



Rasp Mine Monthly Environmental Monitoring Report February 2025



INTRODUCTION

Broken Hill Operations Pty Ltd (BHOP) [a wholly owned subsidiary of Broken Hill Mines (BHM)] owns and operates the Rasp Mine (the Mine), which is located centrally within the City of Broken Hill on Consolidated Mine Lease 7 (CML7).

Mining has been undertaken within CML7 since 1885. The existing operations at the Rasp Mine include underground mining operations, a processing plant producing zinc and lead concentrates and a rail siding for concentrate dispatch. These operations are undertaken in accordance with Project Approval 07_0018 under Part3A of the Environmental Planning and Assessment Act 1979 (EP&A Act).

As the holder of an Environmental Protection Licence, 12559, BHOP is required, under Section 66(6) of the NSW *Protection of the Environment Operations Act 1997*, to publish pollution monitoring data. In addition, BHOP is required to publish data in accordance with its Project Approval 07_0018 Schedule 4 Condition 9. These documents can be found on the Broken Hill Mines web pages at www.coolabahmetals.com.au/sustainability-1.

TABLE OF CONTENTS

1	AIR	QUALITY	
	1.1 1.2	High Volume Air Samplers Tapered Element Oscillating Microbalance Sampling (TEOM)	
	1.3	DUST DEPOSITION SAMPLING	
	1.4	VENTILATION OUTLETS AND BAG HOUSE MONITORING	17
2	NOI	SE	19
	2.1	BLASTING (VIBRATION AND OVERPRESSURE)	19
	2.2	Noise	20
3	WAT	TER	21
3	WA 1 3.1	TER	 21
3	WA 1 3.1 3.2	TER Groundwater Surface Water Sample Record	
3	WA1 3.1 3.2 WEA	TER Groundwater Surface Water Sample Record	21 21 21 22 22 23
3 4 5	WA1 3.1 3.2 WEA DAT	TER GROUNDWATER SURFACE WATER SAMPLE RECORD ATHER DATA A LOG	21 21 22 23 23
3 4 5 6	WAT 3.1 3.2 WEA DAT COR	TER GROUNDWATER SURFACE WATER SAMPLE RECORD ATHER DATA A LOG RECTION LOG.	21 22 22 23 23 26 26



1 Air Quality

Table 1 below shows the following pollutants as listed in the Project Approval DA 07_0018 are required to be monitored in EPL 12559:

Table 1: EPL 12559 monitoring criteriaLong Term Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion
Total solid particles (TSP)	Annual	90 µg/m³
Particulate matter < 10 µm (PM ₁₀)	Annual	25 μg/m³

Short Term Criterion for Particulate Matter

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m³

Long Term Criteria for Deposited Dust

Pollutant	Averaging Period	Maximum Project Contribution	Maximum Total Deposited Dust Level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

1.1 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. A map indicating these locations can be found in appendix 1. HVAS and HVAS3 sample for total suspended particulates (TSP) and lead dust, and HVAS1 and HVAS2 sample for particulate matter less than 10 microns (PM₁₀) and lead dust.

TABLE 2: HVAS (EPL10) - Silver Tank (On Site) Results for February 2025

DATE	TSP	Lead
	(µg/m³)	(µg/m³)
04-Feb-25	78.2	0.164
10-Feb-25	63.2	0.042
16- Feb-25	45.7	0.056
22- Feb-25	109	0.298
28- Feb-25	65.2	0.191

HVAS (EPL10) is located on the southern boundary of Rasp Mine and while limit criteria do not apply at this point, they do apply at the closest residential location.





Figure 1: HVAS TSP measurements 12-month overview

TSP dust results at HVAS for the month of February were on average slightly lower than measurements from previous month (see figure 1). The highest TSP result of 109 μ g/m³ sampled on the 22 February is the highest value measured during the last 12 months. The wind sensor from the on-site weather station indicated that winds were predominantly blowing from the North-NNE (mostly moderate to fresh breeze) as shown in Figure 2 below. A regional dust storm on this day may have contributed to the high dust level. Water carts apply water to site roads daily and dust suppressant is applied to free areas and unsealed roads. The annual rolling average for TSP at this location is 39.4 μ g/m³ at the end of February, slightly higher than the average of 37.3 μ g/m³ at the beginning of March 2024.



