Rasp Mine
Monthly Environmental Monitoring Report
August 2021

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 (DA 07_0018 MOD7 July 2019) 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

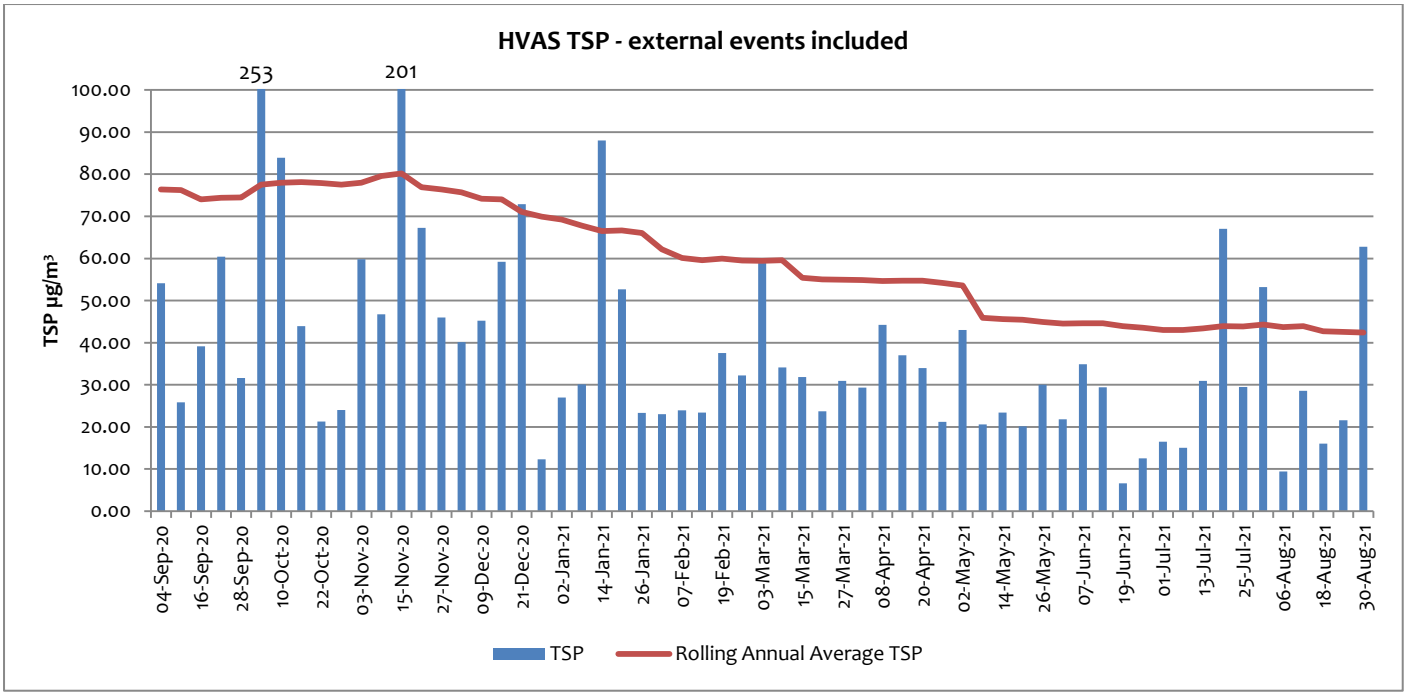
Pollutant	Averaging Period	Maximum Project Contribution	Maximum Total Deposited Dust Level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

1.1 High Volume Air Samplers

There are 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 on the Rasp Mine web site. 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.

HVAS (EPL10) - Silver Tank (On Site) Results for August 2021

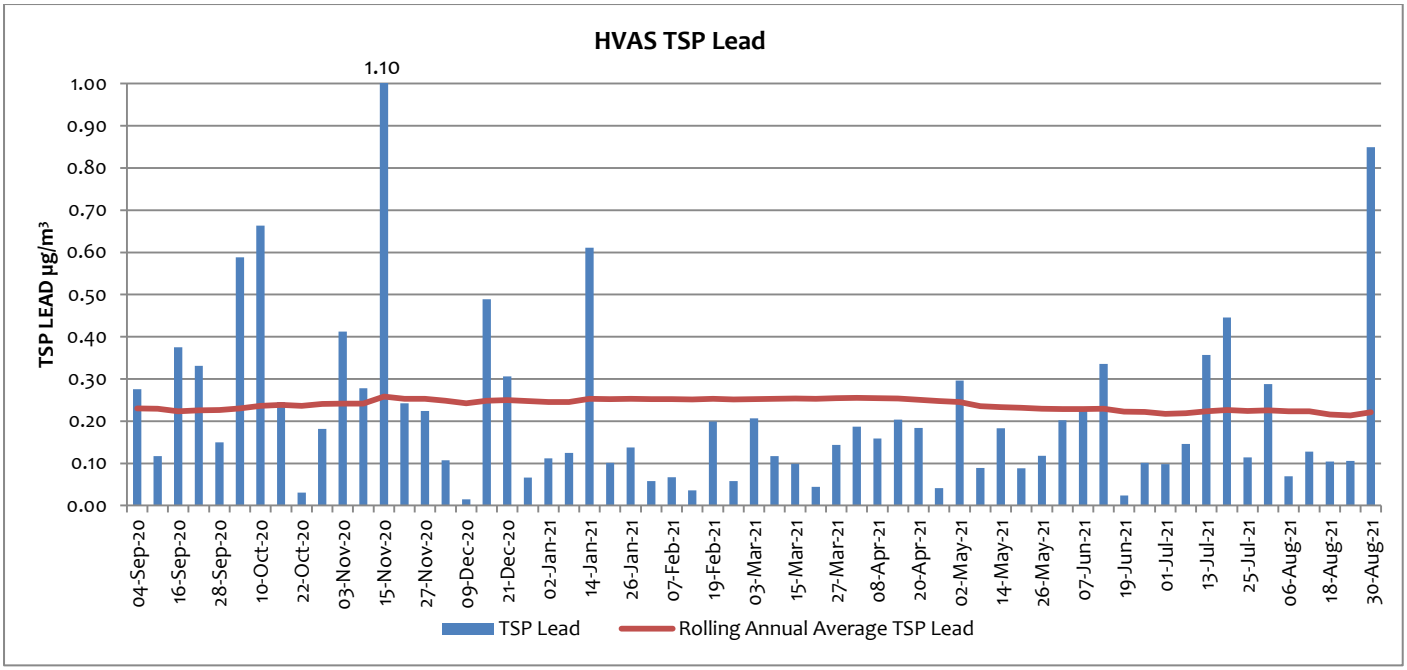
DATE	TSP (µg/m^3)	Lead (µg/m^3)
06-Aug-21	9.40	0.07
12-Aug-21	28.60	0.13
18-Aug-21	16.00	0.10
24-Aug-21	21.60	0.11
30-Aug-21	62.80	0.85



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.

TSP dust results at HVAS were elevated for the month of August compared to previous months. There were elevated TSP levels of 62.80 µg/m^3 on 30 August when winds were predominantly from the NW and WNW. The contribution of dust was likely from on-site locations on site as similar increases in dust were not recorded in monitoring equipment sited on the northern boundary of the site. Haul roads and operational areas are serviced by water carts although some areas may dry out between applications. The annual rolling average for TSP at this location is 42.40 µg/m^3 at the end of August 2021, significantly lower than the average at the beginning of September 2020 which was 76.39 µg/m^3.

