

Rasp Mine
Monthly Environmental Monitoring Report
November 2017



INTRODUCTION

Broken Hill Operations Pty Ltd (BHOP) [a wholly owned subsidiary of CBH Resources Limited (CBH)] 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 granted 31 January 2011, 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 Rasp Mine web site.

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1 Air Quality

The following criteria as listed in the Project Approval (MOD4 6 September 2017) apply to air quality monitoring:

Long Term Criteria for Particulate Matter

Pollutant	Averaging Period	Criterion
Total solid particles (TSP)	Annual	90 µg/m ³
Particulate matter < 10 µm (PM ₁₀)	Annual	25 µg/m ³

Short Term Criterion for Particulate Matter

Pollutant	Averaging Period	Criterion
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³

Long Term Criteria for Deposited Dust

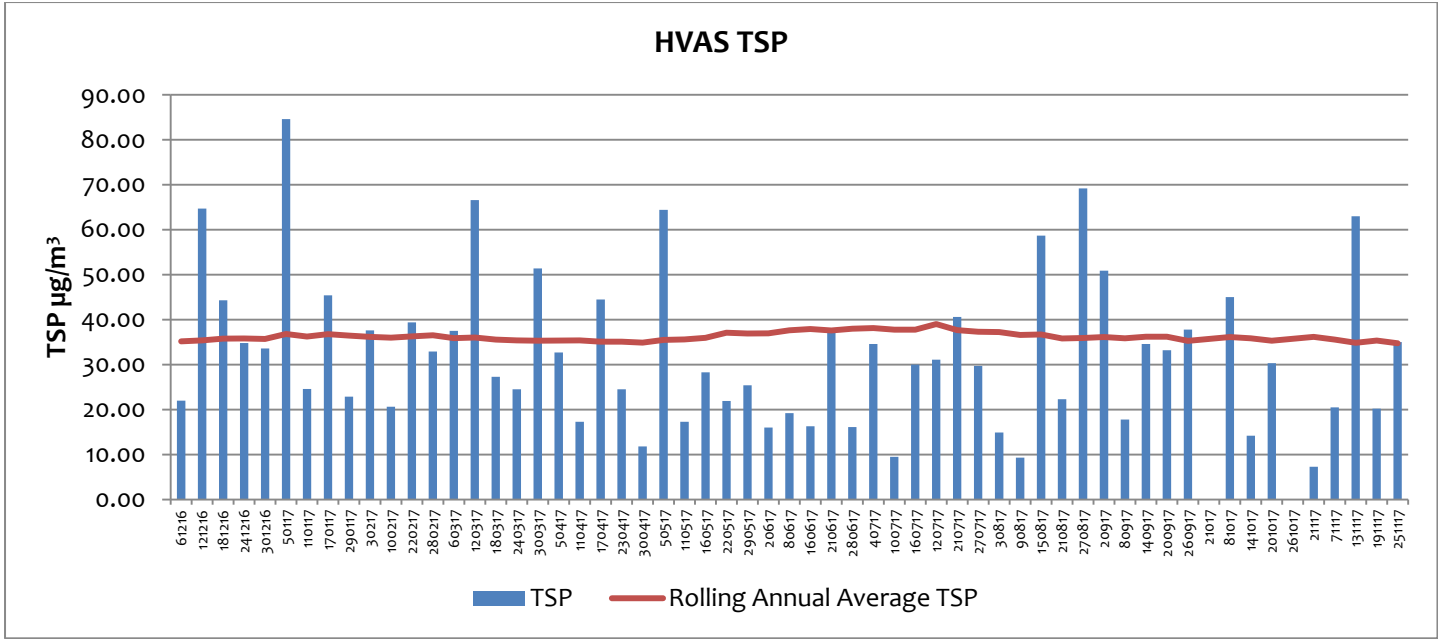
Pollutant	Averaging Period	Maximum Project Contribution	Maximum Total Deposited Dust Level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

1.1 High Volume Air Samplers

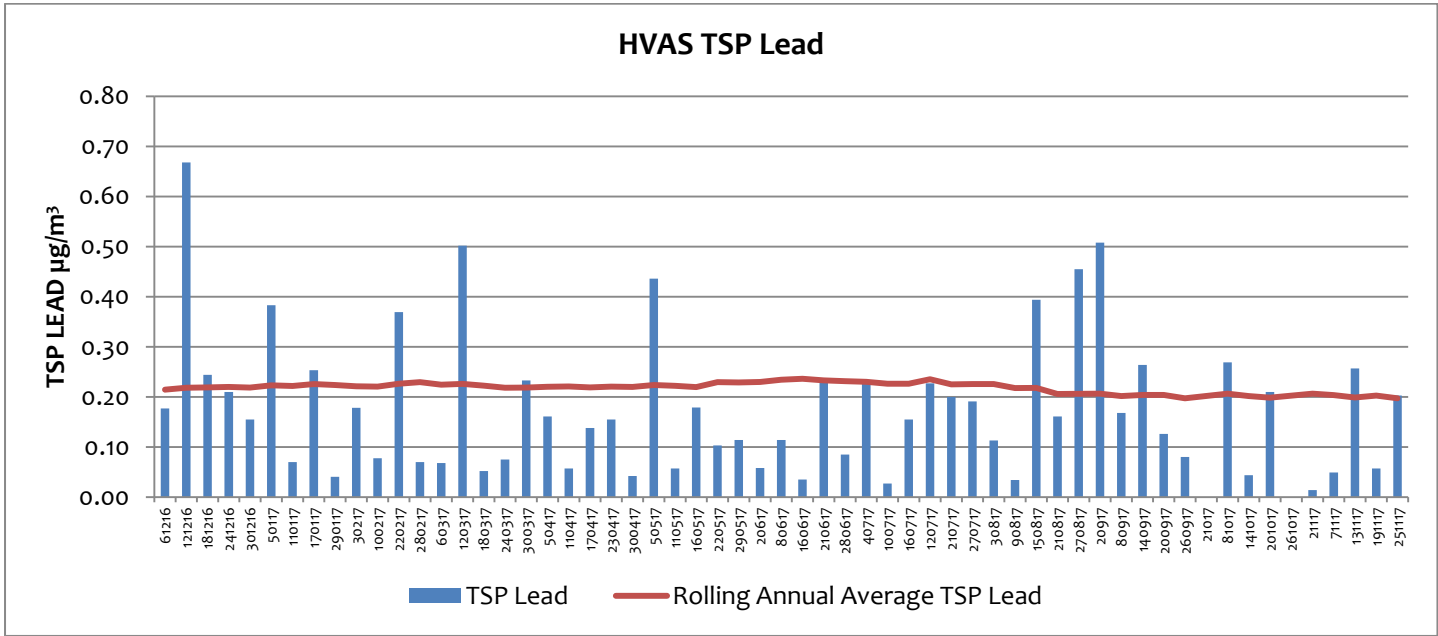
There are three high volume air samplers used to measure ambient air quality at the Rasp Mine – HVAS (EPL10) and HVAS1 (EPL11) are located at the Silver Tank, central and to the south of the mine lease, and HVAS2 (EPL12) is located adjacent to and north of Blackwood Pit. A map indicating these locations can be found on the Rasp Mine web site. HVAS samples for total suspended particulates (TSP) and lead dust, and HVAS1 and HVAS2 sample for particulate matter less than 10 microns (PM₁₀) and lead dust.