Broken Hill Operations Pty Ltd - Wind Rose 22 February 2025

The annual rolling average for TSP is determined using data with extreme dust events included.

Frequency of counts by wind direction (%) Figure 2: Wind rose for 22 February





Figure 3: Lead in HVAS TSP measurements 12-month overview

TSP Lead dust results at HVAS for the month of February were on average similar to previous months but showed higher variation (see figure 3 above). The highest TSP Lead level for February was $0.3 \ \mu g/m^3$ on 22 February when strong winds were predominantly from the North. It is likely that the TSP Lead sampled on 22 February has originated from on-site. Water carts apply water to site roads daily and dust suppressant is applied to free areas and unsealed roads.

The rolling annual average for TSP Lead in February 2025 was 0.13 μ g/m³, lower than the rolling annual average of 0.18 μ g/m³ for TSP Lead at the end of February 2024.

DATE	ΡΜ ₁₀ (μg/m³)	PM ₁₀ Lead (μg/m³)
04-Feb-25	17.4	0.023
10-Feb-25	15.8	<0.007
16-Feb-25	12.0	0.010
22-Feb-25	37.2	0.071
28-Feb-25	14.9	0.060

HVAS1 (EPL11) - Silver Tank (On Site) Results for February 2025

HVAS1 (EPL11) is located on the southern boundary of Rasp Mine and while limit criteria do not apply at this point, they do apply at the closest residential location.





Figure 4: HVAS01 PM10 measurements 12-month overview

 PM_{10} dust results at HVAS1 for the month of February were on average similar than in previous month. The highest PM_{10} dust level of $37\mu g/m^3$ for both February and the last 12 months, was also measured on 22 February (see figure 4 above).

PM10 concentrations are also continuously monitored by two TEOM-type monitors located in the South (TEOM1, outside mine premises) and in the North (TEOM2, on the boundary of mine premises) of the mine (see section 1.2 for details). Figure 5 below shows measurements from both TEOMs on 22 February. Both instruments detected high PM10 concentrations, with hourly averages relatedly above 50 μ g/m³ confirming the measurements collected by the Hi-Vol samplers and implying that the source was external to the mining site.

Water carts apply water to site roads daily and dust suppressant is applied to free areas and unsealed roads. The annual rolling average for PM_{10} dust at this location is 8.7 µg/m³ at the end of February 2025, lower than the annual rolling average at the beginning of February 2024 which was 13.5 µg/m³. External and extreme dust events are recorded in measurements.









Figure 6: Lead in HVAS01 PM10 measurements 12-month overview

 PM_{10} Lead dust results at HVAS1 in the month of February were on average similar to measurements from previous month. The highest Lead PM_{10} result for February was 0.07 μ g/m³ on 22 February when winds were predominantly from the North suggesting contribution from site sources. Water carts apply water to site roads daily and dust suppressant is applied to free areas and unsealed roads. The rolling annual average for PM_{10} Lead in February was 0.03 μ g/m³, lower than the average of 0.06 μ g/m³ in February 2024.

DATE	ΡΜ ₁₀ (μg/m³)	PM ₁₀ Lead (μg/m³)
04-Feb-25	18.0	0.050
10-Feb-25	21.3	0.023
16-Feb-25	13.8	0.050
22-Feb-25	33.6	0.091
28-Feb-25	18.3	0.266

HVAS 2 (EPL12) – Blackwood Pit (On Site) Results for February 2025





Figure 7: HVAS02 PM10 measurements 12-month overview

HVAS2 (EPL12) is located on the northern boundary of Rasp Mine and while limit criteria do not apply at this point, they do apply at the closest residential location.

HVAS02 PM10 measurements in the month of February were on average similar to measurements from previous 2 months, higher than levels measured during winter season. The highest recorded PM₁₀ dust reading for February was 33.6 μ g/m³ on 22 February when winds were from the North suggesting contribution from off-site sources. The annual rolling average for PM₁₀ dust at this location is 9.8 μ g/m³ at the end of February, down from 13.2 μ g/m³ in February 2024. The decrease is clearly impacted by the low values measured during the previous 2 seasons (see Figure & above).