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



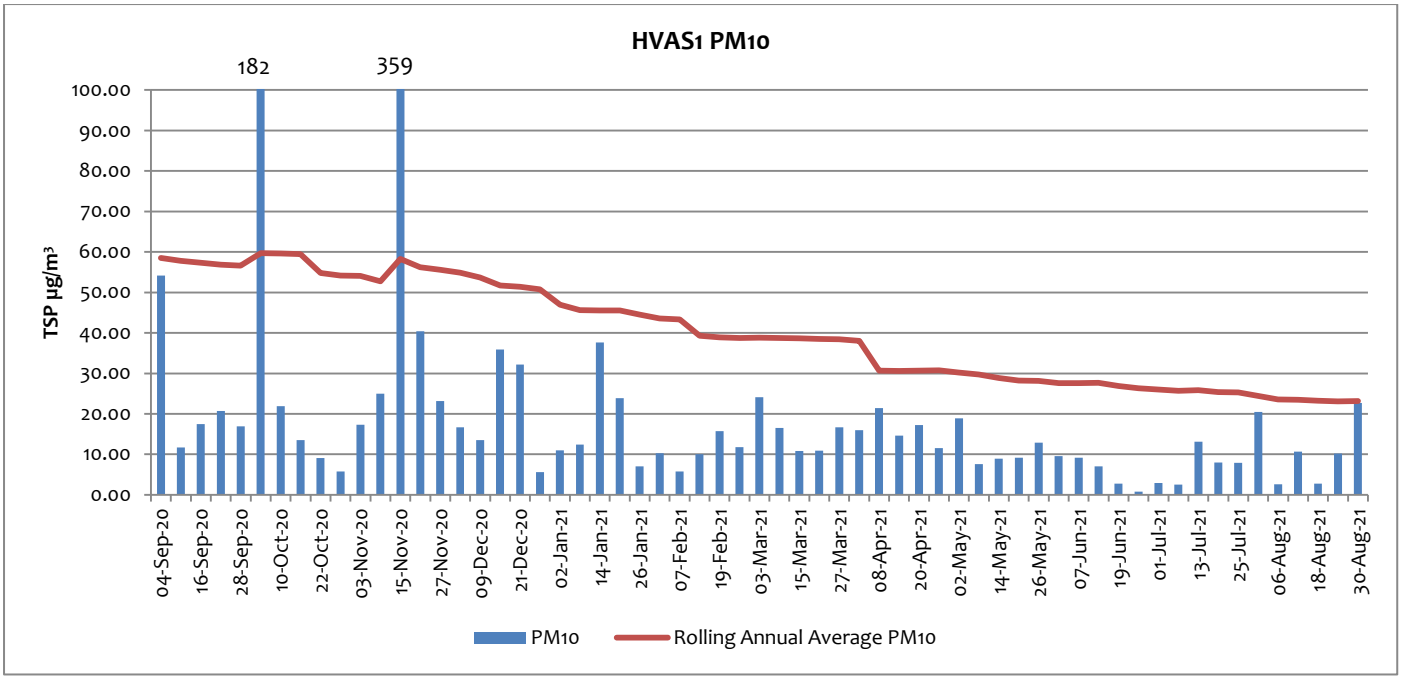
TSP Lead dust results at HVAS were elevated for the month of August compared to previous months. There were elevated TSP Lead levels of 0.85 µg/m^3 on 30 August when winds were predominantly from the NW and WNW. The contribution of TSP Lead was likely from on-site locations on site as similar increases in TSP Lead dust were not recorded in monitoring equipment sited on the northern boundary of the site. Haul roads and operational areas are serviced by water carts although some areas may dry out between applications. The rolling annual average for TSP Lead in August 2021 was 0.22 µg/m^3 which is slightly lower than the rolling annual average of 0.22 µg/m^3 for TSP Lead in September 2020.

Additional dust suppressant will be applied to trafficked and free areas which can contribute to dust lift-off. Water carts currently apply water to trafficked surfaces in these areas.

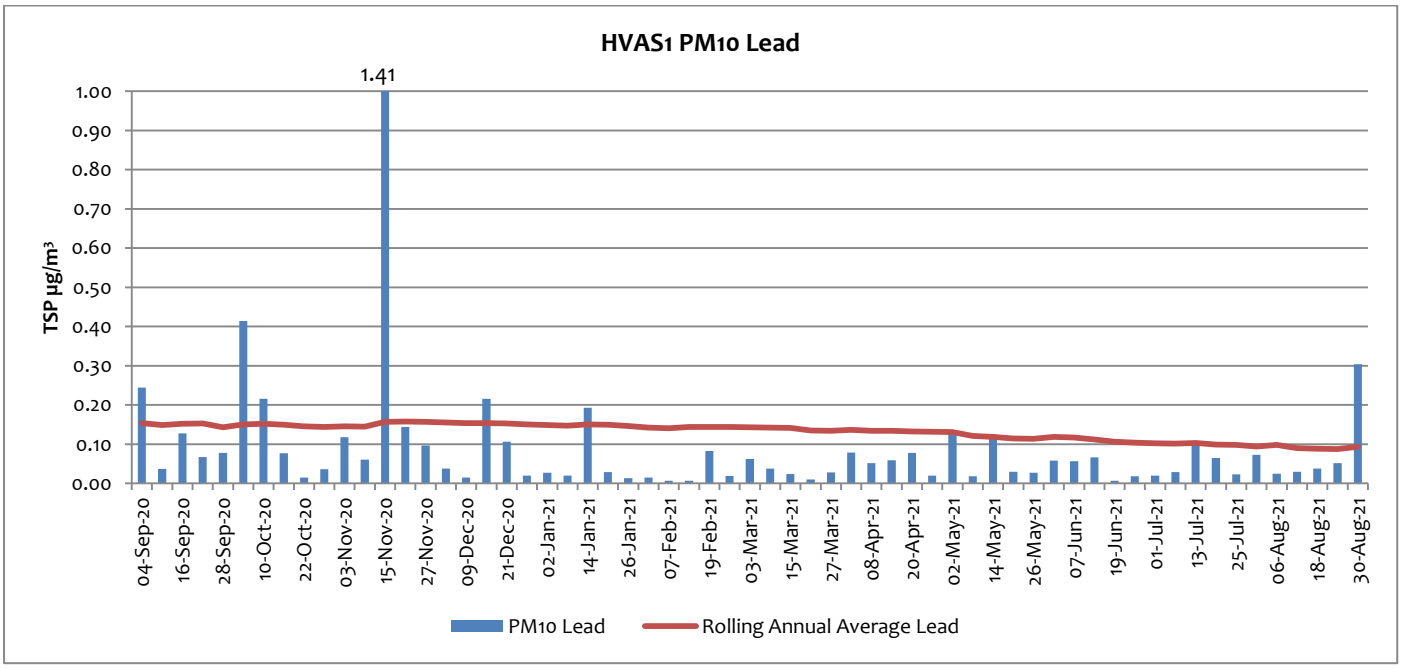
HVAS1 (EPL11) - Silver Tank (On Site) Results for August 2021

DATE	PM_{10} (µg/m^3)	PM_{10} Lead (µg/m^3)
06-Aug-21	2.60	0.03
12-Aug-21	10.70	0.03
18-Aug-21	2.80	0.04
24-Aug-21	10.20	0.05
30-Aug-21	22.70	0.30

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.



PM_{10} dust results at HVAS1 were slightly elevated in the month of August. There were elevated PM_{10} levels of 22.70 $\mu g/m^3$ on 30 August when winds were predominantly from the NW and WNW. The contribution of PM_{10} dust was likely from on-site locations on site as similar increases in PM_{10} dust were not recorded in monitoring equipment located on the northern boundary of the site. Haul roads and operational areas are serviced by water carts although some areas may dry out between applications. The annual rolling average for PM_{10} dust at this location is 23.2 $\mu g/m^3$ at the end of August 2021, significantly lower than the average at the beginning of September 2020 which was 58.5 $\mu g/m^3$. External and extreme dust events are recorded in measurements.