HVAS (EPL10) - SILVER TANK - ON SITE

DATE	TSP (µg/m ³)	Lead (µg/m ³)
02-11-17	7.30	0.01
07-11-17	20.50	0.05
13-11-17	63.00	0.26
19-11-17	20.20	0.06
25-11-17	35.00	0.20



This monitoring unit is located on the Rasp Mine and criteria does not apply at this point, criteria apply to the closest residential location. The data indicates that the annual average TSP for November of $35 \mu\text{g}/\text{m}^3$ is well below the TSP annual average criterion of $90 \mu\text{g}/\text{m}^3$ required for the nearest residential location.

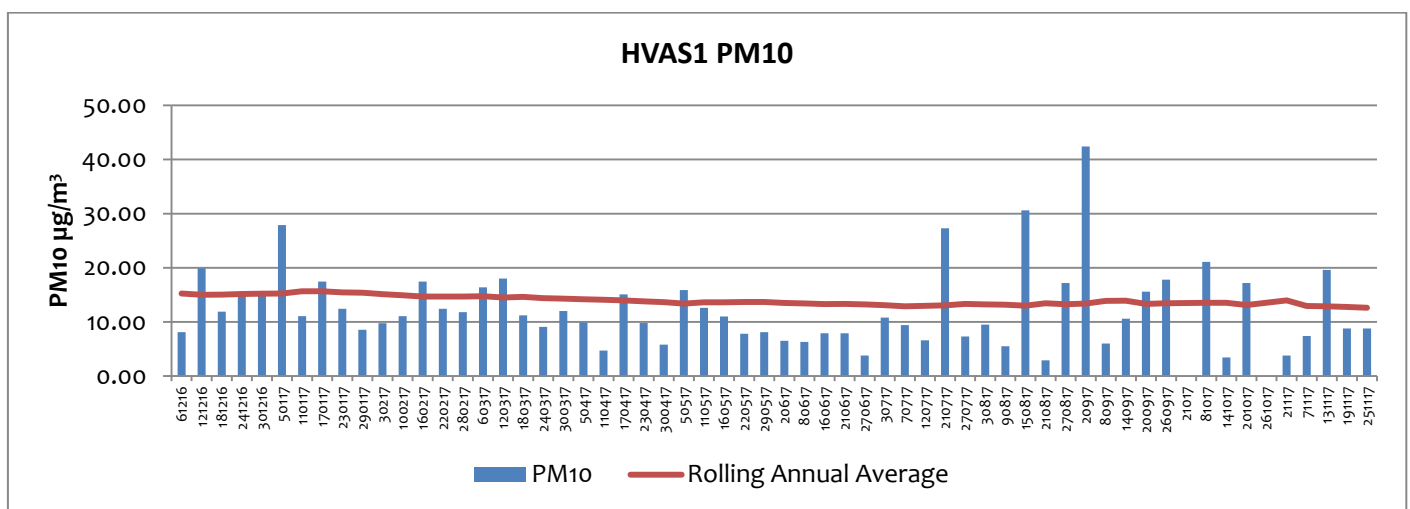


Guidelines for air quality are provided by the EPA- Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales, 2016. In regards to ambient lead dust the Rasp Mine annual average for November is below the EPA guideline of $0.50 \mu\text{g}/\text{m}^3$.



