Fill where conditions and requirements dictate its use.

4.3.4 Waste rock and void backfilling

Waste rock is generated from underground mining operations and is predominantly used underground for backfilling stopes and maintenance of underground roads. During the reporting period 226,846 t was extracted as waste, 103,985 t of waste rock was returned underground as void fill, and 45,309 t to surface pits. At the end of the reporting period, the waste stockpile in Kintore Pit held approximately 1,000,000 t and BHP Pit held approximately 590,000 t.

Waste rock is used for road making and repairs underground.

Block modelling is used to identify underground waste material sources. Underground diamond drilling results and assays assist the geological technicians to identify waste materials earmarked for surface.

4.3.5 Ore and waste stockpiles

Ore mined in the reporting period (395,202 t) was transported by truck and stored on the ROM Pad before being processed. The ROM Pad is 32m by 80m and is surrounded by 5 m windbreaks. Water application was used to control dust. No more than a week's processing was stored on the ROM stockpile at any one time. Mined ore in the period was below the approved maximum rate of 500,000 tpa.

A total of 45,309 t of waste rock was deposited at the surface during the reporting period and stored in Surface Pits totalling approximately 1,590,000t stored.

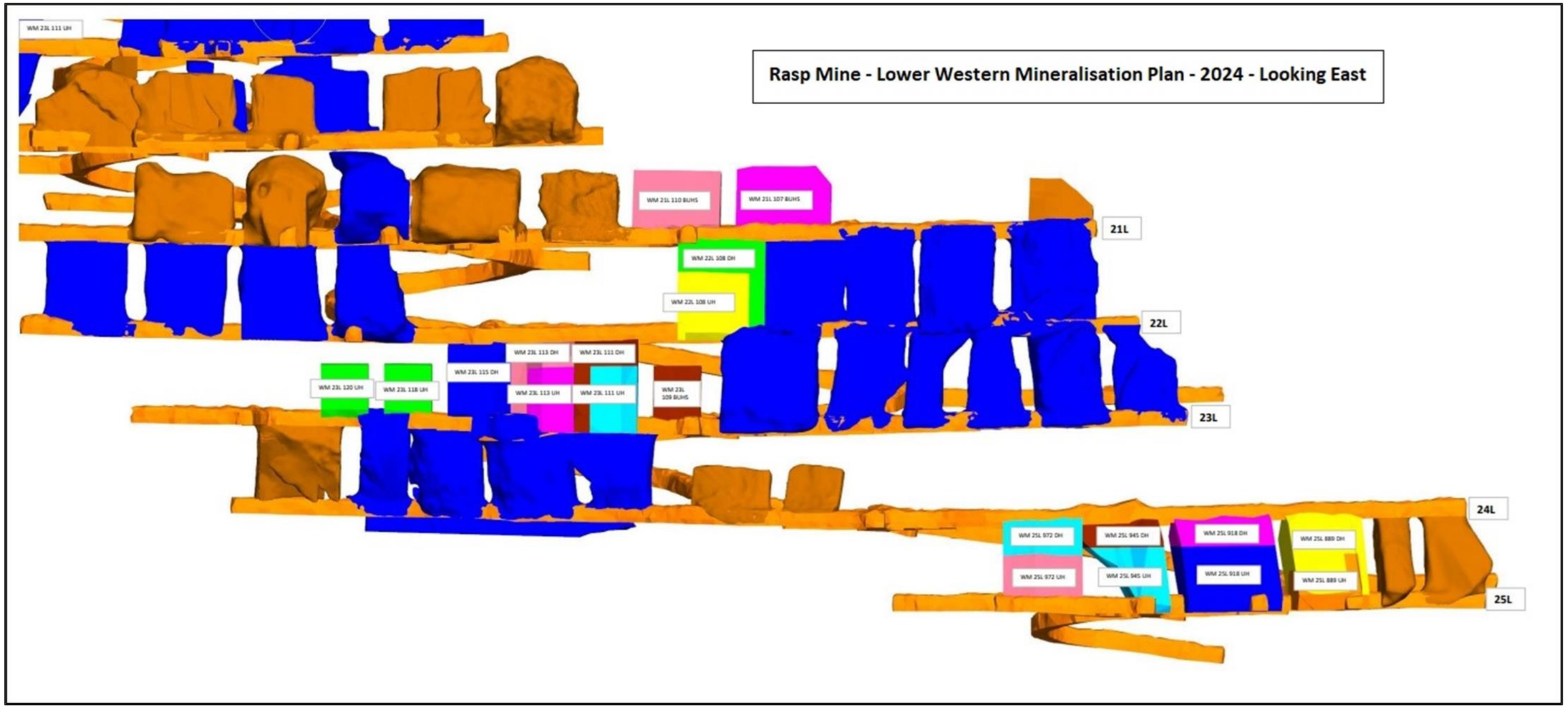
Ore and waste production for the reporting period is summarised in **Table 4-2**.

Table 4-2 Ore and Waste Summary for the Reporting Period

Item	Total Production Tonnes
Topsoil Stripped	N/A
Topsoil Spread	N/A

Ore Tonnes Mined: Dry Tonnes	395,202
Waste Backfill (UG voids): Tonnes	103,985
Waste Trucked to Pits	0

Figure 4-1 Plan 3 Mining Activities in the Reporting Period



4.4 Mineral Processing

4.4.1 Processing methods and rates

All mined ore is processed on site in the processing plant. This consists of a single stage crushing circuit with a two stage Semi-Autogenous Grind (SAG) – Ball milling circuit capable of processing ore at the required rate and to the required grind size. Material then passes through differential flotation, which incorporates conventional roughing, scavenging and multi-stage cleaning and includes concentrate regrind, to separate lead and zinc concentrates. Concentrates are dewatered using thickeners and pressure filtration. The filtered concentrates are conveyed directly into containers and sealed. The concentrate is stored in these sealed containers in readiness for loading onto rail wagons for transport to Port Adelaide and Nyrstar Pty Ltd smelter at Port Pirie, SA.

Reagents used in the process included pulp pH modifier, flotation frothers, collectors, activators and depressants, used in various combinations in the lead and zinc flotation circuits. Flocculants are used in concentrate and tailing dewatering.

With MOD6 approval, the capacity of TSF2 is extended by employing tailings harvesting with deposit to Kintore Pit TSF3. MOD10 has approved dry stacking of tailings in the western end of TSF2 until TSF3 preparations for accepting tailings is completed. The tailings stockpile will be removed and placed in Kintore Pit TSF3.

A summary of mineral processing production rates for the reporting period is presented in **Table 4-3.**

Table 4-3 Mineral Processing Summary for the Reporting Period

Activity	Total in reporting period (t)
Milled	394,728
Lead concentrate	12,965
Zinc concentrate	31,206
Tailings deposited	350,557
Tailings Storage Facility (TSF2) storage capacity as at end of period	To Dec 2026 as per PA with storage and harvesting operations

4.4.2 Mill operating hours

The processing plant operates 24 hours per day in accordance with the Project Approval. Schedule 3 Condition 16 places a restriction on milling activities - (b) *shunting of concentrate wagons shall only occur between 7:00am and 6:00pm on any day*. No shunting of concentrate wagons occurs during the loading or unloading of concentrate containers. Concentrate trains are moved into and out of the loading area by Pacific National operators as one unit and no reordering of wagons occurs. Pacific National conducts this activity twice per week taking 10 to 15 minutes, following inspection of the connection and state of the wagons. Once loaded, the train departs in the same direction as arrival. During the reporting period there were no community complaints related to this activity.

In July 2020 due to operational changes the Mill began operating on an 8 day on/6 day off campaign.

4.4.3 Mineral waste - tailings

All tailings generated from the processing plant are deposited into Blackwood Pit (TSF2). Tailings from the flotation process are pumped to and deposited in one of two cells in TSF2 via a duty/standby configuration of centrifugal pumps. Particle solids settle out of the slurry stream along the length of each TSF2 cell in a north-easterly direction. Any excess water is pumped back into the process water tank via a mobile diesel water pump.

During the reporting period, 350,557 t of tailings were pumped to TSF2, on average the tailings contained zinc (0.35%), lead (0.20%), copper (0.01%), Ag (8g/t), and Fe (2.97%).

In the initial Project Approval, BHO underestimated the amount of mine development that was required to access the Main Lode and Western Mineralisation ore bodies. The need to undertake more underground mining development than anticipated has reduced the capacity of underground voids to accept both waste rock and tailings material from the Backfill Plant. In the original EA, it was predicted that approximately 250,000 t of waste rock would be produced each year for a production rate of 750,000 t of ore. BHO has chosen to place the additional waste rock underground to fill voids and stopes, as it is more economical to dispose waste rock underground if possible rather than transporting waste to the surface. Hence, there is no void space underground for the backfill of tailings.

BHO also opted to only deposit tailings in TSF2 as this facility had greater capacity and was economically more viable. In 2024, BHO will deposit tailings in TSF3 Kintore Pit.

Table 4-4 shows past and proposed tailings deposition and waste rock production rates.

Table 4-4 Summary of Proposed (EA) and Actual Placement of Waste Rock and Tailings

Period	EA Tailings in Underground Backfill per year (t)	EA Tailings deposited in TSF1 (t)	EA Tailings deposited in TSF2 (t)	EA Waste Rock Underground (t)	Actual Tailings in TSF2 (t)	Actual Tailings in TSF3 (t)	Actual Waste Rock Placed Underground (t)	Actual Waste Rock stored Kintore Pit (t)	Actual Total Waste Rock produced (t)
2012	97,969	273,281	0	250,000	3,221,111	0	47,527	1,500,003	197,527
2013	195,938	195,938	0	250,000	5,748,331	0	230,607	1,500,003	380,607
2014	195,938	195,937	0	250,000	4,867,491	0	223,473	163,304	386,777
2015	216,563	216,563	0	250,000	4,995,981	0	223,611	228,942	452,553
2016	247,500	88,281	159,219	250,000	5,558,371	0	265,369	96,888	362,257
2017	278,438	0	278,438	250,000	6,221,611	0	215,897	76,578	292,475
2018	309,375	0	309,375	250,000	6,448,281	0	332,702	121,864	444,566
2019	309,375	0	309,375	250,000	5,784,721	0	357,792	134,706	492,792
Jan 2020-April 2021	412,500	0	309,375	250,000	4,690,491	0	318,816	-	338,220
April 2021-April 2022	309,375	0	309,375	250,000	4,690,491	0	197,140	83,923	281,063
May – Dec 2022	206,250	0	206,250	250,000	4,690,491	0	114,571	148,072	262,643
2023	309,375	0	309,375	250,000	4,690,491	0	181,537	45,309	226,846
2024	309,375	0	309,375	250,000	4,690,491	320,104	103,985	0	0
TOTALS	**3,397,971**	**970,000**	**2,500,157**	**3,250,000**	**4,690,491**	**320,104**	**2,813,027**	**4,099,592**	**4,118,326**

Note[1]: Actual tailings deposited.
Note[2]: Predicted.
Note[3]: Estimated from visual inspection at the time.

4.5 Mining Fleet

Table 4-5 lists the mining fleet as at the end of the reporting period.

Table 4-5 Mining Fleet

Vehicle Category	Number	Vehicle Category	Number
Jumbo drill	1	Grader	1
Production Drill	1	Excavator	1
Haul Truck Underground	3	Service Vehicle	1
Haul Truck Surface	4	Wheel Loader	2
Explosive Charger	2	Prime Mover	2
Forklift IT	10	Light Vehicle	40

4.6 Next Reporting Period

4.6.1 Construction

No construction is planned in 2025.

4.6.1.1 MOD4 TSF2 water spray system

The water spray system that was designed and approved as part of MOD4 was installed in 2024 and is operational. The spray system has been redesigned to complement the MOD6 TSF2 harvesting and incorporates the MOD10 tailings storage arrangement. Modifications to the positioning and control of sprays will be conducted in 2025.

4.6.1.2 MOD 11

PA07_0018 MOD 11 was approved on 15 March 2024. This modification allows for a ventilation intake and an extension of development workings in Main Lode Blocks 13, 14 and 15. These activities are required to allow the continued access to future ore reserves and to augment the safety systems at the mine in accordance with relevant safety legislation and guidelines.

4.6.1.3 MOD 12

PA07_0018 MOD 12 will be submitted in 2025. This modification seeks to enable mining to extend into Main Lode Blocks 13, 14 and 15, and for an air intake to be installed in the vicinity of Thompsons Shaft.

4.6.2 Exploration

No surface exploration is planned in 2025.

4.6.3 Operations

Table 4-6 outlines the planned production rates for 2025**. Figure 4-2** shows the mining areas and stopes. Planned mine production is estimated at 459,000 t, tailings deposition is estimated at 421,783 t.

Table 4-6 Summary of Planned Production for next reporting period

Activity	Next reporting period (t)
Ore Mined	459,000
Waste Backfill (UG Rock Places)	200,946
Waste Trucked to Surface	0
Milled	459,000
Lead concentrate	12,580
Zinc concentrate	24,637
Tailings deposited	421,783
TSF2 storage capacity as at end of period	0.1 years
TSF3 storage capacity as at end of period	12 years

4.6.4 Water structures - maintenance

Surveying of the water storage structures were conducted in 2022.

Inspections of storages for sediment build-up were conducted in 2018 and sediment removal was conducted in sediment pond 17A and Horwood's Dam in 2019. The material recovered from Horwoods Pond was disposed of in the north-eastern end of TSF2 in 2020.

With the construction of Kintore Pit TSF3 an new repository for potentially contaminated sediment will become available.

Electric pumps were installed at the S14, S17, and Mill Events water storage ponds to enable 24-hour transfer of water to Horwoods and S22 storage ponds.

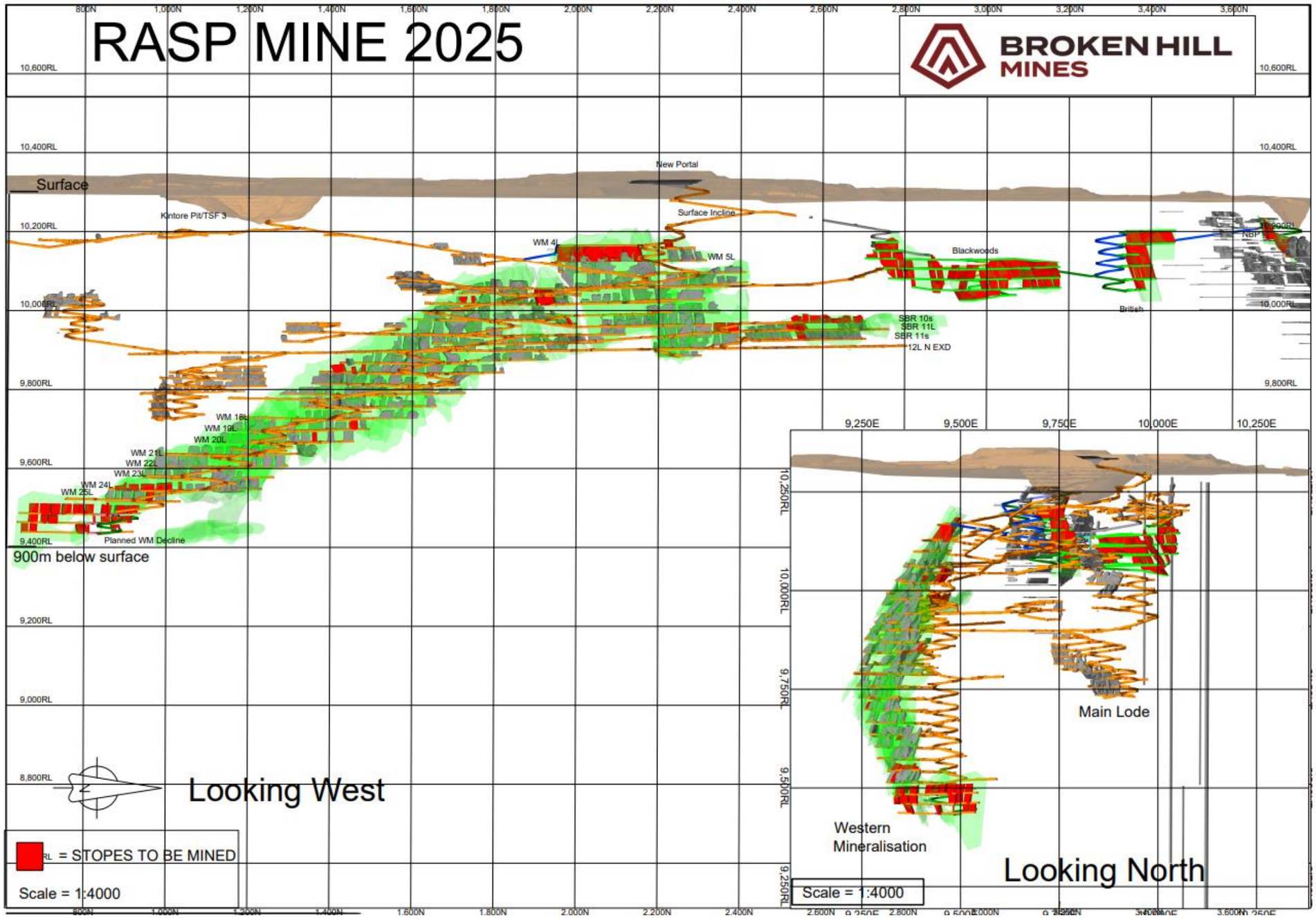
An electrical supply and a high-capacity automatic pump was installed in the Ryan St Dam in 2023 to enable the rapid transfer of water to the S1A pond on South Road.

A seepage interception trench was constructed outside the S14 pond after a seepage event in April 2022.

4.6.5 Modification applications

No modification to PA07_0018 were made in 2024.

Figure 4-2 Plan 3 - Long Section Planned Stopes for the Next Reporting Period



5. ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

5.1 Meteorological

Meteorological measurements are performed on-site by a compact weather station consisting of a Vaisala WXT536 unit. The latter uses ultrasonic anemometers to monitor wind speed, wind direction and associated sigma theta, providing 15min-averaged data, as per EPL requirements. It also measures temperature, relative humidity (no EPL requirement) and rainfall.

Error! Reference source not found. and **Error! Reference source not found.** provide summary we ather data from the site weather station.

The reporting period saw significantly more rainfall than usual, with 122mm more rain than the BoM's long-term annual average (1947-2024) of 248.6mm. A comparison of 2024 weather data vs BoM's statistics is presented in figure 5-5-1. January was the wettest month and received 63.5mm of rain. There were 116 rain days in total for the period. Temperatures were consistent with measurements from previous recent years.

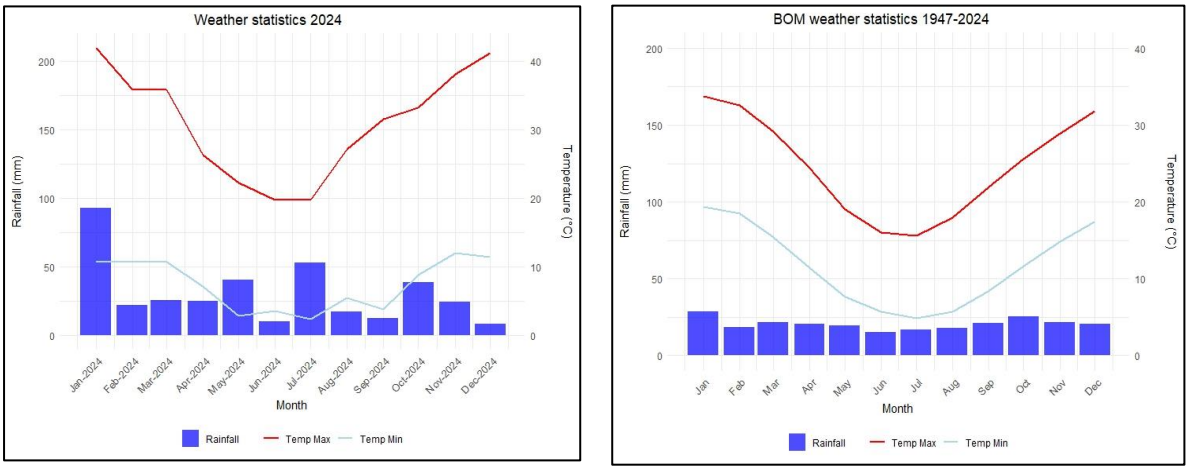
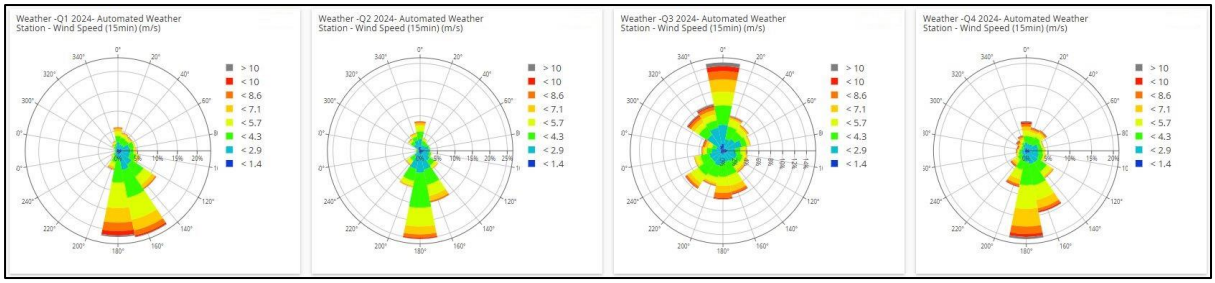


Figure 5-5-1 Weather Data for the Reporting Period against BOM long-term dataset

Table 5-1 Summary of Wind and Rain Days in Reporting Period

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Predominant Wind Direction	S	S	S	S	S	SSW	SW	NNE	S	S	S	S
Max wind speed (km/hr)	29.1	28.3	28.3	24.4	24.4	23.0	37.8	29.9	42.1	30.4	28.0	31.3
Days rained in month	10	8	9	4	6	10	12	11	16	14	12	4

As shown in wind roses below (**Figure 5-5-2**), winds were predominantly from the south with high wind speeds experienced in the summer months. Winter quarter (Q3) saw winds showing higher directional spread, with predominant northerly direction.



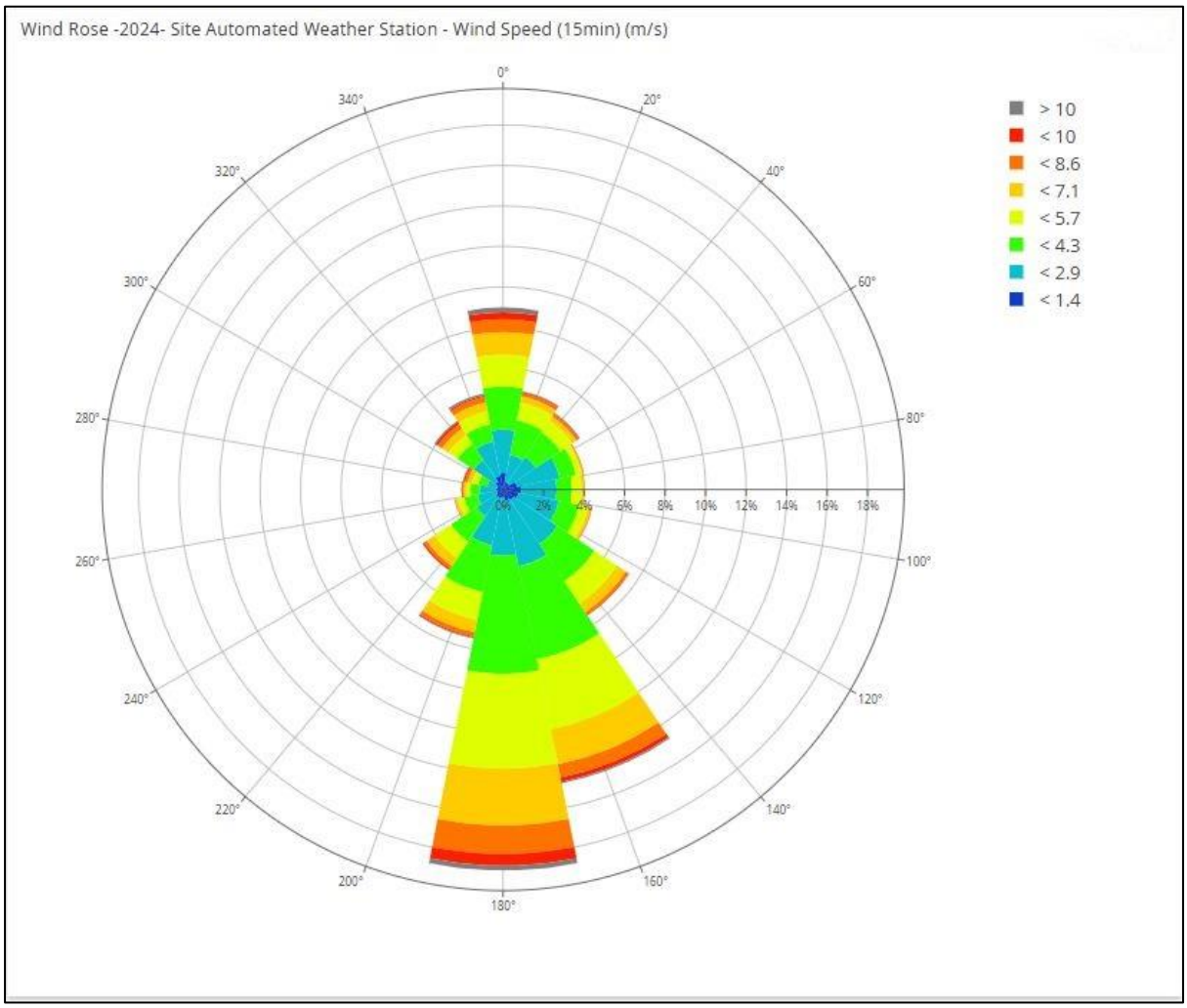


Figure 5-5-2 Wind roses for reporting period

5.2 Environmental Monitoring Locations

The BHO site environmental monitoring program is summarised in **Table 5-2**, locations for sampling/monitoring points are shown in **Figure 5-2**. A new weather station was installed on site in January 2019 as the previous weather station could not calculate Sigma Theta, a requirement of EPL 12559. TEOM units with the capability of monitoring PM2.5 were installed in 2022 and replaced by BAM units in March 2023.

Table 5-2 Summary of BHO Environmental Monitoring Program

EPA ID	BHO ID	Parameter	Frequency
AIR QUALITY			
1	Primary Vent Shaft	- Oxides of Nitrogen (as NO_2) -Total solid particles (TSP) - Volatile organic compounds - Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, V	Quarterly (at blasting event)
2	Crusher Baghouse Stack	- Total solid particles (TSP) - Total - Sb, As, Cd, Pb, Hg, Be, Cr, Co, Mn, Ni, Se, V	Quarterly
3 - 9	D1 – D7	Insoluble solids, Lead	Monthly
10, 57	TSP-HVAS	Total Suspended Particulate, Lead on filter paper	Every 6 days
11, 12	HVAS1 & 2	PM10, Lead on filter paper	Every 6 days
13, 14	TEOM/BAM 1 & 2	PM10, PM 2.5	Continuous
SURFACE WATER			
29 - 36	S31-1, 44, 49, 1A, 9B-2, Horwood Dam, Upstream and Downstream	pH, EC, TDS, SO4, Cl, Na, Cd, Pb, Mn, Zn	When contain water (at least 2 per 12 months)
GROUNDWATER			
37 - 52	GW01 – GW16	pH, EC, TDS, SO4, Cl, Ca, Mg, Na, Fe, Cd, Pb, Mn, Zn	Quarterly
53, 54	Shaft 7 & Kintore Pit extraction	pH, EC, TDS, SO4, Cl, Ca, Mg, Na, Fe, Cd, Pb, Mn, Zn	Quarterly
NOISE & BLASTING VIBRATION			
15 - 28	A1 – A14	Leq, 15min/Day Leq, 15min/Evening Leq, 15min/Night	Annually
V1 – V5	V1 – V5	dB mm/ second	Continuous (when blasting)
-	V6	dB mm/ second	Continuous (when blasting)
WEATHER			
55	Meteorological Station	Temperature, wind speed & direction, rainfall, Sigma Theta	Continuous (15 minute intervals)

The following sections provide a summary of these monitoring requirements together with the results for the reporting period. A discussion of any identified trends and a comparison with predictions in the original EA/PPR are also provided where available.

5.3 Air Quality

In accordance with the conditions of PA07_0018 and EPL12259 air quality is monitored:

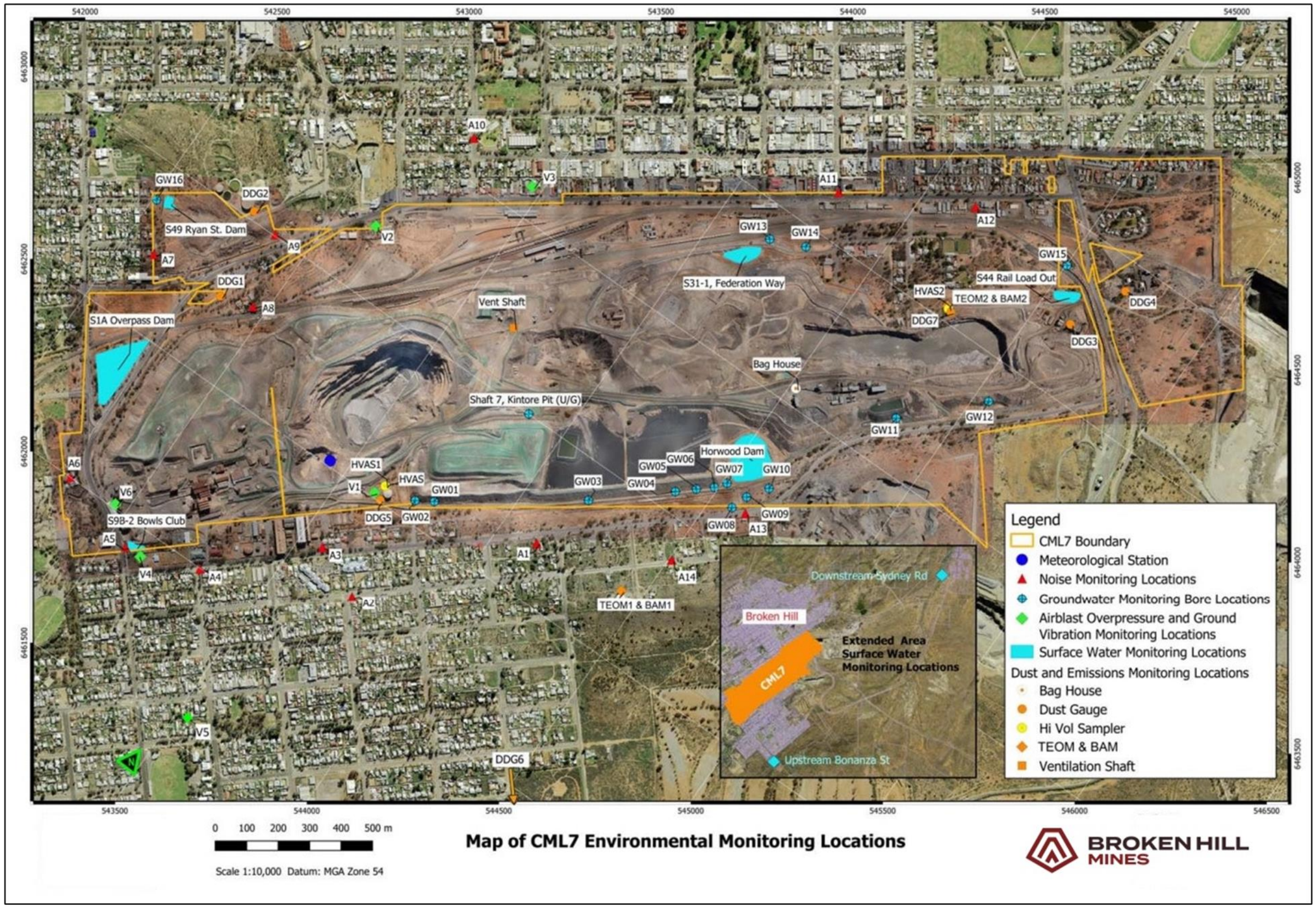
- Air emissions from in-stack mine exhaust ventilation and the crusher baghouse are tested quarterly by an external contractor with specialised equipment;
- Ambient air quality is monitored by BHO personnel via a combination of dust deposition gauges, high volumes air samplers (HVAS) and tapered element oscillating microbalance (TEOM) sampling units; and

Real-time information is downloaded and alerts automatically forwarded to assist in the day-to-day operational management of issues as well as long-term analysis of environmental data.