PM_{10} Lead dust results at HVAS1 were slightly elevated for the month of August compared to previous months with an elevated PM_{10} Lead levels of 0.30 µg/m^3 recorded on 30 August. Elevated Lead results may have been due to the contribution from sources on site as monitoring equipment on the northern boundary of the site did not record elevated Lead levels to the same degree. Haul roads and operational areas are serviced by water carts although some areas may dry out between applications. The rolling annual average for PM_{10} Lead in August 2021 was 0.09 µg/m^3, down from 0.15 µg/m^3 in September 2020.

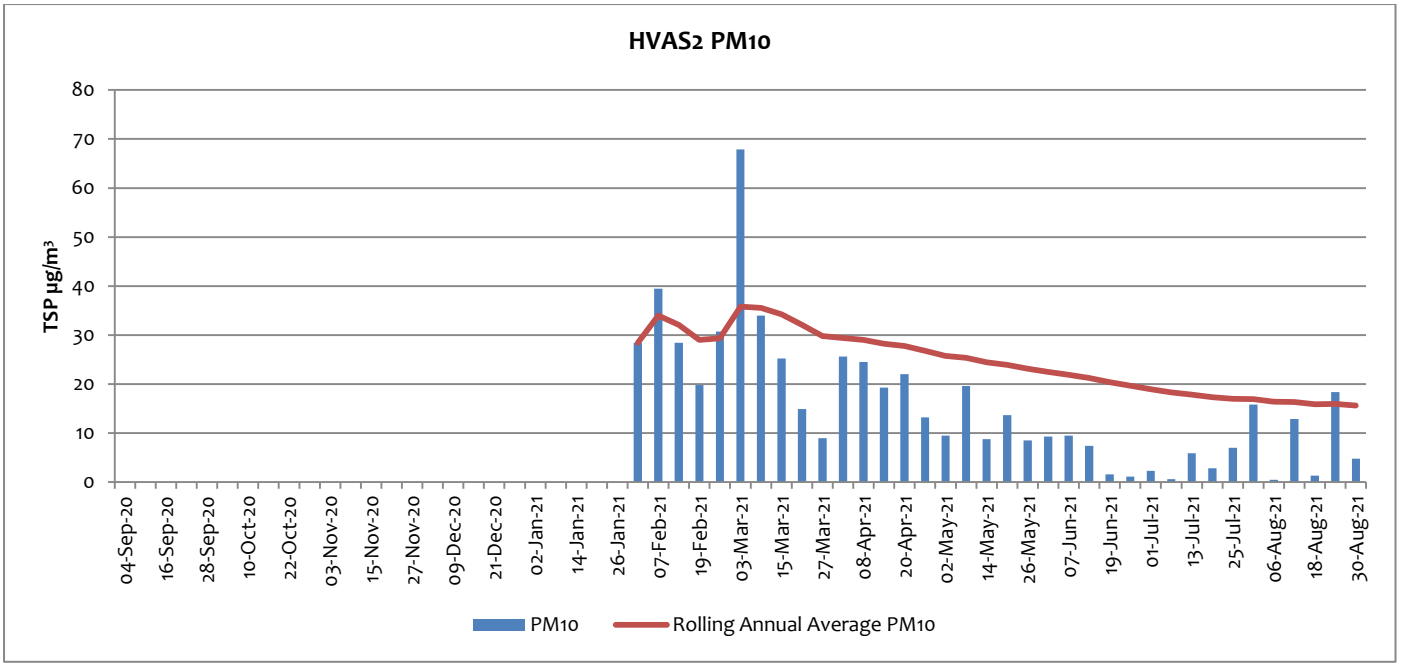
HVAS 2 (EPL12) - Blackwood Pit (On Site) Results for August 2021

DATE	PM_{10} (µg/m^3)	PM_{10} Lead (µg/m^3)
06-Aug-21	0.50	0.06
12-Aug-21	12.90	0.02
18-Aug-21	1.30	0.03
24-Aug-21	18.40	0.55
30-Aug-21	4.80	0.04

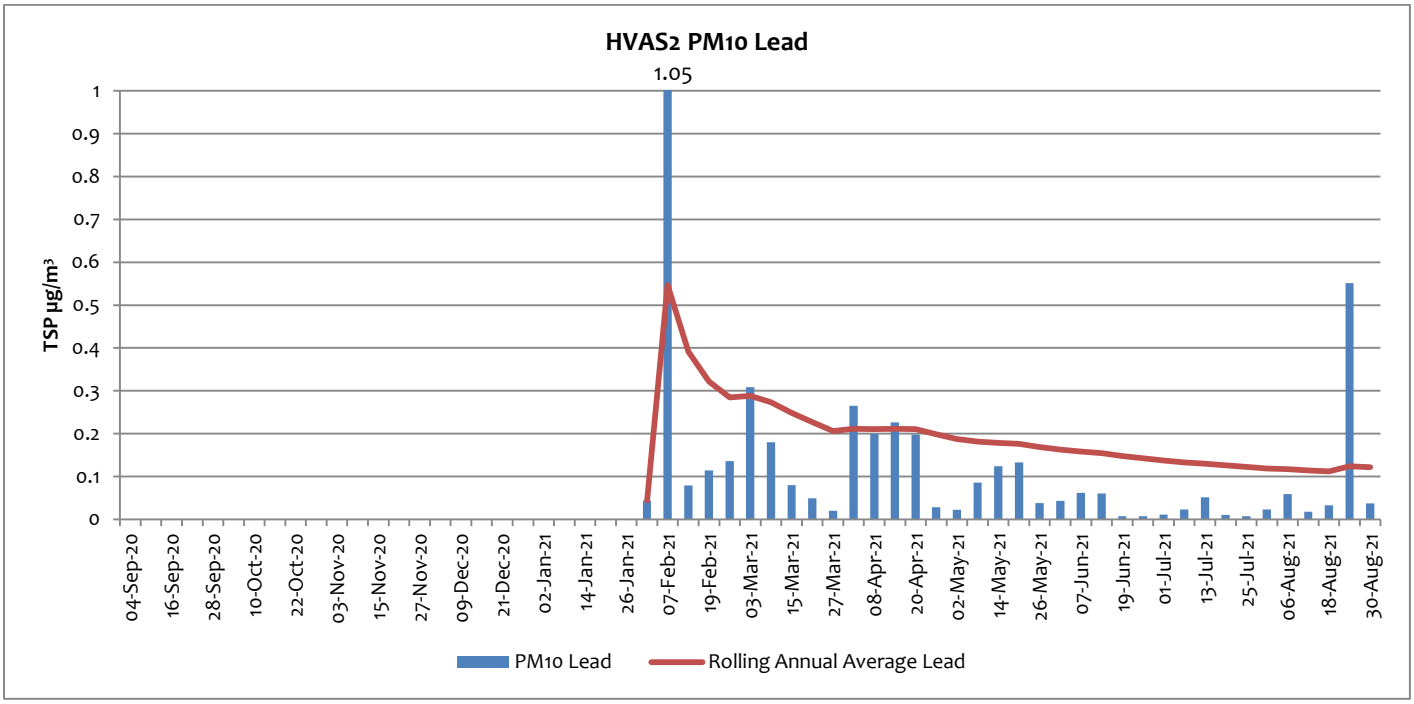
HVAS2 (EPL12) is located on the northern boundary of Rasp Mine and while limit criteria do not apply at this point, they do apply at the closest residential location. HVAS2 was decommissioned in June 2019 while Embankment 2 TSF2 construction works were undertaken and reinstalled in February 2021.