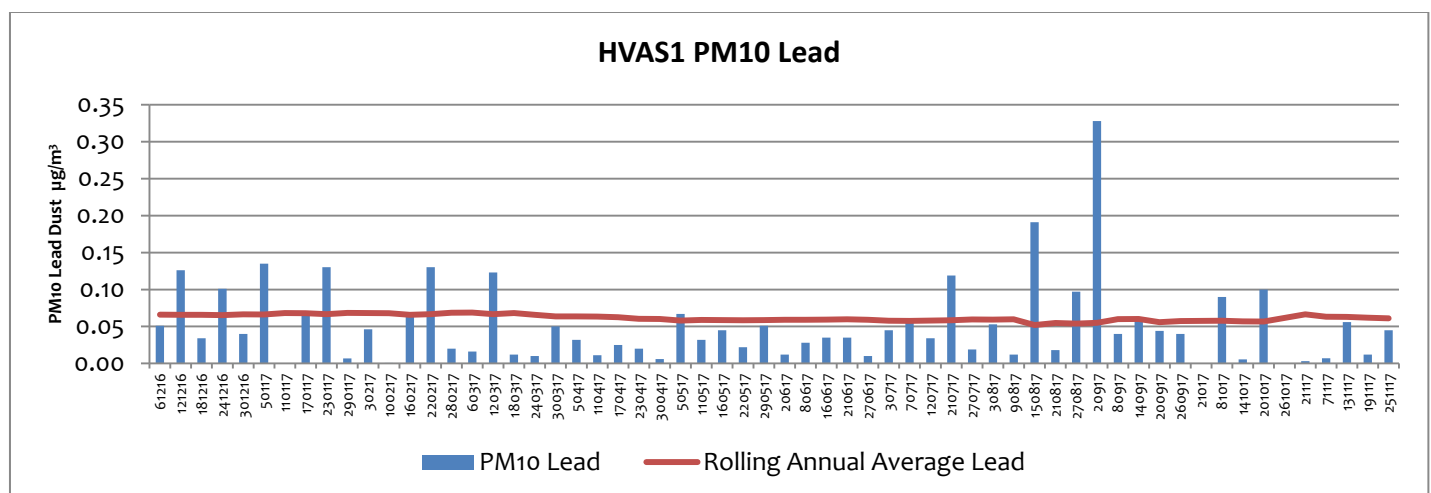
HVAS1 (EPL11) - Silver Tank - On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	PM10 Lead ($\mu\text{g}/\text{m}^3$)
02-11-17	3.80	0.00
07-11-17	7.40	0.01
13-11-17	19.60	0.06
19-11-17	8.80	0.01
25-11-17	8.80	0.05



This monitoring unit is located on the Rasp Mine mining lease and the criteria does not apply at this point, criteria apply to the closest residential location. The data indicates that the annual average PM₁₀ for November of 13 $\mu\text{g}/\text{m}^3$ is below the PM₁₀ annual average criterion 25 $\mu\text{g}/\text{m}^3$ required at the nearest residential location.

Overall the trend for PM₁₀ at this location remains consistent with the previous 12 months.

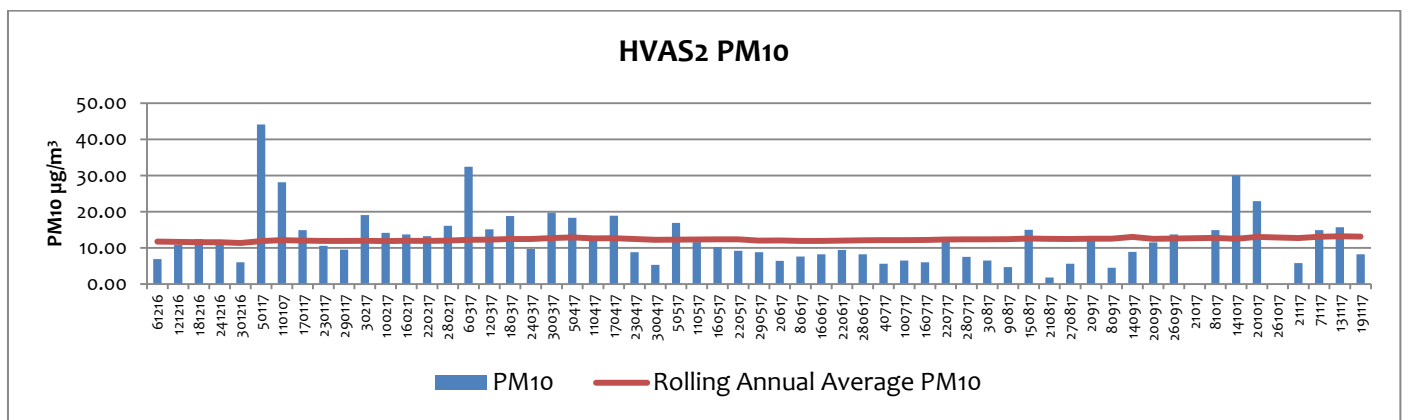


There is no guideline for assessing PM₁₀ Lead dust, however, the overall the trend for lead dust at this location remains consistent with the previous 12 months.



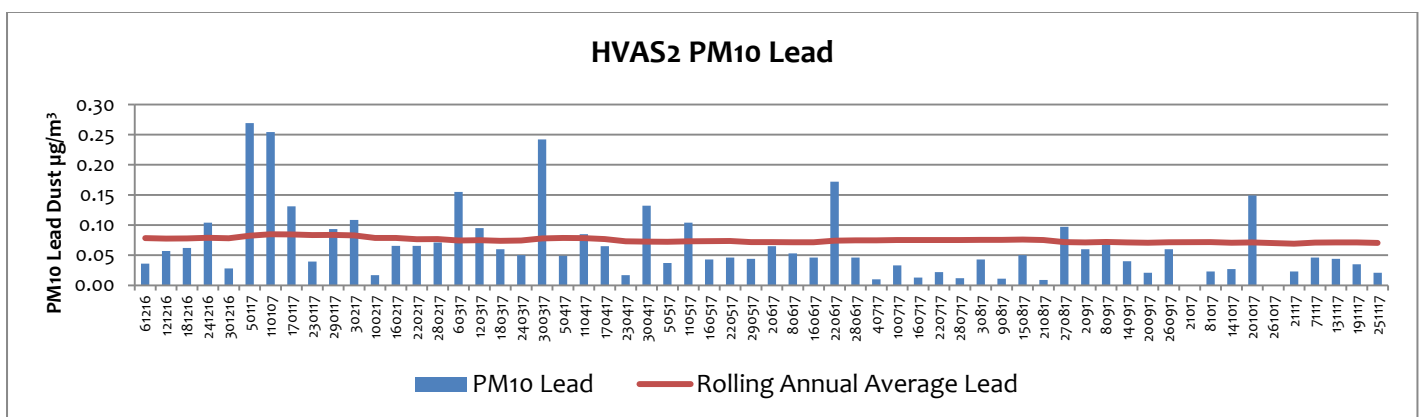
HVAS 2 (EPL12) - Blackwood Pit – On Site

DATE	PM10 ($\mu\text{g}/\text{m}^3$)	Lead ($\mu\text{g}/\text{m}^3$)
02-11-17	5.80	0.02
07-11-17	14.90	0.05
13-11-17	15.70	0.04
19-11-17	8.20	0.04
25-11-17	7.10	0.02



This monitoring unit is located on the Rasp Mine and criteria does not apply at this point, criteria apply to the closest residential location. The data indicates that the annual average PM₁₀ for November of 13 $\mu\text{g}/\text{m}^3$ is well below the PM₁₀ annual average criterion 25 $\mu\text{g}/\text{m}^3$ required at the nearest residential location.