A Sintrol real-time dust monitor was installed in the crusher baghouse emissions stack in April 2022 to provide early warning of potential damage to the baghouse dust bags.

Figure 5-2 shows the sampling locations for all air quality monitoring units.

Figure 5-2 Location of Monitoring / Sampling Points



5.3.1 In-stack air quality

During the reporting period BHO engaged Assured Monitoring Group (AMG) to conduct testing of the mine ventilation exhaust points and the crusher baghouse. Testing was performed each quarter in accordance with the EPL. AMG are NATA accredited to perform this testing. The EPL Condition L2.1 specifies the in-stack performance criteria for the two ventilation exhaust units - Primary Ventilation Shaft and the Crusher Baghouse. **Table 5-3** provides the results of the testing against the limits as set out in the EPL. All sampling events result were within criteria limits.

Table 5-3 Vent and Baghouse Testing Results During the Reporting Period

	Limit	Primary Vent (EPL1)				Crusher Baghouse (EPL2)			
Testing Date		05/03	21/05	13/08	26/11	05/03	22/05	14/08	27/11
Nitrogen Oxides (mg/Nm^3)	350	<2.05	<2.05	<2.05	<2.05	N/A[1]	N/A[1]	N/A[1]	N/A[1]
Volatile Organic Compounds (mg/Nm^3)	40	<0.46	<0.42	<0.49	<0.51	N/A[1]	N/A[1]	N/A[1]	N/A[1]
Total Suspended Particles (mg/m^3)	20	1.56	1.86	1.24	5.48	3.21	7.35	4.47	11.2
Type 1 and Type 2[2] (mg/m^3)	1	0.13	0.027	0.021	0.050	1.12	0.11	0.13	0.14

Note 1 = Not required to be tested.
Note 2 = Type 1 substance Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements. Type 2 substance Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements.

Air Quality Management Plan BHO-PLN-ENV-001 lists the controls that were in place during the reporting period. In summary, the major controls include:

- Automatic watering sprays on the ventilation shafts; and
- Fully enclosed primary crusher operating under negative pressure to a baghouse and continuous stack monitor.

5.3.2 Dust deposition gauges

Dust deposition levels refer to the quantity of dust particles that settle out from the air as measured in grams per square metre per month (g/m^2/month) at a particular location. Total fallout dust (depositional dust) is continuously monitored from seven deposition gauges located on and around the Rasp Mine, as shown in **Figure 5-2**. D1 and D6 are located off-site, D1 near the St Johns training facility north of the Rasp Mine and D6 in Casuarina Avenue south of the Rasp Mine. D2 to D5 and D7 are located on the Mine lease in various locations.

Samples are collected monthly and are sent to ALS Laboratory (NATA accredited) in Newcastle and analysed for total deposited dust and deposited lead dust. Deposited dust is assessed as insoluble solids as defined by *AS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method*.

Dust deposition criteria are provided in terms of both an acceptable increase in dust deposition over the existing background levels and an absolute maximum value. These impact assessment criteria are summarised in

Table 5-4.

Table 5-4 Dust Deposition Criteria

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

Provided below is a discussion of results for dust deposition during the reporting period (January 2024 to December 2024) and dust related trends over the operational life of the Rasp Mine. Dust deposition results are reported and reviewed internally monthly.

Figure 5-3 and **Figure 5-4** show the monthly dust deposition and total deposited lead results for the reporting period. One dust gauge was broken while sampling during September and the sample analysis was not available for this month. The event was reported to regulators.

Depositional dust level of 4 g/m^2/month limit (red figures in **Table 5-5**) was exceeded only once through the year, in December, at EPL6. This site has sampled significantly higher dust levels than all other locations during this year, with elevated monthly surface mass concentration observed in Spring and Summer months. Elevated readings occur in the summer months when dust storms are more frequent. However, all total deposited dust results were below the measured 2010 background levels.

Lead results were occasionally above baseline levels throughout the period at D3-Thompsons Shaft and D4-Junction Mine (red figures in **Table 5-5**), which are adjacent to the rail loading facility and access road, as well as exposed areas situated on the northern side of the site. Exposed site areas around the Thompson Shaft gauge are sprayed with dust suppressant and a water cart services the haul road while concentrate is being carted to the rail loadout and loaded to trains.

Dust results were significantly elevated in the D4 Junction Mine gauge in December 2024. The predominant wind direction for the month of December was from the South, suggesting that the source of the dust was from site activities, although the gauge is situated in a residence and may have been impacted by localised activities.

Lead levels in the D4 Junction Mine gauge were noticeably more elevated than measurements from other gauges (see figure 5-4) in April, November and especially December. **Figure 5-3** below suggests that measured lead might have an on-site origin.

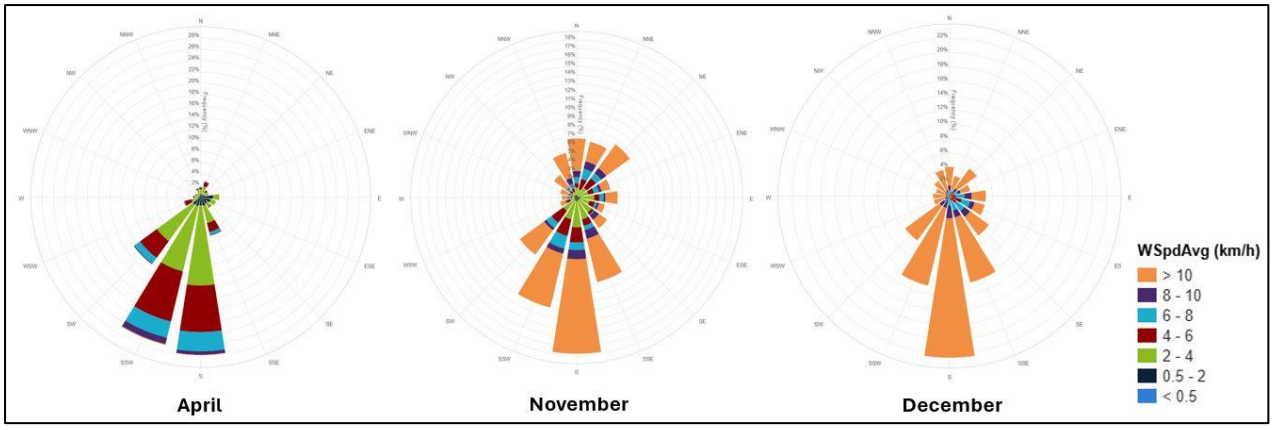


Figure 5-3 Monthly wind roses - April, November, December

Lead levels measured at the D3 Thompsons Shaft in July and August were above measurements obtained by other gauges. Wind roses for both months (**Error! Reference source not found.**) show r elatively quieter wind conditions. July wind directions were variable, making it challenging in

identifying a source for the measured dust and lead. August, however, saw predominant winds from the north-northeast. It is worth noting that the D4 gauge saw relatively very low levels of lead during this period. Given that D4 is located north-northeast of D3, the results of dust analysis for both gauges may indicate that high lead levels measured by D4 originated from the area between the two gauges, i.e. the haul road and concrete loadout area. However, this area is regularly swept and watered. A water cart will also attend to the haul road between the concentrate loading shed at the Mill and the rail loadout area when concentrate containers are being transported from the Mill to the rail loadout.

Lead levels measured by D5 were elevated in September, when the predominant wind direction was from the South (see relevant wind rose in **Error! Reference source not found.**). D5 gauge was likely i mpacted by off-site activities as it is located on the southern boundary.

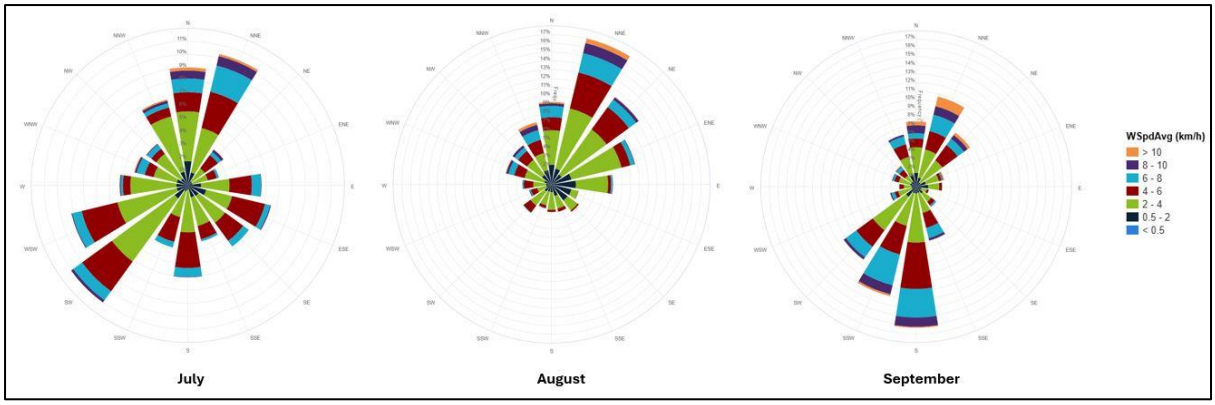


Figure 5-4 Monthly wind roses - July, August, September

The long-term monitoring of dust and lead are illustrated by results shown in **Figure 5-7** and **Figure 5-8** respectively. The generated total rolling average for dust, calculated by averaging the 12-month rolling averages for analysis results for all dust gauges, show a weak decreasing trend over the last five years. The same trend can be noticed on the graph displaying results for lead..

Table 5-5 Dust Deposition Results for the Reporting Period (g/m$^{2/}$month)

	D1 EPL3 (off site)		D2 EPL4		D3 EPL5		D4 EPL6		D5 EPL7		D6 EPL8 (off site)		D7 EPL9	
	Dust	Lead	Dust	Lead	Dust	Lead	Dust	Lead	Dust	Lead	Dust	Lead	Dust	Lead
Jan-24	0.8	0.0017	1.4	0.0001	2.2	0.0092	3.30	0.012	1.9	0.0033	1.5	0.0001	1.5	0.004
Feb-24	1.2	0.0029	1.3	0.0018	1.2	0.0053	3.00	0.009	3.8	0.0088	1.8	0.0006	0.8	0.007
Mar-24	0.7	0.0003	1	0.0006	1.2	0.005	2.80	0.005	1.4	0.0015	1.3	<0.0001	0.9	0.0044
Apr-24	0.5	0.0018	0.2	<0.0001	0.4	0.0024	1.90	0.010	0.5	0.0013	1.1	<0.0001	0.1	0.0012
May-24	0.4	0.0009	0.4	0.0011	0.7	0.0032	1.60	0.006	1.1	0.0022	1	<0.0001	0.7	0.0049
Jun-24	0.3	0.0007	0.1	0.0001	0.5	0.0027	0.90	0.002	0.9	0.0016	1	0.0016	0.2	0.0014
Jul-24	0.5	0.0009	0.4	0.0001	0.7	0.0059	0.80	0.003	0.9	0.0021	0.7	0.0004	0.4	0.0014
Aug-24	0.2	0.0024	<0.1	0.0007	0.5	0.0069	1.00	0.001	0.8	0.0012	1.1	0.0005	0.3	0.0018
Sep-24	1.2	0.0028	0.5	0.0007	0.9	0.0031	3.20	0.005	2.6	0.0082	NS	NS	0.4	0.0021
Oct-24	0.7	0.0016	0.5	0.0005	1	0.0041	1.40	0.006	1.4	0.0018	2.50	0.0001	1	0.0058
Nov-24	1	0.0006	1.2	0.0008	1	0.0036	2.90	0.008	1.4	0.0034	2.10	0.0006	0.6	0
Dec-24	0.6	0.0016	1.6	0.0012	1	0.003	5.20	0.016	2	0.0042	1.80	0.0013	1.1	0.0044
2010	4.0	0.0034	3.1	0.005	4.3	0.005	5.7	0.006	N/A[1]	N/A[1]	5.8	0.004	N/A[1]	N/A[1]

Note 1 = Background is not available for these locations ns = no sample

Figure 5-5 Monthly Total Deposited Dust for Results for the Reporting Period

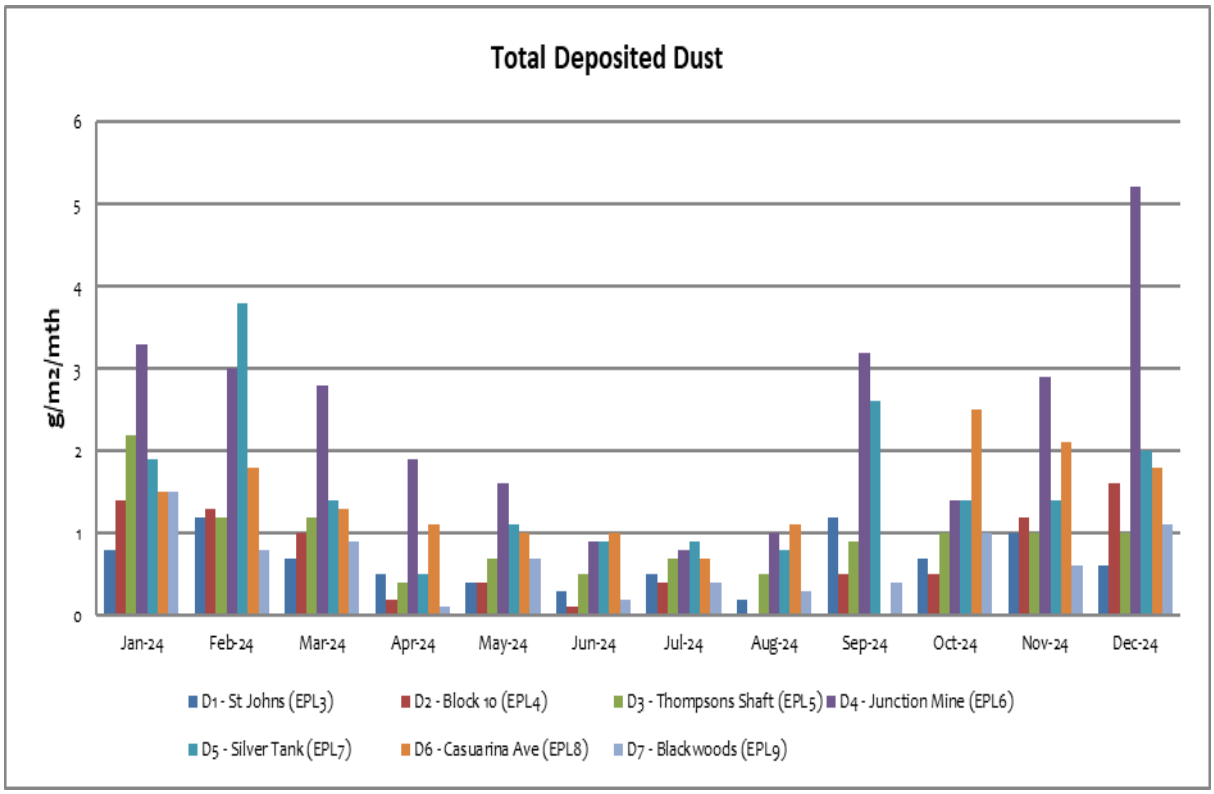


Figure 5-6 Monthly Lead Deposition for the Reporting Period

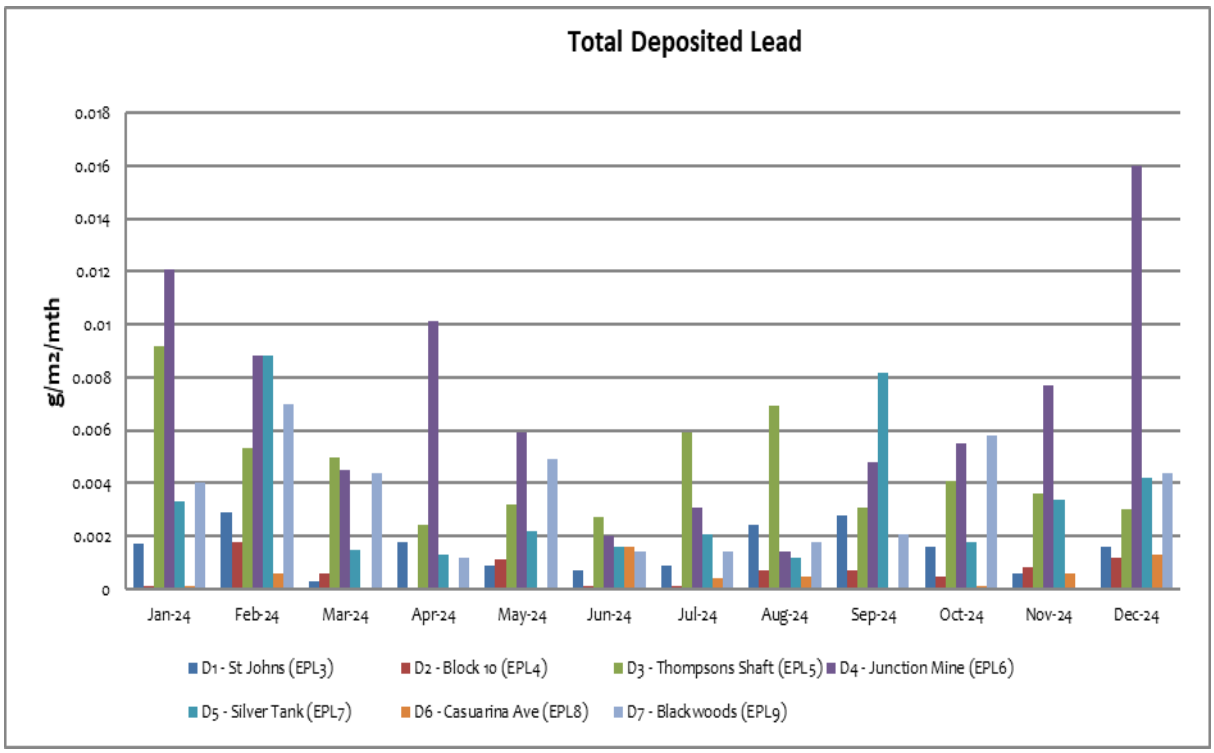


Figure 5-7 Total Deposited Dust 2007 – December 2024

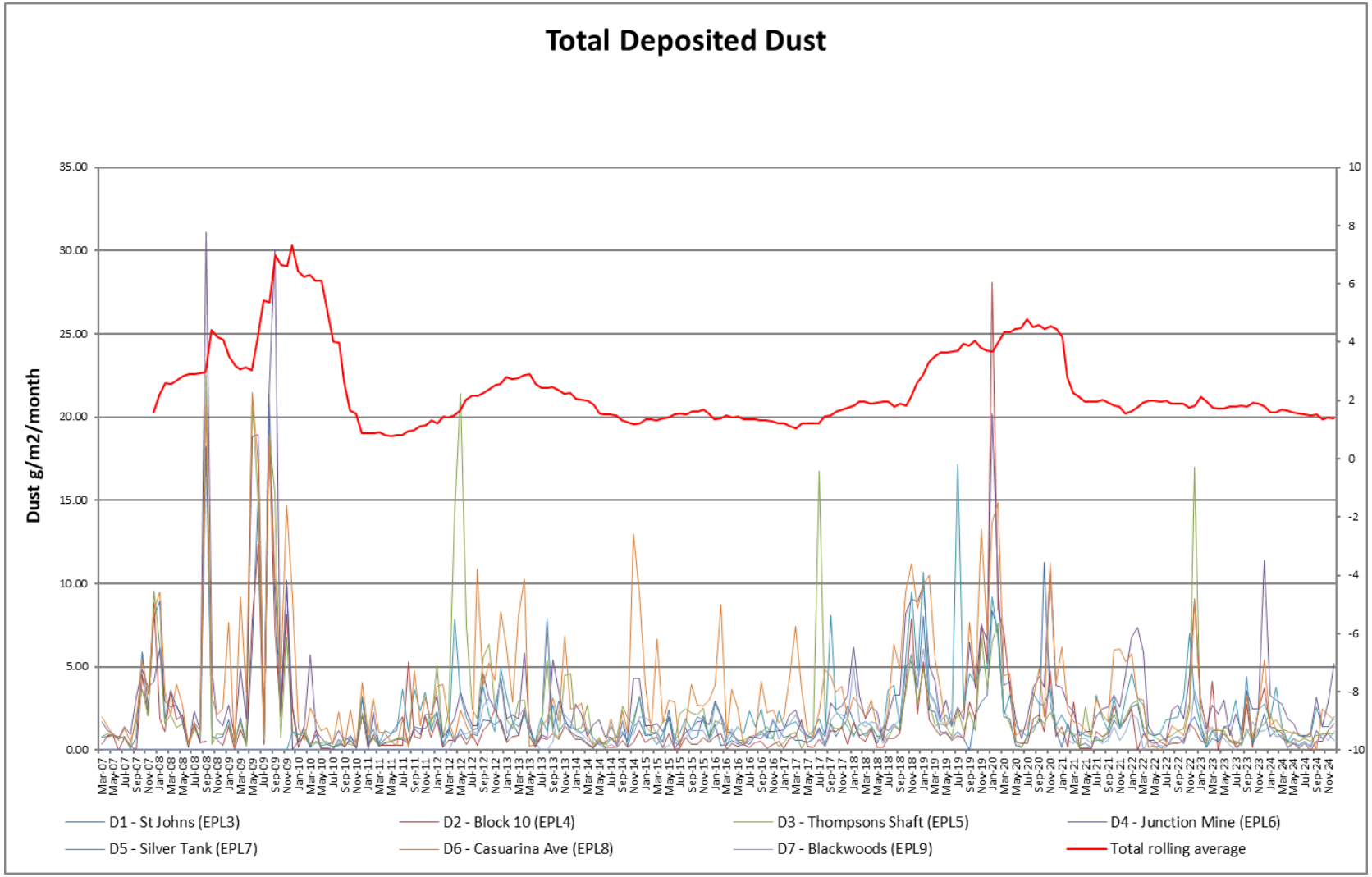
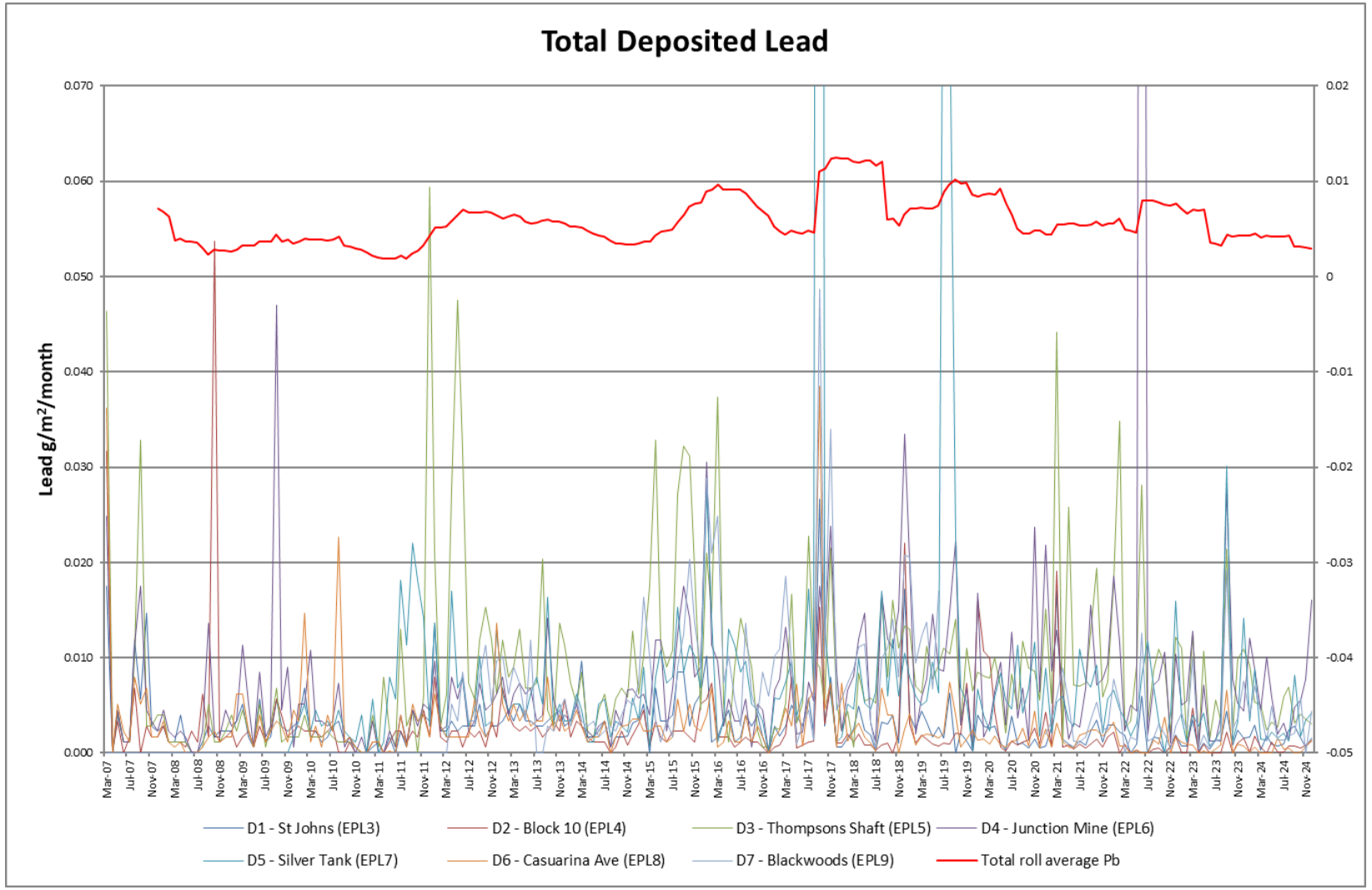


Figure 5-8 Total Deposited Lead 2007 to December 2024



5.3.3 High volume air samplers

There are four high volume air samplers used to measure ambient air quality at the Rasp Mine – HVAS (EPL10) and HVAS1 (EPL11) are located at the Silver Tank, central and to the south of the mine lease, and HVAS2 (EPL12) and HVAS3 (EPL57) are located adjacent to and north of Blackwood Pit. Locations are shown in **Figure 5-2**. HVAS and HVAS3 sample for total suspended particulates (TSP) and lead dust, and HVAS1 and HVAS2 sample for particulate matter less than 10 microns (PM_{10}) and lead dust.

Samples are collected every six days and are sent to ALS Laboratory (NATA accredited) in Newcastle. **Table 5-6** outlines the impact assessment criteria as listed in PA07_0018.

In accordance with the PA07_0018 and the EPA air quality guidelines, from September 2017, the criteria for annual rolling average for PM_{10} criterion was reduced from 30 µg/m^3 to 25 µg/m^3. All other air quality criterion remains unchanged.

Table 5-6 Impact Assessment Criteria

Pollutant	Averaging Period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	25 µg/m^3
Particulate matter < 10 µm (PM_{10})	24-hour	50 µg/m^3

Note: Criteria changed from 30 µg/m^3 to 25 µg/m^3 in September 2017

Provided below is a discussion of results for each HVAS unit during the reporting period and trends over the operational life of the Rasp Mine. HVAS unit results are reported and reviewed internally monthly.

HVAS (EPL10)

TSP and TSP-lead results for the period recorded by HVAS are shown in Figure 5-9 and Figure 5-10**.** These show the results have remained consistent over the reporting period.

The rolling annual average TSP at the HVAS unit recorded 34.48 µg/m^3 for the reporting period, a 10% decrease compared to the previous period rolling annual average of 38.16 µg/m^3.

The highest TSP result in the period was 82.7 µg/m^3 on 6 November when winds were predominantly from the North suggesting the dust had originated from on-site. The highest TSP result for November was 82.7 µg/m3 on 6 November when winds were predominantly from the North suggesting the dust had originated from on-site. The result is below the 90µg/m^3 limit.

Southern sources (South and South-Southeast) appear to be the highest contributors.

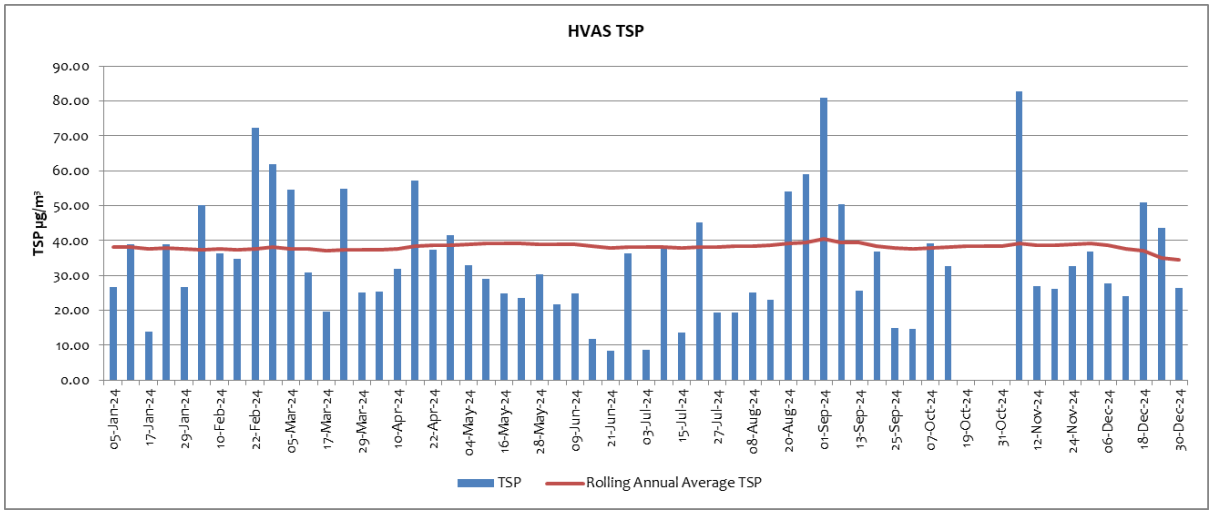


Figure 5-9 HVAS TSP Results for the Reporting Period

The rolling annual average for TSP Lead in December 2024 was 0.13 µg/m^3, lower than the rolling annual average of 0.18 µg/m^3 for TSP Lead at the end of December 2023. The Rasp Mine PA07_0018 does not stipulate any criteria for lead; however, the recorded annual average of TSP-lead remains below the NSW EPA guideline of 0.50µg/m^3.

The highest TSP-Lead level recorded in the 2024 period was on 1 September 2024 (0.52µg/m^3) when winds were predominately from the North-Northwest, suggesting contribution from on-site sources.

