WILPINJONG COAL PTY LTD

Environment Protection Licence (EPL) 12425

Link to Environment Protection Licence EPL12425

LICENCE MONITORING DATA
MONTHLY SUMMARY REPORT

for

1 March 2023 to 31 March 2023

Air Monitoring

Air quality surrounding the Wilpinjong Coal Mine is monitored using:

1. tapered element oscillating microbalances (TEOM);
2. high volume air samplers (HV); and
3. dust deposition gauges (DG).

In terms of the above equipment:
1. the TEOM and HVAS measure fine dust particles up to 10 microns in diameter (i.e. PM10); and
2. the DG measure the total dust deposited in the gauge during the sample period.

All are influenced by mining as well as non-mining activities in the local area.

The location of the above monitoring equipment in relation to Wilpinjong Coal Mine is shown in **Figures 6** and **8**.

A summary of the monitoring results for the month is provided in **Table 1** and the yearly trends are also shown in **Figures 1** to **3**.

For comparison with **Figures 2** and **3**, **Figure 4** displays the Regional 24Hr PM10 Average. PM10 dust levels for the month have been recorded in Bathurst and Merriwa by NSW EPA.

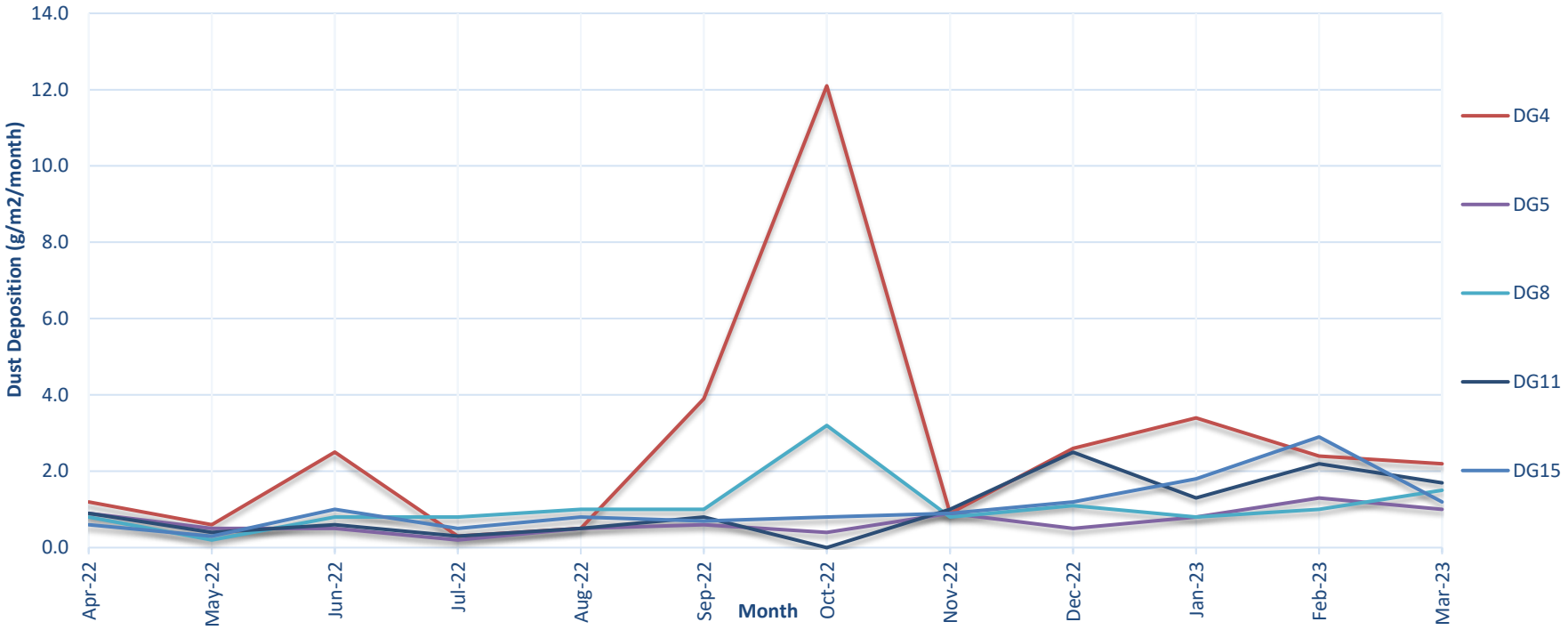
Table 1 - Air Monitoring

EPL ID No.	Monitoring Point ID.	Pollutant	Unit of Measure	Monitoring Frequency required by EPL	No. of times measured during month	Min. Value	Max. Value	Mean Value	Measurement	Annual Average	Limit	Exceed* (yes/no)	Date Last Sampled	Date Reported
3	DG4	Particulates - TIM	grams per square metre per month	Monthly	1				2.2				24/03/23	02/05/23
4	DG5	Particulates - TIM	grams per square metre per month	Monthly	1				1.0	0.7	4.0	No	24/03/23	02/05/23
6	DG8	Particulates - TIM	grams per square metre per month	Monthly	1				1.5				24/03/23	02/05/23
9	DG11	Particulates - TIM	grams per square metre per month	Monthly	1				1.7				24/03/23	02/05/23
17	DG15	Particulates - TIM	grams per square metre per month	Monthly	1				1.2				24/03/23	02/05/23
13	HV1	PM10	micrograms per cubic metre	Every 6 days	5	10.1	17.5	12.7			50	No	30/03/23	02/05/23
19	HV4	PM10	micrograms per cubic metre	Every 6 days	5	6.5	31.3	16.2			50		30/03/23	02/05/23
20	HV5	PM10	micrograms per cubic metre	Every 6 days	5	7.2	26.6	15.3			50		30/03/23	02/05/23
22	TEOM3	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	80.6%	3.4	8.6	5.5			50	No		
23	TEOM4	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	87.1%	7.9	28.8	15.7			50			

Notes:

1. Limits specified in the above table are from Development Consent SSD-6764.

Figure 1a. DG Results - 12 Month Trend



1. Limit of 4 g/m2/month (annual average) applies to DG5 (Wollar Village) - refer Figure 1b.
2. In October 2022, DG4 recorded 12.1g/m² of total insoluble matter. The sampler recorded 75% organic material indicating that the influence of mining operations contributed less than the limit of 4g/m² during the month.