The annual rolling average for PM₁₀ dust is determined using data with extreme dust events included.



Figure 8: Lead in HVAS02 PM10 measurements 12-month overview



 PM_{10} lead levels in February are similar to those from the last two months, but significantly higher than those measured during winter period. The highest recorded PM_{10} Lead dust reading for February was 0.27 µg/m³ on 28 February when winds were from the South (see figure 9 below) suggesting contribution from site activities. The surface of Blackwoods TSF2 is treated with dust suppressant and the TSF spray system has been installed and is operational. The rolling annual average for PM_{10} Lead in January was 0.05 µg/m³, down from 0.09 µg/m³ in January 2024.



Broken Hill Operations Pty Ltd - Wind Rose 28 February 2025

Frequency of counts by wind direction (%)

Figure 9: Wind rose for 28 February

HVAS 3 (EPL57) – Blackwood Pit (On Site) Results for February 2025

DATE	TSP	Lead
	(µg/m³)	(µg/m³)
04-Feb-25	63.9	0.299
10-Feb-25	69.8	0.117
16-Feb-25	48.6	0.499
22-Feb-25	78.4	0.211
28-Feb-25	70.1	1.92





Figure 10: HVAS03 TSP measurements 12-month overview

TSP levels at HVAS3 were highest on 22 February with a result of 78.4 μ g/m³, when winds were blowing from the South (see Figure 10 above). This suggests there may have been contribution from TSF2. The surface of Blackwoods TSF2 is treated with dust suppressant and the TSF spray system has been installed and is operational. The annual rolling average for TSP dust at this location is 36.3 μ g/m³ at the end of February, slightly down from 43.2 μ g/m³ in February 2024.

The annual rolling average for TSP is determined using data with extreme dust events included.



Figure 11: Lead in HVAS03 TSP measurements 12-month overview

TSP Lead levels in February were lower than those from previous month, except for that of 28 February. This result of $1.9 \,\mu\text{g/m}^3$ was also the highest for the last 12 months. It was sampled when winds were from the South (see Figure 11 above), suggesting contribution from site activities. The rolling annual average for TSP Lead in February was 0.30



 μ g/m³, slightly down from 0.34 μ g/m³ in February 2024. The surface of Blackwoods TSF2 is treated with dust suppressant and the TSF spray system has been installed.

1.2 Tapered Element Oscillating Microbalance Sampling (TEOM)

There are two Tapered Element Oscillating Microbalance (TEOM) monitoring units used to measure ambient air quality at the Rasp Mine – TEOM1 (EPL13) is located off-site within the perimeter fence of Essential Water south of the mine lease, and TEOM2 (EPL14) is located on-site adjacent to Blackwood Pit to the north of the mine lease. A map indicating these locations can be found appendix 1. TEOM1 and TEOM2 are designed to operate continuously and monitor concentrations of particulate matter less than 10 microns (PM₁₀) in size with a time resolution of five minutes.

Project Approval 07_0018 criteria apply at TEOM1 and TEOM2, with two criteria listed for PM10, a 24-hour average criteria of 50 ug/m³ and an annual average criteria of 25 ug/m³. Both Project Approval and Environment Protection Licence criteria exclude dust storms and other extraordinary events.

TEOM data is validated by third party NATA-accredited consultants using Australian Standards and internal procedures, and is used to populate the table of TEOM monthly data provided below.



Validated hourly data outputs from both instruments are shown in Figure 12 below.

Figure 12: TEOM1 and TEOM2-Raw hourly-averaged PM10 concentrations

PM10 concentrations exceeded 100 μ g/m³ during three episodes this month: 2, 13 and 22 February. Figure 12 shows in more details the measurements obtained on 2 February. The wind rose gathers wind sensor data measured between 12:00 and 16:00 on that day, at the time when high PM values were measured at both site 1 and 2 (maximum measured PM10 concentration of 513 μ g/m³ at site 2 at 14:00). It clearly shows that the predominant winds blew from the North and brought in dust measured by TEOM2 from sources external to the site.