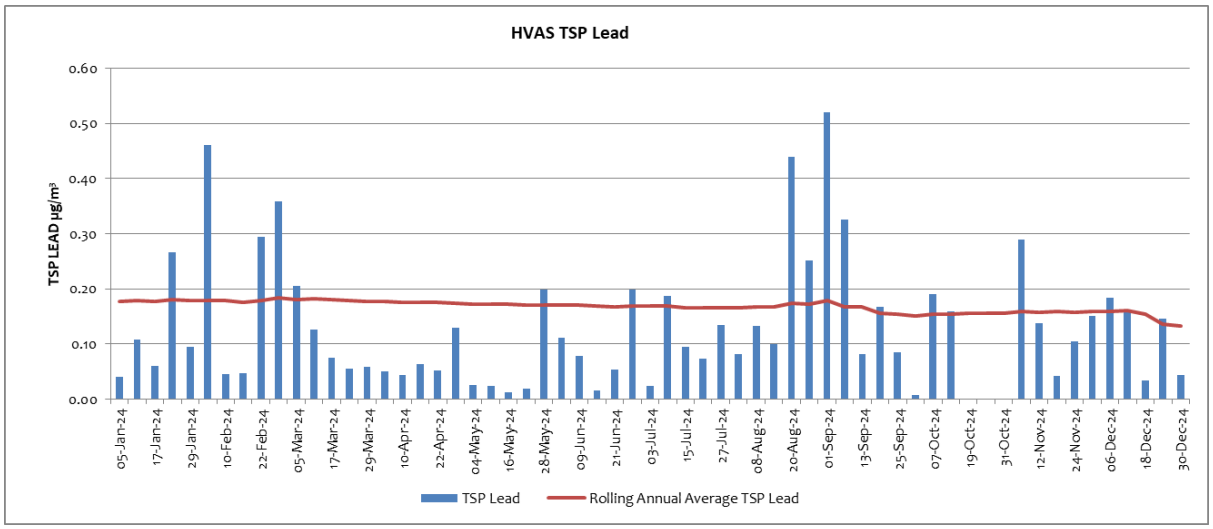


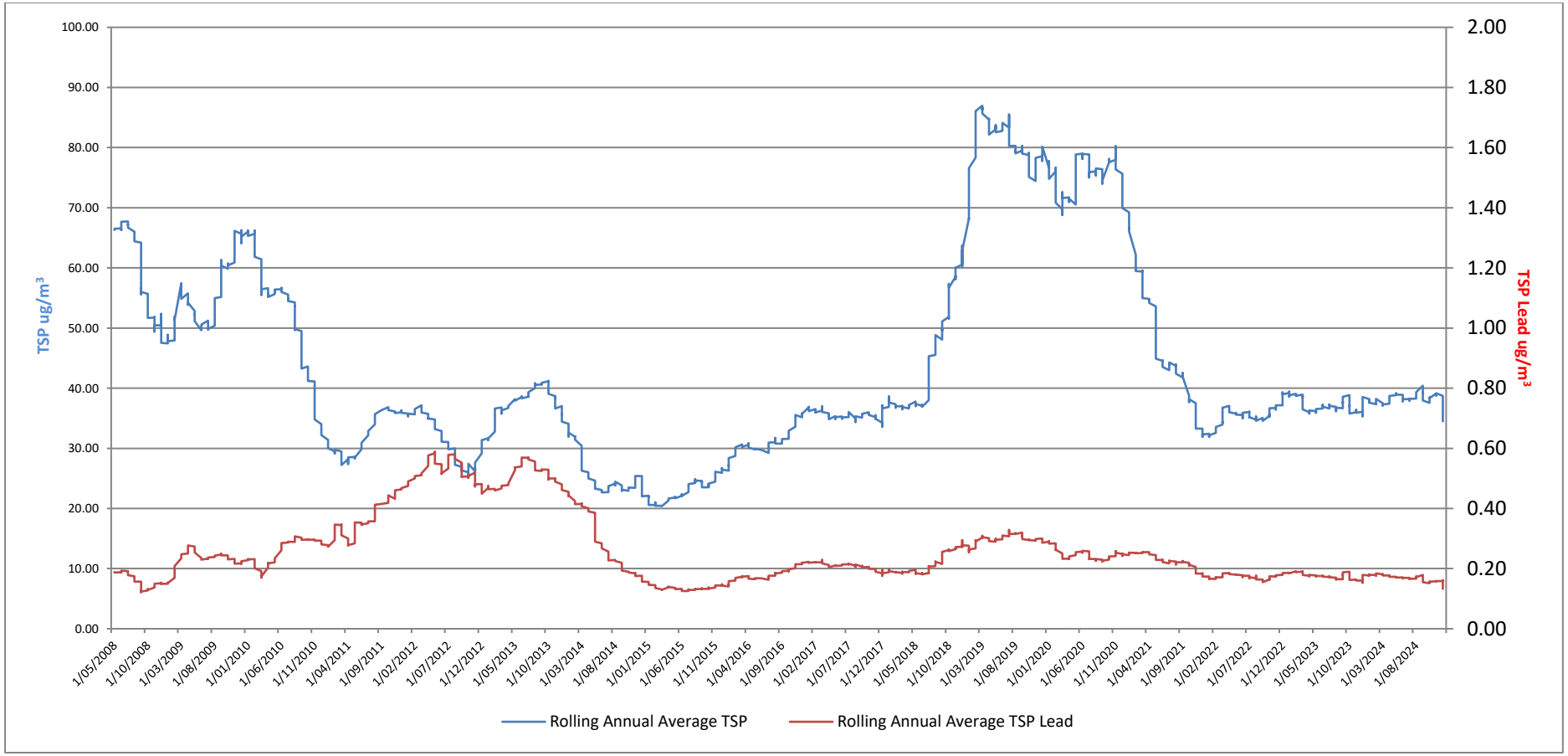
Figure 5-10 HVAS TSP-Lead Results for the Reporting Period

The highest Lead containing dust originated from North-Northwest, probably generated on-site. The most usual sources of airborne Lead, however, had a southerly origin (South and South-Southeast), indicating an external cause.

As for the long-term trend (see Figure 5-11**)**, the 12-month rolling averages for TSP dust levels measured at HVAS have been relatively stable since 2021, with values staying below 40µg/m^3. Lead levels within these samples displayed the same stability, with a weak decreasing trend started at the beginning of 2023. Lead levels stayed below 0.2µg/m^3, well below the EPA threshold of 0.5 µg/m^3 for TSP-lead.

.

Figure 5-11 HVAS TSP and TSP-Lead Results for the period 2008 to 2024



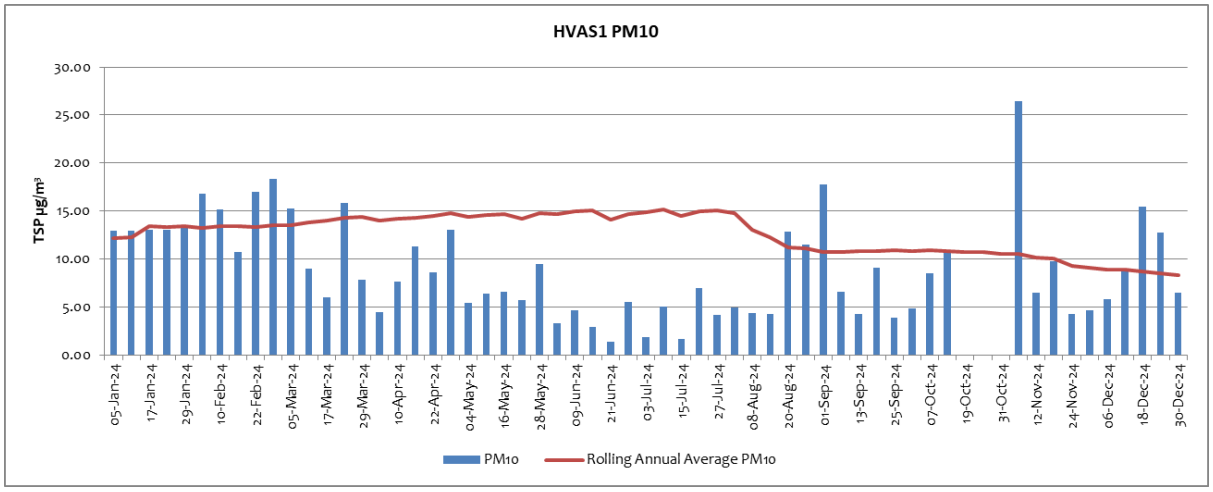
HVAS1 (EPL11)

HVAS1 is used for sampling PM_{10} and PM_{10}-lead. The annual rolling average for PM_{10} dust at this location is 8.3 µg/m^3 at the end of December 2024, lower than the annual rolling average at the beginning of December 2023 which was 13.3 µg/m^3 and is well below the background level of 29.1µg/m^3 reported in the EA. The average annual PM_{10} level calculation includes data collected during extreme events. Results for the reporting period are shown in Figure 5-12Figure 5-12 HVAS1 PM10 Results for the Reporting Period which indicates that the rolling annual average for PM_{10} is below the criteria of 25 µg/m^3, and has remained consistently low during the reporting period.

The highest PM_{10} dust level for November was 26.4 µg/m3 on 6 November when winds were predominantly from the North suggesting contribution from on-site sources. While there may have been contribution from Little Kintore Pit, it was likely a regional dust event on this day that contributed the bulk of the dust.

Results for the period 2011 to 2024 are shown in Figure 5-18**.**

Figure 5-12 HVAS1 PM_{10} Results for the Reporting Period

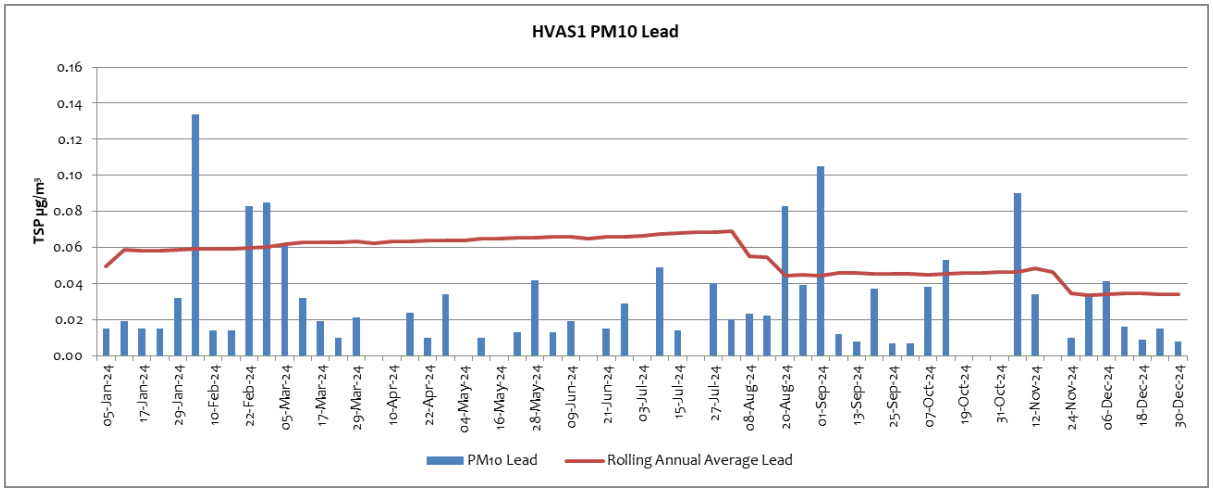


HVAS1 PM10 Lead results for the reporting period are shown in Figure 5-13. The highest Lead PM10 result for 2024 was 0.13 µg/m^3 on 4 February when winds were predominantly from the North-northeast, suggesting contribution from on-site sources. It is possible that Little Kintore Pit and the Haul Road contributed dust recorded on this day. Another dust storm, with winds from the West-Southwest, occurred on 19 September when a PM_{10} Lead dust result of 0.53µg/m^3 was recorded. The rolling annual average for PM_{10} Lead in December 2024 was 0.03 µg/m^3, lower than the average of 0.05 µg/m^3 in December 2023.

Since May 2011, when HVAS1 started operating, dust levels have fallen and then risen in the last few years due to the drought and frequent dust storms.

Results for the period 2011 to 2024 are shown in Figure 5-19.

Figure 5-13 HVAS1 PM_{10}-Lead Results for the Reporting Period

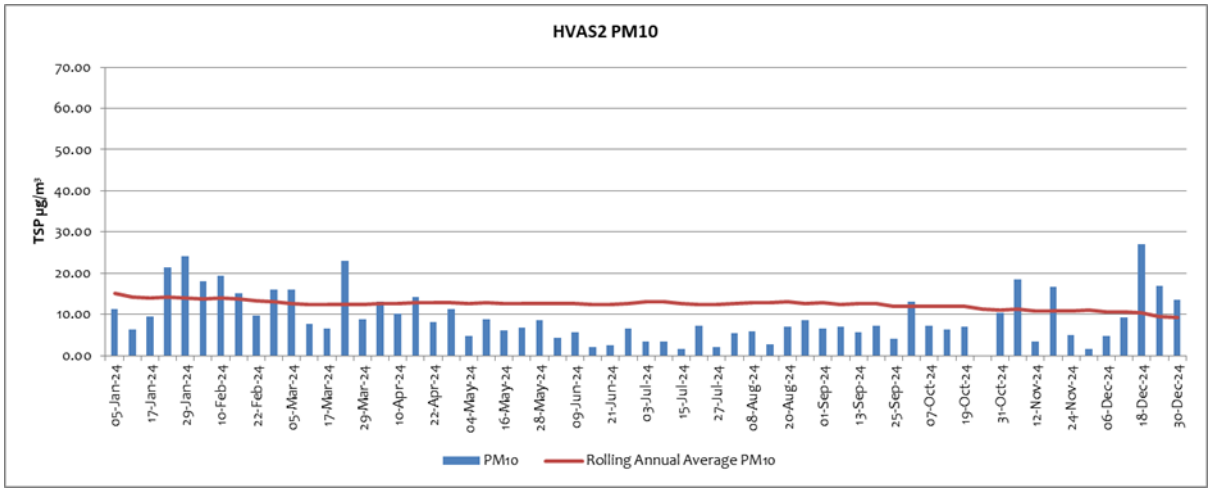


HVAS2 (EPL12)

The highest recorded PM_{10} dust reading for 2024 was 27.0 µg/m³ on 18 December when winds were from the South-Southeast suggesting contribution from on-site sources. Smoke haze from the Victorian bushfires was also present and may have contributed to the elevated result. The surface of Blackwoods TSF2 to the south is treated with dust suppressant and the TSF spray system has been installed. The annual rolling average for PM_{10} dust at this location is 9.2 µg/m³ at the end of December 2024, down from 17.4 µg/m³ in December 2023 and below both the background level reported in the EA of 29.1µg/m³ and the criteria of 25µg/m³ (for off-site receptors), Figure 5-14. Data presented includes that which may be result of external events, particularly dust storms which are expected in the spring and summer months.

Trends for the period 2011 to 2024 are shown in Figure 5-18. Since September 2013 when HVAS2 started operating, dust levels rose during the drought period of 2018 to 2021, fell during the wet year of 2022, then have risen due to the drier weather and dust storms.

Figure 5-14 HVAS2 PM_{10} Results for the Reporting Period

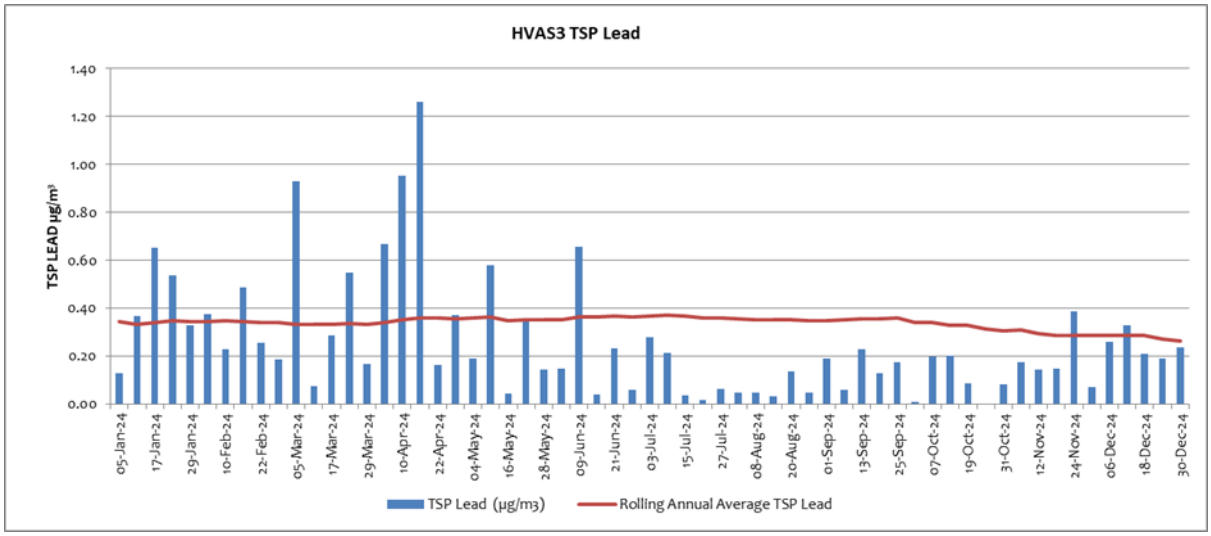


The highest recorded PM_{10} Lead dust reading for 2024 was 0.34 µg/m³ on the 16 April when winds were from the South suggesting Blackwoods TSF2 was the likely source of the dust. The surface of Blackwoods TSF2 is treated with dust suppressant and the TSF spray system is operational. The

rolling annual average for PM_{10} Lead in December 2024 was 0.06 µg/m^3, down from 0.10 µg/m^3 in December 2023, Figure 5-13.

Results for the period 2011 to 2024 are shown in Figure 5-19. Since September 2013 when HVAS2 started operating PM_{10}-lead levels have tracked with PM_{10} trends at HVAS2.

Figure 5-15 HVAS2 PM_{10}-Lead Results for the Reporting Period

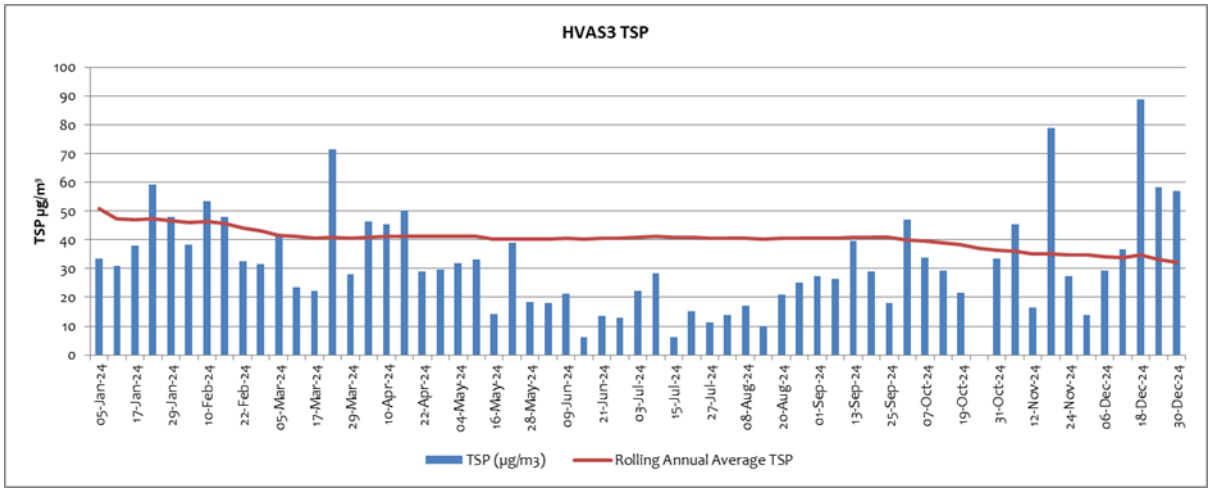


HVAS3 (EPL57)

HVAS3 (EPL57) was included in EPL 12559 on 14 March 2019 to provide for monitoring of TSP Dust on the northern boundary of the site at Blackwoods Pit TSF2.

TSP levels at HVAS3 were highest on 18 December with a result of 88.8 µg/m^3, when winds were from the South-Southeast, suggesting the dust source was likely Blackwoods TSF2. Smoke haze from the Victorian bushfires was also present and may have contributed to the elevated result. The surface of Blackwoods TSF2 is treated with dust suppressant and the TSF spray system has been installed. The annual rolling average for TSP dust at this location is 32.3 µg/m^3 at the end of December 2024, down from 55.5 µg/m^3 in December 2023 as seen in Figure 5-16.

Figure 5-16 HVAS3 TSP Results for the Reporting Period



The highest TSP Lead level recorded at HVAS3 during the reporting period was 1.26 µg/m^3 on 16 April when winds were predominantly from the South suggesting contribution from Blackwoods TSF2. The rolling annual average for TSP Lead in December 2024 was 0.26 µg/m^3, down from 0.36 µg/m^{3}in December 2023. The surface of Blackwoods TSF2 is treated with dust suppressant and the TSF spray system has been installed. Elevated lead levels were recorded sporadically throughout the reporting period, usually because of site activities around TSF2.

Figure 5-17 HVAS3 TSP-Lead Results for the Reporting Period

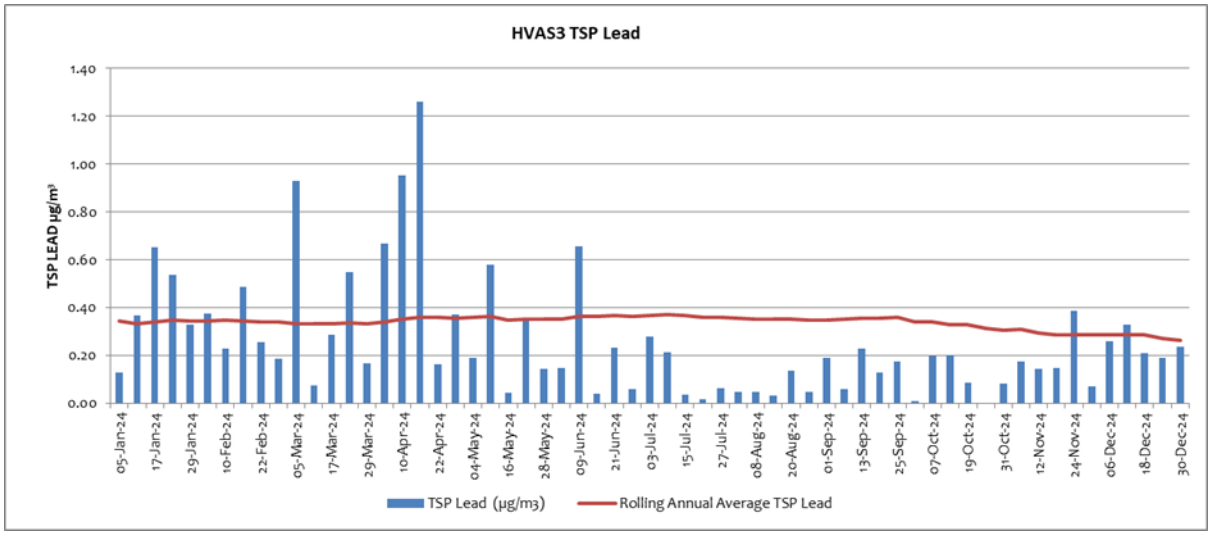


Figure 5-18 HVAS1 & HVAS2 PM_{10} Annual Average Results for the Period 2011 to 2024

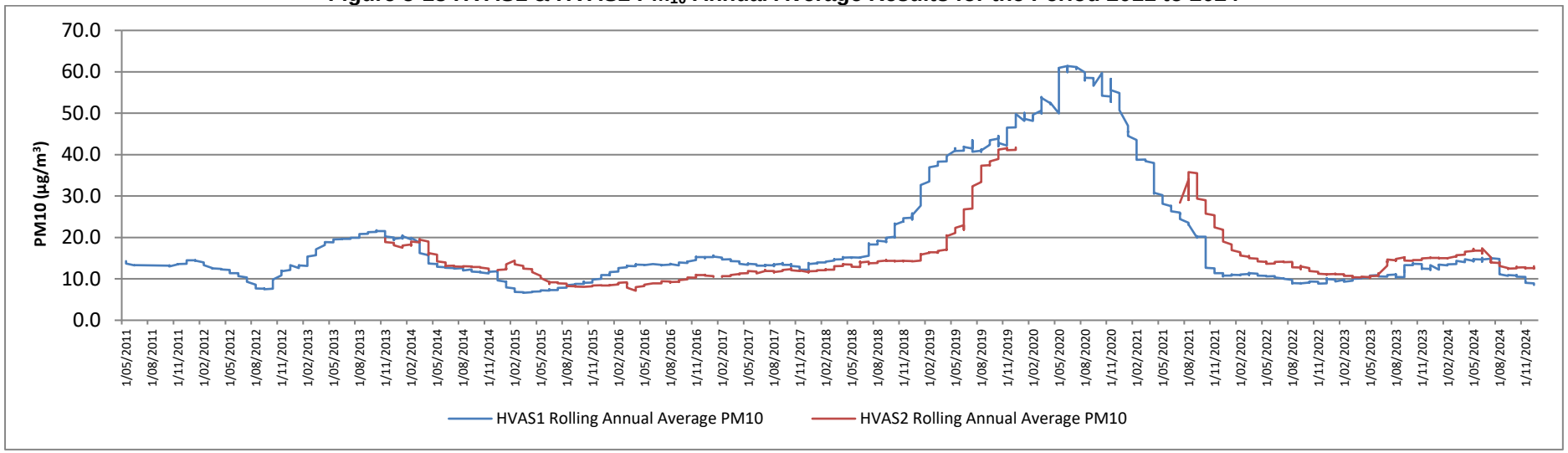


Figure 5-19 HVAS1 & HVAS2 PM_{10}-Lead Annual Average Results for the Period 2011 to 2024

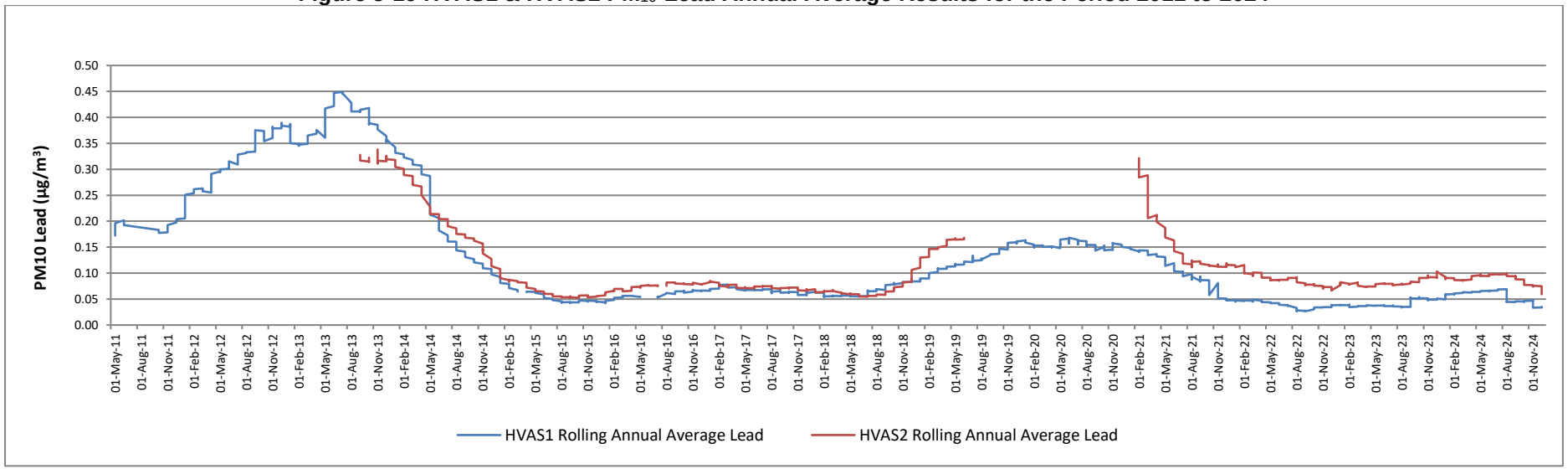


Figure 5-20 HVAS & HVAS3 TSP Annual Average Results for the Period 2008 to 2024

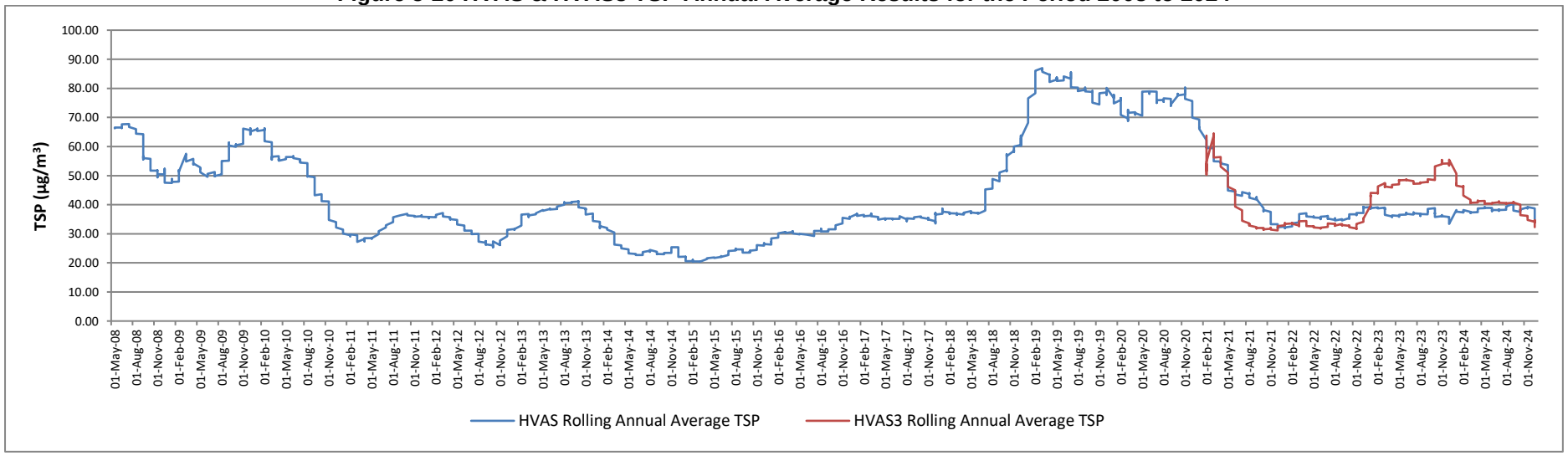
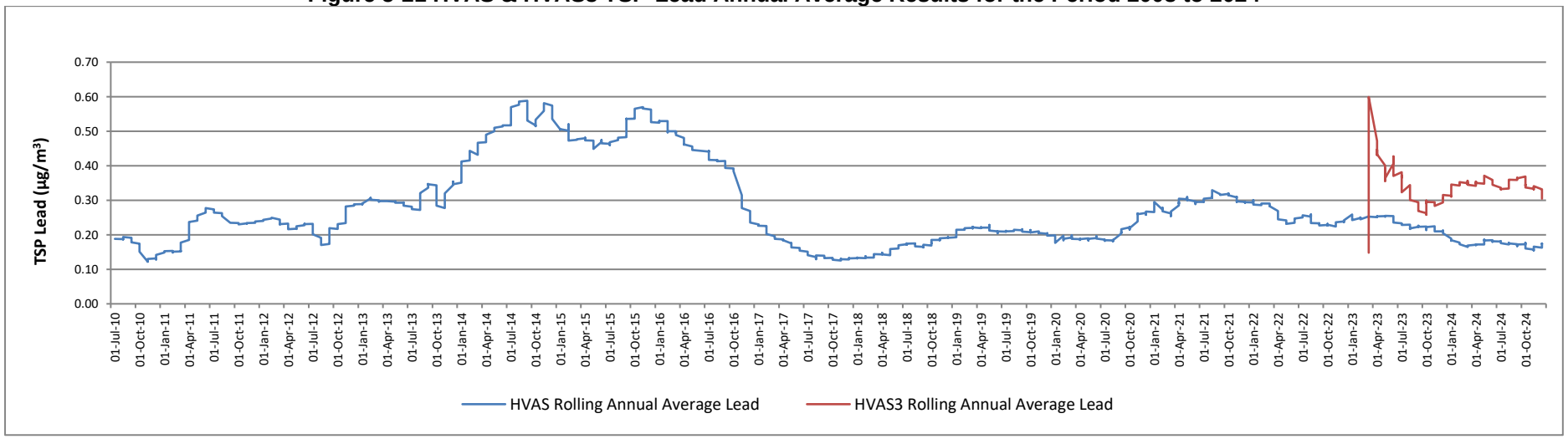


Figure 5-21 HVAS & HVAS3 TSP-Lead Annual Average Results for the Period 2008 to 2024



5.3.4 TEOM monitors

The Rasp Mine PM monitoring network relies on two types of NSW EPA approved instruments for continuously measuring dust levels, with an hourly time resolution. Two Thermo TEOM 1405 PM monitors using Tapered Element Oscillating Microbalance (TEOM, method no. AM22) measurement principle monitor real time PM_{10} data. Two Metone BAM1022 using Beta Attenuated Monitor (BAM) measurement principle measure real time $PM_{2.5}$ data. **Figure 5-2** shows the location of these monitors.