Overall the trend for PM₁₀ at this location remains consistent with the previous 12 months.



There is no guideline for assessing PM10 Lead dust, however the overall the trend for lead dust at this location remains consistent with the previous 12 months.



1.2 Tapered Element Oscillating Microbalance Sampling (TEOM)

There are two tapered element oscillating microbalance (TEOM) sampling 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 on the Rasp Mine web site. TEOM1 and TEOM2 operate continuously and sample for particulate matter less than 10 microns (PM₁₀).

TEOM1 (EPL13) – Off-site and TEOM2 (EPL14) – On Site

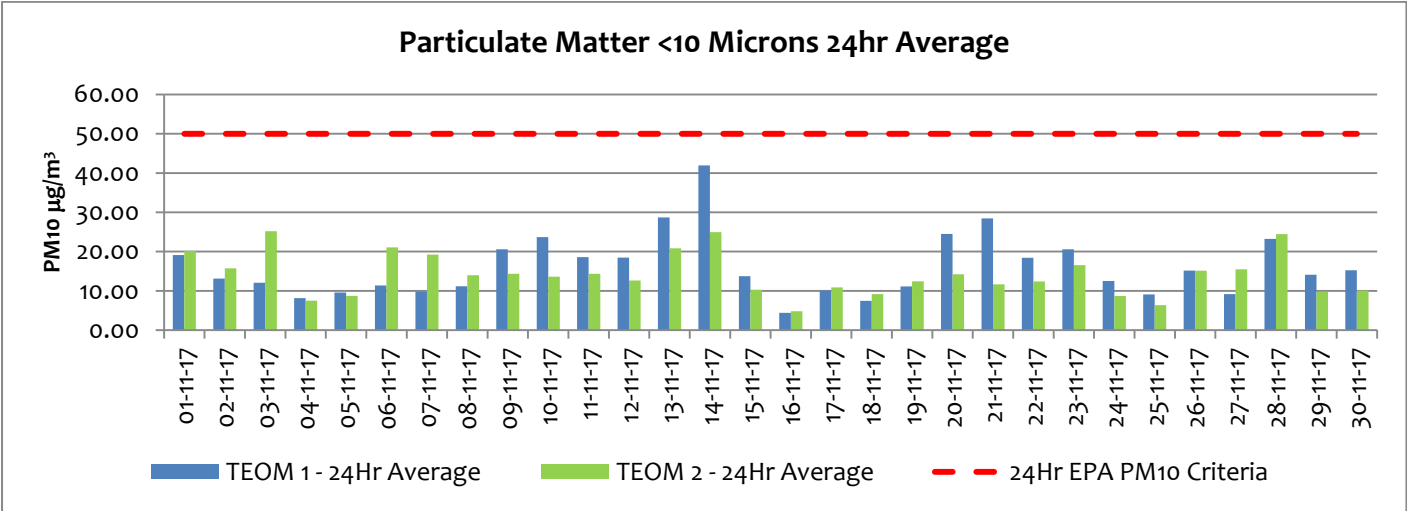
Particulate Matter <10 Microns 24Hr Average				
Date	TEOM 1 (µg/m ³)	Compliant with 50µg/m ³ 24hr average?	TEOM 2 (µg/m ³)	Compliant with 50µg/m ³ 24hr average?
01-11-17	19.13	Y	20.16	Y
02-11-17	13.11	Y	15.73	Y
03-11-17	12.06	Y	25.18	Y
04-11-17	8.15	Y	7.50	Y
05-11-17	9.57	Y	8.72	Y
06-11-17	11.38	Y	21.08	Y
07-11-17	9.82	Y	19.25	Y
08-11-17	11.17	Y	13.98	Y
09-11-17	20.56	Y	14.33	Y
10-11-17	23.67	Y	13.63	Y
11-11-17	18.58	Y	14.35	Y
12-11-17	18.46	Y	12.65	Y
13-11-17	28.71	Y	20.84	Y
14-11-17	41.96	Y	24.95	Y
15-11-17	13.73	Y	10.28	Y
16-11-17	4.40	Y	4.79	Y
17-11-17	10.11	Y	10.90	Y
18-11-17	7.46	Y	9.17	Y
19-11-17	11.12	Y	12.42	Y
20-11-17	24.48	Y	14.22	Y
21-11-17	28.46	Y	11.65	Y
22-11-17	18.41	Y	12.38	Y
23-11-17	20.58	Y	16.54	Y
24-11-17	12.51	Y	8.70	Y
25-11-17	9.10	Y	6.36	Y
26-11-17	15.18	Y	15.13	Y
27-11-17	9.19	Y	15.50	Y
28-11-17	23.23	Y	24.48	Y
29-11-17	14.10	Y	9.74	Y
30-11-17	15.24	Y	10.07	Y