Figure 13: TEOM and wind sensor measurements on 02 February

The second high dust episode took place between 13 and 14 February. Measuring results from that period are shown in Figure 14. The wind was mainly blowing from the South with fresh to strong breeze intensity. Although the predominant wind direction suggests an on-site origin of the dust measured by TEOM2, the very similar dust levels detected by TEOM1 indicate that most of this dust originated from outside the site.



Figure 14: TEOM and wind sensor measurements on 13 February

The last episode (22 February) was already discussed in section 1.1.



TEOM1 (EPL13) (Off Site) and TEOM2 (EPL14) (On Site) Validated Results for February 2025

Particulate Matte	er <10 Microns 2	4Hr Average		
Date	TEOM 1 (μg/m³)	Compliant with 50µg/m³ 24hr average?	TEOM 2 (μg/m³)	Compliant with 50µg/m³ 24hr average?
1/02/2025	23.6	Y	33.3	Y
2/02/2025	13.7	Y	28.5	Y
3/02/2025	13.2	Y	17.5	Y
4/02/2025	16.4	Y	14.7	Y
5/02/2025	3.2	Y	8.1	Y
6/02/2025	13.1	Y	9.4	Y
7/02/2025	19.3	Y	17.2	Y
8/02/2025	15.5	Y	15	Y
9/02/2025	24.5	Y	24.6	Y
10/02/2025	14.8	Y	16.4	Y
11/02/2025	15.7	Y	21.2	Y
12/02/2025	16.2	Y	11.0	Y
13/02/2025	22.5	Y	16.7	Y
14/02/2025	15.8	Y	16.5	Y
15/02/2025	21.7	Y	22.6	Y
16/02/2025	15.5	Y	13.4	Y
17/02/2025	16.4	Y	14.6	Y
18/02/2025	18	Y	27.5	Y
19/02/2025	18.1	Y	21.8	Y
20/02/2025	15.5	Y	22.8	Y
21/02/2025	21.3	Y	18	Y
22/02/2025	24.5	Y	18.2	Y
23/02/2025	13.1	Y	11.1	Y
24/02/2025	20.0	Y	20.4	Y
25/02/2025	18.7	Y	19.4	Y
26/02/2025	16.6	Y	28.8	Y
27/02/2025	19.7	Y	28.5	Y
28/02/2025	17.7	Y	25.4	Y

NA - sample collected but data invalid; NS – insufficient sample collected

The data capture rate for the TEOM1 and TEOM2 monitors in February were respectively 98.6% and 99.6%, both exceeding the 95% requirement.

The rolling annual average for PM10 at TEOM1 with external dust events and invalid data removed for the period February 2024 to February 2025 is 12.5 μ g/m³, higher than the rolling annual average of 12.3 μ g/m³ at the beginning of the annual period.

The rolling annual average for PM10 at TEOM2 with external dust events and invalid data removed for the period February 2024 to February 2025 is 13.6 μ g/m³, similar to the rolling annual average of 13.5 μ g/m³ at the beginning of the reporting period.



Data collected for the dates of 2,4 to 6,8,10, 13 to 14, 18 to 19, 21 to 23 and 25 February have been corrected due to the impact from dust storms and external events.

Six-monthly servicing of TEOMs was conducted from 11 to 12 December. A portable PM₁₀ monitor is located adjacent to TEOM2 to provide real-time dust readings and dust level alerts whilst the TEOM was undergoing servicing and testing.

The PM₁₀ 24-hour rolling annual average for both TEOM sites remain below the annual average criteria of 25 ug/m³.



Figure 15: Site 1 and site 2 PM10 24-hour averaged measurements





Figure 16: Site 1 & 2 - Annual rolling average PM10 measurements 12-month overview

1.3 Dust Deposition Sampling

There are seven dust deposition gauges to measure ambient air quality at the Rasp Mine – D1 to D7. 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. A map indicating these locations can be found on the Rasp Mine web site. Dust samples are collected monthly and analysed for total deposited dust and deposited lead dust.