A major technical issue on one of the BAM1022 units installed at site 2 led to the installation of a third TEOM 1405. The latter was registered as TEOM3. It has been monitoring $PM_{2.5}$ levels at Site 2 (TSF2) since November 2024. An Aeroqual portable monitor was monitoring $PM_{2.5}$ at the TSF2 location from September to November.

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM_{10})	24 hours	50 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	25 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	24 hours	25 µg/m^3
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	8 µg/m^3

Note: Criteria changed from 30 µg/m^3 to 25 µg/m^3 in September 2017

The monitors operate continuously over a 24-hour period and provide a real time data read out on a kiosk computer in the ESO office. The monitors also provide auto-generated notifications when triggers are exceeded (when the level exceeds 100µg/m^3 expressed as a 1 hour rolling average) the cause is investigated and controlled using the water truck or by modifying work methods when high PM values originate from on-site activities. A network of water sprinklers was installed around TSF2. These allow a preventive management of dust lift-off by watering TSF2 tailings, ahead of expected high wind conditions. They can also be activated when windstorms take place, to reduce the amount of airborne dust.

During the reporting period, besides regular maintenance done by staff, a technician from NATA-accredited company ACOEM serviced the TEOM and BAM units in June and December as per requirements from AS 3580.9.8:2008, AS 3580.9.12:2022 and AS 3580.9.13:2022

Several weather-induced occurrences led to power outages that impacted the continuous measurements done by the PM-monitors. A major long-lasting power outage impacting Broken Hill took place at the end of October.

The recorded annual average $PM_{2.5}$ results for both BAM1 and BAM2 are below the listed 24-hour averaging criteria of 25 µg/m^3 and at the annual averaging criteria of 8.00 µg/m^3.

The corrected results with storm events excluded for TEOM1 PM_{10} 24-hour average for the reporting period are provided in Figure 5-22**.** Several dust storm events were recorded on TEOM 1 and 2 during the period. As can be seen in the graphs in Figure 5-22 and Figure 5-23, high-dust events are captured by both monitors so they are unlikely to be the result of site activities.

The rolling annual average for PM_{10} at TEOM1 with external dust events and invalid data removed for the period December 2023 to December 2024 is 12.47 µg/m^3, higher than the rolling annual average of 11.19 µg/m^3 at the beginning of the annual period.

The rolling annual average for PM_{10} at TEOM2 with external dust events and invalid data removed for the period December 2023 to December 2024 is 13.22 µg/m^3, higher than the rolling annual average

of 11.04 µg/m^3 at the beginning of the reporting period. The corrected results with storm events excluded for TEOM2 PM_{10} 24-hour average for the reporting period are provided in Figure 5-23.

A graph of results for TEOM1 and TEOM2 are provided in Figure 5-26**.**

The corrected results with some storm events removed for $PM_{2.5}$ at either location has not exceeded the 24 hour average of 25 µg/m^3 as set out in PA07_0018 as seen in Figure 5-24 and Figure 5-25.

The recorded annual average PM_{10} result at TEOM2 (13.22 µg/m^3) is below the prediction for R28, the closest receptor to this monitoring point (30 m) reported in the EA for MOD4 at 17.54 µg/m^3.

Air Quality Management Plan BHO-PLN-ENV-001 lists the controls that were in place during the reporting period. In summary, the major controls include:

- The use of chemical dust suppressant on non-active mining areas and roads;
- Sealing of all major roads and the use of a street sweeper and water truck;
- An enclosed crusher building and water sprays on the apron feeder to the crusher;
- Fully enclosed conveyors and transfer points prior to the Sag Mill with installed dust collectors;
- Restricted access to non-active mining areas;
- Concentrate loading into containers occurs in an enclosed building and containers are covered prior to exiting the building; and
- All vehicles leaving site are washed, including trucks taking containers to the rail loadout area.
- Traffic light system informing all staff and contractors of wind speeds on a daily basis.
- Wind speed alerts from the onsite weather station notifying of wind speeds greater than 35 km/hr

Monitoring results indicate that controls have been adequate to manage dust levels during the reporting period.

Figure 5-22 TEOM1 PM_{10} 24-hour Average Results for the Reporting Period

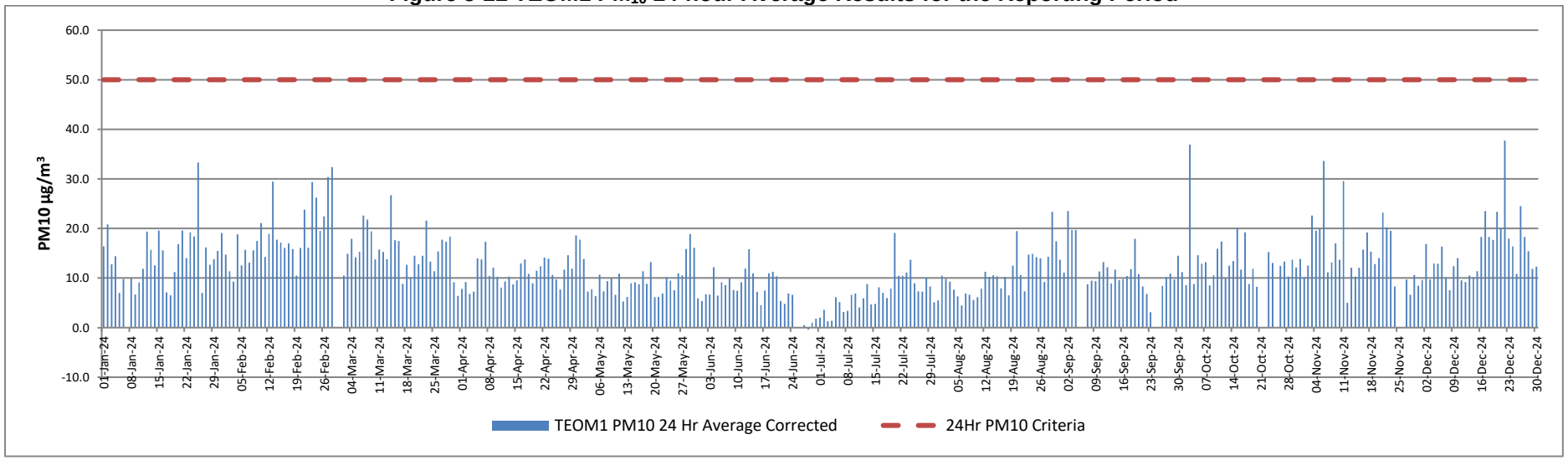


Figure 5-23 TEOM2 PM_{10} 24-Hour Average Results for the Reporting Period

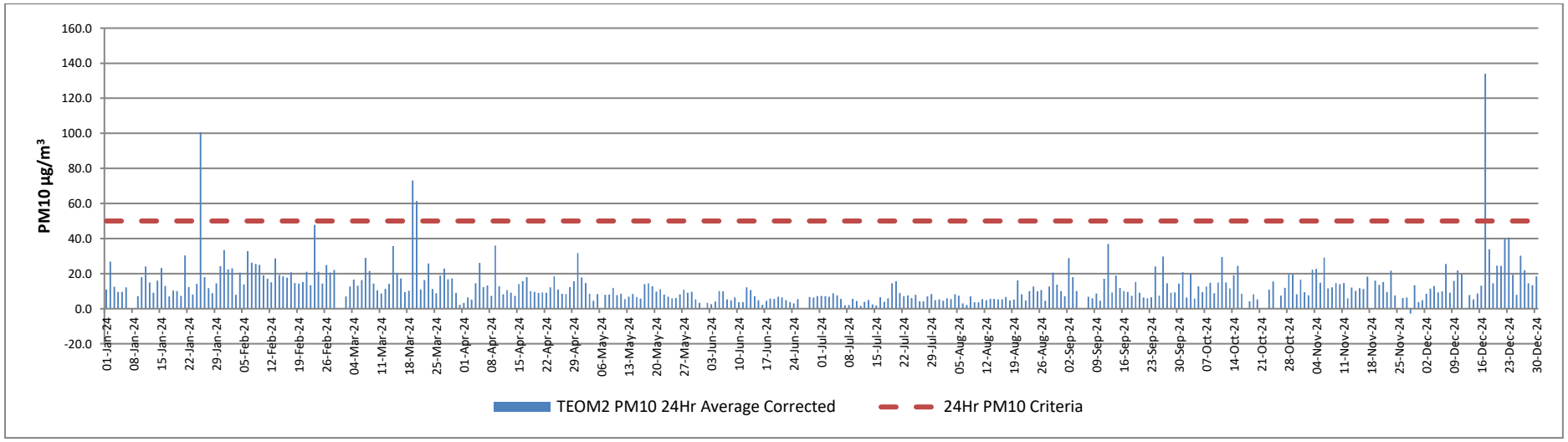


Figure 5-24 TEOM/BAM1 $PM_{2.5}$ 24-hour Average Results for the Reporting Period

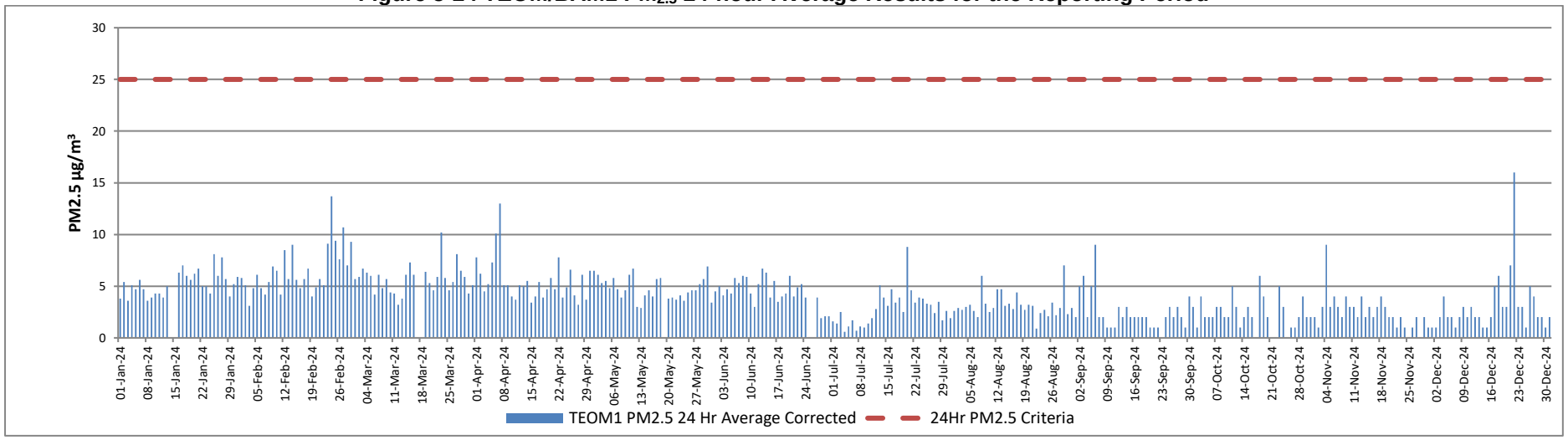


Figure 5-25 TEOM/BAM2 $PM_{2.5}$ 24-Hour Average Results for the Reporting Period

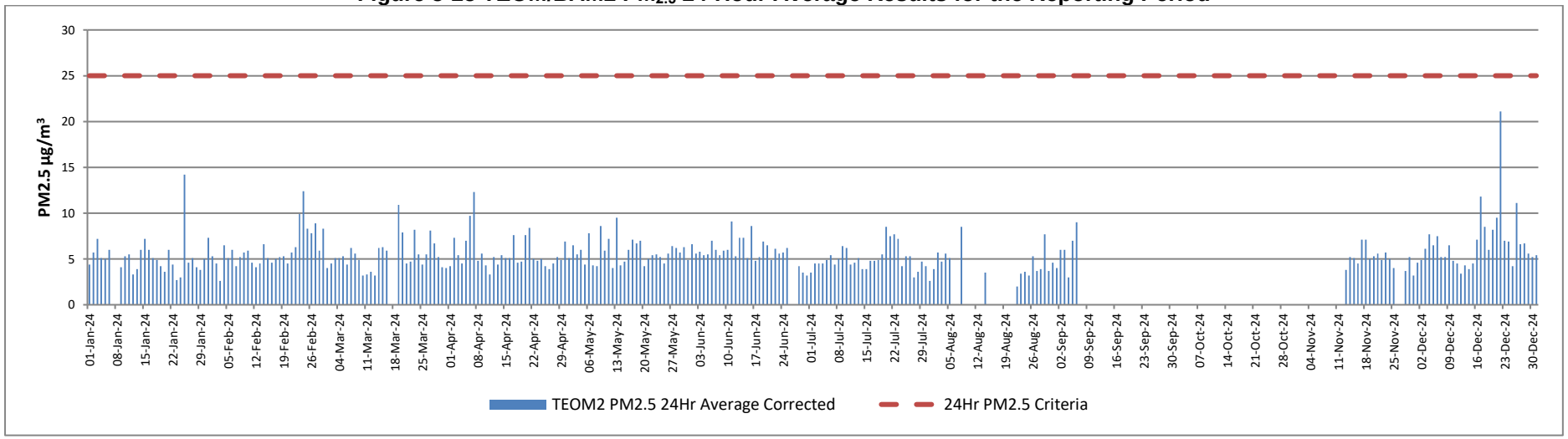


Figure 5-26 TEOM1 & TEOM2 PM_{10} Annual Rolling Average for the Reporting Period

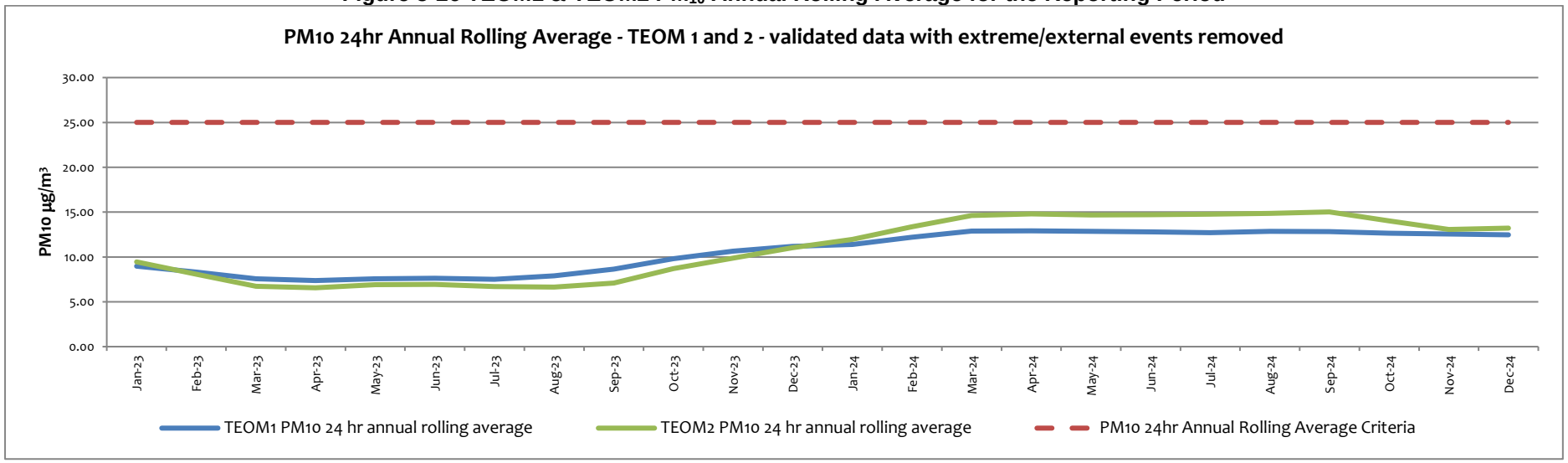
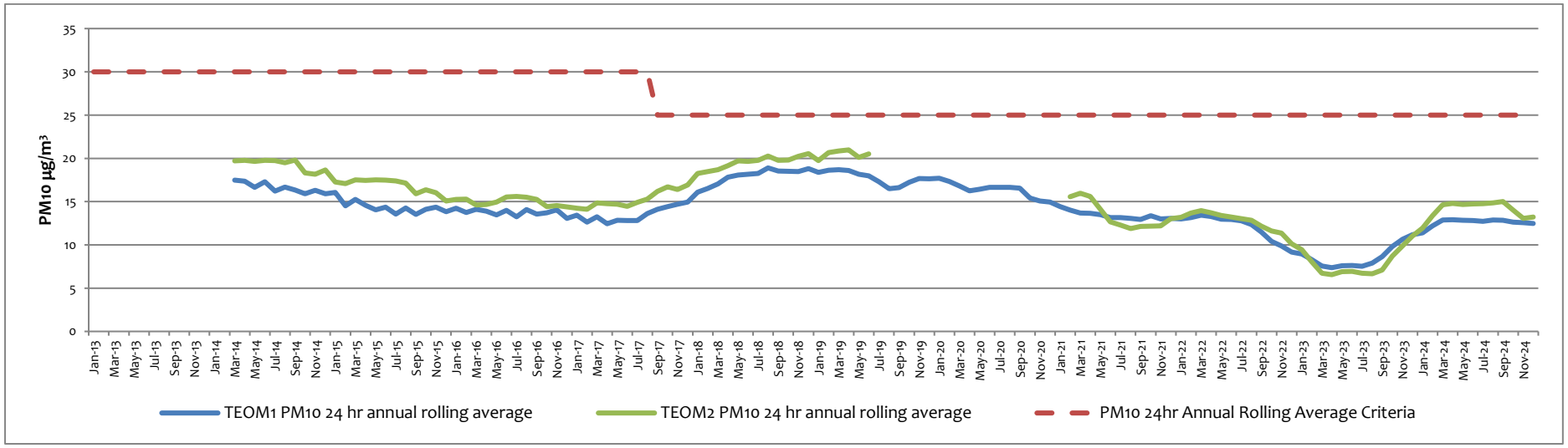


Figure 5-27 TEOM1 & TEOM2 PM_{10} Annual Rolling Average Results for the Period 2013 to December 2024



5.4 Erosion and Sediment

The majority of the existing batters were constructed during former mining operations and consequently the surfaces of the batters consist predominantly of weathered rock. It is not practical to reshape the slopes, as most of the slopes are steep, on the mine lease boundary and predominantly comprise of large rock aggregate. The process of erosion over the years since the slopes were formed has removed most of the finer materials and the existing surface now comprises relatively large and coarse rock resulting in a self- armoured surface with limited erosion potential.

Inspections consist of a visual assessment for erosion, flooding, rubbish, algal growth or significant sediment build up. No major works were required as a result of these inspections.

Baseline erosion monitoring using terrestrial scanning was conducted on a number of Rasp Mine waste dumps in December 2023. Future scans will be conducted to monitor the rates of erosion on waste dumps on site.

5.5 Surface Water

There are no natural watercourses or creeks flowing through the site. The drainage network layout restricts runoff leaving active mine areas of the site for a 1 in 100year 72 hour ARI rainfall event.

Surface water monitoring includes a weekly visual inspection of water storage facilities, freeboard and structural integrity. The tailings storage facility and the processing events dam are inspected and levels checked monthly. Quarterly water quality samples are taken from dams when the water levels are above 20% capacity. Samples are couriered to ALS, a NATA accredited laboratory for analysis.

There are seven sampling locations for surface water, these include surface water basins located on the mine lease to capture and retain rainfall and two locations up and down stream of an ephemeral creek located south of the mine lease boundary. Sampling requirements are provided in **Table 5-7** and locations of sampling points are shown in **Figure 5-2**.

Table 5-7 Surface Water Monitoring Requirements

Description	Frequency	Parameters to be Analysed
Federation Way Culvert EPL29/S31-1	2 x per year, six months apart	cadmium (Cd), chloride (Cl), electrical conductivity (EC), lead Pb), manganese (Mn), pH, sodium (Na), sulphate (SO4), total dissolved solids (TDS) and zinc (Zn)
Ryan Street Dam EPL31/S49	2 x per year, six months apart	
Adjacent Olive Grove EPL32/S1A	2 x per year, six months apart	
Adjacent Bowls Club EPL33 /S9-B2	2 x per year, six months apart	
Horwood Dam EPL34/Horwood Dam	2 x per year, six months apart	
Upstream Bonanza St EPL35	2 x per year, six months apart	
Downstream Sydney Rd EPL36	2 x per year, six months apart	

Ponds are sampled following rainfall events, and the volume of stored water is at least 20% of the pond capacity. Sampling is most likely to be undertaken in April and October, as these are the highest rainfall months as recorded by Bureau of Meteorology. Sufficient rain fell in the first half of 2023 to enable sampling to be conducted on four occasions from most of the monitoring locations. Results of the surface water analysis for the reporting period are provided in **Table 5-8**.

Results at all locations were stable in 2024 although slightly elevated for Cadmium and Lead at S31-1 in December 2024 which is likely due to a reduced volume of water in the pond.

.

Table 5-8 Stormwater Pond Water Quality Results for the Reporting Period

Sample Point	Sample Date	pH	EC	TDS	Alkalinity ($CaCO_3$)	SO4	Cl	Ca	Mg	Na	Cd	Pb	Mn	Zn	Fe
			(µS/cm2)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
S31-1 (EPL29)	2/04/2024	6.35	1350	1260	2	853	15	147	8	20	1.84	1.89	50.4	258	0.05
	8/07/2024	6.49	712	598	6	390	8	58	4	13	0.928	1.13	25.3	101	0.05
	18/10/2024	6.31	1430	1530	2	955	38	131	9	26	2.08	2.2	51.4	232	0.05
S49 (EPL31)	2/04/2024	6.79	469	342	5	234	4	53	4	8	0.246	0.25	11.5	31.6	0.05
	8/07/2024	6.73	520	376	6	245	5	69	4	9	0.251	0.136	10.6	31.9	0.05
	18/10/2024	6.59	742	670	5	351	23	91	6	10	0.46	0.455	18.3	58.4	0.05
S1A (EPL32)	2/04/2024	7.11	259	177	9	93	7	31	3	7	0.0688	0.289	1.63	8.28	0.74
	8/07/2024	7.02	247	184	11	98	4	38	2	4	0.0694	0.169	1.4	8.22	0.33
	18/10/2024	6.82	817	669	10	373	51	109	8	36	0.201	0.312	5.2	25	0.05
S9B-2 (EPL33)	2/04/2024	Insufficient sample													
	8/07/2024	6.55	349	228	5	140	18	31	4	23	0.139	0.568	2.88	12.2	0.06
	18/10/2024	Insufficient sample													
Horwood Dam (EPL34)	1/04/2024	6.7	11800	11700	11	5490	1810	555	334	1700	2.88	2.65	269	392	0.05
	8/07/2024	6.64	7180	4090	12	2900	862	346	191	960	2.27	1.54	164	269	0.1
	18/10/2024	6.59	13000	14000	10	5040	1740	564	363	1870	2.33	1.9	330	513	0.05
Upstream (EPL35)	2/04/2024	7.08	220	149	31	52	12	26	4	12	0.0069	0.128	0.284	1.28	0.37
	8/07/2024	7.4	162	133	40	21	12	20	3	9	0.0038	0.029	0.024	0.678	1.08
	18/10/2024	Insufficient sample													
Downstream (EPL36)	2/04/2024	8.4	158	266	62	9	12	11	6	24	0.0002	<0.001	0.002	0.009	0.07
	8/07/2024	7.69	348	230	73	36	36	23	7	31	0.0026	0.023	0.119	0.329	0.64
	18/10/2024	Insufficient sample													

5.5.1 Water containment structures

All surface runoff on site is captured by diversion trenches or berms and channelled to site water storage structures. No changes were made to this system during the reporting period. **Table 5-9** provides the capacities and estimated stored water volumes at the end of the reporting period. Aerial surveying of the water storages was conducted in 2023.

A review of site water structures by WSP was completed in June 2023 and recommendations for the improvement and increase of structures were made. These recommendations and findings were incorporated into the updated Site Water Management Plan in 2023. Follow-up engineering reviews to confirm capacities and options will be conducted in 2025.

After the heavy rainfall events of 2022 and the resulting issues with containing and managing runoff in surface structures, improvements in pumping capability were made, particularly with S14 and Ryan St Dam ponds where automatic electric pumps were installed.

Table 5-9 Water Containment Structures

	Pond Identification	Start of reporting period m^3 (1-Jan-2023)	At end of reporting period m^3 (31-Dec-2023)	Storage Capacity m^3
Potable and Raw Water	Workshop	9	9	14
	Mill	1400	1400	1400
	Delprats Shaft	22.5	22.5	22.5
	Kintore Pit	14	14	18
	Silver Tank	6500	6500	6500
Dirty Water (rain runoff)	S2	100	0	5003
	S14	100	0	4754
	S17	100	0	4320
	S31-1 and S31-2	10	0	5130
	S49	200	0	3638
	S35	10	0	263
	Little Kintore Pit	0	0	30000
Process, underground and used water	Horwood Dam	1000	10000	33524
	Plant Water Pond	1000	1000	2000
	S22 Mine Settlement Ponds	3000	7000	9446

5.6 Groundwater

The regional groundwater near the site is depressed due to long term pumping from the underground mines in the area. This results in the depressed groundwater level below the site being more than 100m below the surface level, with a hydraulic gradient into the site at depth. The groundwater monitoring program is undertaken with the purpose of recording perched groundwater movement. Perched groundwater refers to surface water that has infiltrated into the near surface moderate to high permeability material generally comprising of granular soils and rock dill. The perched ground water exists for short periods of time after rainfall events and generally seeps laterally over the low permeability bedrock surface below the near surface permeable material. The rainfall events at Rasp mine site indicate that the perched groundwater has the potential to surface seep rather than seep into the regional groundwater. Considering the depth of the regional groundwater, it is concluded that there is little interaction between the shallow perched groundwater and the regional groundwater.

Rasp's groundwater monitoring plan is outlined in the Site Water Management Plan.

The monitoring program includes eighteen sampling locations for groundwater, GW01 (EPL37) to GW16 (EPL52) are installed piezometers at various locations around the mine site and are sampled

quarterly. There are also two sampling locations for water pumped from underground mining, Shaft 7 (EPL53) and Kintore Pit (EPL54), sampled monthly. The locations for these monitoring points are shown in **Figure 3-2**. Groundwater monitoring is scheduled for March, June, September and December. A number of parameters are required to be analysed including: alkalinity (calcium carbonate ($CaCO_3$)), cadmium (Cd), calcium (Ca), chloride (Cl), electrical conductivity (EC), iron (Fe), lead Pb), magnesium (Mg), manganese (Mn), pH, sodium (Na), sulphate (SO4), total dissolved solids (TDS) and zinc (Zn). **Table 5-10** lists the location and function of each borehole.

Table 5-10 Location and Function for Groundwater Monitoring Points

Bore ID	Location	Function
GW01, GW02	Southeast of Mt Hebbard	Monitor potential seepage from Mt Hebbard
GW03 – GW09	East of TSF1	Monitor potential seepage from TSF1 towards CML7 boundary
GW10	Downstream of Horwood Dam	Monitor potential seepage north of Eyre St Dam
GW11, GW12	East of Blackwood Pit	Monitor perched groundwater mounding from TSF
GW13-GW15	Adjacent to storage areas S44, S31-1 and S31-2	Monitor movement of perched groundwater occurring from the storages
GW16	West of S49	Monitor potential seepage from S49
Shaft 7	Shaft 7	To maintain safety for underground mining at both the Rasp and Perilya South Mines
Kintore Pit (UG) - Mine dewatering	Kintore Pit decline	To maintain safety for underground mining at the Rasp Mine

Groundwater quality monitoring was undertaken in May 2007 and August 2011 at Shaft 7 to establish an initial baseline for parameters and trigger levels for the monitoring program (30% above 2011 results).

The site's groundwater is deep and is extracted as part of mining. The underground extraction system results in inward flow of the groundwater into the mine. Hence, groundwater at the mine is likely to be impacted by off-site sources due to the inward hydraulic gradient into the mine.

Most piezometers showed a decrease in water levels during the reporting period after levels increased following the high rainfall in 2022 as shown in **Table 5-11**.

Quarterly samples were obtained from 12 of the 16 bores and no samples could be obtained from bores GW2, GW13, GW14 or GW15 and results were within historic ranges. **Table 5-12** provides a summary of groundwater monitoring results for 2024.

Table 5-14 provides a summary of water monitoring results for Shaft 7 and mine dewatering (Kintore Pit), indicating samples above baseline trigger in orange.

Figure 5-28 and Figure 5-29 provide a summary of water monitoring results for the period 2012, commencement of operations, to 2024.

Table 5-11 Bore Piezometer Depths

Sample point	Depth mbTOC											
	Avg 2024	Avg 2023	Avg 2022	Avg 2021/22	Avg 2020/21	Avg 2019	Avg 2018	Avg 2017	Avg 2016	Avg 2015	Avg 2014	Trend
GW01	6.05	5.09	6.05	8.96	Dry	8.42	8.35	6.85	7.39	7.25	7.25	Falling
GW02	Dry	Dry	Dry	Dry	Dry	Dry	Dry	3.33	Dry	Dry	Dry	Stable
GW03	3.46	3.6	3.52	3.66	3.66	3.83	3.6	3.58	3.64	3.62	3.61	Rising
GW04	2.72	2.83	2.92	3.03	3.42	2.99	2.73	2.87	2.94	2.9	2.83	Stable
GW05	2.69	2.91	3.25	3.48	4.16	3.76	3.65	3.49	3.53	3.5	3.4	Rising
GW06	2.42	2.59	2.77	3.26	3.21	3.16	3.1	2.96	2.85	2.76	2.66	Rising
GW07	2.48	2.54	2.68	3.25	3.8	3.14	3.15	2.58	2.74	2.8	2.54	Rising
GW08	1.47	1.5	1.48	2.22	3.08	2.53	2.36	1.88	1.81	1.87	2.11	Stable
GW09	2.59	2.62	2.46	3.34	4.31	3.89	3.84	3.5	2.94	3.07	1.79	Falling
GW10	1.49	1.8	2.44	4.1	5.2	4.2	3.46	1.9	1.49	1.725	0.83	Rising
GW11	9.33	9.51	9.9	11.42	13.3	12.17	12	10	10.1	10.4	10.69	Rising
GW12	Dry	26.8	34.1	Dry	21.52	21.53	20.47	19.19	34.49	37.1	21.6	Stable
GW13	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Stable
GW14	1.27	Dry	0.34	0.34	Dry	Dry	Dry	1.3	Dry	Dry	Dry	Stable
GW15	Dry	Dry	Dry	Dry	Dry	Dry	Dry	2.8	Dry	Dry	Dry	Stable
GW16	Dry	Dry	1.29	1.14	Dry	Dry	Dry	Dry	1.55	Dry	Dry	Stable

The following provides a discussion of results.

GW01 and GW2 Located Downstream of Mt Hebbard

These water bores are intended to monitor the sub-surface water fluctuations south of Mt Hebbard. GW1 had sufficient water to monitor each quarter while GW2 was dry through the year. GW1 sample results were consistent with results from previous years with slight decreases in Calcium, Chloride, and pH, likely due to the reduced influx of water after the 2022 rainfall events and subsequent storage of runoff in the adjacent S17 ponds. GW2 did not contain water in previous years except for 2017 but this was at bore depth. Figure 5-28 indicates that results remain within historic ranges.