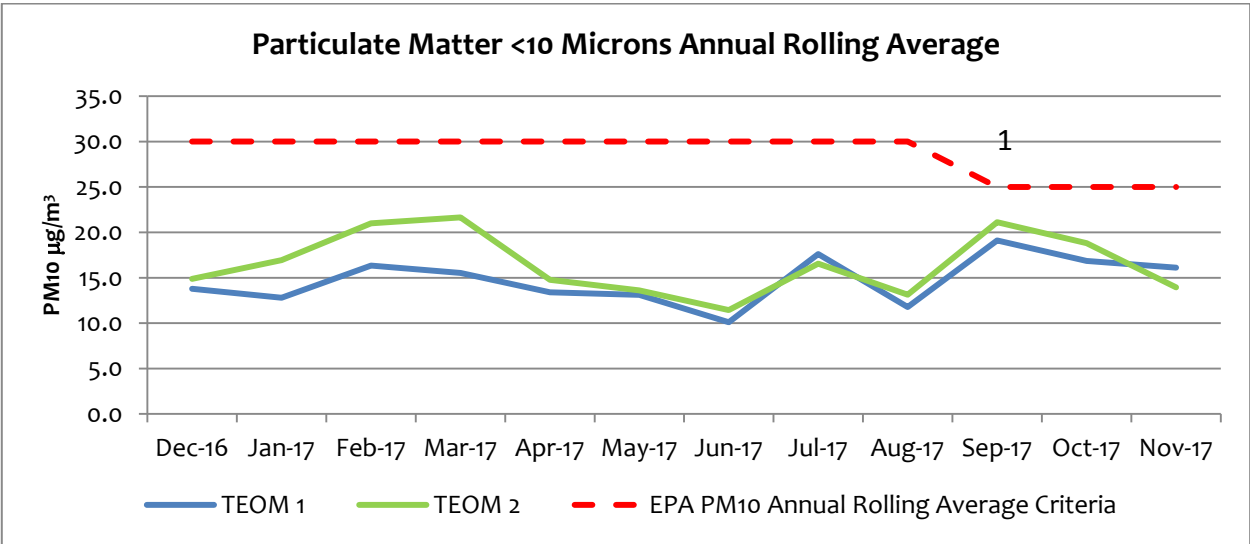
The TEOM1 monitoring unit is located off-site from the Rasp Mine and the criteria as listed in the Project Approval 07_0018 applies at this point. There are two criterion listed for PM₁₀ - 24 hour average and an annual average. The highest 24-hour average recorded at TEOM1 was 41.96 µg/m³ on 14 November, this is below the criteria of 50 µg/m³. The PM₁₀ annual average at the end of November was 16.1 µg/m³ and is below the listed criteria of 25 µg/m³.

The TEOM2 monitoring unit is located on the Rasp Mine and criteria does not apply at this point, criteria apply to the closest residential location. The data indicates that the highest PM₁₀ 24 hour average of 25.18 µg/m³ on 3 November is below the criteria of 50 µg/m³. The annual average PM₁₀ for November of 13.9 µg/m³ is below the PM₁₀ annual average criterion of 25 µg/m³ required at the nearest residential location.

Rasp Mine is in compliance with all listed criteria.



All results were below the maximum PM₁₀ 24 hour average of 50µg/m³ (Project Approval PA_0017).



Note 1: Criteria change to 25µg/m³ in September as per PA MOD4.

The PM₁₀ annual average for November is below the Project Approval limit of 25 µg/m³. The Rasp Mine is in compliance with this criterion.

Overall the trend for PM₁₀ at this location remains consistent with the previous 12 months.