PM_{10} levels were higher in August than in July. On 12 August PM_{10} dust levels of 12.90 µg/m^3 were recorded when winds were from the SW and not likely the result of site activities. On 24 August PM_{10} dust levels of 15.97 µg/m^3 were recorded when winds were from the South and likely the result of site activities. The annual rolling average for PM_{10} dust at this location is 15.69 µg/m^3 at the end of August 2021, however due to the unit being reinstalled after 19 months decommissioned, annual rolling average is calculated using data from February to August 2021 only.

The annual rolling average for PM_{10} dust is determined using data with extreme dust events included.



There was one elevated PM_{10} lead level of 0.14 µg/m^3 recorded on 24 August when winds were from the South and so likely the result of site activities. The rolling annual average for PM_{10} Lead in August 2021 was 0.12 µg/m^3, however due to the unit being reinstalled after 19 months decommissioned, annual rolling average is calculated using data from February to August only.



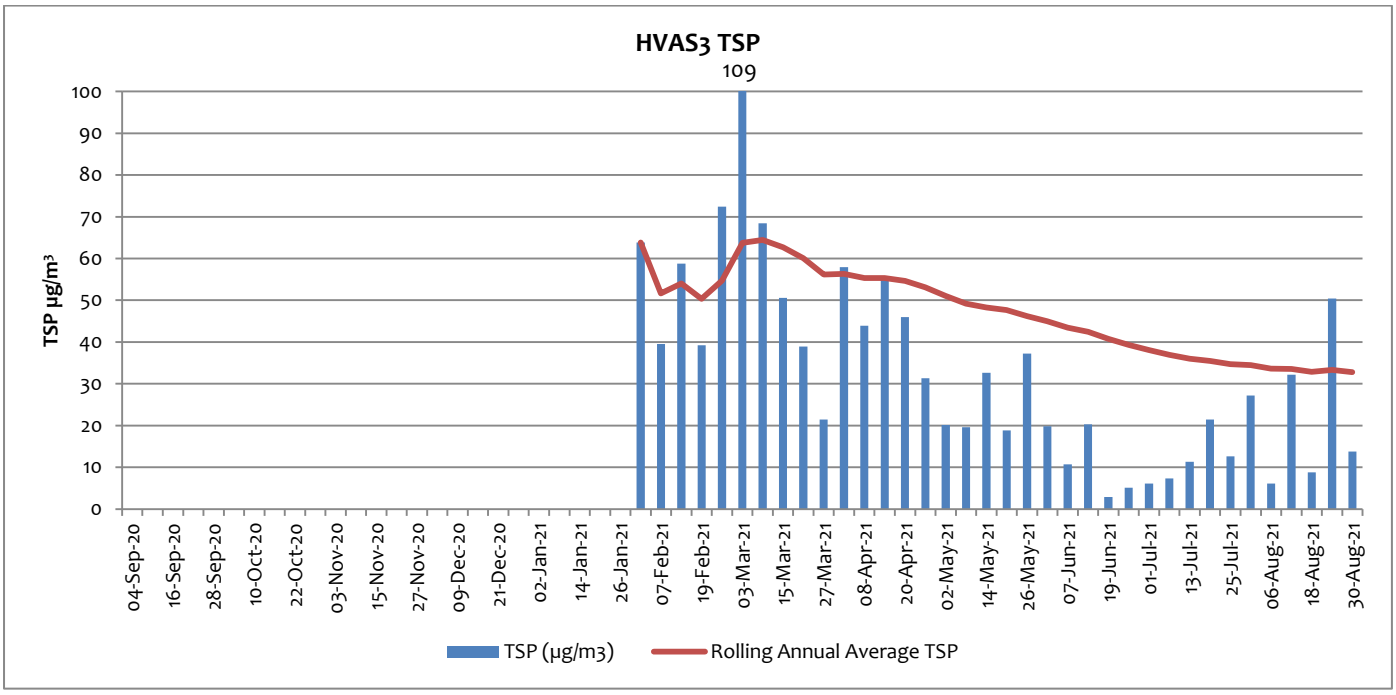
HVAS 3 (EPL57) - Blackwood Pit (On Site) Results for August 2021

DATE	TSP ($\mu g/m^3$)	Lead ($\mu g/m^3$)
06-Aug-21	6.1	0.22
12-Aug-21	32.2	0.066
18-Aug-21	8.8	0.116
24-Aug-21	50.4	1.65
30-Aug-21	13.8	0.066

HVAS3 (EPL57) 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. 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. HVAS3 was decommissioned in June 2019 while Embankment 2 TSF2 construction works were undertaken and reinstalled in February 2021.

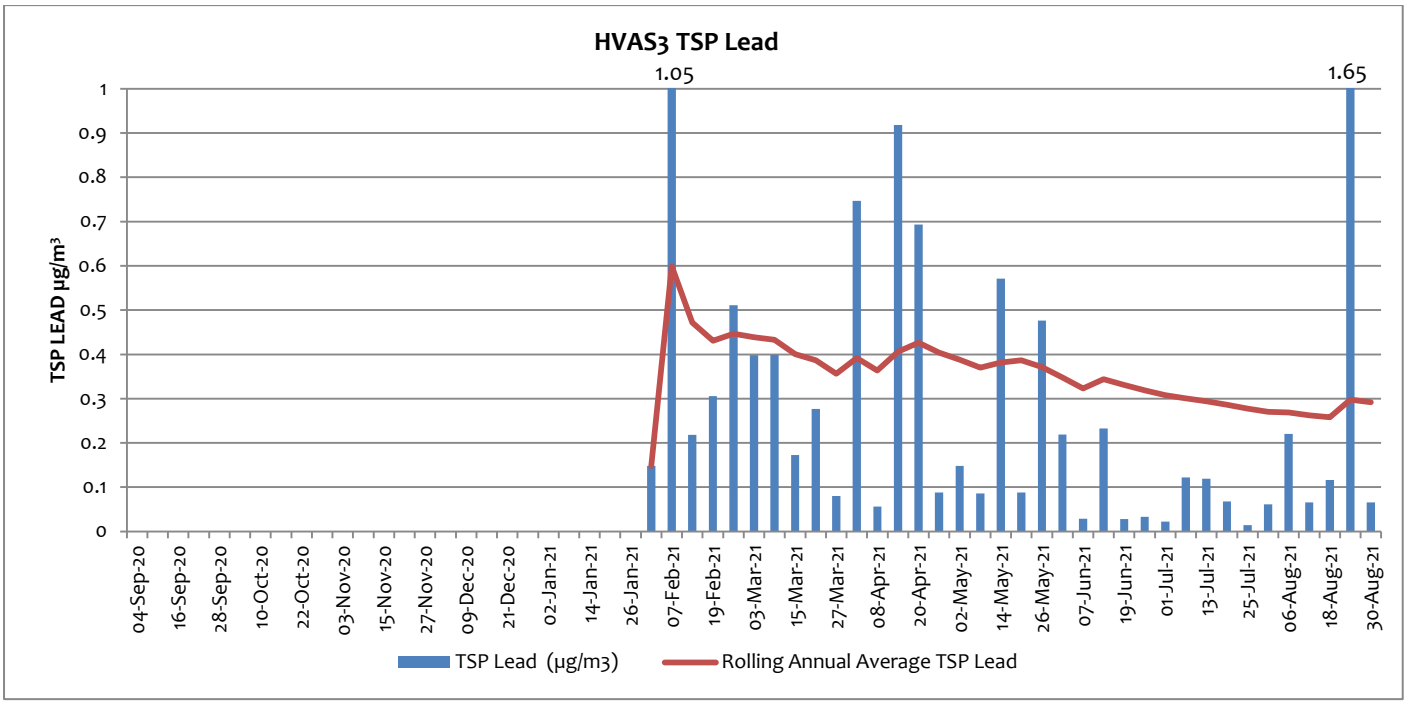
TSP levels were elevated in August compared to July with elevated results of 32.00 $\mu g/m^3$ on 12 August when winds were from the SW and 50.4 $\mu g/m^3$ on 24 August when winds were from the South. Dust collected on the 24 August was likely from TSF2 as it is South of HVAS3. The annual rolling average for TSP dust at this location is 32.79 $\mu g/m^3$ at the end of August 2021, however due to the unit being reinstalled after 19 months decommissioned, annual rolling average is calculated using data from February to August 2021 only.