Total Deposited Dust (g/m ² .Month)							
Sample Period	D1 (off site)	D2 (off site)	D3 (on site)	D4 (off site)	D5 (on site)	D6 (off site)	D7 (on site)
February 2025	1.4	0.5	0.9	1.4	1.5	1.6	2.0
Annual Rolling Average	0.74	0.87	0.94	2.6	1.48	1.54	0.87
Background (2010)	4.0	3.1	4.3	5.7	-1	5.8	-1

Dust Deposition Gauges D1 (EPL3) to D7 (EPL9) – Results for February 2025

Note: "1"= background not available, N/A = not applicable as dust deposition unit is located on site, NS = No sample





Figure 17: Total deposited dust collected by 7 dust gauges - 12-month overview

All dust levels recorded in Dust Gauges in February 2025 were significantly lower than the previous month, except for D1 that collected the very same concentration. The highest dust levels in February were recorded in the D7 Junction Mine gauge. The predominant wind direction for February was from the South as shown in the Wind Rose in Section 4. All results for this month were quite homogeneous and relatively low, below or equal to 2 g/m².month.

Dust Deposition Gauges that are located off-site must adhere to criteria for annually averaged deposited dust of 4 g/m².month.

Dust suppressant is applied to unsealed areas of the site and roads are frequently watered using water carts in an attempt to control dust emissions. The waste dump adjacent to the rail loadout is treated with dust suppressant to capture any loose dust accumulating on the lower batters and on the upper surface.

Total Deposited Lead (g/m ² .Month)							
Sample Period	D1 (off Site)	D2 (on site)	D3 (on site)	D4 (on site)	D5 (on site)	D6 (off Site)	D7 (on site)
February 2025	0.0005	<0.0001	0.0006	0.0009	0.0033	0.0109	0.0819
Background (2010)	0.0034	0.005	0.005	0.006	-1	0.004	-1

Note: "1"= background not available, NS = No sample

There are no guidelines for deposited lead dust. Lead results in February 2025 were highest in the D6 Casuarina Ave gauge, with a value of 0.0109 g/m².month. A higher value was recorded at D7 Blackwoods but the result is not considered final as the laboratory in charge of chemical sample analysis was requested to reanalyse the sample. Hence, the result is not shown on figure 17 below. The predominant wind direction for February was from the South as shown in the Wind Rose in Section 4, with Southerly or East winds blowing during more than 75% of the month. The odds to get a contribution of site activities with such meteorological conditions are therefore considered very low.



Dust suppressant is applied to unsealed areas of the site and roads are frequently watered using water carts in an attempt to control dust emissions. The waste dump adjacent to the rail loadout is treated with dust suppressant to capture any loose dust accumulating on the lower batters and on the upper surface.



Figure 17: Lead deposited dust collected by 7 dust gauges - 12-month overview

1.4 Ventilation Outlets and Bag House Monitoring

There are two locations to measure pollutants from exhausts or stacks; these include the Primary Ventilation Shaft, measuring pollutants from underground firings, and the Baghouse Stack at the crusher measuring dust. Each are located on site; the Primary Ventilation Shaft is located centrally and to the north of the mine lease and the Primary Crusher Baghouse Stack is located within the area of the processing plant to the east of the lease. Shaft 6 (EPL56) was removed as a monitoring location with the variation of EPL12559 in March 2019 as it became an intake rather than an exhaust in June 2018. A map indicating these locations can be found on the Rasp Mine web site. Samples are collected quarterly and analysed for a number of parameters listed in below. Reference to the item required in the Rasp Mine Environment Protection Licence (EPL) is provided below. Emissions monitoring is conducted quarterly.

The following criteria apply:

Primary Ventilation Shaft (EPL1)

	Unit	Criteria
Nitrogen Oxides	mg/m ³	350
Volatile Organic Compounds	mg/m ³	40

Primary Ventilation Shaft (EPL1) and Crusher Baghouse (EPL2)

	Unit	Criteria
Total Suspended particles (TSP)	mg/m ³	20
Type 1 and Type 2 ¹	mg/m ³	1



Note 1: "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.

Primary Vent Shaft (EPL1) and Crusher Baghouse (EPL2) Results for February 2025

The latest round of emissions monitoring was conducted at the Primary Vent Shaft (EPL1) and the Crusher Baghouse (EPL2) between 26 and 27 November 2024. Results were within limits and are provided below.