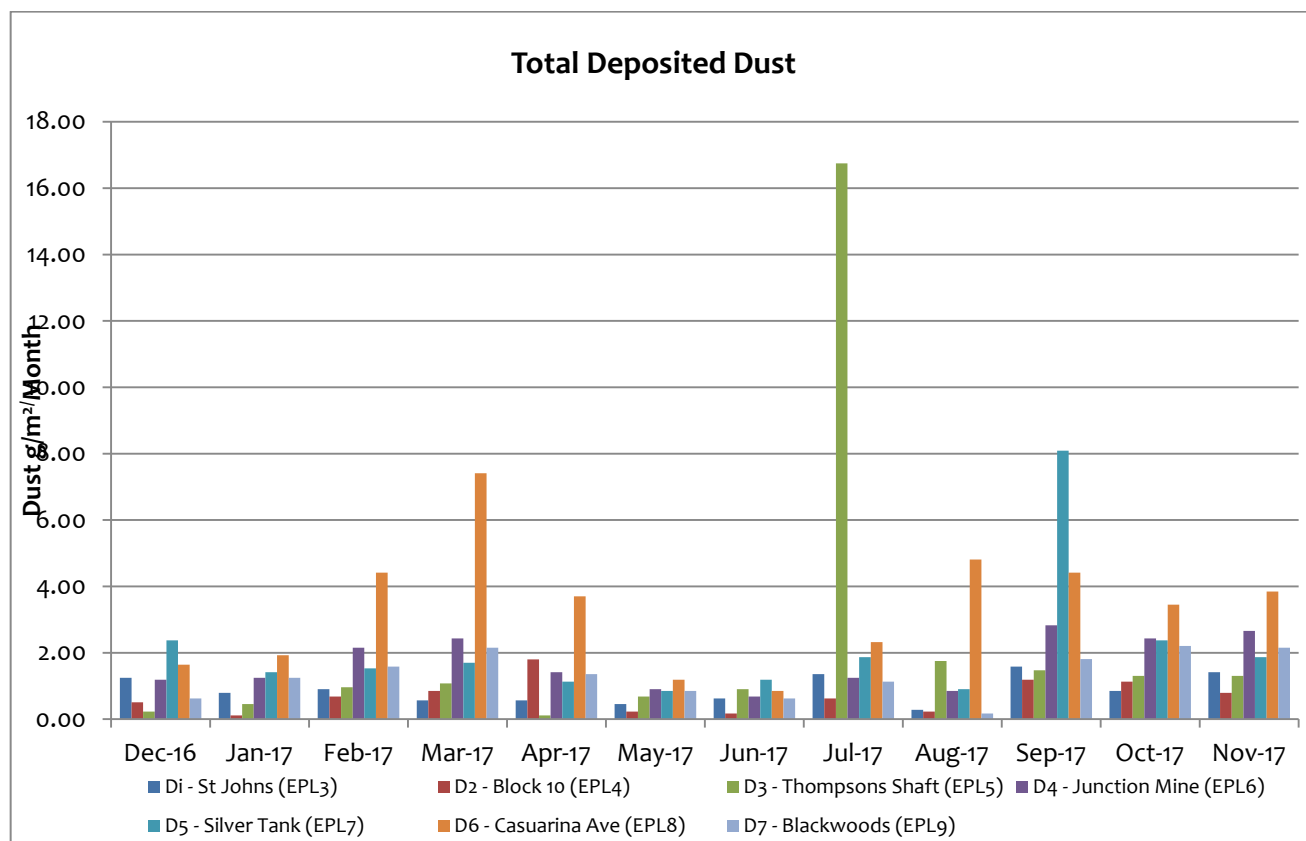
1.3 Dust Deposition Sampling

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)							
Date	D1 (off site)	D2 (on site)	D3 (on site)	D4 (on site)	D5 (on site)	D6 (off site)	D7 (on site)
November 2017	1.41	0.79	1.30	2.66	1.87	3.85	2.15
Background (2010)	4.0	3.1	4.3	5.7	- ¹	5.8	N/A
Compliant?	Y	N/A	N/A	N/A	N/A	Y	N/A

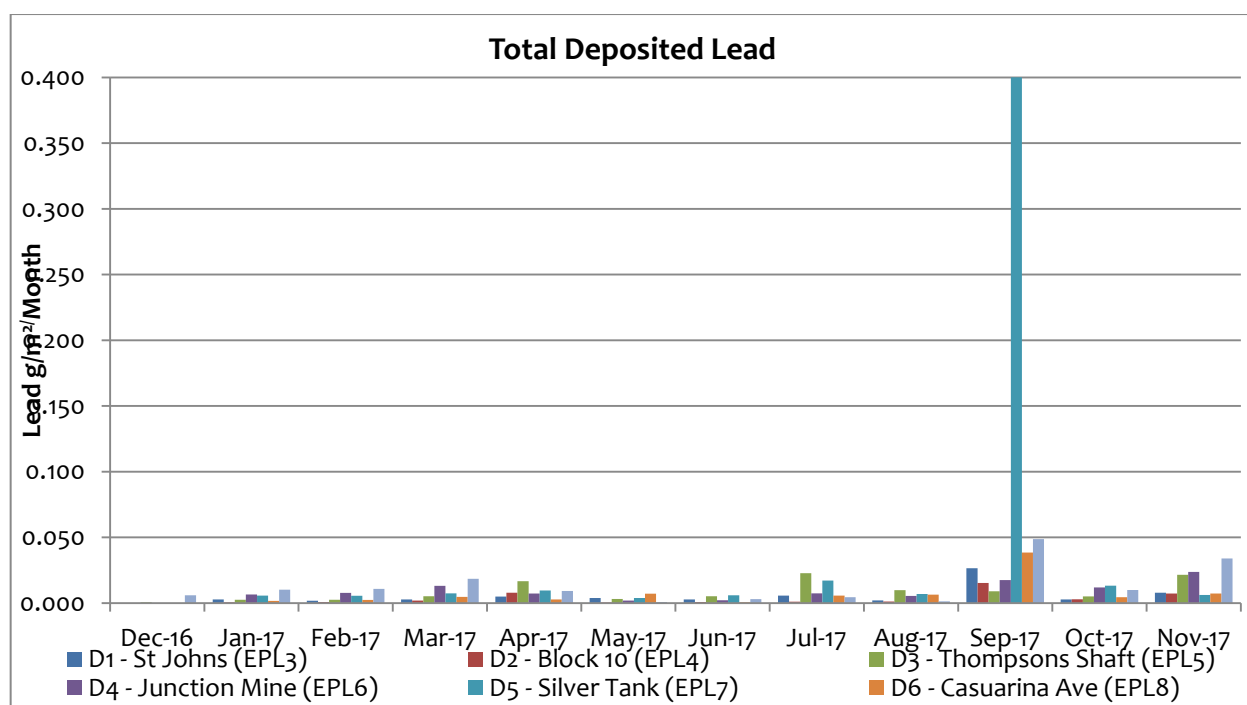
Note: "-1" = background not available

N/A = not applicable as dust deposition unit is located on site



Elevated total dust recorded at the offsite monitor at Casuarina Avenue appears to have been caused by motor bikes accessing the vacant lot at the rear of the property.

Total Deposited Lead (g/m ² /Month)							
Date	D1 (off Site)	D2 (on site)	D3 (on site)	D4 (on site)	D5 (on site)	D6 (off Site)	D7 (on site)
November 2017	0.008	0.007	0.022	0.024	0.006	0.007	0.034
Background (2010)	0.0034	0.005	0.005	0.006	-	0.004	-



There is no guideline for deposited lead dust. Lower lead values were recorded in November which is consistent with the lower wind speeds in November.

1.4 Ventilation Outlets and Bag House Monitoring

There are three locations to measure pollutants from exhausts or stacks, these include the Primary Ventilation Shaft and Shaft 6, both measuring pollutants from underground firings, and the Baghouse Stack at the crusher measuring dust. All are located on site, the Primary Ventilation Shaft is located centrally and to the north of the mine lease and Shaft 6 is located centrally within the lease. The Primary Crusher Baghouse Stack is located within the area of the processing plant to the east of the lease. A map indicating these locations can be found on the Rasp Mine web site. Samples are collected quarterly and analysed for a number parameters listed in below. Reference to the item required in the Rasp Mine Environment Protection Licence (EPL) is provided below.

Quarterly sampling is undertaken in January, April, July and November.