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



There was one elevated TSP lead level of 1.65 $\mu g/m^3$ recorded on 24 August when winds were from the South and so likely the result of site activities. The rolling annual average for TSP Lead in August 2021 was 0.29 $\mu g/m^3$, however

due to the unit being reinstalled after 19 months decommissioned, annual rolling average is calculated using data from February toAugust only.



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 are designed to operate continuously and sample for particulate matter less than 10 microns (PM_{10}) in size.

TEOM2 was temporarily decommissioned in 19 June 2019 due to Embankment 2 TSF2 construction works. The decommissioning is in accordance with dust management strategies agreed with the EPA which includes the operation of a real-time PM10 monitor north of the construction works. Both Project Approval and Environment Protection Licence criteria exclude dust storms and other extraordinary events.

Project Approval 07_0018 criteria apply at TEOM1 and TEOM2, with two criteria listed for PM10, a 24 hour average criteria of 50 ug/m^3 and an annual average criteria of 25 ug/m^3.

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

TEOM1 (EPL13) (Off Site) and TEOM2 (EPL14) (On Site) Validated Results for August 2021

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?
1-Aug-21	5.0	Y	5.6	Y
2-Aug-21	8.6	Y	4.3	Y
3-Aug-21	7.4	Y	7.5	Y
4-Aug-21	7.2	Y	6.8	Y
5-Aug-21	4.9	Y	5.6	Y
6-Aug-21	5.8	Y	6.6	Y
7-Aug-21	5.5	Y	6.5	Y
8-Aug-21	5.1	Y	6.1	Y
9-Aug-21	7.0	Y	7.6	Y
10-Aug-21	11.6	Y	8.6	Y
11-Aug-21	60.9	Y	47.6	Y
12-Aug-21	14.1	Y	18.0	Y
13-Aug-21	10.2	Y	11.0	Y
14-Aug-21	8.6	Y	8.7	Y
15-Aug-21	7.1	Y	7.5	Y
16-Aug-21	10.7	Y	11.5	Y
17-Aug-21	6.3	Y	7.4	Y
18-Aug-21	10.8	Y	6.0	Y
19-Aug-21	9.6	Y	7.3	Y
20-Aug-21	9.2	Y	9.5	Y
21-Aug-21	13.7	Y	13.6	Y
22-Aug-21	12.7	Y	10.5	Y
23-Aug-21	11.9	Y	13.5	Y
24-Aug-21	10.6	Y	19.7	Y
25-Aug-21	6.2	Y	11.4	Y
26-Aug-21	9.1	Y	12.4	Y
27-Aug-21	12.1	Y	9.0	Y
28-Aug-21	22.2	Y	12.8	Y
29-Aug-21	8.8	Y	8.5	Y
30-Aug-21	11.4	Y	9.6	Y
31-Aug-21	17.1	Y	16.8	Y

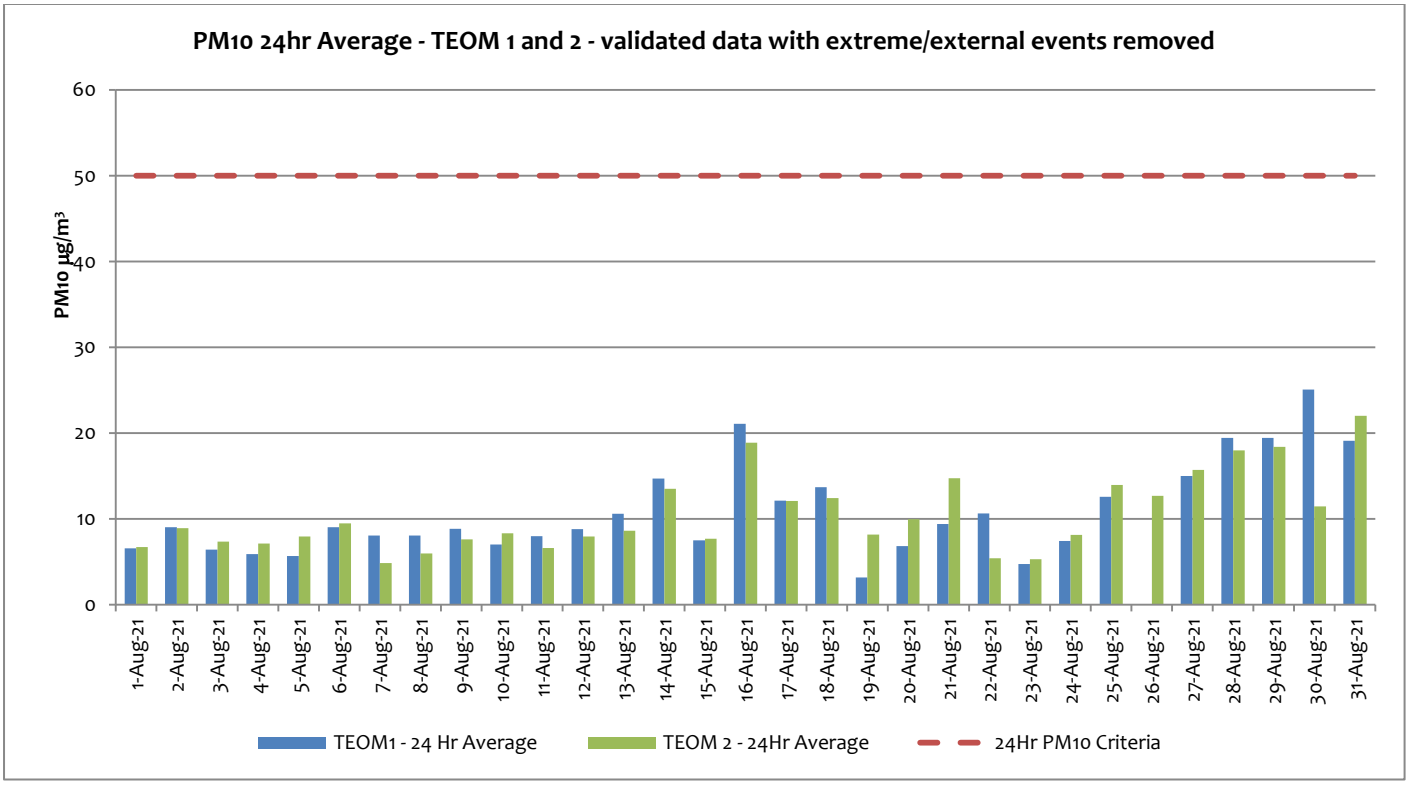
NS – no sample collected. SC – sample collected.