Parameter	Unit	Primary Vent Shaft (EPL1)	Crusher Baghouse (EPL2)
Dry Gas Density	kg/m ³	1.29	1.29
Moisture	%	1.80	2.3
Molecular weight of stack gases	g/m³	1,288	1,288
Temperature	°C	26.0	23.0
Nitrogen Oxides	mg/m³	2.05	NA
Volatile Organic Compounds	mg/m³	0.51	NA
Total Suspended particles	mg/Nm³	5.48	11.20
Type 1 and Type 2	mg/Nm³	0.050	0.14
Velocity	m/sec	11.1	22.9
Volumetric Flowrate	Nm ³ /sec	172	8.9



2 Noise

2.1 Blasting (Vibration and Overpressure)

There are five compliance vibration monitors at various locations measuring for vibration and overpressure from blast firings. These include V1 to V5 which are located on-site and off-site. A map indicating these locations can be found on the Rasp Mine web site. In addition, there are a number of roving monitors which may be used to monitor vibration and overpressure at particular locations as required. Monitors operate continuously and are automatically triggered to record when a blast occurs. The following conditions apply as listed in the PA 07_0018 and EPL 12559:

Blasting Criteria (Western Mineralisation and Main Lodes excluding Block 7)

Location	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (mm/s)	Allowable Exceedance (for production and development blasts)
Residence on privately			5% of the total number
owned land	115	5	of blasts over a 12-month
(7am-7pm)			period ¹
(7am-7pm)	120	10	0%
(7pm-10pm)	105	-	-
(10pm-7am)	95	-	-
Public Infrastructure	_	100	0%

Note 1: Does not apply until completion of Pollution Reduction Program on the EPL at the end of 2018. Applies to EPL criteria in the period for the Annual Return 3 Nov to 2 Nov the following year and to DPE criteria in the reporting period 1 Jul to 30 Jun each year.

Blasting Criteria (Block 7)

Location	Airblast Overpressure (dB(Lin Peak)	Ground Vibration (mm/s)	Allowable Exceedance (for production and development blasts)		
Residence on privately owned land (7am-7pm)	115	3 (interim)	5% of the total number of blasts over a 12-month period ¹		
(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	-	100	0%		

Note 1: Applies to EPL criteria in the period for the Annual Return 3 Nov to 2 Nov the following year and to DPE criteria in the reporting period 1 Jul to 30 Jun each year.

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



Blasting Data Summary Results for January 2025 (annual period)

Total Blasts:

- 0 production blasts occurred before 6.45 am or after 7.15 pm
- The number of Production blasts averaged 1.40 per week over the previous calendar year
- The number of Development blasts averaged 2.65 per week over the previous calendar year

Western Mineralisation and Main Lodes (excluding Block 7):

- 0 Blast recorded >5 mm/s
- 0 Blasts recorded >10 mm/s
- 0 development blasts recorded an over pressure level over 95 dBL (10pm to 7am)
- 0 development blasts recorded an over pressure level over 105 dBL (7pm to 10pm)
- 0 Blasts recorded an over pressure level over 115dBL (7am to 7pm)
- 0 Blasts recorded an over pressure level over or 120 dBL at any time
- Percentage of development blasts over 5 mm/sec for the annual period = 0%
- Percentage of production blasts over 5 mm/sec for the annual period = 0%

Block 7:

- 0 Blasts recorded >3 mm/s
- 0 Blasts recorded >10 mm/s
- 0 Blasts recorded >50 mm/s at V6
- 0 development blasts recorded an over pressure level over 95 dBL (10pm to 7am)
- 0 development blasts recorded an over pressure level over 105 dBL (7pm to 10pm)
- 0 Blasts recorded an over pressure level over 115 dBL (7am to 7pm)
- 0 Blasts recorded an over pressure level over or 120 dBL at any time
- Percentage of development blasts over 3mm/sec for the annual period = 0%
- Percentage of production blasts over 3mm/sec for the annual period =100%

There have been no production blasts in the Western Mineralisation and Main Lodes producing vibration at monitors over 5 mm/sec for the 12-month period.