The following criteria apply:

Primary Ventilation Shaft (EPL1) and Shaft 6 (EPL56)

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

Primary Ventilation Shaft (EPL1), Shaft 6 (EPL56) and Crusher Baghouse (EPL2)

	Unit	Criteria
Total Suspended particles	mg/m ³	20
Type 1 and Type 2	mg/m ³	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, Crusher Baghouse (EPL) and Vent Shaft 6 (EPL56) November Results

	Unit	Primary Vent Shaft (EPL1)	Crusher Baghouse (EPL2)	Vent Shaft 6 (EPL 56)
Nitrogen Oxides	mg/m ³	2.9	NA	2.1
Volatile Organic Compounds	mg/m ³	<0.44	NA	<0.43
Total Suspended particles	mg/m ³	4.8	1.6	1.4
Type 1 and Type 2	mg/m ³	0.067	0.202	0.671

The Rasp Mine is in compliance with all listed criteria.

2 Noise

2.1 Blasting (Vibration and Overpressure)

There are 6 vibration monitors at various locations to measure for vibration and overpressure from blast firings. These include V1 to V5 which are located off-site and V6 which is located on-site near Shaft 4. A map indicating these locations can be found on the Rasp Mine web site. In addition there are 2 roving monitors which may be used to monitor vibration and overpressure at particular locations as required. Monitors operate continuously and are automatically triggered 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
Residence on privately owned land (7am-7pm)	115	5	5% of the total number of blasts over a 12-month period
(7am-7pm)	120	10	0%
(7pm-10pm)	105	-	-
(10pm-7am)	95	-	-
Public Infrastructure	-	100	0%

Blasting Criteria (Block 7)

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

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 November

Total Blasts:

- 0 production blasts occurred before 6.45 am or after 7.15 pm
- production blasts averaged 4.1 per week over the previous calendar year
- development blasts, averaged 34.4 per week over the previous calendar year

Rest of Mine - Western Mineralisation and Main Lodes:

- 0 Blast recorded a ppv of >5mm/s
- 0 Blasts recorded a ppv of >10mm/s
- 0 Blasts recorded a ppv >100mm/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
- % of all blasts over 5mm/sec = 0.04% calculated from 31 October 2016 until 30 November 2017;
- % of production blasts over 5mm/sec = 4.3% calculated from 31 October 2016 until 30 November 2017.

Block 7:

- 0 Blasts recorded a ppv of >3mm/s
- 0 Blasts recorded a ppv of >10mm/s
- 0 Blasts recorded a ppv of >50mm/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 115dBL (7am to 7pm)
- 0 Blasts recorded an over pressure level over or 120 dBL at any time
- % of all blasts over 3mm/sec = 0% calculated from 31 October 2016 until 30 November, 2017;
- % of production blasts over 3mm/sec = 0% calculated from 31 October 2016 until 30 November, 2017

Rasp Mine is in compliance with all listed criteria.



2.2 Noise

Attended noise monitoring was undertaken in October and reported in November by EMM Consulting Pty Limited (EMM). This involved the measurement of in-situ noise levels from the site's night-time operations at 14 monitoring locations nominated in the site's EPL. Attended noise monitoring was conducted during two consecutive night-time periods from 23 to 25 October 2017 to quantify off-site noise levels from the Rasp Mine. Attended monitoring, fifteen minute sampling for each monitoring session, was completed during the night-time period to minimise the contamination of monitoring data by extraneous noise sources (eg domestic and road traffic noise). Noise limits for the night-time period are also more stringent (or the same for some locations) than noise limits for day and evening periods. Some operations at Rasp Mine do not occur during the night-time period and are restricted to day-time and evening hours only (ie shunting of wagons and rock blasting), notwithstanding are not considered inconsequential to this assessment.

A total of 29 operator-attended noise measurements were completed, including two measurements at each of the 14 monitoring locations, plus one additional measurement (for a total of three measurements) at location A1. For 11 out of the 29 samples (38%), the wind speed was above 3 m/s and therefore the noise limits did not apply for these samples according to the site's EPL.

Low frequency noise, as defined in the NPI (EPA 2017) and in accordance with the INP (EPA 2000), was identified for three of the attended measurements at locations A6, A8 and A14, and hence a modification factor, a penalty of 2 or 5, was added to the relevant site noise contributions.

The monitoring assessment found that site $L_{Aeq(15min)}$ noise contribution, including the relevant modification factor for low frequency noise, was estimated to be above the relevant limits during one of the measurements at locations A6, A8 and A14, where site $L_{Aeq(15min)}$ noise contribution was estimated to be above the relevant limits. Second measurement at these locations confirmed the exceedances were not sustained.

Noise Monitoring Data Summary Results Undertaken in October and Reported in November

Location	Date	Start time (hrs)	Site noise contribution ($L_{Aeq(15min)}$)	EPL noise limit ² ($L_{Aeq(15min)}$)	Meteorological data ¹		Comply?
					Wind speed	Wind direction	
A11	23/10	22:37	<30	39	2.7	72	Yes
A12	23/10	22:59	37	39	1.9	76	Yes
A13	23/10	23:22	30	35	1.8	54	Yes
A14	23/10	23:42	31	35	2.4	46	Yes
A1	24/10	0:03	39	35	3.4	48	N/A
A1	24/10	0:21	30	35	3.7	40	N/A
A2	24/10	0:45	32	35	2.9	39	Yes
A3	24/10	1:08	32	39	2.5	31	Yes
A4	24/10	1:32	26	39	3.1	50	N/A
A5	24/10	1:58	38	39	1.9	7	Yes
A6	24/10	2:24	47⁴ (42+5)	39	3.0	23	No
A7	24/10	2:59	<29	35	2.6	13	Yes
A8	24/10	3:25	45⁴ (40+5)	39	2.6	357	No
A9	24/10	3:50	39	39	2.7	18	Yes
A10	24/10	4:17	35	35	3.0	10	Yes