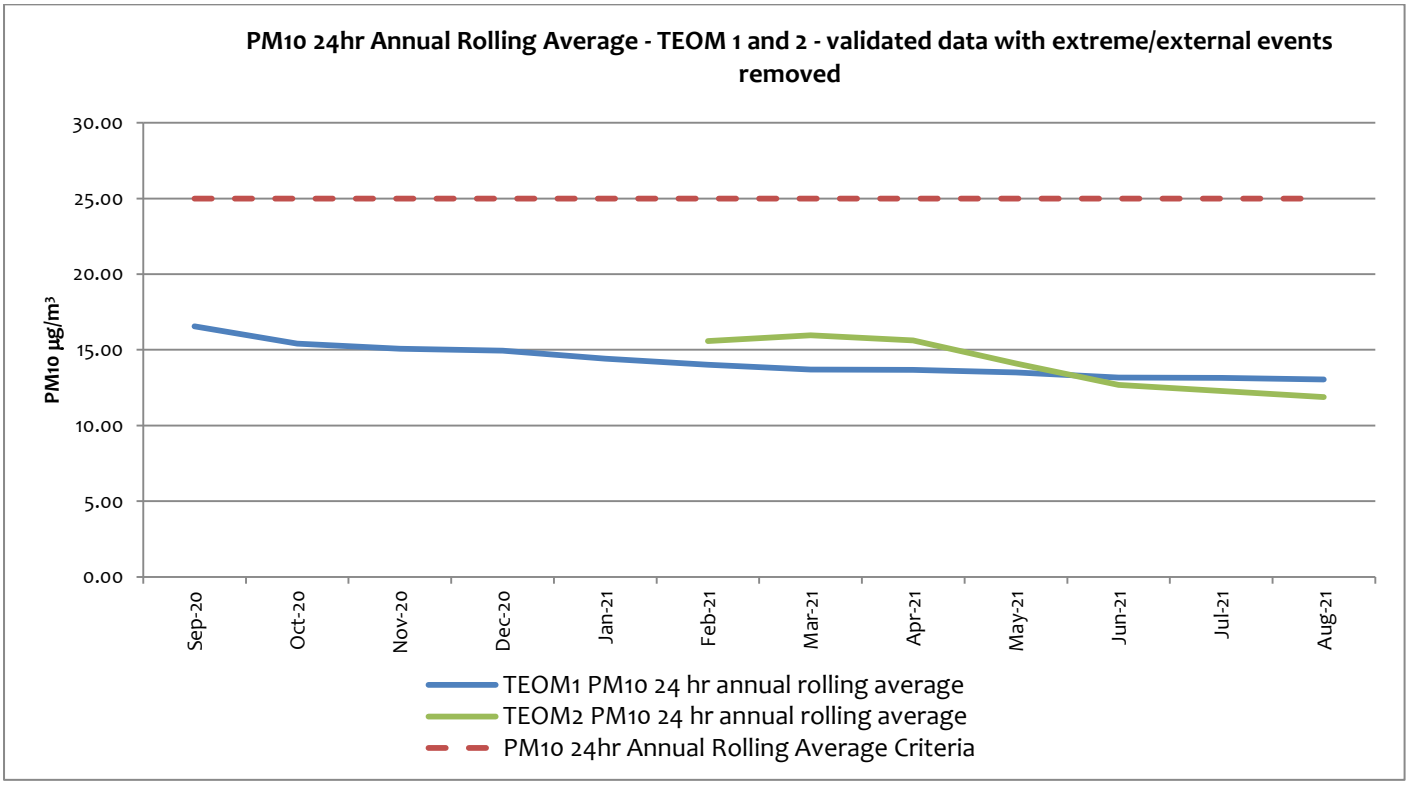
TEOM2 was decommissioned since June 2019 while Embankment 2 TSF2 construction works were undertaken and reinstalled in February 2021. Servicing, calibration and zeroing of both TEOM1 and TEOM2 were undertaken from 1st to 3rd of February. A portable PM10 monitor was operating adjacent to the TEOM2 location while servicing was being undertaken.

PM_{10} dust levels at both TEOM units were low in the month of August. TEOM1 and TEOM2 recorded elevated dust levels on 11 August due to heavy winds from the WNW and NW.

The PM_{10} 24-hour rolling annual average for data with external elevated dust events removed at August 2021 is 13.05 µg/m^3 for TEOM1 and 11.88 µg/m^3 for TEOM2.

The PM_{10} 24-hour rolling annual average for both TEOM sites remain below the annual average criteria of 25 ug/m^3.





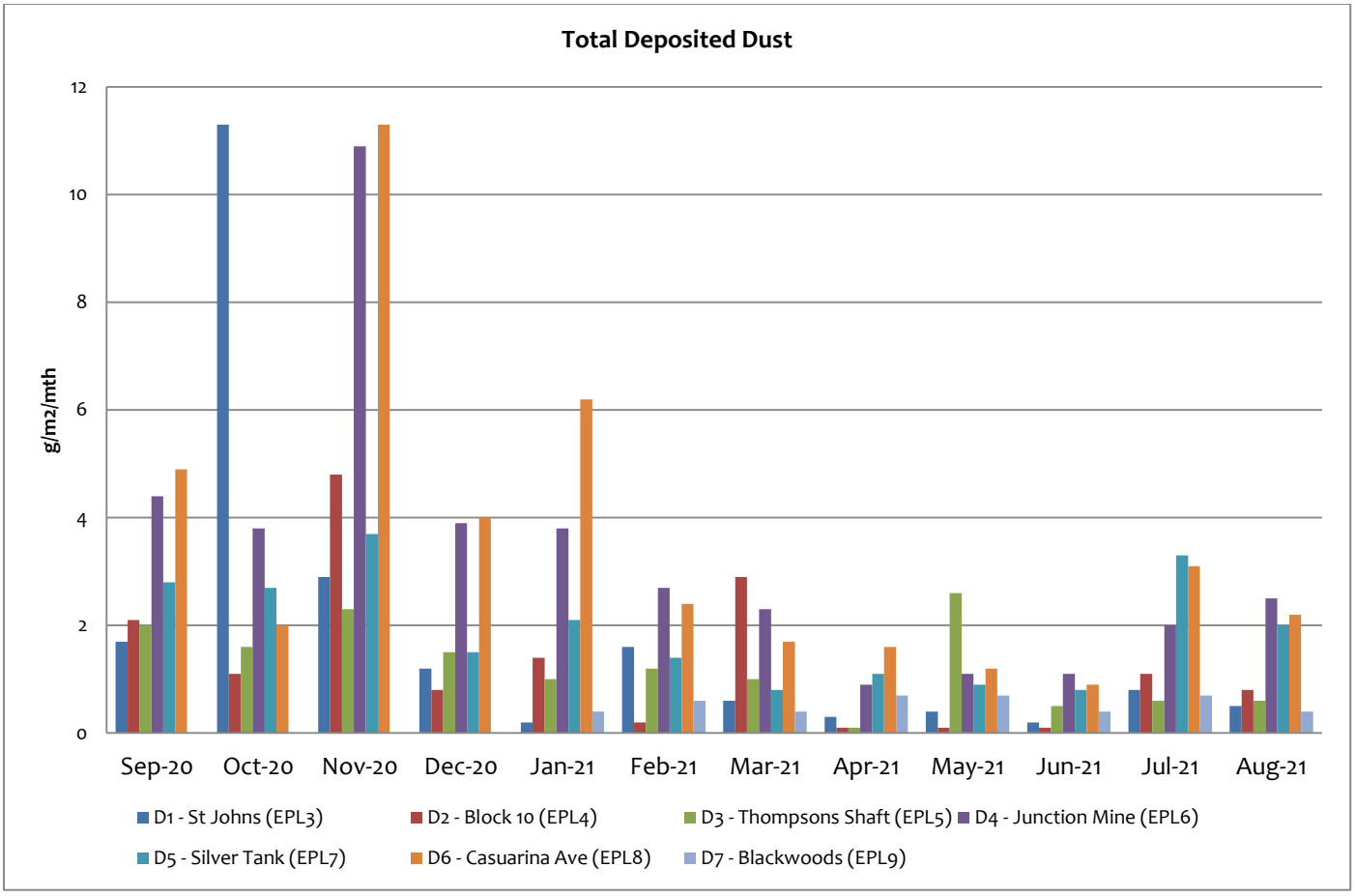
1.3 Dust Deposition Sampling

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. DDG7 was decommissioned from June 2019 to January 2021 due to works on TSF Embankment 2.