GW03, GW04, GW05, GW06, GW07, GW08, GW09 and GW10 Located Adjacent to TSF1 and Horwood Dam

Groundwater bores are located near the eastern side of the unused historic TSF1 and extend to Horwood Dam. The intent of the monitoring bores is to monitor perched water in the area that may impact on Eyre Street Dam. The monitoring is in response to surface seepage noted in the area during intense 2011 rainfall events. All bores in the series were able to be monitored each quarter. Water levels were falling in these bores after rising following heavy rainfall in 2022. Manganese results from GW10 were elevated at times in 2024 and likely due to seepage from Horwood Dam. Lead was elevated in GW7 due to its proximity to Horwood Dam. Manganese and Zinc levels fell in GW8 along with the water level.

GW11 and GW12 located southeast of Blackwood Pit

Blackwood Pit is used for the storage of tailings. It forms part of the mining area and is surrounded by historic mine workings. Due to these historic workings, any seepage from the Pit will be intercepted and collected by the underground mine water management system. Due to the northeast and southwest length of the pit there is a possibility for the formation of a perched aquifer because of groundwater mounding around the southeast site of the pit once it receives tailings. If a perched water table is measured in the two bores, consideration will be given to the installation of additional bores to assess the local hydrogeological conditions and risk of migration of seepage. On the advice of Golder, bores were installed to the southeast of the facility to detect any seepage.

The ground water level in GW11 was higher than previous periods due to the infiltration of rainfall after a wetter-than-average year. GW12 has gone dry which may be due to nearby exploration drilling intercepting an old working in the area.

GW13 and GW14 (adjacent 31-1), GW15 (adjacent rail load out) and GW16 (adjacent S49)

As perched water seepage may occur from ponds located near the CML7 boundary when these ponds store water, bores have been installed adjacent to these locations. Both bores were dry during the period except for GW14 which was damp on one occasion but not containing enough water for sampling.

Table 5-12 Piezometer Monitoring Results for the Reporting Period

Sample Point	Sample Date	pH	EC	TDS	Alkalinity ($CaCO_3$)	SO4	Cl	Ca	Mg	Na	Cd	Pb	Mn	Zn	Fe
			(µS/cm2)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
GW1 (EPL37)	11/12/2023	4.54	8130	8400	1	4240	526	204	335	1310	0.11	0.03	224	168	<0.05
	29/09/2023	4.49	8360	8300	1	4480	722	238	380	1360	0.17	0.041	288	238	<0.05
	30/06/2023	4.59	9800	9430	2	4950	941	294	446	1500	0.201	0.05	276	225	0.17
	31/03/2023	6.13	8620	7770	12	4460	819	263	355	1170	0.181	0.06	225	174	<0.05
GW2 (EPL38)	11/12/2023	Dry													
	29/09/2023	Dry													
	30/06/2023	Dry													
	31/03/2023	Dry													
GW3 (EPL39)	11/12/2023	5.7	14500	14000	<1	4830	2710	580	380	2300	0.558	3.2	454	366	0.44
	29/09/2023	5.49	14700	13500	<1	4770	2890	551	362	2170	0.559	3.47	491	425	0.22
	30/06/2023	5.53	14700	13100	<1	4970	2920	594	399	2380	0.552	3.62	434	362	0.5
	31/03/2023	6.09	14100	12500	<1	5140	2980	502	332	2120	0.717	3.46	365	285	4.17
GW4 (EPL40)	11/12/2023	6.48	15000	12300	304	4630	2410	554	559	2340	0.018	0.002	18.8	10.2	<0.05
	29/09/2023	5.57	14700	12000	290	4610	2480	554	567	2370	0.0197	0.004	20.6	9.89	<0.05
	30/06/2023	6.62	14700	11500	242	4790	2520	599	582	2480	0.035	0.005	32.4	16.3	0.24
	31/03/2023	6.34	13900	11400	299	4840	2650	519	516	2260	0.0404	0.168	21.3	13	<0.05
GW5 (EPL41)	11/12/2023	5.89	13800	12400	38	4590	2220	568	419	2210	1.38	0.533	270	210	<0.05
	29/09/2023	5.88	13600	12000	32	4600	2380	546	406	2130	1.53	0.597	286	260	<0.05
	30/06/2023	5.82	13400	11600	35	4770	2450	566	430	2220	2.91	0.511	231	252	0.3
	31/03/2023	5.9	13400	11500	48	4950	2590	472	354	1910	1.59	0.942	255	225	<0.05
GW6 (EPL42)	11/12/2023	5.78	14400	13600	52	5000	2390	557	516	2400	1.19	0.071	327	219	<0.05
	29/09/2023	5.91	14300	12800	48	4900	2460	534	479	2210	1.2	0.072	341	227	<0.05
	30/06/2023	5.89	14100	12400	48	5030	2600	576	508	2380	0.988	0.069	283	185	0.33
	31/03/2023	5.83	13800	12200	59	5460	2720	481	441	2110	1.19	0.095	305	194	<0.05

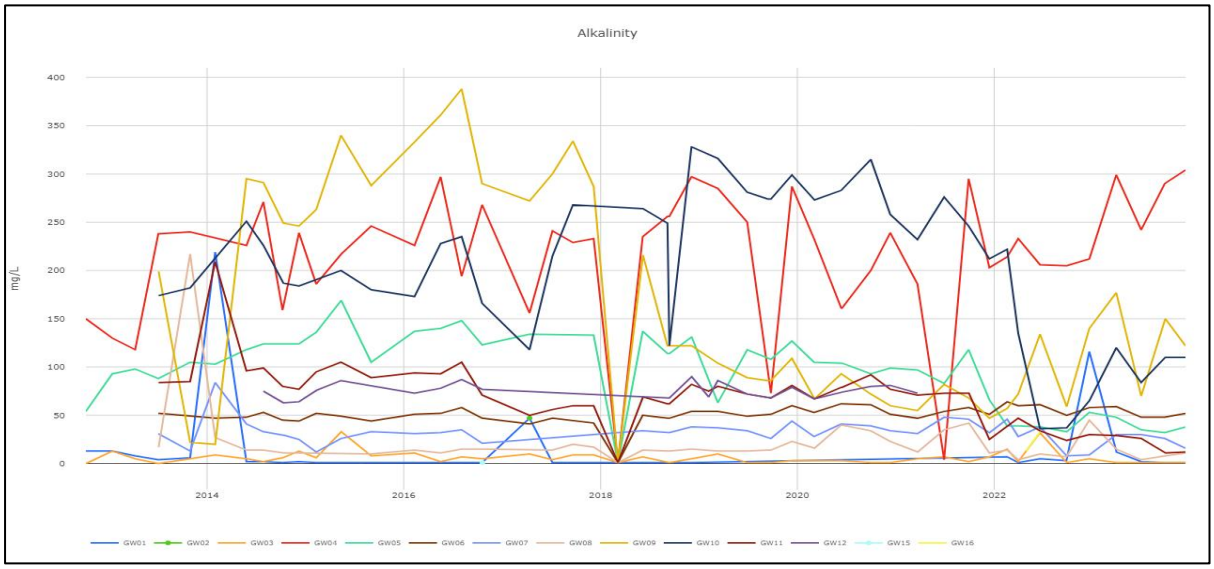
Table 5-12 Piezometer Monitoring Results for the Reporting Period (continued)

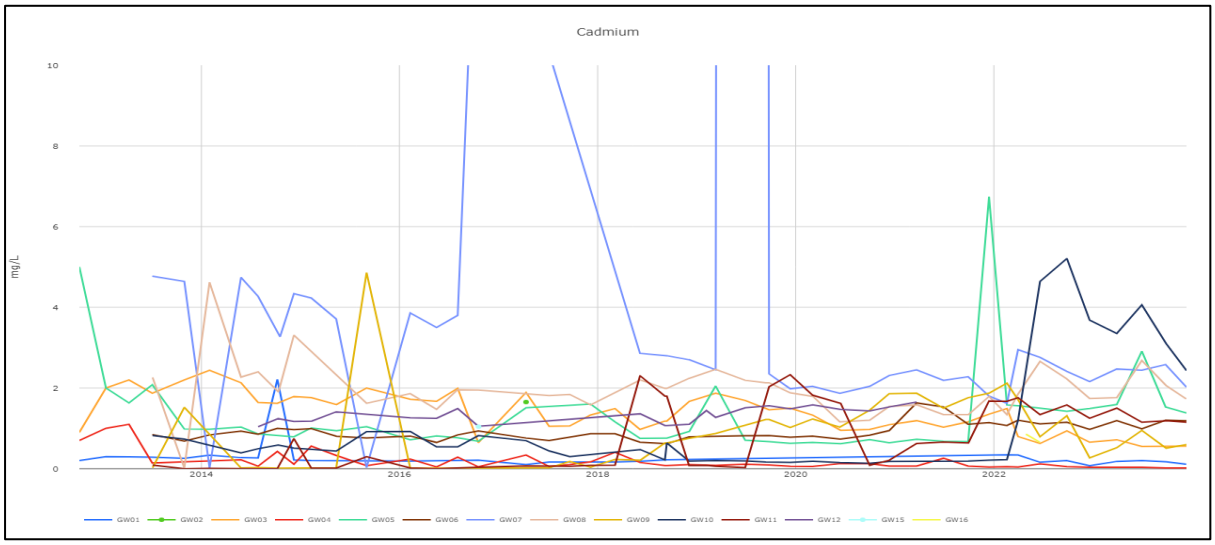
Sample Point	Sample Date	pH	EC	TDS	Alkalinity ($CaCO_3$)	SO4	Cl	Ca	Mg	Na	Cd	Pb	Mn	Zn	Fe
			(µS/cm2)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
GW7 (EPL43)	11/12/2023	6.01	12600	11800	16	4490	1880	551	354	2010	2.02	1.76	312	302	<0.05
	29/09/2023	6.1	12500	11900	26	4620	1780	513	328	1810	2.58	1.78	326	428	<0.05
	30/06/2023	5.95	12500	11300	30	4930	1820	556	355	1930	2.44	1.28	294	370	<0.05
	31/03/2023	5.98	12200	10800	30	5280	1940	471	312	1790	2.47	1.33	320	298	<0.05
GW8 (EPL44)	11/12/2023	5.68	10100	9990	11	3310	1650	610	240	1250	1.73	0.368	256	457	<0.05
	29/09/2023	5.92	10400	9840	8	3680	1640	552	255	1320	2.06	0.485	320	535	<0.05
	30/06/2023	5.93	12600	11500	4	4580	2250	574	351	1780	2.68	0.604	279	498	<0.05
	31/03/2023	6.14	9140	8360	15	4120	1380	466	188	1110	1.76	0.343	292	432	<0.05
GW9 (EPL45)	11/12/2023	6.34	11100	9820	122	3810	1610	596	519	1520	0.598	0.005	63.3	86.5	<0.05
	29/09/2023	6.59	10700	8900	150	3650	1700	579	446	1380	0.508	<0.001	49.2	52.9	<0.05
	30/06/2023	6.42	11000	9630	70	4490	1550	612	508	1520	0.948	0.001	88.4	130	<0.05
	31/03/2023	6.2	10400	8520	177	3850	1780	555	403	1350	0.52	0.006	40.7	53.6	<0.05
GW10 (EPL46)	11/12/2023	6.17	15800	13400	110	4670	2840	586	568	2540	2.43	0.005	115	243	<0.05
	29/09/2023	6.11	15700	13200	110	4630	2980	566	528	2430	3.1	<0.001	153	294	<0.05
	30/06/2023	6.15	16700	14600	84	5080	3430	664	615	2780	4.06	0.003	154	318	<0.05
	31/03/2023	6.03	14900	12600	120	4980	3190	518	487	2330	3.35	0.002	150	270	<0.05
GW11 (EPL47)	11/12/2023	6.16	3210	2880	12	1340	298	303	82	365	1.15	0.609	9.32	56.9	<0.05
	29/09/2023	5.99	3180	2670	11	1360	272	300	75	336	1.19	0.547	9.24	54.6	<0.05
	30/06/2023	6.11	3150	2630	26	1450	290	326	78	350	1.15	0.576	9.04	53.2	<0.05
	31/03/2023	6.24	4020	3250	29	1820	452	238	92	435	1.5	0.597	18.3	61.2	<0.05
GW12 (EPL48)	11/12/2023	Dry													
	29/09/2023	Dry													
	30/06/2023	Dry													
	31/03/2023	Dry													

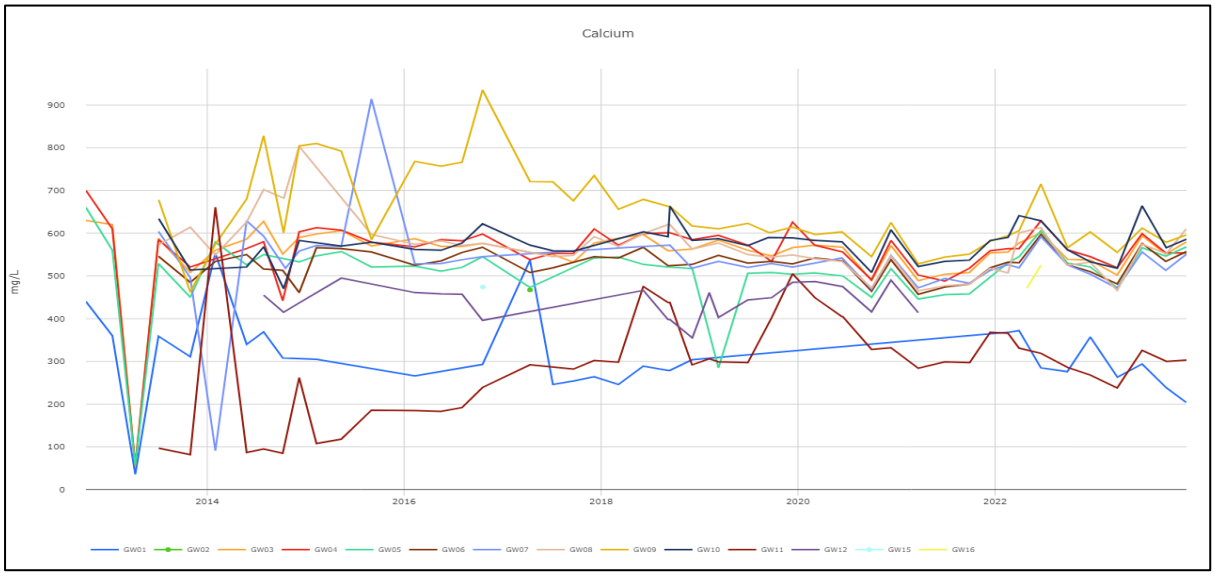
Table 5-12 Piezometer Monitoring Results for the Reporting Period (continued)

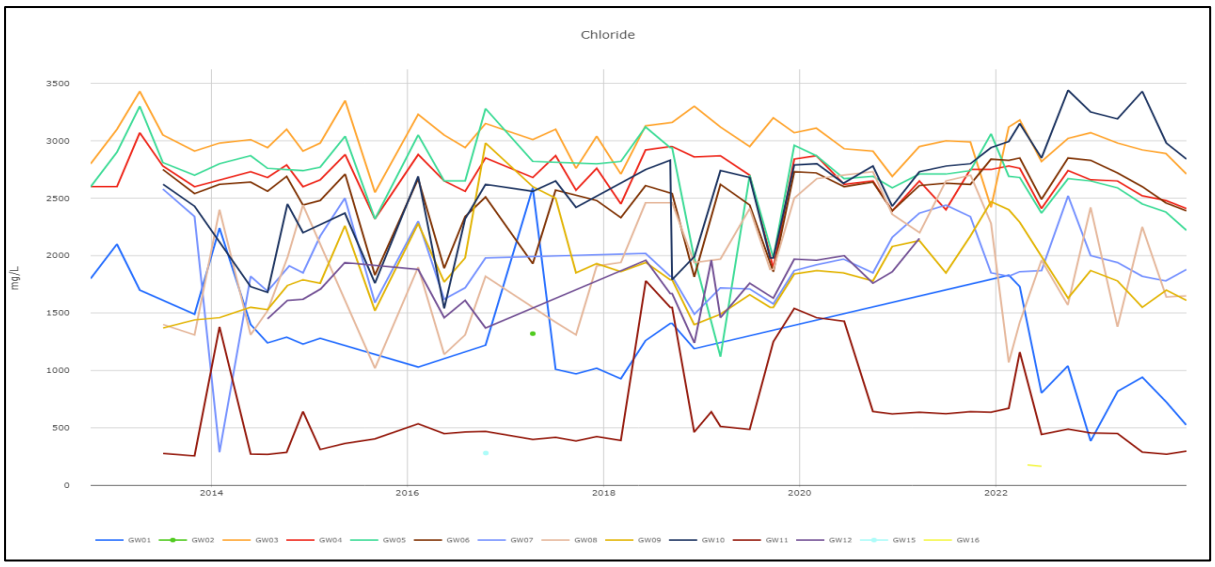
Sample Point	Sample Date	pH	EC	TDS	Alkalinity ($CaCO_3$)	SO4	Cl	Ca	Mg	Na	Cd	Pb	Mn	Zn	Fe
			(µS/cm2)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
GW13 (EPL49)	11/12/2023	Dry													
	29/09/2023	Dry													
	30/06/2023	Dry													
	31/03/2023	Dry													
GW14 (EPL50)	11/12/2023	Dry													
	29/09/2023	Dry													
	30/06/2023	Dry													
	31/03/2023	Dry													
GW15 (EPL51)	11/12/2023	Dry													
	29/09/2023	Dry													
	30/06/2023	Dry													
	31/03/2023	Dry													
GW16 (EPL52)	11/12/2023	Dry													
	29/09/2023	Dry													
	30/06/2023	Dry													
	31/03/2023	Dry													

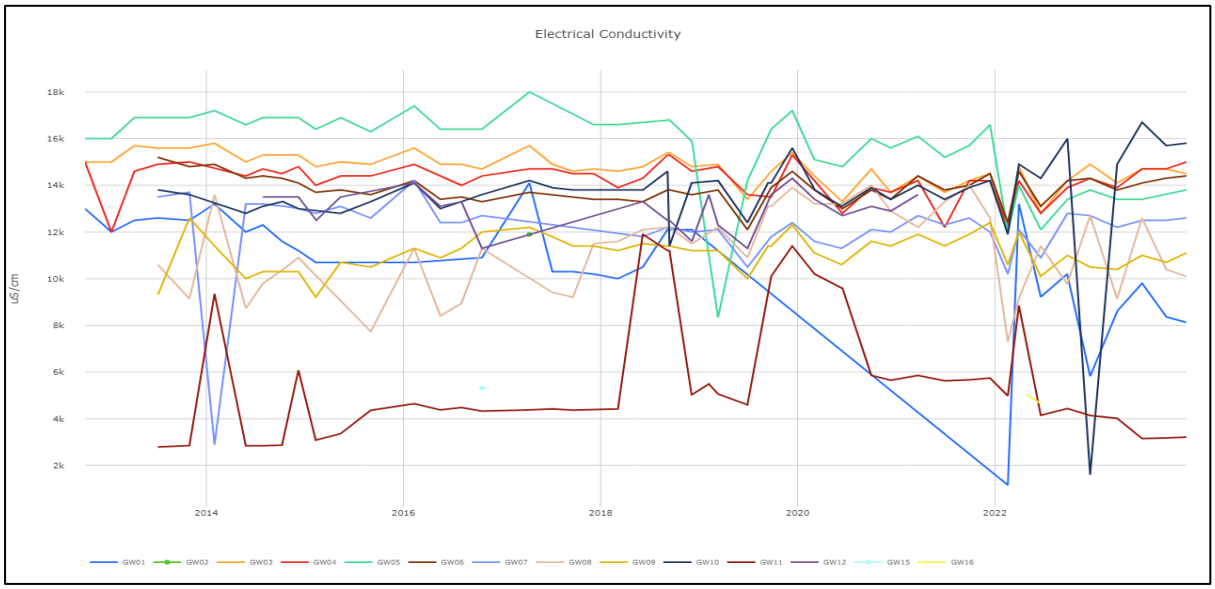
Figure 5-28 Groundwater Quality Results for the Period 2012 to December 2023

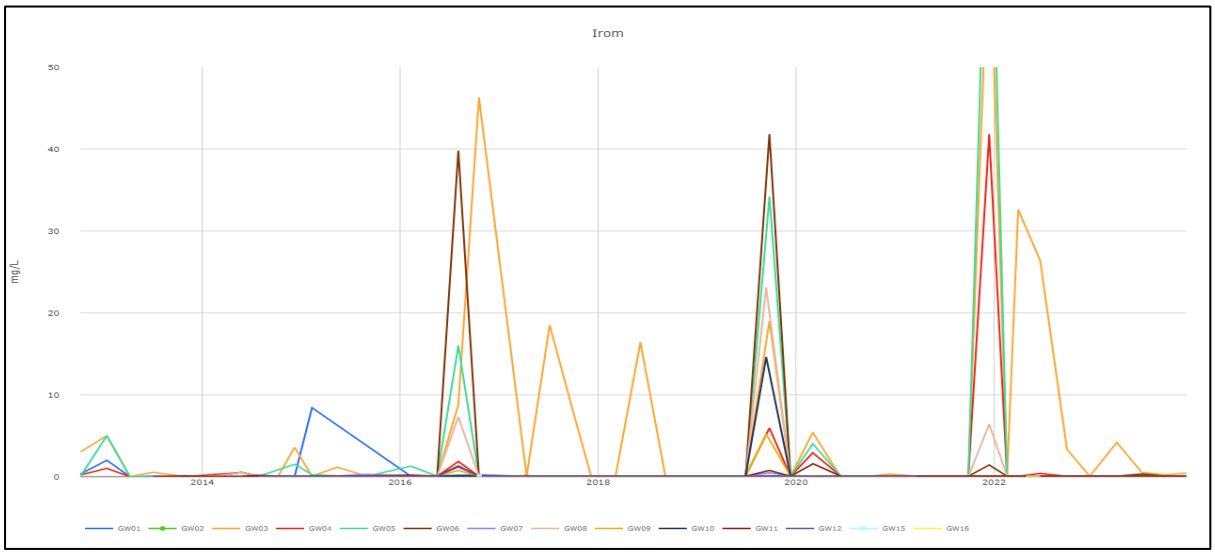


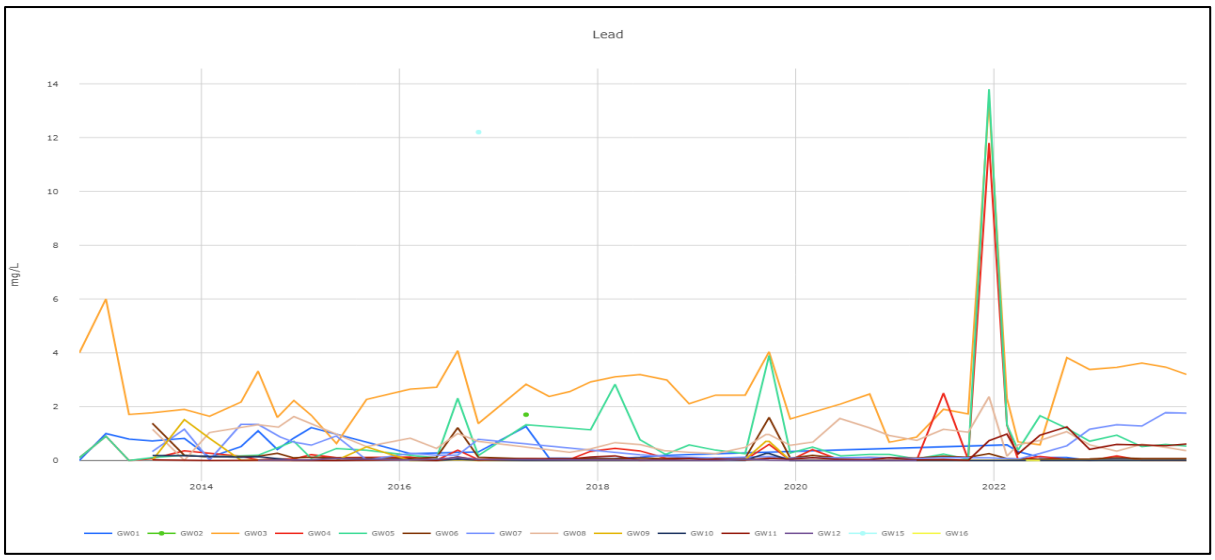


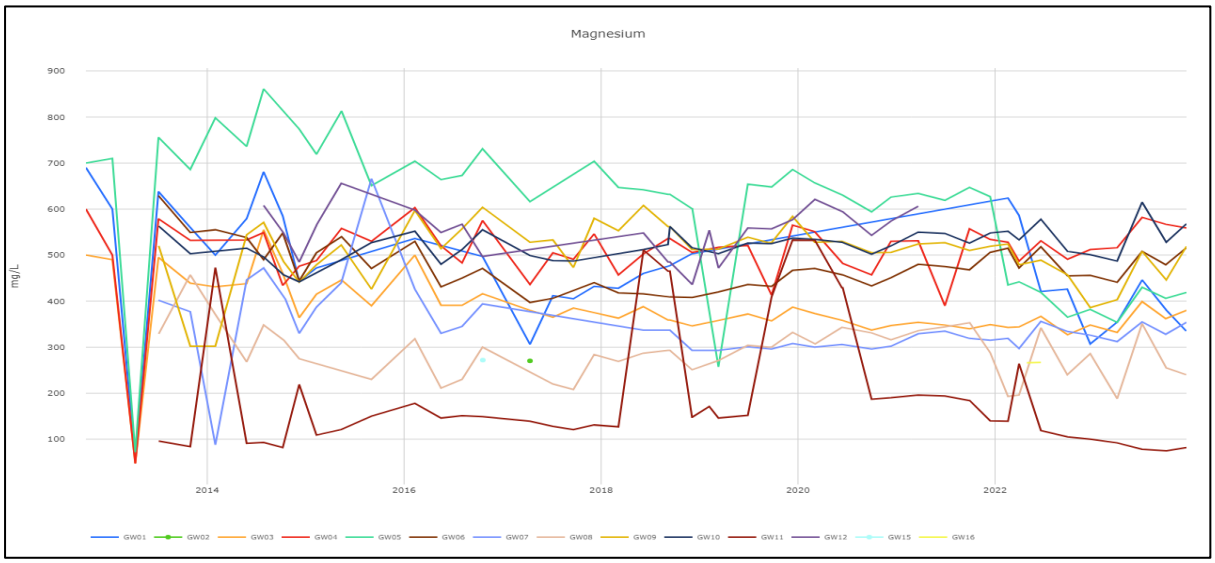


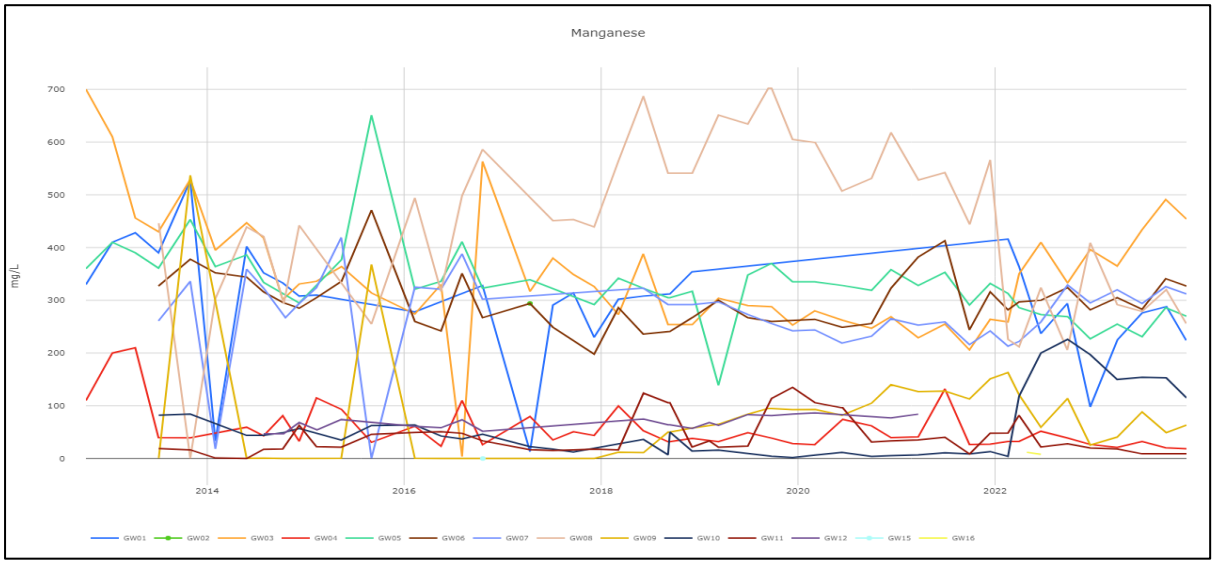

Chloride
mg/L
3500
3000
2500
2000
1500
1000
500
0
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16

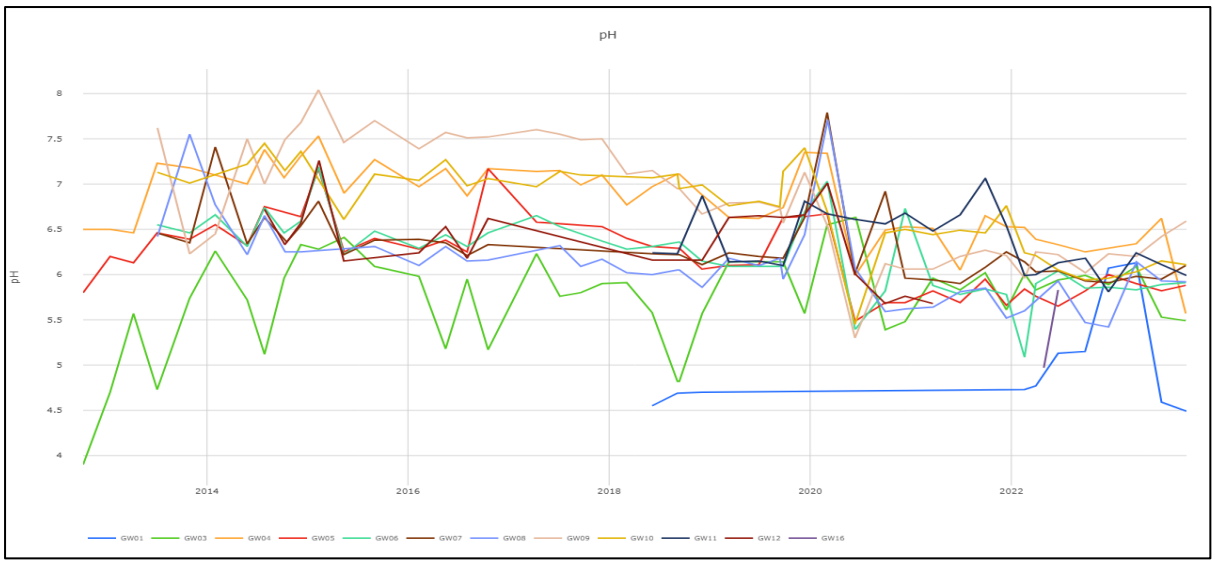

Electrical Conductivity
uS/cm
18k
16k
14k
12k
10k
8k
6k
4k
2k
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16