Location	Date	Start time (hrs)	Site noise contribution (L _{Aeq} (15min))	EPL noise limit ² (L _{Aeq} (15min))	Meteorological data ¹		Comply?
					Wind speed	Wind direction	
A13	24/10	22:00	35	35	3.3	80	N/A
A14	24/10	22:22	<u>41</u> ⁴ (39+2)	35	2.3	84	No
A1	24/10	22:43	27	35	2.4	78	Yes
A2	24/10	23:03	31	35	2.7	85	Yes
A3	24/10	23:25	<30	39	2.1	56	Yes
A4	24/10	23:47	<30	39	2.2	67	Yes
A5	25/10	0:14	35	39	2.9	63	Yes
A6	25/10	0:33	32	39	3.1	70	N/A
A7	25/10	0:56	<30	35	3.4	61	N/A
A8	25/10	1:24	29	39	3.2	60	N/A
A9	25/10	1:45	<32	39	4.0	64	N/A
A10	25/10	2:14	34	35	4.9	44	N/A
A11	25/10	2:37	IA	39	5.0	28	N/A
A12	25/10	2:58	IA	39	5.7	44	N/A

- Notes:
1. Meteorological data was obtained from the site's automatic weather station (at 10 m above ground). Wind speed is in m/s and wind direction is in degrees from North (0°).
 2. Night-time noise limit.
 3. *Italic font indicates where the relevant EPL noise limit does not apply due to wind speed above 3 m/s at 10 m above ground.*
 4. *Indicates where a 2 or 5 dB penalty has been added to RASP Mine's L_{Aeq,15-min} contribution due to low frequency noise as per Fact Sheet C of the NPI (EPA 2017) in accordance with the INP (EPA 2000).*
 5. **Bold and underlined font indicate where the site's L_{Aeq}(15min) contribution was estimated to be above the relevant limit by more than 2 dB during applicable weather conditions.**
 6. IA = Inaudible.

3 Water

3.1 Groundwater

There are 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. 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.

Groundwater Monitoring Requirements

EPA Identification Number	Frequency	Parameters to be analysed
Shaft 7 EPL53	Monthly	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 (SO ₄), total dissolved solids (TDS) and zinc (Zn)
Kintore Pit (U/G dewatering) EPL54	Monthly	
Piezometers EPL37 (GW01) to EPL52 (GW16)	Quarterly	



Shaft 7 (EPL53) and Kintore Pit (EPL54) November Results

Sample Point	Alkalinity (CaCO ₃) (mg/l)	Cd (mg/l)	Ca (mg/l)	Cl (mg/l)	EC (µS/cm ²)	Fe (mg/l)	Pb (mg/l)	Mg (mg/l)	Mn (mg/l)	pH	Na (mg/l)	SO ₄ (mg/l)	TDS (mg/l)	Zn (mg/l)
Shaft 7 (EPL53)	8	2.22	492	1480	12400	3.3	2.15	296	352	6.53	1610	5120	11200	1-3-
*Kintore Pit (EPL54)	Sample not taken due to dry conditions													

3.2 Surface Water

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 on the Rasp Mine web site. Sampling is undertaken in October (highest rainfall month as recorded by Bureau of Meteorology) and April.

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 (SO ₄), 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	

Surface Water Monitoring Results for November

Surface water sampling was not scheduled for November.

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:-



Rasp Mine Weather Station (EPL55) Monitoring Requirements

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

Weather Data Summary for November

Date	Temperature @ 10m (°C)		Wind Speed @ 10m (m/s)		Predominant wind dir @ 10m (deg)		Rainfall
	Min	Max	Min	Max	Cardinal	Degree	
01-11-17	10.7	22.6	0.6	9.2	South	180	0.00
02-11-17	12.4	226.9	0.1	8.5	SW	225	0.00
03-11-17	15.2	23.3	1.2	11.4	SSE	157	0.02
04-11-17	9.8	15.6	0.8	10.4	SE	135	0.18
05-11-17	10.6	24.8	0.6	10.8	South	180	0.00
06-11-17	14.0	22.0	2.1	13.0	South	180	0.00
07-11-17	9.2	21.0	1.3	12.1	South	180	0.00
08-11-17	12.1	24.9	0.9	10.2	South	180	0.00
09-11-17	16.7	28.5	0.1	8.7	ESE	112	0.00
10-11-17	20.7	30.5	0.6	9.3	NE	45	0.00
11-11-17	22.3	31.1	0.2	11.0	NNE	22	0.00
12-11-17	23.8	32.0	0.3	8.9	North	360	0.00
13-11-17	23.3	32.7	0.7	8.9	North	360	0.00
14-11-17	22.0	32.8	0.5	12.4	NE	45	0.00
15-11-17	15.5	24.9	0.2	13.6	South	180	0.44
16-11-17	12.9	21.3	0.7	10.2	SW	225	0.00
17-11-17	10.9	24.7	0.2	10.7	SSE	157	0.00
18-11-17	14.0	25.3	0.4	7.7	South	180	0.00
19-11-17	17.4	29.9	0.8	8.9	East	90	0.00
20-11-17	19.9	29.8	0.6	10.8	ENE	67	0.00
21-11-17	20.8	31.0	0.8	11.1	NE	45	0.00
22-11-17	21.8	31.7	0.3	8.7	North	360	0.00
23-11-17	19.3	29.4	0.7	15.1	North	360	0.04
24-11-17	17.6	26.8	0.1	11.5	East	90	0.43
25-11-17	17.8	31.5	0.7	11.9	WNW	292	0.00
26-11-17	18.9	28.3	0.4	9.7	SSW	202	0.00
27-11-17	15.0	29.3	1.4	9.9	South	180	0.00
28-11-17	20.6	32.8	0.1	11.8	South	180	0.00



29-11-17	21.6	31.2	0.4	12.2	NE	45	1.30
30-11-17	22.5	30.7	0.5	7.2	NE	45	1.30

5 Data Log

Sample	Result Received
Hi Volume Samples	19-12-17
TEOM	01-Nov-17
Dust Deposition	12-12-17
Water	13-Nov-17
Blast Vibration and overpressure	01-Nov-17
Weather	01-Nov17
Date posted to web site	17-01-2018 due to personnel on annual leave

6 Correction Log

There are no corrections to the previous reports.