Dust Deposition Gauges D1 (EPL3) to D7 (EPL9) – Results for August 2021

Total Deposited Dust (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)
August 2021	0.5	0.8	0.6	2.5	2.0	2.2	0.4
Background (2010)	4.0	3.1	4.3	5.7	-1	5.8	-1
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, NS = No sample



The dust levels recorded in Dust Gauges in August 2021 were elevated compared to the previous months. The highest dust levels were recorded in the D4 Junction Mine, D5 Silver Tank and D6 Casuarina Avenue gauges. The

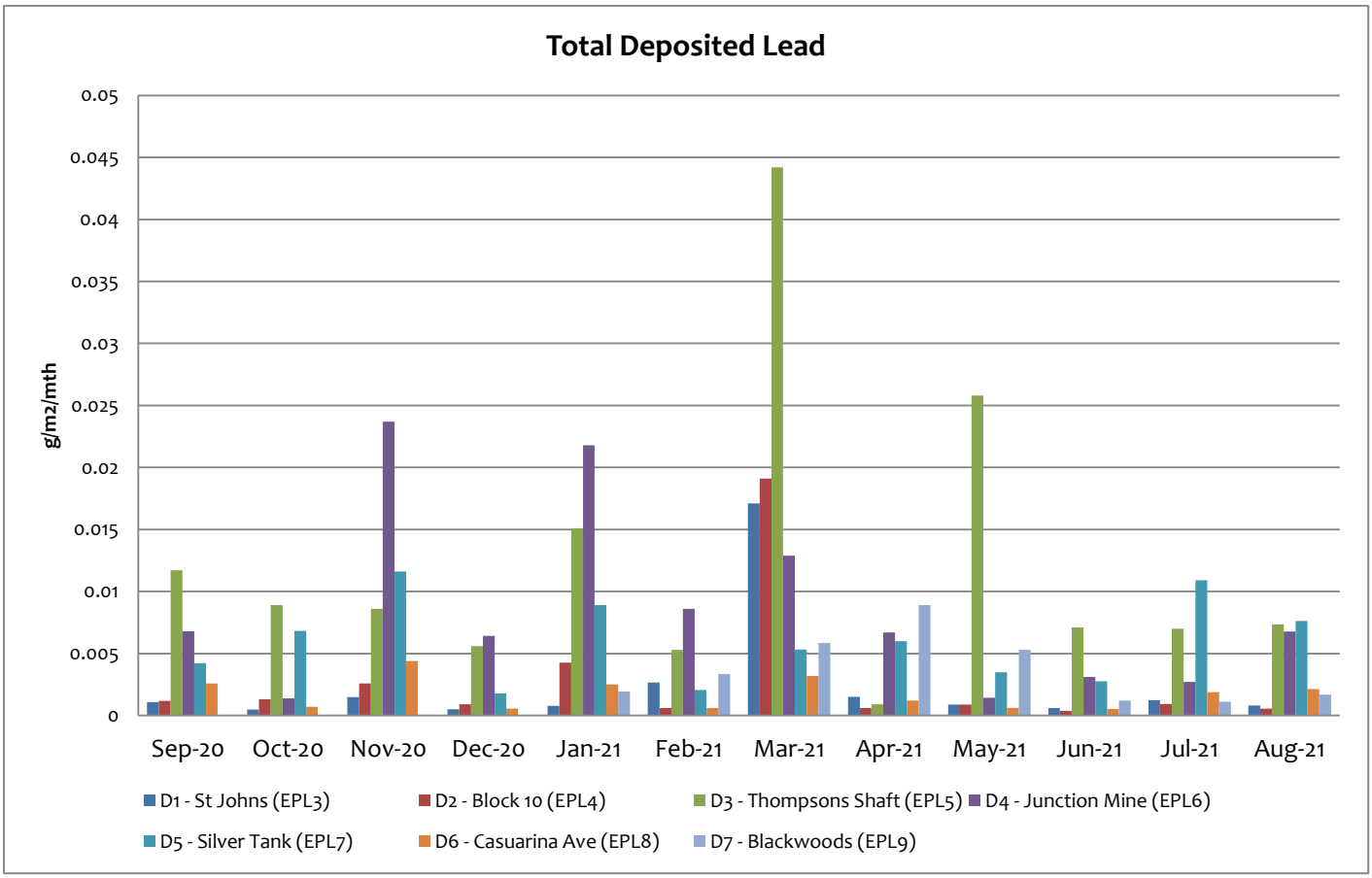
predominant wind directions for August 2021 was from the SW as shown in the Wind Rose in Section 4. The D4 Junction Mine gauge was likely impacted by site activities.

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)
August 2021	0.00081	0.00055	0.00735	0.007	0.00762	0.00212	0.00167
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 August 2021 were highest in the D3 Thompsons Shaft, D4 Junction Mine and D5 Silver Tank gauges. The predominant wind directions for August 2021 was from the SW as shown in the Wind Rose in Section 4. Site activities around the Rail Loadout area may contribute to elevated Lead levels at D3 Thompsons Shaft, but only minimally as the concentrate containers are loaded with concentrate and their lids are fitted in an enclosed shed. In addition the loading area alongside the train is a concrete pad which 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 on site. Much of the off-site area NW of the D3 Thompsons Shaft gauges is bare of cover and characterised by historical mining activities.

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.



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 April 2018. 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. 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 August 2021

Monitoring was conducted at the Primary Vent Shaft (EPL1) and the Crusher Baghouse (EPL2) on 11 August 2021. The monitoring results for the Primary Vent Shaft and the Crusher Baghouse from this monitoring event were below the licence criteria.

	Unit	Primary Vent Shaft (EPL1)	Crusher Baghouse (EPL2)
Dry Gas Density	Kg/m^3	1.28	1.29
Moisture	%	0.9	2.3
Molecular weight of stack gases	g/m^3	1,284	1,287
Temperature	^oC	23	21
Nitrogen Oxides	mg/m^3	2.22	NA
Volatile Organic Compounds	mg/m^3	0.464	NA
Total Suspended particles	mg/m^3	1.83	3.74
Type 1 and Type 2	mg/m^3	0.227	0.479
Velocity	m/sec	14.7	22.0
Volumetric Flowrate	m^3/sec	265	9.60

The next round of compliance monitoring was scheduled for October 2021.

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 owned land (7am-7pm)	115	5	5% of the total number of blasts over a 12-month 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 August 2021

Total Blasts:

- 0 production blasts occurred before 6.45 am or after 7.15 pm
- The number of Production blasts averaged 2.27 per week over the previous calendar year
- The number of Development blasts averaged 25.81 per week over the previous calendar year

Western Mineralisation and Main Lodes (excluding Block 7):

- 0 Blasts 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 = 1.8%

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 = 60%

The percentage of production blasts in the Western Mineralisation and Main Lodes producing vibration at monitors over 5 mm/sec for the 12-month period is 1.8%.

The percentage of production blasts in Block 7 producing vibration at monitors over 3 mm/sec for the 12-month period is 60%. No complaints have been received about Block 7 blasts.

2.2 Noise

Noise monitoring is undertaken as per the NSW Noise Policy for Industry at a frequency of once per annum. Annual noise monitoring was conducted during two consecutive night-time periods from 3 to 5 May 2021.

The monitoring assessment found that site LAeq, 15min noise contributions satisfied the relevant limits during the measurements at all assessment locations.

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.