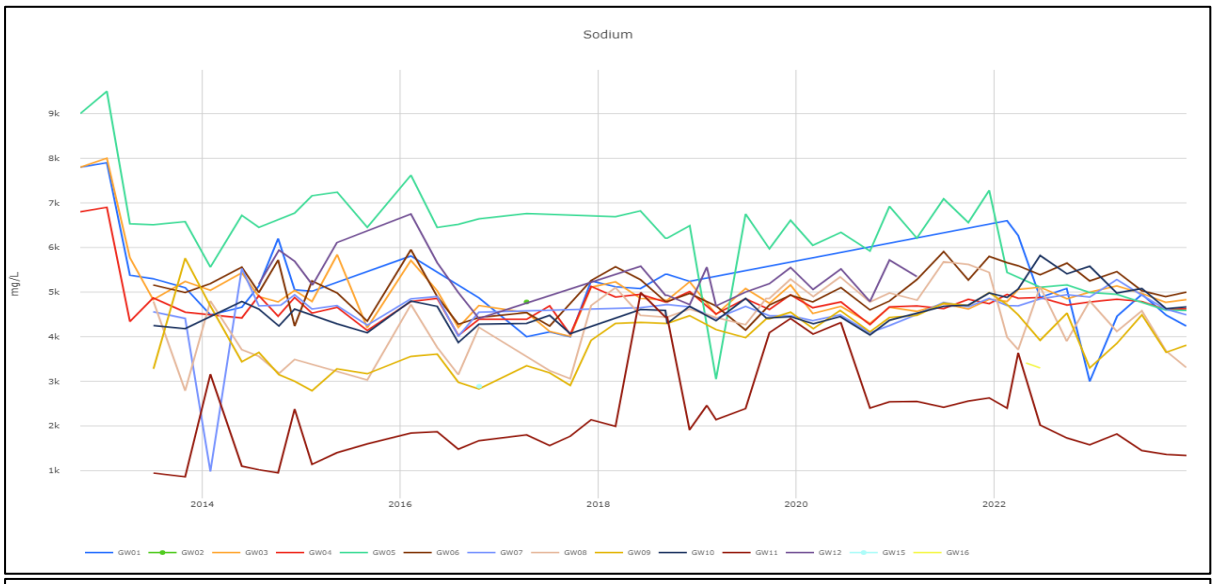

Irom
mg/L
50
40
30
20
10
0
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16

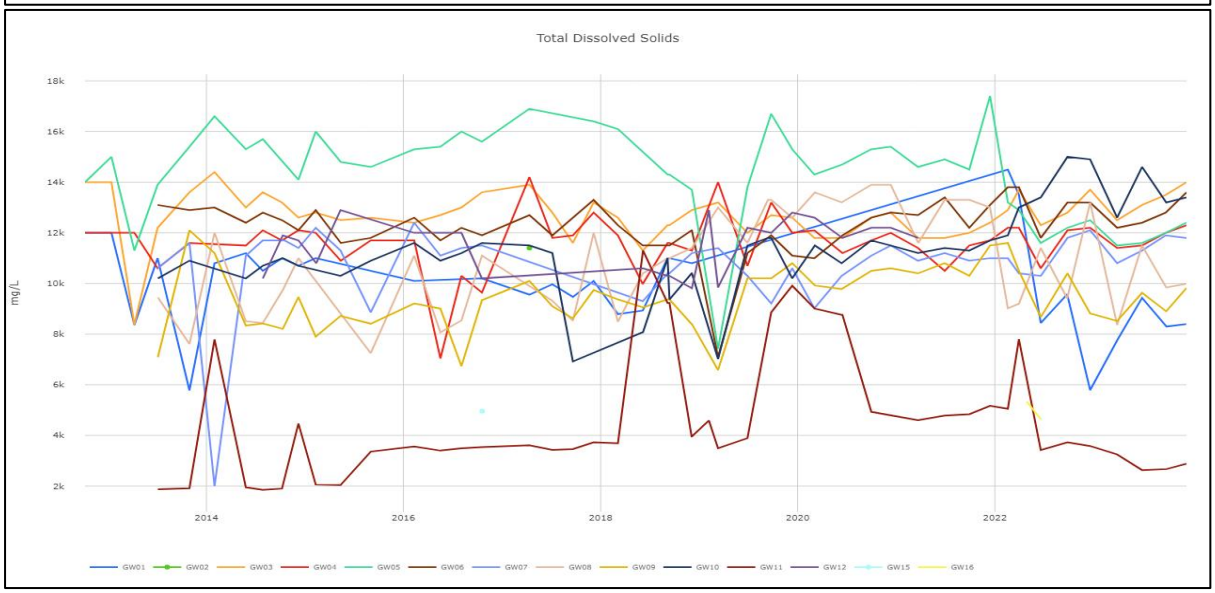

Lead
mg/L
14
12
10
8
6
4
2
0
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16

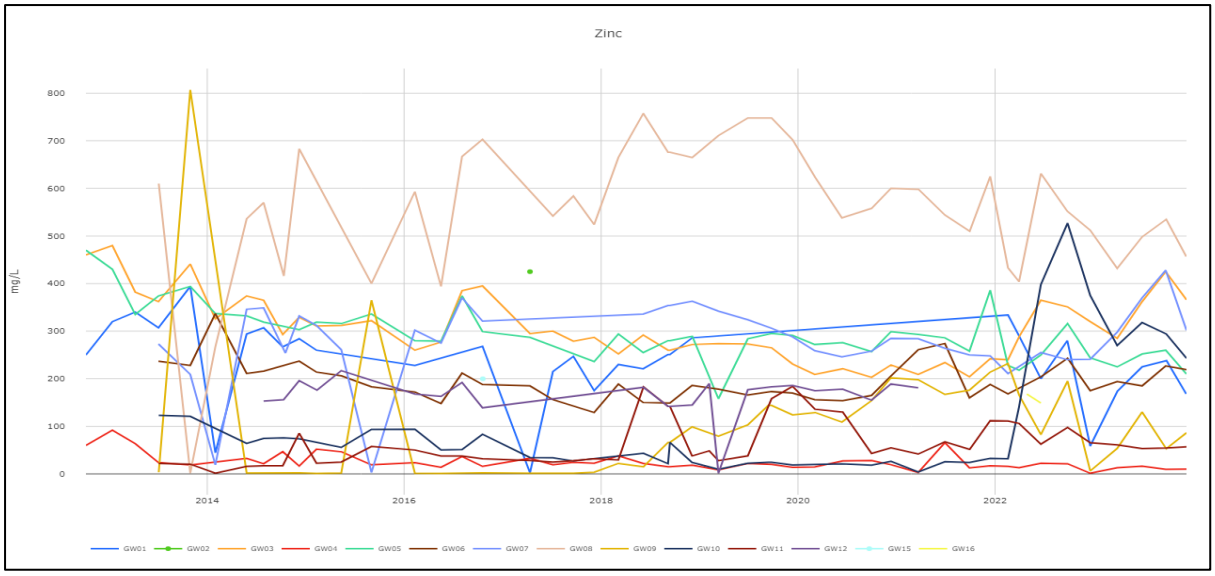

Magnesium
mg/L
900
800
700
600
500
400
300
200
100
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16


Manganese
mg/L
700
600
500
400
300
200
100
0
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16


pH
pH
8
7.5
7
6.5
6
5.5
5
4.5
4
2014
2016
2018
2020
2022
GW01 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW16


Sodium
mg/L
9k
8k
7k
6k
5k
4k
3k
2k
1k
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16


Total Dissolved Solids
mg/L
18k
16k
14k
12k
10k
8k
6k
4k
2k
2014
2016
2018
2020
2022
GW01 GW02 GW03 GW04 GW05 GW06 GW07 GW08 GW09 GW10 GW11 GW12 GW15 GW16



Underground Feed Sampling

Water from both sources is used on site and not discharged. Samples from Shaft 7 were not available as pumping from Shaft 7 ceased in 2023. Two results for UG Feed exceeded trigger thresholds for Lead in the period but this was likely the result of differing mine locations being developed. Total dissolved solids (TDS) results were above the trigger threshold for all UG Feed results; however, results were within the historic range for TDS.

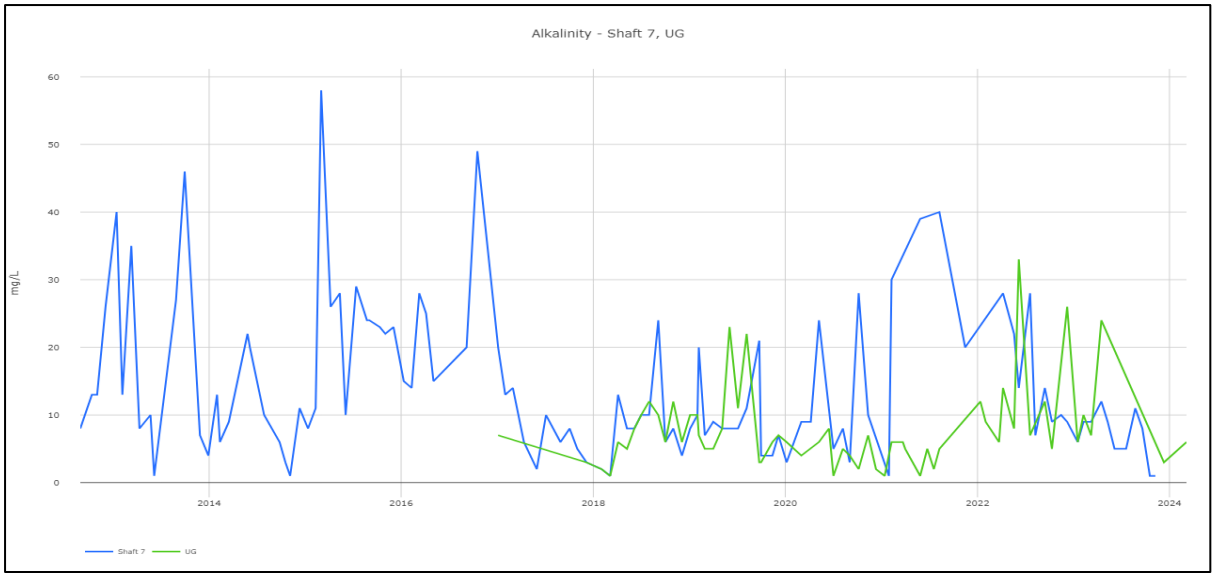
Figure 5-29 provides a series of graphs indicating results from commencement of operations to present (2012-2024). Results are within the historic range for all parameters.

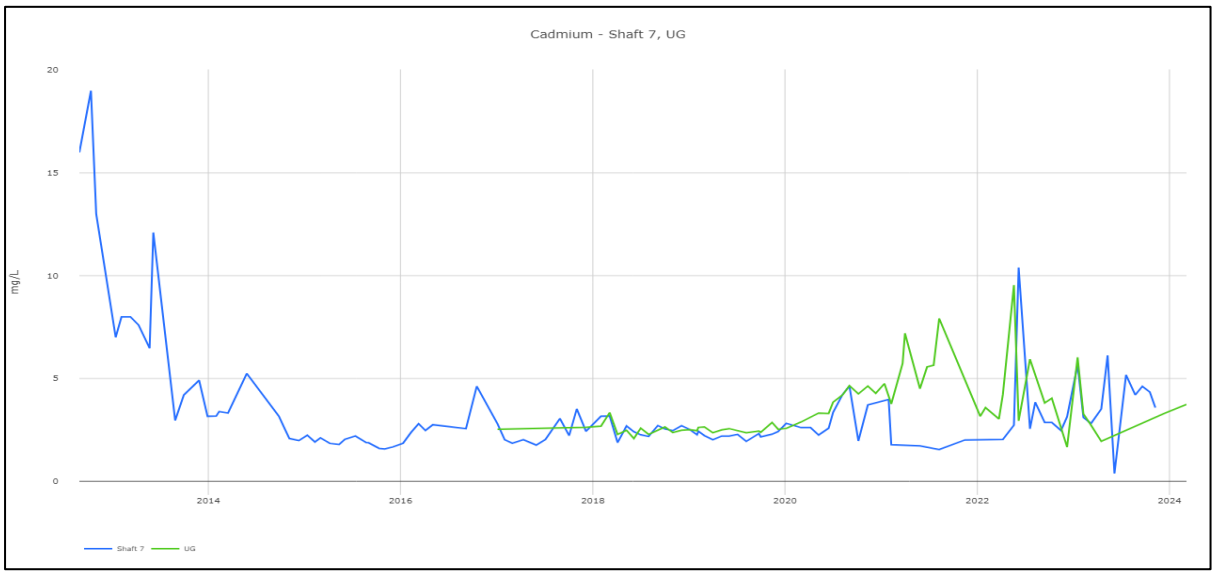
Table 5-13 Groundwater Monitoring Results for Shaft 7 and Mine Dewatering 2024

Sample Point	Date	pH	EC	TDS	Alkalinity ($CaCO_3$)	SO4	Cl	Ca	Mg	Na	Cd	Pb	Mn	Zn	Fe
			(µS/cm2)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
Shaft 7	31/01/2024	No extraction Shaft 7													
	20/02/2024	No extraction Shaft 7													
	5/03/2024	No extraction Shaft 7													
	8/04/2024	No extraction Shaft 7													
	14/05/2024	No extraction Shaft 7													
	30/06/2024	No extraction Shaft 7													
	16/07/2024	No extraction Shaft 7													
	31/08/2024	No extraction Shaft 7													
	19/09/2024	No extraction Shaft 7													
	31/10/2024	No extraction Shaft 7													
		No extraction Shaft 7													
		No extraction Shaft 7													
UG/Kintore	31/01/2024	6.25	13200	13900	4	6310	1680	476	338	1830	3.67	2.76	442	1100	0.05
	20/02/2024	6.22	13000	17600	6	6600	1620	464	288	1710	3.89	2.35	523	1270	0.05
	5/03/2024	6.16	12800	15200	6	6220	1680	493	429	1790	3.74	2.73	330	1230	0.05
	8/04/2024	5.95	12600	14900	2	6400	1700	481	342	1820	3.88	2.75	393	1080	0.56
	14/05/2024	5.37	15300	17400	2	6860	1890	493	403	1940	6	3.26	540	1840	4.19
	30/06/2024	6.08	13500	13100	9	5460	1630	461	333	1930	2.97	1.53	367	894	0.05
	16/07/2024	6.34	13400	13100	7	5430	1620	473	334	1830	3.36	2.86	419	1240	0.05
	31/08/2024	5.83	14800	15600	1	6320	1860	472	376	1760	4.36	3.57	532	1370	0.05
	19/09/2024	6.3	12500	14100	7	5360	1680	484	387	1790	3.17	1.29	293	1190	0.05
	31/10/2024	6.39	13700	14600	5	5770	1910	507	418	1900	3.14	2.53	344	1050	0.05
	10/12/2024	5.71	13600	15700	1	5570	1660	508	351	1850	3.11	2.82	357	1420	3.29
	9/01/2025	5.75	14800	17000	1	5200	1550	456	332	1720	4.1	2.46	535	1610	0.1
Baseline		5.8	13900	8000	40	9660	1360	472	395	3550	6.32	2.25	907	3330	1.57
Trigger		7.54	18070	10400	52	12558	1768	614	514	4615	7.57	2.93	1179	4329	2.04

Trigger = Baseline + 30%

Figure 5-29 Shaft 7 & Mine Dewatering Results for Sampled Parameters - Period 2012 to Dec 2024





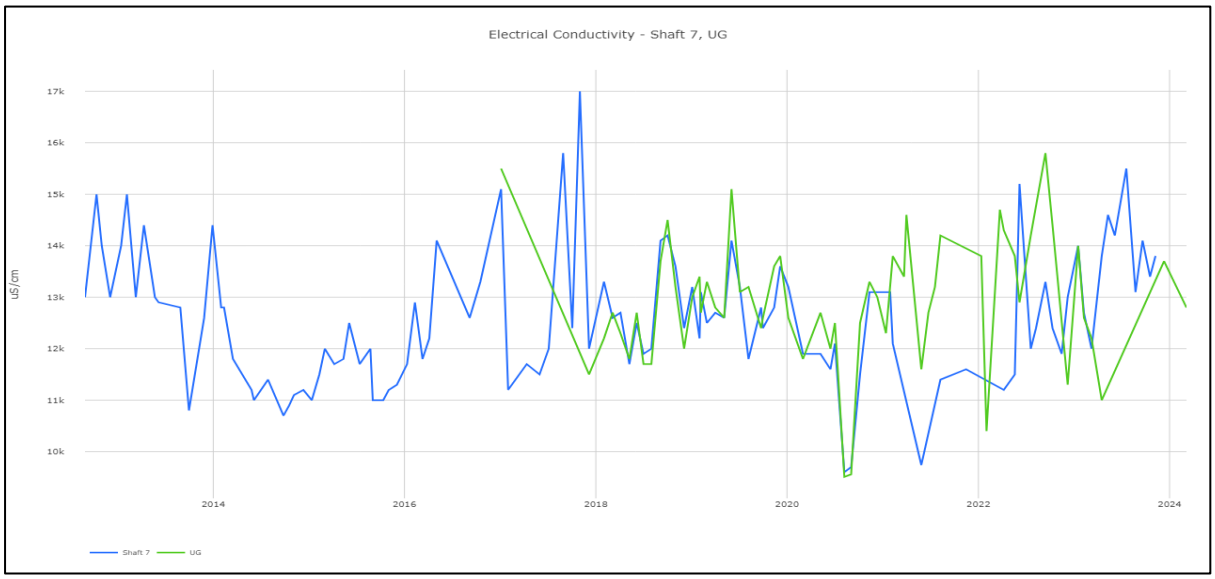
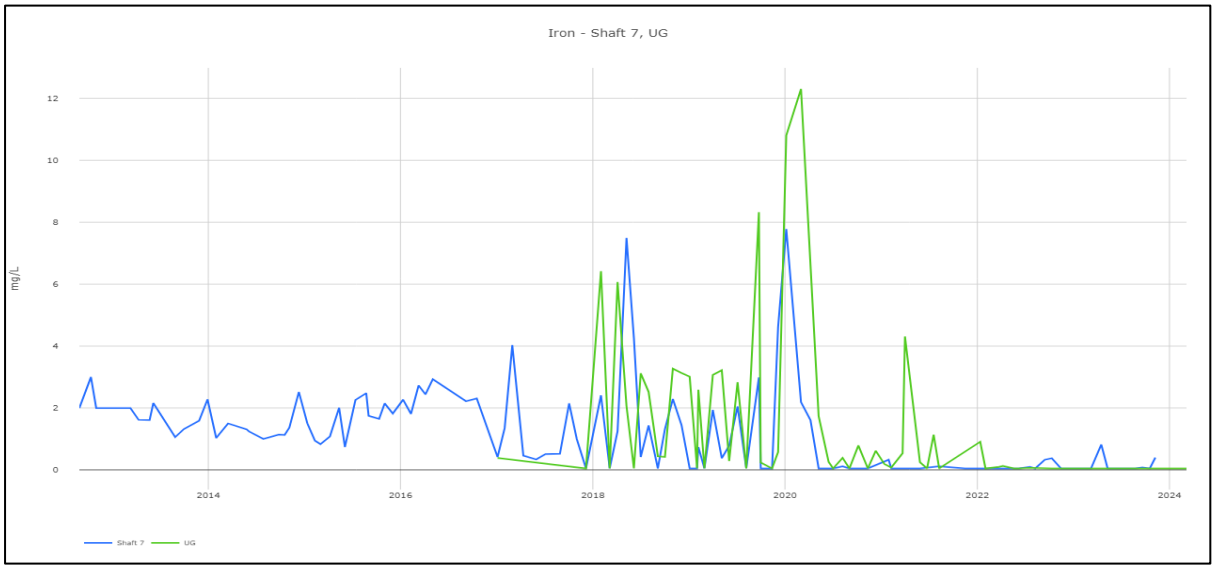
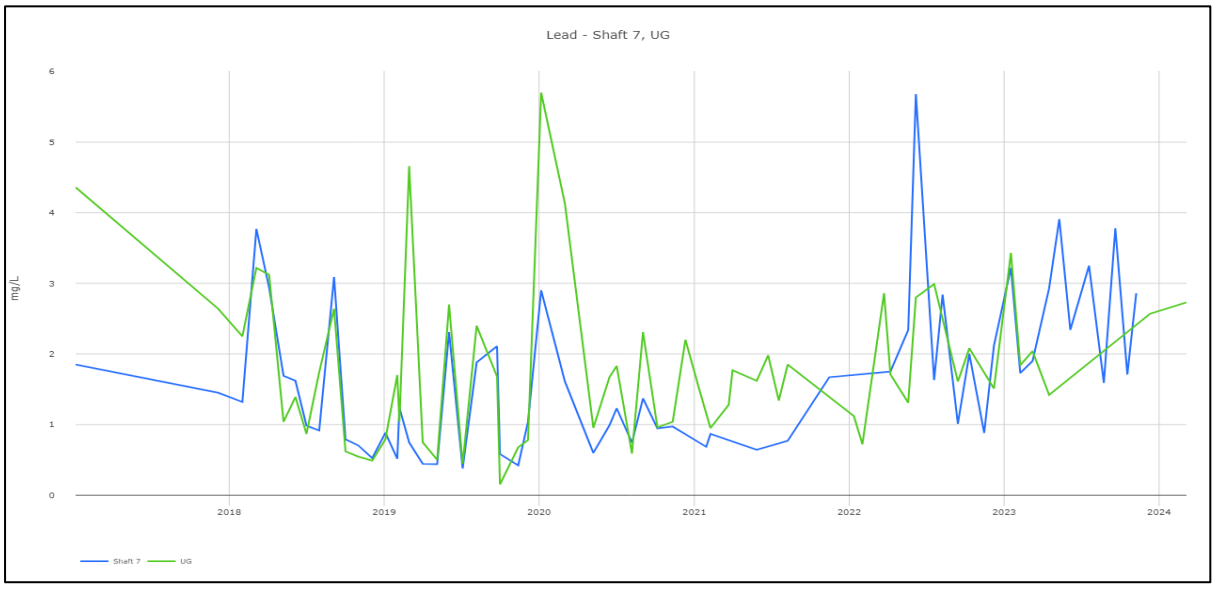


Figure 5-30 Shaft 7 & Mine Dewatering Results for Sampled Parameters - Period 2012 to Dec 2024 (continued)





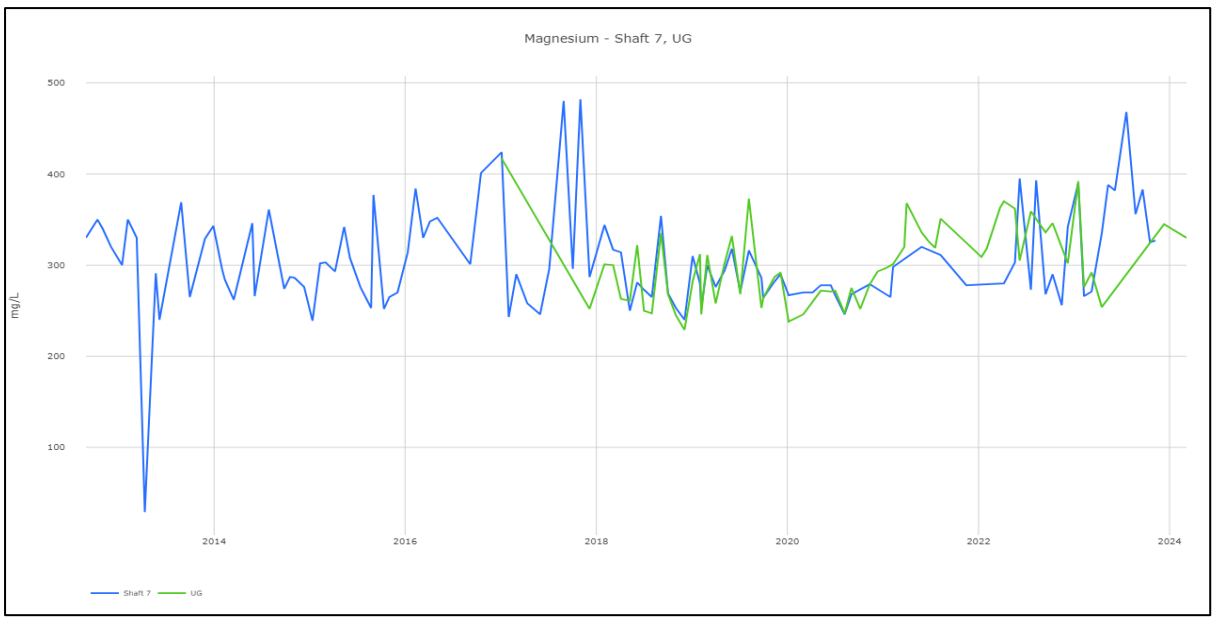
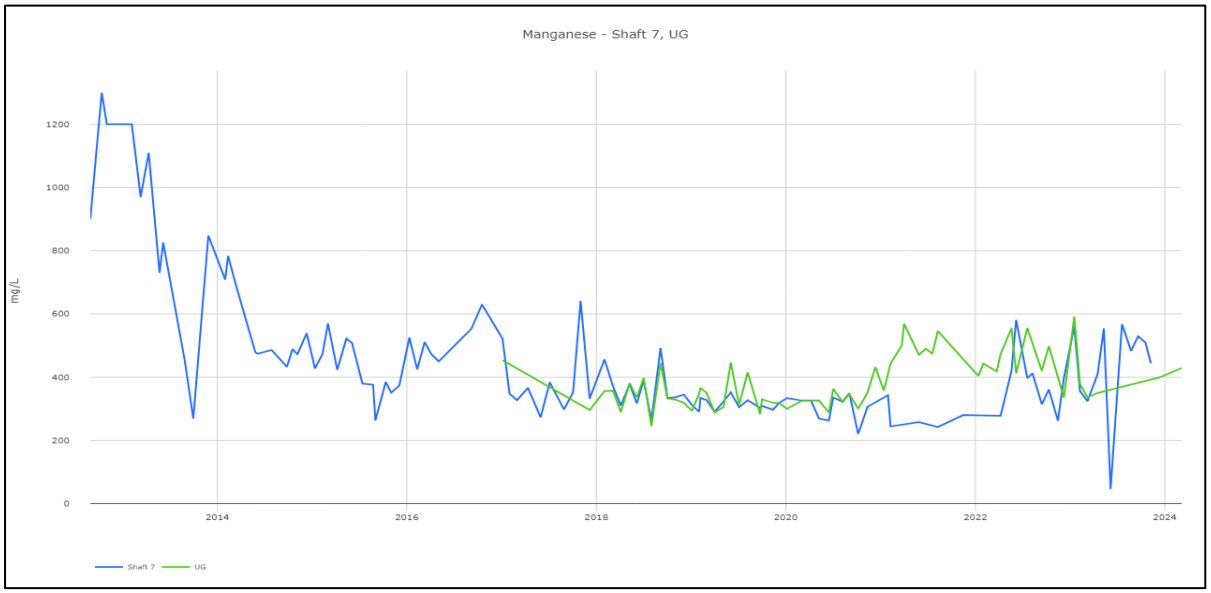
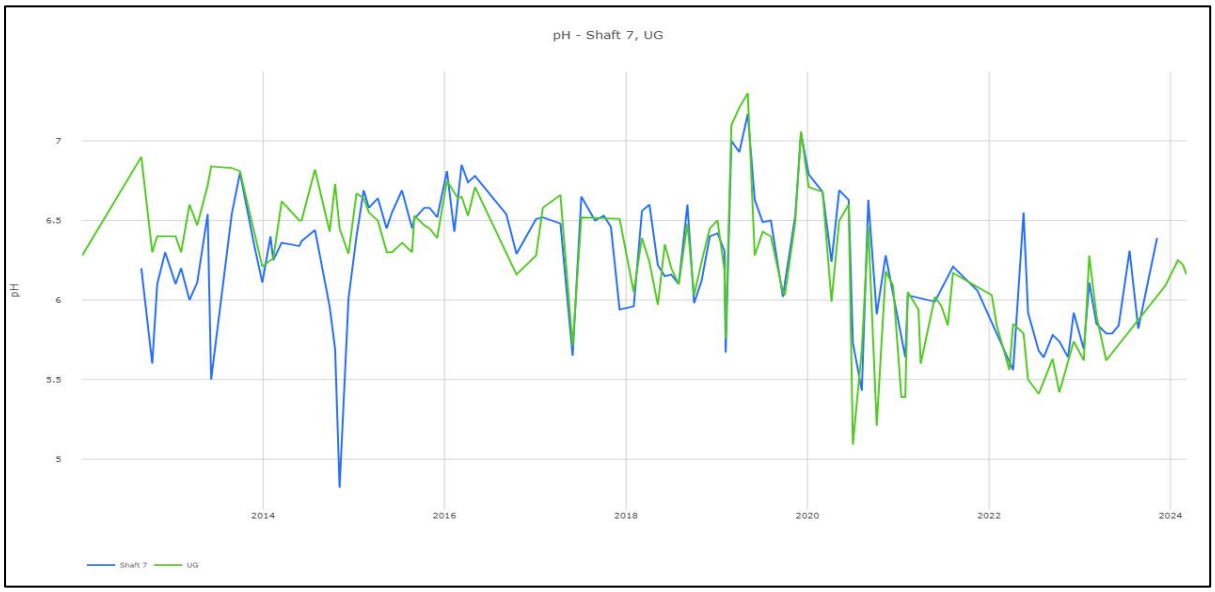


Figure 5-31 Shaft 7 & Mine Dewatering Results for Sampled Parameters - Period 2012 to Dec 2024 (continued)