There have been no production blasts in Block 7 for the 12-month period.

2.2 Noise

Noise monitoring is undertaken as per the NSW Noise Policy for Industry at a frequency of once per annum. Attended environmental noise monitoring was done during the night period of 20 and 21 December 2024 at 14 monitoring locations. Noise levels from site complied with relevant limits at all monitoring locations during the December 2024 survey.



3 Water

3.1 Groundwater

There are eighteen sampling locations for groundwater. GW01 (EPL37) to GW16 (EPL52) are piezometers installed 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), which are sampled monthly. A map indicating these locations can be found on the Rasp Mine web site. Groundwater monitoring is scheduled for completion in March, June, September and December. No limits are applied in the EPL to the results from groundwater monitoring. Levels for all parameters are stable.

Ground and Mine Water Monitoring Requirements

EPA Identification Number	Frequency	Parameters to be analysed
Shaft 7 EPL53	Monthly	alkalinity (calcium carbonate (CaCO ₃)), cadmium (Cd), calcium (Ca),
Kintore Pit (U/G dewatering) EPL54	Monthly	magnesium (Mg), manganese (Mn), pH, sodium (Na), sulphate
Piezometers EPL37 (GW01) to EPL52 (GW16)	Quarterly	(SO4), total dissolved solids (TDS) and zinc (Zn)

Shaft 7 (EPL53) and Kintore Pit (EPL54) Results for February 2025

Sampl e Point	р Н	EC (μS/cm²)	TDS (mg/l)	Alkalinit y (CaCO₃) (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	Cd (mg/l)	Pb (mg/l)	Mn (mg/l)	Zn (mg/l)	Fe (mg/l)
Shaft 7 (EPL53)	7 No pumping 3)													
Kintore Pit (EPL54)	6.1	13300	1620 0	3	5320	1600	490	315	1720	2.92	1.40	389	1140	<0.05

Groundwater Bores (EPL37 - EPL52) Results for February 2025

Groundwater monitoring not scheduled in February.



3.2 Surface Water Sample Record

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. A map indicating these locations can be found in Appendix 1. Based on historical data, sampling is most likely to be undertaken in October (highest rainfall month as recorded by Bureau of Meteorology) and April.

Description	Frequency	Parameters to be Analysed	
Federation Way Culvert EPL29/S31-1	2 x per year, six months apart		
Ryan Street Dam EPL31/S49	2 x per year, six months apart	- _ cadmium (Cd)_chloride (Cl)_electrical	
Adjacent Olive Grove EPL32/S1A	2 x per year, six months apart	conductivity (EC), lead Pb), manganese	
Adjacent Bowls Club EPL33 /S9-B2	2 x per year, six months apart	total dissolved solids (TDS) and zinc (Zn)	
Horwood Dam EPL34/S34	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	-	

Surface Water Monitoring Requirements

Surface Water Results for February 2025

Sample Point	рН	EC (µS/cm²)	TDS (mg/l)	Alkalinit y (CaCO₃) (mg/l)	SO4 (mg/l)	Cl (mg/l)	Ca (mg/l)	Mg (mg/l)	Na (mg/l)	Cd (mg/l)	Pb (mg/l)	Mn (mg/l)	Zn (mg/l)	Fe (mg/I)
S34 (EPL34)	6.5 5	11200	11000	10	4240	1510	449	268	1350	2.90	3.42	233	477	<0.05
S9B-2 (EPL33)	6.7 3	648	639	35	225	32	56	8	55	0.130	0.306	3.16	12.5	<0.05
Downstrea m (EPL36)	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
S31-1 (EPL29)	6.2 3	1260	1280	6	637	16	94	10	25	1.86	2.00	44.3	189	<0.05
S49 (EPL31)	6.5 0	615	496	10	281	6	66	6	10	0.344	0.243	20.6	44.0	<0.05
S1-A (EPL31)	7.1 8	294	278	95	23	18	35	4	10	0.005 8	0.121	0.436	1.06	<0.05
Upstream (EPL35)	7.0 9	656	519	185	95	36	81	13	41	0.004 2	0.01	3.56	1.46	<0.05

Surface water samples were collected on the day following a major rainfall (27.5mm). Downstream (EPL36) was found dry.