Results for Kintore Pit/UG and Shaft 7 in August are within normal ranges.

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 (SO4), 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) Results for August 2021

Sample Point	pH	EC (µS/cm^2)	TDS (mg/l)	Alkalinity ($CaCO_3$) (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)	6.21	11400	11500	40	5340	1280	517	311	1560	1.54	0.77	242	600	0.12
Kintore Pit (EPL54)	6.17	14200	15800	5	7890	1540	492	351	1820	7.92	1.85	546	1460	<0.05

Groundwater Bores (EPL37 - EPL52) Results for August 2021

No groundwater monitoring scheduled for August.

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 on the Rasp Mine web site. Based on historical data, sampling is most likely to be 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
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	(Mn), pH, sodium (Na), sulphate (SO4), 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 Results for August 2021

No sampling of surface waters was possible in August due to lack of rainfall.

4 Weather Data

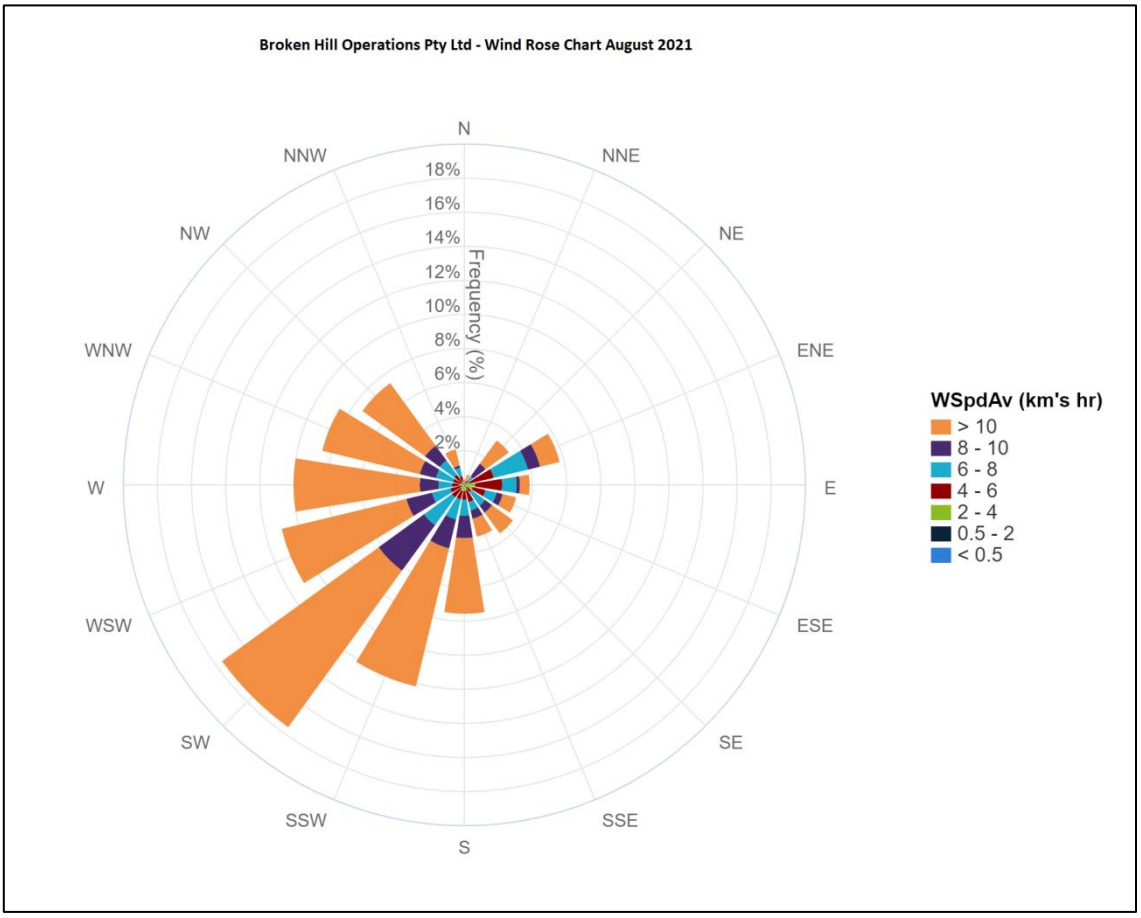
The weather station continuously monitors the following parameters as per Point 55 of the Environmental Protection Licence.

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

The windrose provided below indicates the predominant wind directions for the month of August was from the SW.



Weather Data Summary for August 2021

Date	Temperature @ 10m (°C)		Wind Speed @ 10m (km/hr)		Predominant Wind Direction @ 10m		Rainfall (mm)
	Min	Max	Min	Max	Cardinal	Degree	Total
01-Aug-18	9.7	15.0	0.9	24.7	SW	222	0.30
02-Aug-18	7.8	17.2	5.9	36.1	NE	43	5.80
03-Aug-18	4.8	12.1	6.7	32.0	West	268	0.00
04-Aug-18	4.8	13.9	7.0	25.9	WSW	244	0.00
05-Aug-18	8.6	14.6	5.3	19.8	SW	225	0.00
06-Aug-18	9.6	14.9	3.5	14.6	WSW	247	0.00
07-Aug-18	9.1	14.6	3.3	17.6	South	184	0.00
08-Aug-18	7.5	15.1	1.4	13.6	East	88	0.00
09-Aug-18	8.2	16.2	0.9	19.1	NE	40	0.00
10-Aug-18	10.1	20.4	8.7	33.4	South	179	0.00
11-Aug-18	9.7	24.3	7.7	51.2	SW	224	0.00
12-Aug-18	6.7	15.1	2.9	21.3	SSW	207	0.00
13-Aug-18	8.2	16.0	1.3	15.0	South	180	0.00
14-Aug-18	9.6	17.4	2.3	14.5	ENE	69	0.00
15-Aug-18	10.7	18.0	1.7	18.5	SSW	206	0.00
16-Aug-18	8.0	16.9	5.4	24.4	SSW	205	0.00
17-Aug-18	6.2	13.9	5.2	23.8	South	180	0.00
18-Aug-18	8.0	17.3	1.0	14.7	NE	47	0.00
19-Aug-18	10.4	19.0	4.5	20.6	NE	43	0.00
20-Aug-18	13.0	20.7	5.3	27.4	South	182	0.00
21-Aug-18	15.4	22.6	0.6	15.1	WNW	291	0.00
22-Aug-18	12.7	24.2	1.6	32.2	SW	226	0.00
23-Aug-18	6.9	22.5	7.2	38.0	SW	225	1.50
24-Aug-18	3.5	12.2	7.8	38.2	South	186	0.00
25-Aug-18	4.1	13.2	4.2	29.3	South	183	0.00
26-Aug-18	6.7	12.8	3.9	20.3	South	180	0.00
27-Aug-18	7.8	15.4	1.7	20.7	NE	45	0.00
28-Aug-18	9.2	20.4	6.7	45.4	NNE	21	0.00
29-Aug-18	7.9	16.7	3.0	26.6	West	271	0.00
30-Aug-18	10.0	18.9	2.2	23.2	NW	312	0.00
31-Aug-18	15.1	24.8	6.5	35.1	SSW	204	0.00

Rainfall of 7.6mm fell in August.

5 Data Log

Sample	Result Received
Hi Volume Samples	5-11-2021
TEOM	30-09-2021
Dust Deposition	13-10-2021
Vents & Bag House	11-08-2021
Noise	14-05-2021
Water	17-08-2021
Blast vibration and overpressure	1-09-2021
Weather	1-09-2021
Date posted to web site	08-07-2022

6 Correction Log

Total deposited dust for DG1 was incorrectly labelled as non-compliant against the criteria for deposited dust, corrected.