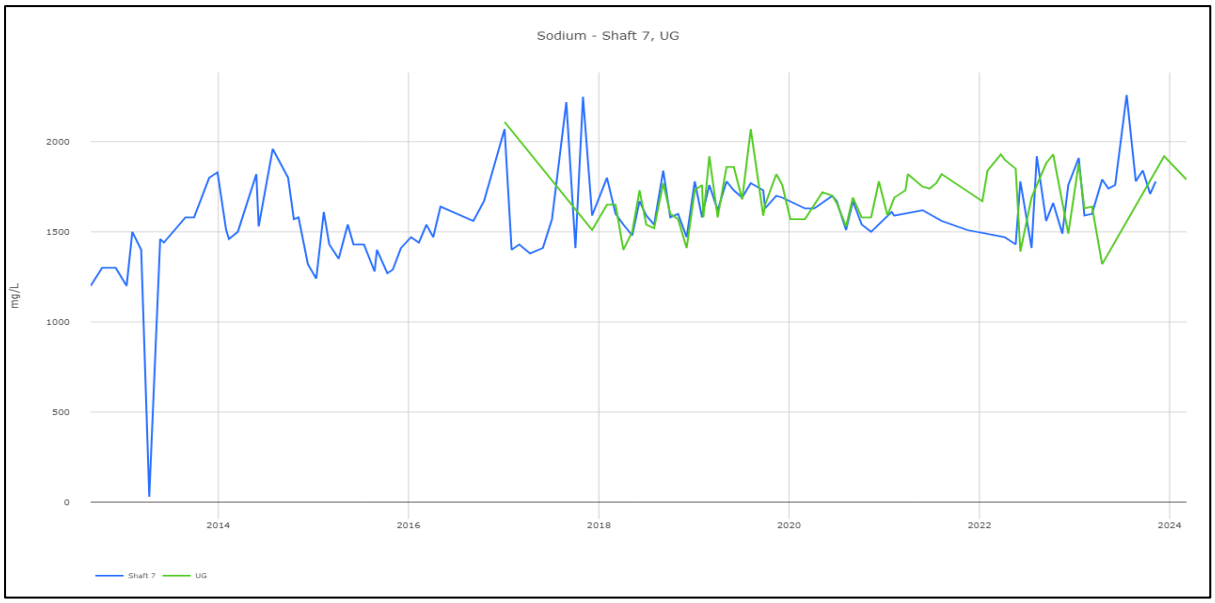
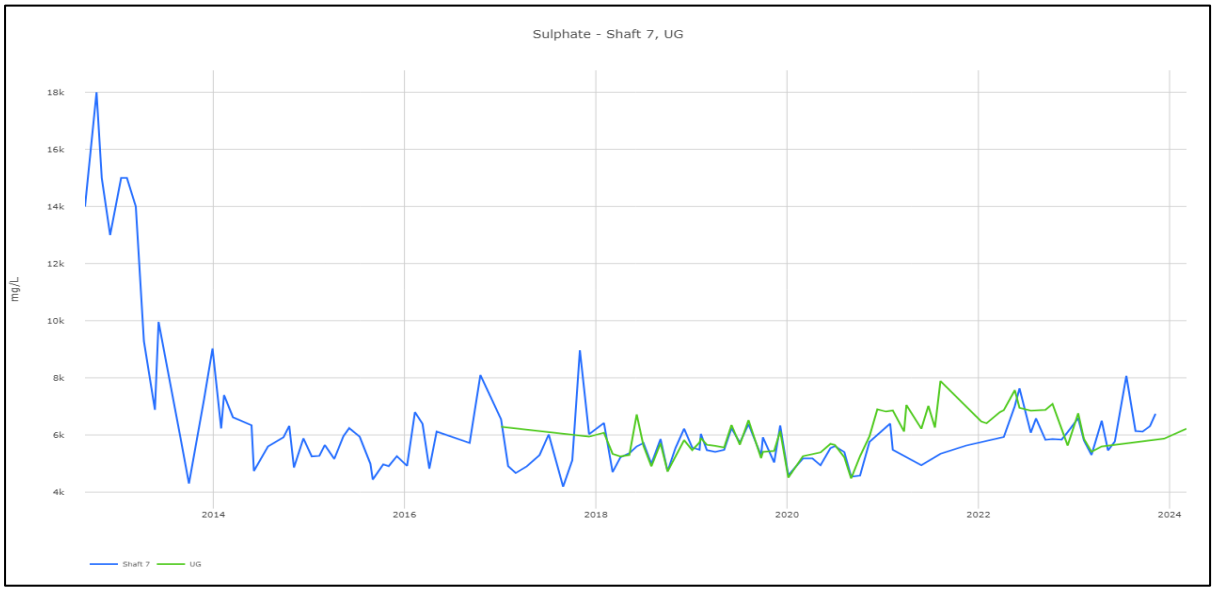
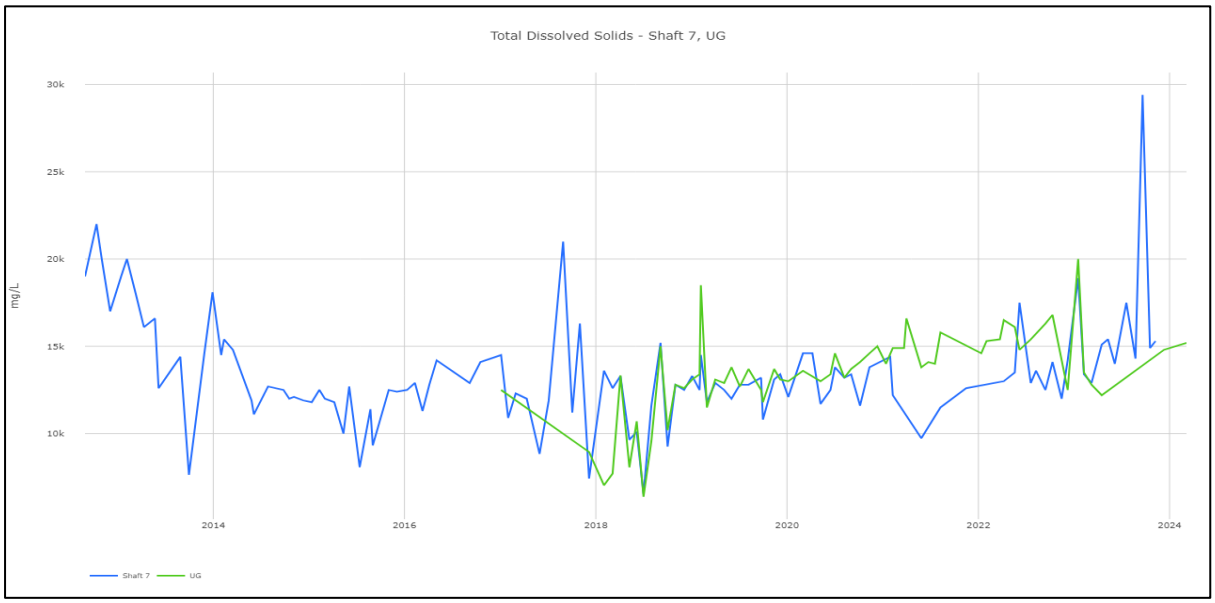
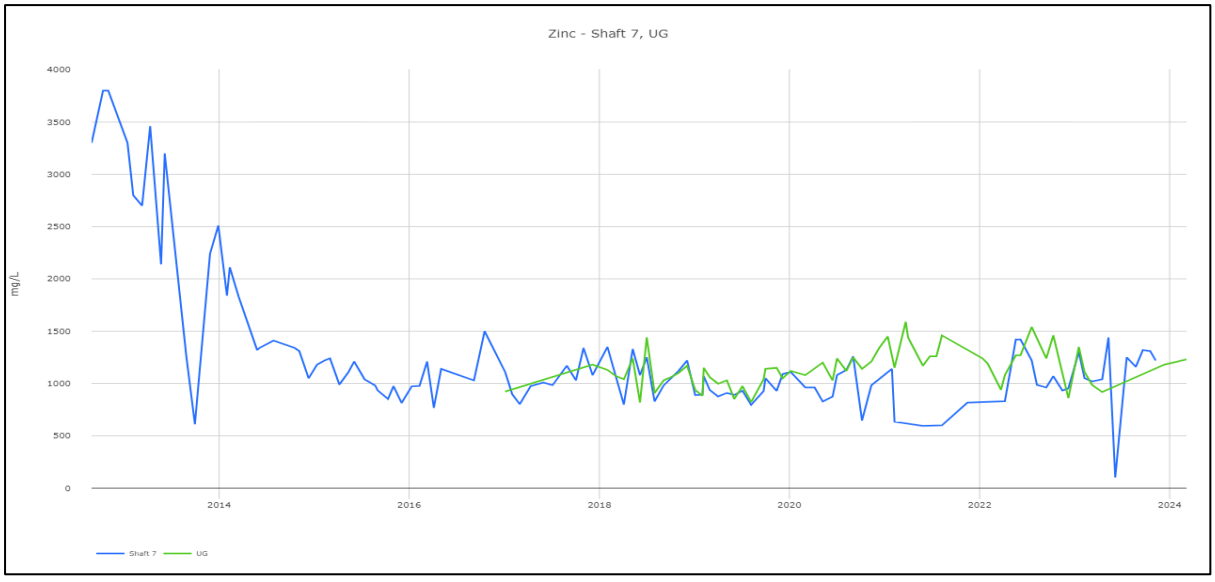


Figure 5-32 Shaft 7 & Mine Dewatering Results for Sampled Parameters - Period 2012 to Dec 2024 (continued)







5.7 Contaminated Land

The majority of the surface land area that makes up the Rasp Mine is contaminated historic mining waste material including waste rock emplacements and tailings.

The storage and handling of diesel fuels, lubricants and oils, and waste rock material are the only aspects of the operation, which have the potential to contribute to contaminated land. The sections below outline how dangerous goods are handled onsite and procedures in place for managing and reporting spills.

On 24 December 2022 there was an offsite release of tailings (further explained in Section 10) to an area accessible to public north of TSF2 which was quickly remediated. No lasting contamination as a result of this event is likely. The area was capped with clean loam and seeded in 2023 and assessed by EMM contaminated land specialists to be satisfactorily remediated.

5.8 Hydrocarbon and Chemical Management

The main streams of hydrocarbons managed on site include:

- Fuel (diesel) - storage and distribution;
- Grease oils and lubricants - storage distribution and recovery for recycling; and
- Solvents used in the parts washer.

5.8.1 Fuel

Diesel is stored in two tanks each with a capacity of 68,000L. These self-bunded trans-tanks are located adjacent to the workshop and are sitting on a constructed concrete re-fuelling station. The facility has been designed and manufactured in accordance with AS1940 and AS1692. BHO has provision for diesel storage on its Dangerous Goods Licence, UN 00C1 Diesel 150,000 L. Surface distribution of diesel is by direct collection from the fuel browser. The tanks operate on a float and cut-off system that prevents overfilling of the tanks.

Rasp's fuel management system enables monitoring of fuel usage by each vehicle and piece of plant. This assists with maintenance and security as well as providing an accurate reporting mechanism for the collecting of data for NPI and NGERS reporting.

The tanks were removed from site for their ten-year test and inspection and returned in 2023.

5.8.2 Grease, oils and lubricants

Lubricants and oils are stored in individual pods located on a portable bund. A storage facility for these lubricants and oils has been constructed on the western side of the main workshop. It consists of a raised concrete pad topped by a steel enclosure.

5.8.3 Solvents

Oil solvents used for cleaning of mechanical parts at the workshop are removed by a contractor on a fixed maintenance schedule.

5.8.4 Processing reagent storage

All reagents are stored in a purpose built storage facility designed to prevent contamination and capture spillage.

The reagents stored here include:

- Hydrated Lime
- Copper Sulphate
- Sodium metabisulphite
- Sodium ethyl xanthate
- Flocculant

- InterFroth F228
- Cytec S9232 (zinc collector)
- Antiscalant
- Defoamer
- Zinc Sulphate

All quantities and map with storage locations are reference in the Pollution Incident Response Management Plan which is tested annually and available on the CBH website.

5.9 Hazardous Material Management

5.9.1 Licensing

Rasp holds Licence XSTR100095 for the storage and handling of dangerous goods and Radiation Management Licence 5063802. Additionally, Rasp holds an explosives licence (licence number XMNF200003) to manufacture, possess, store explosives and ammonium nitrate emulsion on site.

5.9.2 Dangerous goods management

Site dangerous goods are managed according to the site Chemical Management Procedure BHO-PRO-SAF-020.

A Safety Data Sheet (SDS) database for each chemical is maintained. SDS's are kept at each location where chemicals are stored and in the mines rescue room. SDS's are also electronically available on the intranet.

General and contractor inductions outline the required actions in the event of a spill, including completing an Incident Report.

All quantities and a map with storage locations are referenced in the Pollution Incident Response Management Plan, which is tested annually and updated as required.

Storage, management and access to explosives onsite is outlined in the Store, Manage and Access Explosives Standard BHO-STD-MIN-001. A security plan compiled and submitted by the supervising licensee detailing the security measures for explosives on the Broken Hill Operations Pty Ltd, Rasp Mine site. (Site Security Plan BHO-PLN-MIN-015)

Explosives are stored both on the surface and underground. The surface explosive magazines (SEM) are located within the BHP Pit approx. 3 km north from the main office on Eyre Street. The area encompasses one detonator magazine (IE), one packaged explosives magazine (HE) and one emulsion bulk storage compound. The magazines are separated by a minimum of 7 metres and are bunded in accordance with AS 2187.1. All gates and magazines are secured with locks, and signage that meet the minimum required standards.

The underground explosive magazines (UEM) are located within the underground operations of Broken Hill Operations Pty Ltd, Rasp Mine. Separate storages are utilised for the storage of (IE) and (HE) Explosives Magazines are secured with locks, and signage that meet the minimum required standards.

SEM & UEM keys are locked in a secured key cabinet in the Broken Hill Operations Pty Ltd, Rasp Mine Site Emergency Services Officer (ESO) Office and are to be issued only by the Emergency Service Officers, who must check the identity and authority of the person wishing to take possession of the keys. The SEM & UEM Explosive Magazine Access Log Book BHO-TRN-REG-004 must be completed prior to issuing and returning the keys. Personnel will only be granted access if they possess a Security Clearance and their name appears on the Key Register (Section 7 of the Site Security Plan).

5.10 Waste Management

Waste management at the mine is classified into two broad categories: mineral wastes (mining and mineral processing wastes discussed above), and non-mineral wastes which include recyclables and non-recyclables.

5.10.1 Mineral wastes

Mineral wastes consist of waste rock from underground workings and tailings residue from the processing of ore.

Waste rock is managed on site through the Waste Rock Management Plan BHO-PLN-ENV-014. Waste rock that cannot be returned underground to fill voids is stored in Kintore and BHP Pit (for embankment material crushing), following testing and confirmation that it contains less than 0.5% lead. In the reporting period 103,985 t of waste rock was placed underground and 45,309 t was placed on the stockpile/tipple in Kintore and BHP Pits.

Tailings is discharged into Blackwood Pit (TSF2) with water recycled for use in processing where possible. In the reporting period 350,557 t of tailings was placed in Blackwood Pit.

5.10.2 Non-mineral waste

Rasp Mine has four main laydown areas where used parts and equipment are stored for future use. The recyclable area has dedicated sections for scrap metal, timber, batteries, rubber, electronic goods and used pods. Used 1000L pods are returned to the manufacturer for reconditioning and reuse or removed by a waste contractor for recycling or disposal.

Waste oil, oily water, coolant, hydrocarbon-contaminated solids (rags, spill control material, etc), grease, oil filters, hydraulic hoses, and batteries are collected by a waste contractor for disposal or recycling. Due to the reduced development works and heavy vehicles being serviced off-site in 2024 there was a reduction in the amount of hydrocarbon and other vehicle wastes produced.

Paper and cardboard are disposed on in blue recycling bins and skips which are collected by City Council. Printer cartridges are collected in “Planet Ark” disposal bags and delivered to the local Post Office for recycling. Scrap Metal is sold to a local scrap metal merchant.

BHO sent 25 decommissioned desktop computers to Dell for disposal in 2023.

Waste disposed of in the period is summarised in **Table 5-14**.

No tyres were disposed in underground workings during the reporting period. Tyres for heavy mobile equipment have been stored or reused around the mine site for barricades on roadways and within the laydown yards. All other LV and light truck tyres are removed from site under arrangement with the tyre supplier.

Table 5-14 Non-mineral Waste Summary for reporting period

Waste	Quantity Disposed
Oil	5,700 L
Oily water	12,000 L
Coolant	0 L
Scrap metal	163.15.25 t
Grease	4,920 L
Oil filters, hoses,	0 m^3
Contaminated drums/IBC’s	0 drums
Printer cartridges	4 bags
E-waste	0 desktop computers
Waste to Landfill	122.56 t

5.11 Flora and Fauna

The site is a highly disturbed environment that provides little value as native flora and fauna habitat. There have been no threatened flora, fauna or species habitat identified at the Rasp Mine. Goats frequent the site and removal is planned in 2024.

5.12 Weeds

During site inspections in 2020, individual Bush Tobacco (*Nicotiana glauca*) trees and a stand of rhizomatous bamboo (likely *Phyllostachys spp*) were identified. The Bush Tobacco, which grows around water storages and some isolated locations on dumps, will be removed by cutting at the stump. Native tobacco around the S17 pond were removed in 2019 by mechanical means but have regrown and will have to be targeted with herbicide. The bamboo growing in the Eyre St trench and will likely be controlled with a Glyphosate-based herbicide.

5.13 Blasting

There are six compliance monitors installed to record blasting vibration and over pressure at five locations around Broken Hill and one monitor located on-site near the core shed (this is used to monitor blast impacts at South Road). Locations are shown on **Figure 6-2**. When a blast complaint is received, the person is given the opportunity to have a roving monitor placed at their location. By doing so BHO can monitor the impact at the location for a time. Normally, a roving monitor is placed at the complainants' location for at least two months to record blast vibration levels and develop an accurate K Factor used in blast design modelling to predict ground vibration at a set location. BHO maintains a spare monitor to replace compliance monitors removed for calibration or due to fault. In April 2018, blast monitor V4 at 123 Eyre St was removed at the resident's request and placed at the Eyre St Bowls Club. In September 2024 the V5 monitor was removed from 80 Eyre Street at the owner's request and moved to 121 Patton Street.

Three blast monitors are installed on each of the Blackwoods TSF2 embankments to monitor vibration in each embankment to trigger inspections if vibration levels are high enough and inform bank integrity reviews.

One blast monitor is installed adjacent to TSF1 vibrating-wire piezometers and was originally placed to monitor vibrations a result of boxcut surface blasting and blasting for Blackwoods development works. This monitor provides data to monitor dump stability at TSF1 going forward as blasting occurs in the Northern portions of the site.

No blasting was conducted in the Zinc Lodes/Block 7 in 2024.

Table 5-16 and **Table 5-17** lists the criteria for blasting ground vibration and overpressure for Western Mineralisation / Main Lodes (Western Min/Main Lodes) and Block 7, respectively**.**

Table 5-15 Overpressure and Ground Vibration Western Min/Main Lodes (excluding Block 7)

Location	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (mm/s)	Allowable Exceedance
Residence on privately owned land (7am-7pm)	115	5	5% of the total number of blasts over a 12-month period[ab]
(7am-7pm)	120	10	0%
(7pm-10pm)	105	-	-
(10pm-7am)	95	-	-
Public Infrastructure[d]	-	100	0%

Table 5-16 Overpressure and Ground Vibration Block 7 (includes Zinc Lodes)

Location	Airblast Overpressure (dB(Lin Peak)	Ground Vibration (mm/s)	Allowable Exceedance
Residence on privately owned land (7am-7pm)	115	3 (interim)[c]	5% of the total number of blasts over a 12-month period[a]
(7am-7pm)	120	10	0%
(7pm-10pm)	105	-	-
(10pm-7am)	95	-	-
Broken Hill Bowling Club, Italio (Bocce) Club, Heritage Items within CML7	-	50	0%
Perilya Southern Operations	-	100	0%
Public Infrastructure[d]	-	100	0%

The Project Approval provides the following notes to these **Table 5-15** and **Table 5-19:**

a) The allowable exceedance must be calculated separately for development blasts and production blasts;
b) The 5% allowable exceedance does not apply to production blasts until the Proponent has successfully completed a Pollution Reduction Program aimed at achieving this goal, as required by the EPA under the Proponent's EPL (No. 12559), or as otherwise agreed with the EPA;
c) The interim criteria applies unless and until such time that the Proponent has written consent from the Secretary to apply site specific criteria in accordance with condition 19 of this approval; and
d) The Proponent must close South Road to pedestrians if blasts are expected to exceed a peak particle velocity ground vibration of 65 mm/s at the road reserve surface, while the blast firing occurs.

In addition, the following conditions also apply: -

- Production blasts may occur between 6.45 am and 7.15 pm on any day
- 1 production blast per day, with 6 per week averaged over a calendar year
- 6 development blasts per day, with 42 per week averaged over a calendar year

In accordance with Project Approval and EP Licence conditions:

- All but one (see incidents in Section 10) of the production-blasts were fired between 6.45am and 7.15pm on any day.
- Production blasts averaged 1.5 per week over the previous calendar year
- Development blasts averaged 1.29 per week over the previous calendar year

A total of 145 blasts were fired during the reporting period, 67 for development and 78 for production. **Table 5-17** and **Table 5-18** lists the total number of blasts for each area per month during the reporting period and **Table 5-19** and **Table 5-20** summarise the blasts over 5 mm/s (Western Min/Main Lodes) and 3 mm/s (Block 7). "No Trigger" are the number of blasts that did not trigger vibration monitors.

In the Western Mineralisation/Main Lodes mining areas (external to Block 7), 145 blasts were fired. Of these, 67 were for development and 78 were for production (including two surface blasts). No blasts exceeded 5 mm/s. The percentage of production blasts exceeding 5 mm/s was 0.0% and the percentage of development blasts exceeding 5 mm/s was 0.0%.

Table 5-17 Western Mineralisation/Main Lodes Summary of Blasts 2024

	Western Mineralisation / Main Lode									
	Production					Development				
	Blasts	< 5	>= 5	>= 10	No Trigger	Blasts	< 5	>= 5	>= 10	No Trigger
Jan-24	8	7	0	0	1	0	0	0	0	0
Feb-24	7	5	0	0	2	0	0	0	0	0
Mar-24	4	4	0	0	0	8	0	0	0	8
Apr-24	2	1	0	0	1	9	0	0	0	9
May-24	8	8	0	0	0	0	0	0	0	0
Jun-24	4	4	0	0	0	0	0	0	0	0
Jul-24	9	9	0	0	0	0	0	0	0	0
Aug-24	8	1	0	0	7	0	0	0	0	0
Sep-24	10	6	0	0	4	0	0	0	0	0
Oct-24	2	2	0	0	0	2	0	0	0	2
Nov-24	8	5	0	0	3	0	0	0	0	0
Dec-24	8	7	0	0	1	48	0	0	0	48
TOTAL	78	59	0	0	19	67	0	0	0	67

Table 5-18 Western Mineralisation/Main Lodes Blasts > 5 mm/s for the reporting Period

Production	Blasts >5 mm/s	Exceedance Result
78	0	0%

For the annual period January 2024 to December 2024, Western Mineralisation/Main Lodes production blast levels were compliant with the 5% allowance for ground vibration with 0% of blasts recording ground vibration over 5mm/s.

In the Block 7 mining areas (including the Zinc Lodes), no production blasts were fired during the reporting period. Block 7 was 100% compliant for the reporting period.

Table 5-19 Block 7 (and Zinc Lodes) Summary of Blasts 2024

	Block 7 (includes Zinc Lode)									
	Production					Development				
	Blasts	< 3	>= 3	>= 10	No Trigger	Blasts	< 3	>= 3	>= 10	No Trigger
Jan-24	0	0	0	0	0	0	0	0	0	0
Feb-24	0	0	0	0	0	0	0	0	0	0
Mar-24	0	0	0	0	0	0	0	0	0	0
Apr-24	0	0	0	0	0	0	0	0	0	0
May-24	0	0	0	0	0	0	0	0	0	0
Jun-24	0	0	0	0	0	0	0	0	0	0
Jul-24	0	0	0	0	0	0	0	0	0	0
Aug-24	0	0	0	0	0	0	0	0	0	0
Sep-24	0	0	0	0	0	0	0	0	0	0
Oct-24	0	0	0	0	0	0	0	0	0	0
Nov-24	0	0	0	0	0	0	0	0	0	0
Dec-24	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	0	0	0

Table 5-20 Block 7 Blasts Exceeding 3 mm/s for Reporting Period

Production Blasts	Blasts >3 mm/s	Exceedance Result
0	0	0%

Table 5-21 lists the highest recorded results for ground vibration (mm/s) at each of the vibration monitors.

Table 5-21 Ground Vibration Results at Vibration Monitors for the Reporting Period

Vibration Monitor/Location	Highest Recorded Ground Vibration (mm/s)
V1 Silver Tank (located on CML7)	1.61
V2 Hire yard	4.10
V3 Air Express	3.68
V4 123 Eyre St / Bowls Club	1.33
V5 80 Eyre St	1.02
V6 BHO Core Shed (located on CML7)	1.94

All blasts recorded at off-site monitors were under 10 mm/s.

5.14 Operational Noise

During the reporting period, noise was generated by operational activities, movement of heavy vehicles and delivery trucks leaving and entering site.

Random noise monitoring is conducted by BHO Environmental staff to monitor project noise emissions. Real-time noise monitors are located at the SE and SW corners of TSF1 to monitor the

MOD6 construction operations. Attended noise monitoring is completed annually by consultants at noise monitoring locations shown together with the relevant location criteria in ..

Location	Day (dB(A))	Evening (dB(A))	Night (dB(A))
A1 – Piper Street North	40	37	35
A2 – Piper Street Central	40	37	35
A3 – Eyre Street North	44	41	39
A4- Eyre Street Central	44	41	39
A5 – Eyre Street South	44	41	39
A6 – Bonanza and Gypsum Streets	48	41	39
A7 – Carbon Street	45	42	36
A8 – South Road	48	39	39
A9 – Crystal Street	46	39	39
A10 – Barnet and Blende Streets	42	41	35
A11 – Crystal Street	46	39	39
A12 – Crystal Street	46	39	39
A13 – Eyre Street North 2	40	35	35
A14 – Piper Street North	40	35	35
Additional Construction Noise Criteria for the Boxcut Construction			
A1 – Piper Street North	43	NA	NA
A2 – Piper Street Central	45	NA	NA
A3 – Eyre Street North	47	NA	NA
A13 – Eyre Street North 2	48	NA	NA
A14 – Piper Street North	47	NA	NA

During the reporting period EMM Consulting Pty Ltd conducted a noise assessment for these receptors, Figure 5-33**.**

Figure 5-33 Noise Receptors

Attended noise monitoring was conducted on 20 and 21 November 2024 to quantify off-site noise levels from the Rasp Mine. While the EPL nominates noise limits for day, evening and night, attended monitoring was completed during the night-time period to minimise the contamination of monitoring data by extraneous noise sources (e.g. domestic and road traffic noise).

Operator-attended noise measurements were completed at each of 14 monitoring locations set out in PA07_0018 Condition 17.

The wind speed was below 3 m/s during the attended measurements.

Noise monitoring results are shown in **Table 5-22**.

Low frequency noise was assessed by using the Noise Policy for Industry (NPfI) (EPA 2017) methodology for each attended measurement and for audible contributions only. Low frequency noise, as defined in the NPfI, was not identified during the attended measurements.

Rasp Mine LAeq,15min noise contributions (including the addition of the relevant modification factor) satisfied the relevant night-time noise limits at all assessment locations.

Table 5-22 Noise Monitoring Results

Location	Start date and time	L_{Amax}	L_{A1}	L_{A10}	L_{Aeq}	L_{A50}	L_{A90}	L_{Amin}
A13	20/11/2024 22:00	63	53	44	42	33	26	23
A12	20/11/2024 22:00	64	50	44	43	41	38	34
A14	20/11/2024 22:16	61	46	39	35	30	28	26
A11	20/11/2024 22:25	68	65	56	53	45	43	42
A1	20/11/2024 22:35	66	60	41	45	32	29	27
A10	20/11/2024 22:47	78	69	60	57	44	38	34
A2	20/11/2024 22:54	67	49	39	38	34	31	28
A9	20/11/2024 23:08	69	65	56	53	44	38	35
A3	20/11/2024 23:12	57	49	39	37	33	30	29
A4	20/11/2024 23:30	60	53	45	43	41	39	37
A8	20/11/2024 23:30	69	59	47	47	41	38	35
A5	20/11/2024 23:46	74	66	54	54	42	36	32
A7	20/11/2024 23:52	63	50	46	43	41	38	34
A6	21/11/2024 00:03	72	67	57	54	39	33	30
A13	21/11/2024 22:00	57	51	43	40	37	35	31
A12	21/11/2024 22:00	55	48	42	39	36	32	29
A14	21/11/2024 22:16	58	50	46	43	42	38	35
A11	21/11/2024 22:19	57	49	42	40	36	34	32
A1	21/11/2024 22:34	66	62	47	48	40	36	33
A10	21/11/2024 22:43	78	70	57	56	43	39	35
A2	21/11/2024 22:53	66	60	43	46	38	35	33
A9	21/11/2024 23:03	78	64	56	53	46	41	36
A3	21/11/2024 23:11	61	54	46	44	37	35	33
A8	21/11/2024 23:24	57	54	52	49	47	40	34
A4	21/11/2024 23:28	69	58	43	46	39	38	36
A7	21/11/2024 23:44	53	45	41	38	36	33	30
A5	21/11/2024 23:45	73	68	57	56	42	36	34

Noise attenuation measures on site include:

- Plant and equipment operator training. This included correct gear selection to minimize noise emission, retraining in travelling haul road procedure and educating personnel of the noise criteria for site.

- The use of an “ice-creaming” technique when loading the crusher allows the crusher to be loaded to maximum capacity at all times reducing the noise generated by rock fall onto the grizzly. “Ice-creaming” is where the crusher bin volume is maintained at a high level by the ROM front end loader.

- Optimisation of haul truck speed and gear changing via the use of intermediate markers along haulage route.
- Extension of both length and height of the existing earth bund along the southern haul road (from Kintore Pit to ROM pad).
- Installation of noise abatement material in the crusher house.
- A 2.5 m high by 6 m long tyre wall was constructed to reduce noise transition from the filtration area of the processing plant.

5.15 Visual, Stray Light

Light towers around machinery, where practicable, are designed to face light away from residents.

There were no light complaints for the reporting period.

5.16 Indigenous Heritage

There are no known significant indigenous sites within CML7.

5.17 Natural and Social Heritage

5.17.1 Conservation management strategy

The Conservation Management Strategy draft was being developed at the end of the reporting period and is expected to undergo BHO review early in 2024.

An Options Analysis Study for mine closure has been developed along with recommendations for rehabilitation methods.

5.18 Spontaneous Combustion

Products with high sulphur content (tailings, ore and concentrate) are prone to spontaneous combustion. Combustion is caused by the oxidation of the sulphides, which is an exothermic chemical reaction that causes heat build-up, and the remaining sulphides begin to start smouldering. In extreme cases the sulphides may burn producing a flame. Requirements for combustion to occur are high sulphur material, oxygen, moisture and sufficient material to generate heat build-up.

No incidences occurred during the period.

5.19 Bushfire

No bushfires affected the site during the reporting period. Broken Hill and surrounding areas have limited potential for bushfires due to the lack of suitable fuel.

The Rasp Mine has a fully equipped fire truck available at all times to respond to fires and has a trained mines rescue team for firefighting. There are fire hydrants and hoses installed at strategic locations across the mine site and within vehicles with deluge systems installed on loaders and in the underground fuel bay.

5.20 Mine Subsidence

Monitoring occurs on Bonanza St/South Road to detect any movement that may be associated with mining activities in the Zinc Lodes.

Surveying results indicate that most of the detected “movement” is due to instrument set-up errors, atmospherics etc. This is evidenced by the fact that the plot for each prism vector looks very similar to the same vector for the other prisms (i.e. all northing plots look the same, all easting plots look the same) indicating that the errors affect all prisms. Mining in the area of the Zinc Lodes has now been completed and BHO will continue to monitor road movement and has back-filled the mining/production voids in this area.

No subsidence from mining activities was detected in the reporting period. Minor subsidence occurred in a lay-down yard adjacent to the South Mill which was backfilled with waste rock and is being monitored by Geo-technical staff.

5.21 Methane Drainage/Ventilation

As the nature of the mine is not gassy (e.g. coal mine), there are no permanent methane monitoring locations. However, all personnel carry gas monitors while performing the following underground activities to monitor any hazardous gases:

- All production rigs while drilling;
- All production loaders (Boggers) while bogging;
- All Jumbos;
- Vent Officer while doing vent surveys;
- Re-Entry Crews while performing re-entry; and
- Service crew when required.

5.22 Public Safety

All active mine areas of the Rasp Mine site are signposted and fenced to restrict any unauthorised access. Perimeter fencing is inspected weekly by Emergency Services Officers.

Visitors to the mine are only allowed on site with management approval and are required to undertake a visitor briefing (induction), and are accompanied by a site representative at all times. Visitor briefing cards are distributed to ensure key information is readily at hand for visitors. Visitors must follow site policies and conform to personal protective equipment (PPE) requirements.

All employees and contractors complete a general induction and work area specific inductions where required (e.g. underground, mill).

5.23 Radiation

BHO has a Radiation Management Licence, RML5063802 current until 26 July 2025. The Licence permits BHO to "sell, possess, store or give away regulated material (including radiation apparatus, radioactive substances or items containing radioactive substances)".

Radiation is used in gauges in the processing plant to measure slurry density and identify the percentage of lead/zinc/iron. Radiation is used by technical services to identify the percentage of lead/zinc or other materials. The Rasp Mine Radiation Management Plan outlines how radiation and radiation equipment must be used, stored and disposed. An external contractor conducts biennial inspections of the individual radiation gauges on site while the site RSO conducts semi-annual inspections. During the reporting period no issues were identified during inspections and audits in relation to their use.

The Rasp Mine Radiation Store meets the requirements for storage of fixed radiation gauges, Code of Practice for the Safe Use of Fixed Radiation Gauges, ARPANSA. The Radiation Store is of solid construction (historically in the early 1900's it was used as an explosives magazine store) and is located on the side of a hill so it is not prone to flooding. It is clearly signed and is not accessed by the public.

No radiation apparatus was dismantled during the reporting period.

Table 5-23 lists the regulated materials (fixed radiation gauges) that make up the schedule to the licence.