4 Weather Data

The weather station continuously monitors the following parameters as per Point 55 of the Environmental Protection Licence.

The following parameters are required to be recorded each month as listed in the EPL 12559:

Parameter	Sampling method	Units of measure	Averaging period	Frequency
Temperature at 10 metres	AM-4	degrees Celsius	15 minutes	Continuous
Wind Direction at 10 metres	AM-4	degrees in a clockwise direction from True North	15 minutes	Continuous
Wind Speed at 10 metres	AM-4	metres per second	15 minutes	Continuous
Rainfall	AM-4	millimetres	1 hour	Continuous
Sigma theta	AM-2 & AM-4	degrees	15 minutes	Continuous

Rasp Mine Weather Station (EPL55) Monitoring Requirements

The wind rose provided below indicates that the prominent wind direction for the month of February was from the South, with more than 50% of winds blowing either from the South or from SSE. Strong winds (Near gale, Beaufort level 7) were observed less than 2% of this period, blowing either from the North or from the South





Broken Hill Operations Pty Ltd - Wind Rose February 2025

Frequency of counts by wind direction (%)



Weather Data Summary for February 2025

Date	Temperature		Wind	Speed	Predomi	Rainfall (mm)	
	@ 10	m (°C)	@ 10m	(km/hr)	Directio	on @ 10m	
•	Min	Max	Min	Max	Cardinal	Degree	- Total
01/02/2025	19.4	40	0.3	30.3	SE	125	0
02/02/2025	23.4	38.2	0.4	40.1	NNE	25	27.53
03/02/2025	24.4	34.6	0.3	31.2	NE	56	0.13
04/02/2025	26	37.7	0.3	34	NE	38	0.19
05/02/2025	22.2	34.4	0.7	27.8	S	174	0
06/02/2025	26	37.6	0.7	34.1	N	355	0
07/02/2025	25.3	37.4	0.4	50.1	NW	323	3.75
08/02/2025	19.5	32.1	1.2	37	S	174	0
09/02/2025	18.4	33	1.4	35.8	SSE	165	0
10/02/2025	20.2	33.9	1.9	33.3	SSE	168	0
11/02/2025	22.9	35.6	0.7	32	SSE	163	0
12/02/2025	26.3	37.7	0.4	25.1	ENE	78	0
13/02/2025	23.9	36.4	0.2	51.5	SSW	193	0
14/02/2025	18.1	27.9	3.9	40.7	S	190	0
15/02/2025	13.5	22.1	3.1	46.4	S	182	0
16/02/2025	11.1	21.6	2.8	39.1	SSE	163	0
17/02/2025	14.1	25.9	0.5	25	SE	136	0
18/02/2025	17.4	29.1	0.4	33.9	S	173	0
19/02/2025	15.2	25.5	2.5	36.8	S	174	0
20/02/2025	14.6	26.6	0.4	43	SSE	162	0
21/02/2025	17.1	34.3	0.3	21.5	SE	127	0
22/02/2025	25.6	37.7	2	63.4	NNE	13	3.51
23/02/2025	24.8	37	4	57.9	NNW	346	0.01
24/02/2025	17.9	30	3.4	45.8	SSE	161	0
25/02/2025	18.4	35.1	2.6	34.3	SSE	153	0
26/02/2025	26.4	38	1.4	24	SSE	153	0
27/02/2025	20.8	38.1	0.2	25.8	S	177	0
28/02/2025	23.9	37.5	0.6	26.4	S	171	0

There was a total rainfall of 35.12 mm in February 2025.



5 Data Log

Sample	Result Received
Hi-Volume Samples	19-03-2025
TEOM	28-03-2025
Dust Deposition	19-03-2025
Vents & Bag House	09-10-2024
Noise	05-12-2024
Water	28-02-2025
Blast vibration and overpressure	01-03-2025
Weather	01-03-2025
Date posted to web site	17-04-2025

6 Correction Log

No corrections.



7 Appendix 1 – Monitoring Locations