Table 5-23 Regulated Radiation Equipment

Location	Rasp Mine Asset Number	Type	Equipment	Components	Purpose
Mill - Flotation building	2321727346	Radiation apparatus	X-RF	- Control console / generator - X-ray tube insert	Analysis of materials
Primary cyclone feed	1566643388	Sealed source device	Fixed Radiation Gauge	- Container - Sealed source	Density gauge
Radiation Store 'REMOVED FROM SERVICE'	1570661547	Sealed source device	Fixed Radiation Gauge	- Container - Sealed source	Density gauge
Admin Bld, Geological vault	2321727385	Radiation apparatus	X-RF	- Control console / generator	Analysis of materials
Radiation Store 'REMOVED FROM SERVICE'	1570661354	Sealed source device	Fixed Radiation Gauge	- Container - Sealed source	Density gauge

5.24 Emissions, Greenhouse Gasses and Energy Efficiency

Rasp Mine reported data to the National Pollution Inventory (NPI) for the 2022/2023 year.

In this period 2,117,181L of diesel and 43,083 MW-hr of energy were used.

Emissions data is presented in **Table 5-24**.

Reductions in emissions are produced by:

- Application of dust suppressant;
- Construction of wind breaks around stockpiles;
- Improved maintenance scheduling and record keeping;
- Operations of dust monitors;
- Operation of baghouses on crushing stations; and
- Use of water carts and spray systems around dust-generating activities.

Table 5-24 NPI Emissions Data

Substance	Usage (t/yr)	Air Fugitive (kg/yr)
Carbon monoxide	0	31,271.91
Copper & compounds	506.99	3.04
Cumene (1- methyl ethylbenzene)	15.04	0.59
Fluoride compounds	9,017.1	63.47
Hydrochloric acid	0	70,982.68
Lead & compounds	0	34,691.44
Oxides of Nitrogen	0	4,844.85
"Particulate Matter	5.55	2.05
10.0 um"	0	42.27
Particulate Matter 2.5 um	117.21	5.396.48
Polycyclic aromatic hydrocarbons (B[a]Peq)	15,984.48	111.66
Sulfur dioxide	0	31,271.91
Total Volatile Organic Compounds	506.99	3.04
Zinc and compounds	15.04	0.59

Rasp Mine participates in the National Greenhouse and Energy Reporting scheme and the emissions and energy consumption figures reported for the 2022-2023 fiscal year are provided below in **Table 5-25**.

Table 5-25 NGERs Data 2023-2024 Fiscal Year

GREENHOUSE GAS EMISSIONS (t CO2-e)

Scope 1	Scope 2	Total of Scope 1 and Scope 2	Voluntary market-based Scope 2
5,524	26,156	31,680	-

ENERGY PRODUCED AND ENERGY CONSUMED (GJ)

Energy Consumed Total	Energy Consumed Net	Energy Produced
218,532	218,532	-

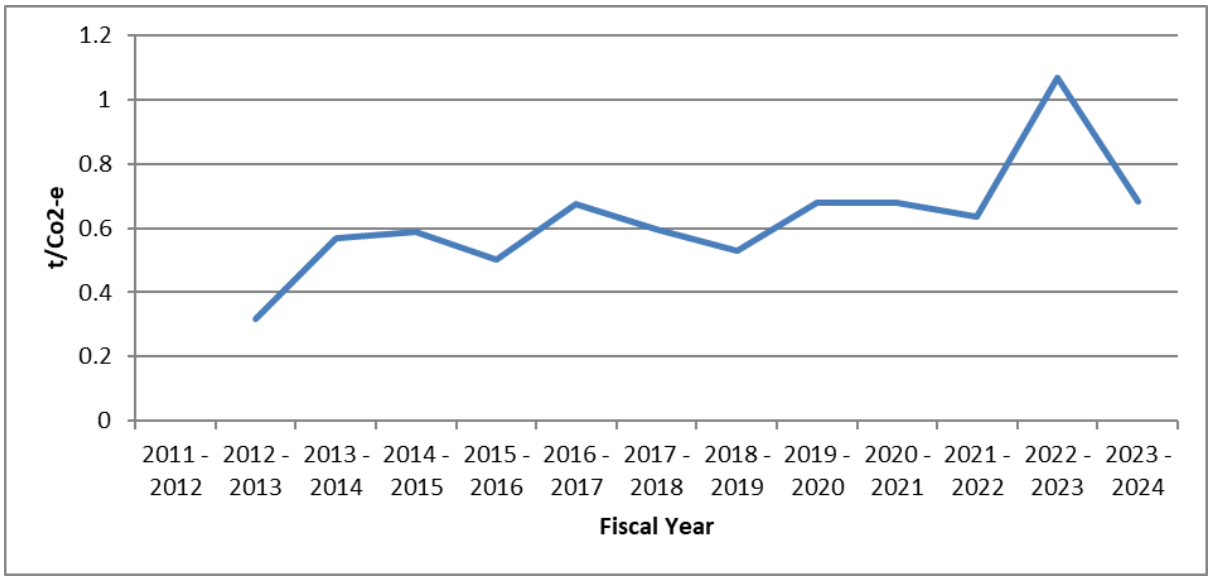
GREENHOUSE GAS SCOPE 1 EMISSIONS BY GAS (t CO2-e)

Carbon Dioxide CO2	Methane CH4	Nitrous Oxide N2O	Perfluorocarbons PFCs	Hydro Fluoro Carbons HFCs	Sulphur Hexafluoride SF6	Total
5,465	7	16	-	-	36	5,524

Rasp Mine monitors emissions by tracking CO_2 emissions against the tonnes of concentrate produced as shown in Figure 5-34. The 2023-2024 fiscal period saw a decrease in emissions of CO_2/tonne

concentrate compared to 2022 – 2023 but not previous periods. The 2022 – 2023 period experienced elevated CO2 levels produced due to the MOD6 projects such as the boxcut, TSF3 construction and tailings harvesting.

Figure 5-34 CO_2 emissions/tonne concentrate produced



6. WATER MANAGMENT

Raw water and potable water are supplied by Essential Water with take off valves at the Eyre Street entrance to the Rasp Mine. Raw water, water from the town supply, is supplied untreated to the mine site via existing connections.

Potable water is supplied direct from the town supply and is used for drinking, safety showers and in the crib rooms and change houses. Water from the town supply is treated at the Mica Street treatment plant and supplied to the Project via existing connections and is used for showers, toilets, and laundry. Average annual usage of potable water is 9 ML supplying the offices, workshop, core shed and processing facility.

BHO are required to dewater the mine workings to ensure the safety of both the employees at the adjacent Perilya South Mine and its own employees. This water is extracted under licence and can be used on the Rasp Mine site or transferred for use at the Perilya operations.

Water is reclaimed onsite from various sources to be recycled for the Project, mainly from underground dewatering. If necessary, the reclaimed water is treated onsite to ensure that it is suitable for use as process water in both the processing plant and underground operations. Reclaimed water is returned after treatment to the process water tank which has a three hour holding capacity or to the Silver Tank which has a capacity of 8ML.

The sources for the reclaimed water include:

- No. 7 Shaft dewatering;
- Underground mine operations dewatering;
- TSF decant pond; and
- Stormwater containment dams (only during extreme rain events)

The Rasp Mine has installed several water meters to monitor water supplies and movements.

Raw water used during the period was 241ML, a decrease from 255.6ML used in 2023, likely due to the reduce workforce and cessation of development works in 2024.

Potable water used during the period was 5.43ML, lower than the 9.2 ML used in the previous period due to a decrease in personnel and contractors.

BHOP has a water extraction licence, WAL31065, to extract by active pumping 370ML pa. In the reporting period, approximately 494ML was extracted and 138.4ML returned to Underground for a Net Extraction of 355.6MLpa.

An independent review of the site water balance by EMM in 2021 included investigation into flow meter data records and descriptions of day to day water movements provided by site operators. It was determined that the groundwater take at Rasp Mine is estimated using the water balance as: Groundwater take = Dewatering (pumping from underground to surface) minus the Underground supply (pumping water underground for use in the mining process). During a consultation session between BHO, EMM and DPIE Water held on 15 November 2021, this methodology was discussed and endorsed by DPIE Water representatives as appropriate given the nature of the operation and associated water balance. In 2020, approximately half of the water removed from the underground workings via dewatering pumps was directly attributable to water taken underground for the purposes of operating underground machinery and ancillary uses such as fire water. This water was used in mining activities, collected in sumps within the excavated shafts and drives, and returned to the surface for settling in pond S22 before being recycled. The remainder of the water removed from the underground workings is attributed to groundwater inflows.

Flow meters have been installed on dewatering lines in 2022 as part of the NSW non-urban water-metering framework. BHO subsequently engaged a Duly Qualified Person to install and verify pattern approved flow meters. In 2023, telemetered flow meters supplied by Water NSW were installed on the Shaft 7 and Mine Dewatering lines.

No water was transferred to Perilya South Mine Operations, during the reporting period.

7. REHABILITATION

7.1 Buildings

No buildings were constructed on CML7 in the reporting period. The most recent building construction was the extension of the site warehouse in 2019. BHO are currently in the process of sourcing Building Information Certificates for both the Stores Extension and Concrete Batch Plant.

7.2 Rehabilitation and Disturbed Land

A trial to cap Mt Hebbard with waste rock was agreed to by the Resources Regulator to be undertaken in 2018. As BHO was still developing a waste rock testing procedure and were unable to crush extracted material (waste rock) on the surface, waste rock was not applied to the surface of Mt Hebbard in 2019. Waste rock capping operations were further postponed as a site-wide Instability and Inrush Risk Assessment, and slope stability investigation, were conducted on waste dumps in 2020.

Dust deposition gauges were installed on top of the Mt Hebbard waste dump in October 2017 as part of the waste rock trial to be. It was proposed in the MOP to install the gauges to monitor current dust conditions for a 12 month period, then place waste rock capping and re-install the gauges to monitor for another 12 month period and compare results. As 12 months of dust results had been collected from the Mt Hebbard dust gauges, dust suppressant was applied annually to control dust. The surface of Mt Hebbard is one of the “free areas” identified on the site to be potential contributors of dust to the surrounding environment.

Waste rock capping of the railway dump surface to the NW of Kintore Pit is expected to be conducted in 2024 in line with the Forward Program.

In December 2023 baseline terrestrial scanning of waste dumps was conducted to enable monitoring erosion rates on waste dump batters over coming years as outlined in the Rehabilitation Management Plan available for review on the CBH website.

The Rehabilitation Strategy was updated in 2023, provided to stakeholders for comment, and submitted to the Secretary for approval. The approved version is available to review on the CBH website.

In September 2024, EMM Consultants conducted an extensive review of the condition of site Heritage Structure for inclusion in the Strategic Decision Matrix, a document developed to inform management of Heritage Structures.

The Department of Premier & Cabinet Broken Hill Post Mining Interagency Meeting was held in Broken Hill on 13 and 14 August 2019. During the Interagency meeting there was agreement that paddock dumping of waste rock on free areas may be a suitable method of capping them following comments from David Williams, Director of Geotechnical Engineering, University of Queensland.

The Department of Premier & Cabinet held another set of meetings in Broken Hill on 18 September 2024 with staff of local mining companies and NSW Regional team members to familiarise officers with community lead controls and remediation works in Broken Hill.

NSW RR officers conducted a site visit on 5 September to conduct a Tailings Targeted Assessment Program (TAP). A 240 Notice was provided to BHOP to conduct repairs to the erosion scour on the eastern end of TSF1.

8. COMMUNITY RELATIONS

8.1 Environmental Complaints

During the reporting period, BHO has maintained a register for community complaints and concerns which is available on the Broken Hill Mines website at coolabahmetals.com.au/complaints-register.

Two complaints were received over the reporting period. Of those complaints, all related to blast vibration, **Table 8-1**. All complainants were contacted by BHO if requested and if details were provided.

All blasts were found to be compliant with the applicable licence limits. The applicable blast data was distributed to the EPA and the affected resident.

Table 8-1 Complaints register

Date of Complaint	Reason for Complaint	Comment
January 2024 INX 9531	Vibration	• A complainant contacted the BHO complaints line on 19 January regarding blast vibration experienced during the blast conducted on the evening of 18 January. • A BHO representative contacted the complainant to discuss their concerns and visited the complainant's home on 23 January to further discuss the complaint and inspect and photograph the complainants' residence. • Vibration levels recorded by BHO compliance blast monitors were below licence limits for the blast on the evening of 18 January.
February 2024	No complaints	• The EPA contacted BHO due a complaint made to them from a member of the public regarding the blast of 23 February. • A BHO representative provided blast data to the EPA and no further action was taken by the EPA. • Vibration levels recorded by BHO compliance blast monitors were below licence limits for the blast on the evening of 23 February.

8.2 Stakeholder Liaison

During the period of the Annual Review, BHO has conducted direct and indirect consultation with neighbours, members of the public, local community organisations, state government agencies and local council.

The major stakeholders include:

- Broken Hill Lead Reference Group (BHLRG) – meetings held on 22 February, 30 May, 22 August and 28 November.
- Environment Protection Authority (EPA) – Site visits on 28 May and 25 October.
- Premier and Cabinet Lead Response Group – meeting to discuss community lead response on 18 September.
- NSW RR- Tailings TAP site visit on 5 September.

The following community communication activities occurred during the period:

BHO was represented at quarterly meetings of the BHCC Lead Reference Group (BHLRG) during the reporting period.

8.3 Community Support

During the reporting period, Rasp Mine provide support and funding to the following groups.

Organisation	Activity	Support
AFL BH Association	BBQ sponsorship	Donation
Willyama High School	Annual Presentation Night	Donation
BH High School	Annual Presentation Night	Donation
BH Public School (Central)	Annual Presentation Night	Donation

Far West Health did not apply for funding for public blood lead monitoring and public health under Schedule 3 Condition 12 in 2024.

9. INDEPENDENT AUDIT

An independent audit was conducted by Integrated Environmental Systems Pty Ltd in the week of 3 to 7 July 2023. The audit was commissioned by BHO to satisfy Schedule 4, Conditions 7 of the Project Approval, to commission an independent environmental audit of the Project within one year of physical commencement of development under Modification 6 (approved on 16 March 2022), and once every three years afterwards.

The audit was conducted in accordance with the NSW Government's Independent Audit Post Approval Requirements, issued in May 2020 (IPAR).

The audit period was 12 March 2022 to 7 July 2023.

All 75 conditions in the consolidated Project Approval 07_0018 (as of 13 December 2022) were audited. As recorded in the audit report, the audit identified 47 'compliant' findings, 16 'non-compliant' findings, and 12 'not triggered' findings.

Copies of the Independent Audit report and Action Plan are available on the CBH Website and have been provided to DPHI.

Following the independent audit conducted in July 2023, BHO were found to be non-compliant against 16 applicable Project Approval conditions, related to individual incidents across site, Management Plans review and approval, and implementation of programs outlined in Management Plans. Corrective actions related to a number of these non-compliances were undertaken at the time of the non-compliance, others were reviewed and actioned following the audit.

All actions related to the following have been completed:

- Building Inspection Certificates were obtained for the Batch Plant and Stores Extension
- Gain Secretary's endorsement of the Human Health Risk Assessment suitably qualified expert
- Actions required for Plant Maintenance Schedule 2 Condition 10
- Actions related to Schedule 3 Condition 3 recommendations have been completed
- The Air Quality Management Plan has been revised and amended as recommended
- Report annual emissions and implement measures in AQMP
- Measures have been implemented to prevent off site releases of contaminated water
- The Site Water Management Plan has been updated to address recommendations related to Schedule 3 Condition 23c
- Revision history tables included in Management Plans

As at December 2024, 4 actions to address Project Approval non-compliances remain in progress, related to:

- Negotiate with owners to exceed criteria in Schedule 3 Condition 18

- Waste management monitoring and auditing
- Review of Management Plan requirements and application to remove unwarranted conditions
- Conservation Management Plan to be approved and uploaded to website

10. INCIDENTS AND NON-COMPLIANCES

Environmental incidents are reported using the Rasp Incident Reporting Procedure BHO-SAF-PRO-101. BHO maintains a Pollution Incident Response Management Plan BHO-ENV-PLN-002 on the CBH website in accordance with EPA requirements.

The Pollution Incident Response Management Plan was tested and updated in October 2024, in accordance with the requirements of EPL 12559.

There were six reportable incidents/non-compliance during the reporting period.

1) TEOM2 BAM2 Data Loss - 8 January 2024 - INX 9505 (Ref MP07_0018-PA-70)

At approximately 7:00pm on 7 January 2024 power was lost to monitoring equipment located on Embankment 2 of TSF2 Blackwoods Pit. Power was not restored until 7:45am on 8 January 2024. As TEOM2 was not collecting data for 12.5 hours, the data capture from TEOM2 for the 24- hour period was below the required 75% or 18 hours.

This event is in non-compliance with PA 07_0018 Schedule 3 Condition 3 Table 2 requirements for PM10 measurements to be collected over an averaging period of 24 hours.

Environmental harm was not likely to have occurred. The power loss and subsequent data loss occurred during a time where Broken Hill was experiencing severe weather event, including 92.4mm of rain across 6 and 7 January recorded at the BoM Broken Hill Airport. During the period for which TEOM2 and BAM2 were without power, wind speeds averaged 9.6km/h. Low wind speeds and above average rainfall suggests minimal lift off would have occurred.

Actions taken:

- TEOM Monitoring TARP reviewed and updated where required because of this event.
- Confirmed alerts and recipients with Acoem who provide external monitoring of data and capture.
- Revised actions required with on-site personnel in response to data capture or dust level alerts, for those on the recipient list.

2) Holten Drive Seepage – 15 January 2024 - INX 9516 (MP07_0018-PA-74)

On 15 January 2024 during the morning inspections (approximately 6am) of the Events Pond located on the southern boundary of Rasp Mine, Mill operators found that a pump used to transfer water from the Events (Overflow) pond to Horwoods Dam had failed due to blockage during the night, resulting in the Events pond overflowing and discharging water onto the track adjacent to the Events pond. While much of the water flowed to Horwood Dam, a portion has ponded next to the Events pond on the boundary track and has subsequently seeped through the external boundary bund adjacent to Holten Drive, discharging approximately 5,000L of water off site. Once identified, additional pumps were installed to dewater the Events pond, and a liquid vacuum truck was engaged to remove water from the track. Samples were taken of the seepage external to the site and water on the boundary track.

Environmental harm was likely to occur as the seepage was contained to the drainage channel and the flow ceased in short order. Once water had been removed from the boundary track the liquid vacuum truck extracted the water that had collected off site and returned it to site for disposal. The seepage water flowed approximately 150m to the boundary of Mawsons Quarry and no further. No impact to plant life or wildlife was observed and is not likely as the seepage water did not impact local water ways or pool in areas with plant growth. In addition, historic mining activities have likely contributed to the elevated mineral levels in the soil in this area.

Corrective Actions

In response to the incident BHOP has conducted an incident investigation and several corrective actions have been identified, including:

- Installed pipelines for the transfer of water from the Process Pond directly to Horwoods Dam with at least two pumps installed to provide redundancy.
- Updated the TSF2 Operations and Maintenance Manual to provide instruction on where and how to remove the TSF2 supernatant water.
- Updated the Extreme Weather Trigger Action Response Plan (TARP) for the inspection of selected ponds following weather events and dewatering as required.
- Elevated the boundary track and graded the camber of the road to direct water back to site and away from boundary bunds.
- Installation of electrical supply at the Events pond for the operation of float-initiated electric pumps to automatically transfer water from the Events pond to Horwoods Dam and maintain the Events pond in an empty state.
- Utilise specialist consultants to review impacted areas to determine remediation requirements and implement as required.

Inspections of the impacted area following the incident indicated there were no adverse effects to flora or fauna in the vicinity.

3) TEOM2 PM_{10} limit exceedance – 25 January 2024 - INX 9547 (MP07_0018-PA-73)

PM10 dust levels at TEOM2 exceeded the PA07_0018 Schedule 3 Condition 3 limit for PM_{10} dust in the 24-hour period of 26 January 2024. A dust storm occurred between 6pm and 11pm with average wind speeds up to 54.2km/hr during the dust storm. The wind direction during the dust storm was from the South/Southwest. The 24-hour average of PM10 data for TEOM2 on 25 January was 100.6ug/m^3 (to be validated by Acoem ERS) exceeding the allowable level of 50ug/m^3 PM_{10} dust averaged over a 24-hour period as specified by PA07_0018 Schedule 3 Condition 3. This includes dust that may be contributed from regional sources due to the dust storm but as the levels recorded at TEOM1 (to the South of TSF2 and TEOM2) were lower it is assumed much of the dust recorded at TEOM2 originated on TSF2.

No tails harvesting activities were being undertaken in the evening period. Numerous alarms were provided by the Acoem Airodis monitoring system from 7:58pm to approx. 10pm for both TEOM1 and TEOM2 and inspections of TSF2 were carried out to confirm no works were being conducted on the TSF. The watercart could not be operated on the TSF, and tailings stockpile this late in the day. The watercart was reinstated the following morning to control loose dust whilst tailings harvesting activities occurred.

The TSF2 surface is treated with Dust Binder (dust suppressant) in anticipation of wind events that may result in dust liftoff and has proven successful in controlling dust liftoff during recent high wind events.

Alarms for elevated dust levels provided by the Acoem Airodis system were reported during the dust storm but it was upon review of the 25 January 2023 TEOM2 PM10 data on the morning of 26 January 2024 that it was determined the 24-hour average for 25 January had potentially exceeded the 24-hour limit for PM10 specified in PA07_0018 Schedule 3 Condition 3. Acoem ERS reviewed and validated the monitoring data.

No complaints were received from the public or nearby residents concerning the generation of dust in this period.

The PM2.5 limit for the 24-hour period as measured at the co-located BAM unit was not exceeded.

4) Baghouse Type 1 and 2 substances exceedance - INX 9682 (MP07_0018-PA-76)

Monitoring results of dust levels at the Crusher Baghouse exceeded the Type 1 and 2 Substances criteria of 1mg/m^3 specified by PA07_0018 Schedule 3 Condition 4 with a result of 1.124mg/m^3. Type 1 and 2 substances refers to a total concentration of the elements antimony, arsenic, cadmium, lead, mercury, beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium. Manganese appears to be the element present in elevated levels. This event is non-compliant with PA07_0018 Schedule 3 Condition 4 *Table 5 Discharge Criteria for Point 2 – Process Enclosure/Baghouse Stack*, and EPL 12559 Condition L2. The non-compliance was detected upon review of the monitoring provided by Assured Monitoring on 16 April 2024.

The laboratory analysing Assured Environmental's samples conducted a re-analysis of the sample confirming elevated levels of Manganese and ruled out contamination from Potassium Permanganate which is used in the sample train to collect Mercury. An assay of the ore feed to the crusher on 5 March 2024 showed Manganese was present in very low quantities, much lower than Lead and Zinc. BHO determined it is possible that the sample may have been contaminated by spalling from the Manganese-steel crusher jaws which were in operation at the time.

The crusher jaws were replaced on 6 May 2024 reducing the chances of a similar occurrence contaminating future samples.

Sampling of the Mill Baghouse on 22 May 2024 returned results for Type 1 and 2 Substances of 0.110mg/m^3 indicating a return to low levels

While operating, the crusher is inspected daily by Mill operators, and weekly by environmental staff monitoring the Sintrol real-time dust monitor. No dust has been observed being emitted from the baghouse exhaust.

TSP dust levels were very low at the time of monitoring and well below the limit of 20mg/m^3 at 3.2mg/m^3.

No environmental harm was observed.

5) TEOM2 PM_{10} limit exceedance – 19 March 2024 - INX 9636 (email submission)

The 24-hour average of PM_{10} data for TEOM2 on 19 March was 64ug/m^3 (validated by Acoem ERS) exceeding the allowable level of 50ug/m^3 PM_{10} dust averaged over a daily 24-hour period as specified by PA07_0018 Schedule 3 Condition 3. Strong winds blew from the South and SSW from 7:30pm and continued past midnight, with wind gusts recorded by BOM of up to 48km/hr.

No tails harvesting activities were being undertaken in the evening period. Numerous dust level alarms were provided by the Acoem Airodis monitoring system from 9:08pm for TEOM2 and inspections of TSF2 were carried out to confirm no works were being conducted on the TSF. The watercart could not be operated on the TSF and tailings stockpile that late in the day. Site watercarts were tasked the following day to target all TSF surfaces which could be safely accessed.

TSF2 surface is treated with Dust Binder (dust suppressant) in anticipation of wind events that may result in dust liftoff and has proven successful in controlling dust liftoff during recent high wind events. Rainfall on 17 and 18 March may have compromised the dust suppressant previously applied to the tailings stockpile surface and Total Ground Control dust suppressant will be applied a soon as practicable.

No complaints were received from the public or nearby residents concerning the generation of dust in this period.

The $PM_{2.5}$ limit for the 24-hour period as measured at the co-located BAM unit was not exceeded.

6) TEOM2 PM_{10} limit exceedance – 20 March 2024 - INX 9637 (email submission)

PM_{10} dust levels at TEOM2 exceeded the PA07_0018 Schedule 3 Condition 3 limit for PM_{10} dust in the 24-hour period of 20 March 2024. Strong winds began to blow from the South and SSW from 7:30pm on the previous evening (19 March) and continued into the morning, with wind gusts recorded by BOM of up to 57km/hr on the morning of 20 March.

Tails harvesting activities were being undertaken in the SW corner of Cell 2 of TSF2 but were not the source of dust as the watercart was applying water to the area being worked. Water carts attempted to access the NE corner of Cell 2 where dust lift-off appeared to be occurring but could not do so due to the risk of getting bogged. The water carts instead watered the surrounding embankments and sprayed water as far into the Cell as possible.

Numerous dust level alarms were provided by the Acoem Airodis monitoring system from 9:08pm on 19 March for TEOM2. By 3:30pm on 20 March, dust levels had reduced significantly along with the reduction in gusting winds.

No complaints were received from the public or nearby residents concerning the generation of dust in this period.

The $PM_{2.5}$ limit for the 24-hour period as measured at the co-located BAM unit was not exceeded.

7) TEOM2 Failure to monitor/vandalism – 6 May 2024 – INX 8275 (MP07_0018-PA-77)

At approximately 12:40am on 6 May 2024 an unidentified individual disconnected power to the TEOM2 enclosure situated on Embankment 2 of TSF2 Blackwoods Pit. The rear access panel on the TEOM enclosure was removed and the modem and air compressor were stolen from the enclosure. As a result, the TEOM was unable to monitor PM_{10} dust levels until a spare air compressor was installed and the TEOM resumed monitoring at 10am

As TEOM2 was not collecting data for 9 hours and 20 minutes, the data capture from TEOM2 for the 24-hour period was below the required 75% or 18 hours.

A spare air compressor was installed to enable the TEOM to resume air sampling.

Additional chains and padlocks were fitted to the rear panel to make it harder to remove.

Environmental harm is not likely to have occurred as the average PM10 dust level measured at the nearby back-up PM_{10} monitor was 2.87 mg/m^3, and the wind speed was gentle at 3.7 km/hr.

8) Dust Gauge 6 damage – 3 October 2024 – INX100033 (MP07_0018-PA-86)

During a scheduled collection and replacement of the collection jar at DG6 that took place on 3rd October, the funnel installed onto DG6 was found shattered, with numerous glass shards at the bottom of the DG6 jar. The DG6 jar itself showed no sign of damage. It was collected as per our procedure and replaced by a new dust jar and funnel. As ALS Newcastle would be conducting the analysis of DG6 content, they were contacted regarding viability of the sample, and they recommended BHO send it to them for assessment. After reception of the sample, ALS notified BHO that the sample was not suitable for analysis

The event is expected to be rare. The dust gauge is installed in a backyard and surrounded by high fence. A clean jar and a new funnel were installed in DG6.

Dust gauge jars are now replaced so that the funnels are sitting below just below the rim of the dust gauge holding can which should provide protection from an object falling on the funnel and breaking it.

9) Power outages impacting air quality monitoring – 16 to 31 October 2024 - INX 10349 (MP07_0018-PA-93)

Following the collapse of electricity transmission towers outside Broken Hill on 16 October, Broken Hill experienced interruptions to the power supplies in certain parts of the city until 31 October and during this period the NSW Government declared an Electricity Supply Emergency for the Far West region. These power interruptions impacted the operation of site air quality monitoring units for long enough periods that daily sampling was unable to be completed in the case of High Volume Air Samplers, or TEOMs and BAMs could not collect more than 75% of data in a 24-hour period. This resulted in numerous non-compliance with the requirements of PA07_0018 Schedule 3 Condition 3.

There were no mining, processing, or tailings harvesting activities taking place during this time so there is little chance of dust being produced due to these activities. The Blackwoods TSF2 sprays and site water carts were operational during this time.

No complaints were received from the public or nearby residents concerning the generation of dust in this period.

No exceedences of dust limits were recorded during this period when units were operational.

Portable, solar/battery powered PM_{10} monitors were located North and West of Blackwoods TSF2 to provide real-time monitoring and alerts of dust generated from activities on the TSF.

Power supply from portable generators has been investigated but considered unreasonable for extended periods due to the potential contamination from diesel particulates and noise impacting nearby residents.

During a scheduled collection and replacement of the collection jar at DG6 that took place on 3rd October, the funnel installed onto DG6 was found shattered, with numerous glass shards at the bottom of the DG6 jar. The DG6 jar itself showed no sign of damage. It was collected as per our procedure and replaced by a new dust jar and funnel. As ALS Newcastle would be conducting the analysis of DG6 content, they were contacted regarding viability of the sample, and they recommended BHO send it to them for assessment. After reception of the sample, ALS notified BHO that the sample was not suitable for analysis

10) Production blast firing outside approved time – 18 November 2024 – INX100075 (MP07_0018-PA-89)

A production blast was fired outside of the hours between 6:45am and 7:15pm which was in non-compliance with PA 07_0018 Schedule 3 Condition 15 Table 6.1 requirements for the restriction of production rock blasting to the hours between 6:15am and 7:15pm on any day.

The downhole shot planned for the evening of 18 November was, on the day, logged and hooked up, and the detonation communications system tested. The shotfirer tested the system once more before the planned firing at 6:40pm and found there was a faulty connection between the firing computer at the surface and the charged stope shot at 25 Level. The shotfirer drove 6 Km underground to the stope shot and repaired the connection between the detonators and computer. The shotfirer returned to the surface and at 7:24pm on 18 November 2024 the production shot at WM 25Level UHDH-Shot 3 was fired.

The investigation of this non-compliance found that for production firings at the furthest points in the mine, the firing window was too short to allow the shotfirers to attend the site and return before

the 7:15pm production firing time cut off if a fault is detected prior to firing at the preferred time of 6:45pm. The evening firing time for production blasts was moved forward to 6:30pm to enable adequate time for shotfirers to drive to, troubleshoot/repair, and return from loaded shots before the firing time cut off at 7:15pm.

The firing was approved as this was the third shot in a down hole stope. There was stope void adjacent to the shot and at the draw point of the stope. There had been some concerns with integrity of the free face of the shot being stable and a cavity monitoring survey had been undertaken prior to the shot being charged in the morning of 18 November. This was to ensure the ground conditions had not deteriorated since the prior shot and because the stope is the final one in the sequence creating a shrinking pillar. There were long downhole breakthrough holes of up to 32m in length in the shot which were charged with emulsion, boosters and detonators. While the operation has previously held over faulty shots for firing the following morning, in this case the Mine Manager's concern was that if the ground deteriorated or the gas bags which were used to plug the base of the long down holes failed, there was potential for the emulsion explosive, boosters and detonators to slump into the stope void and create a safety hazard of undetonated explosives in the stope.

Blast vibration monitored at nearby compliance monitors was well below project approval limits.

No complaints were received from the public.

11. ACTIVITIES PROPOSED IN THE NEXT REPORTING PERIOD

The following lists the proposed activities during the next reporting period:

- MOD12 works.
- Audit actions implementation.
- Waste-rock capping as specified in the Forward Program and Rehabilitation Management Plan.
- Undertake on-going maintenance and inspections of heritage buildings as required.
- Continue application of chemical dust suppressant to 'free areas' and unsealed roads.
- Stormwater pond maintenance, including sediment removal.
- TSF1 water structure construction works.