Figure 1b. DG 5 Results - Annual Average

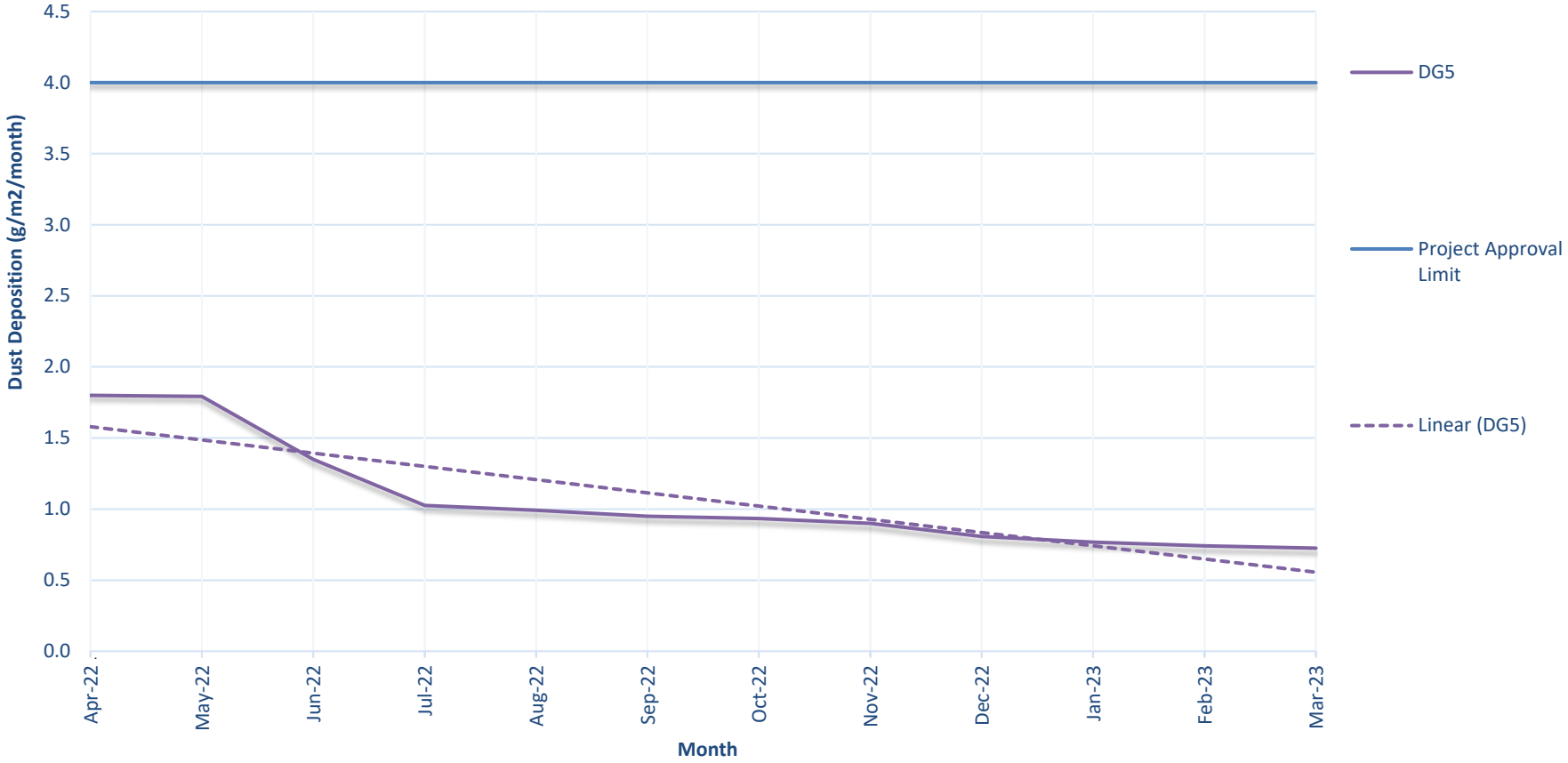
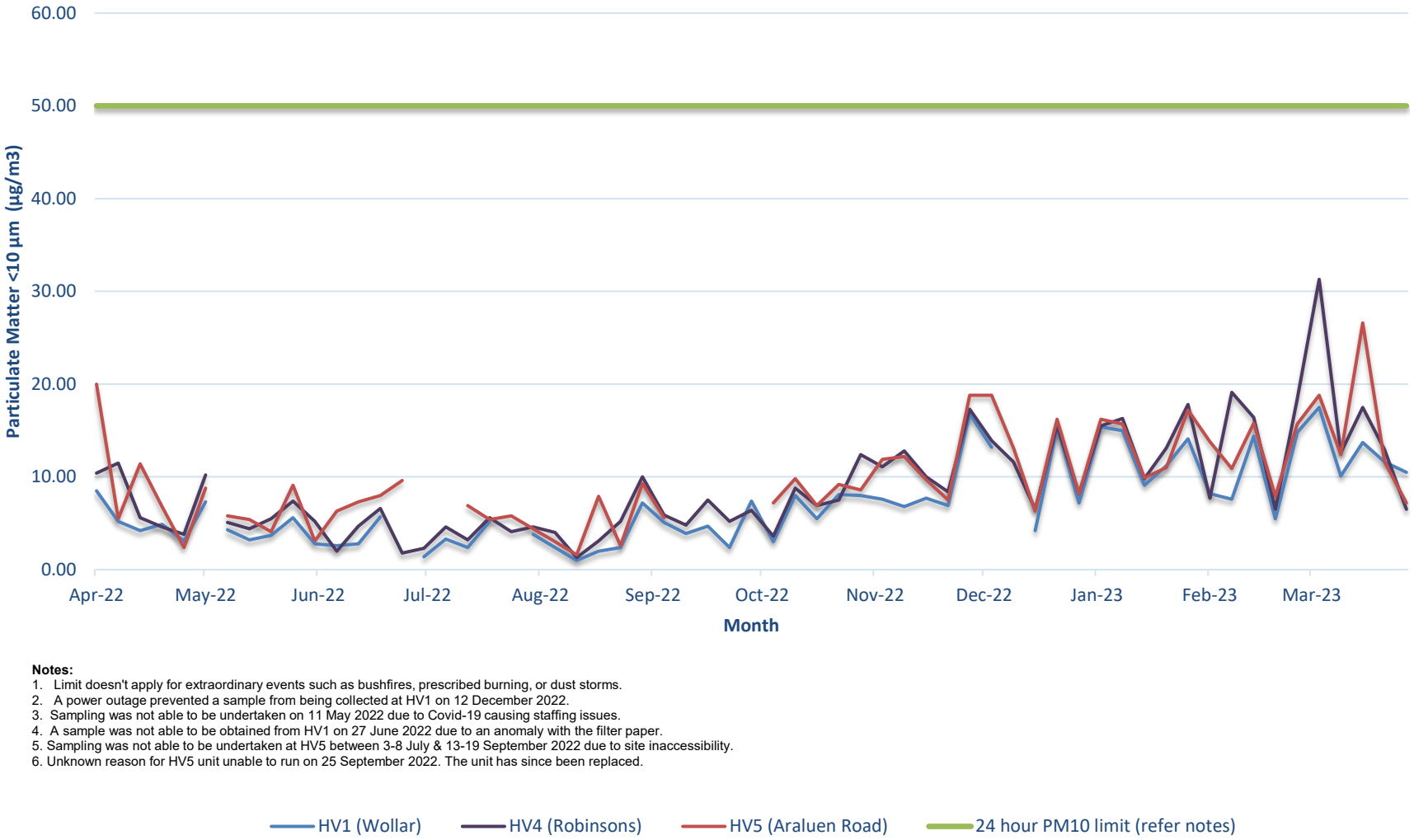
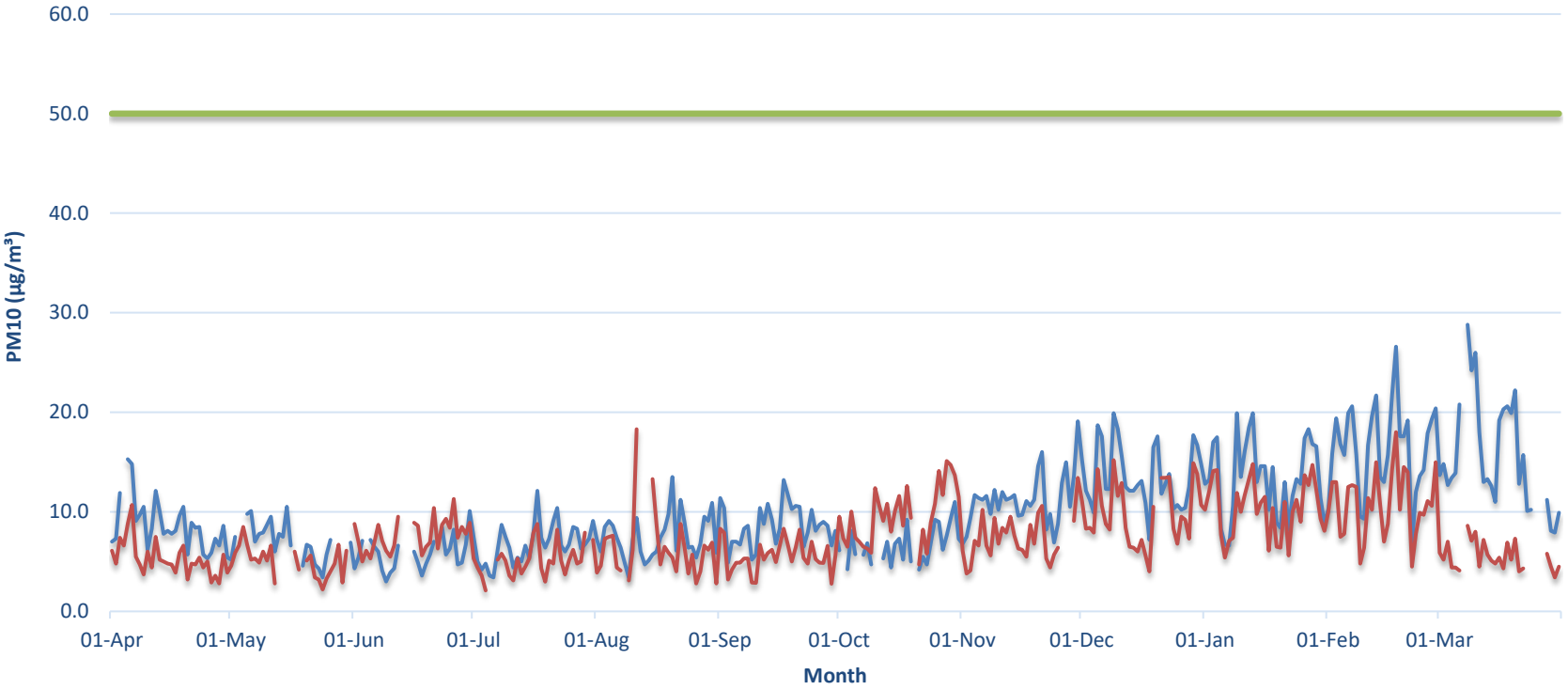


Figure 2. HV (PM10) Results - 12 Month Trend



Notes:
1. Limit doesn't apply for extraordinary events such as bushfires, prescribed burning, or dust storms.
2. A power outage prevented a sample from being collected at HV1 on 12 December 2022.
3. Sampling was not able to be undertaken on 11 May 2022 due to Covid-19 causing staffing issues.
4. A sample was not able to be obtained from HV1 on 27 June 2022 due to an anomaly with the filter paper.
5. Sampling was not able to be undertaken at HV5 between 3-8 July & 13-19 September 2022 due to site inaccessibility.
6. Unknown reason for HV5 unit unable to run on 25 September 2022. The unit has since been replaced.

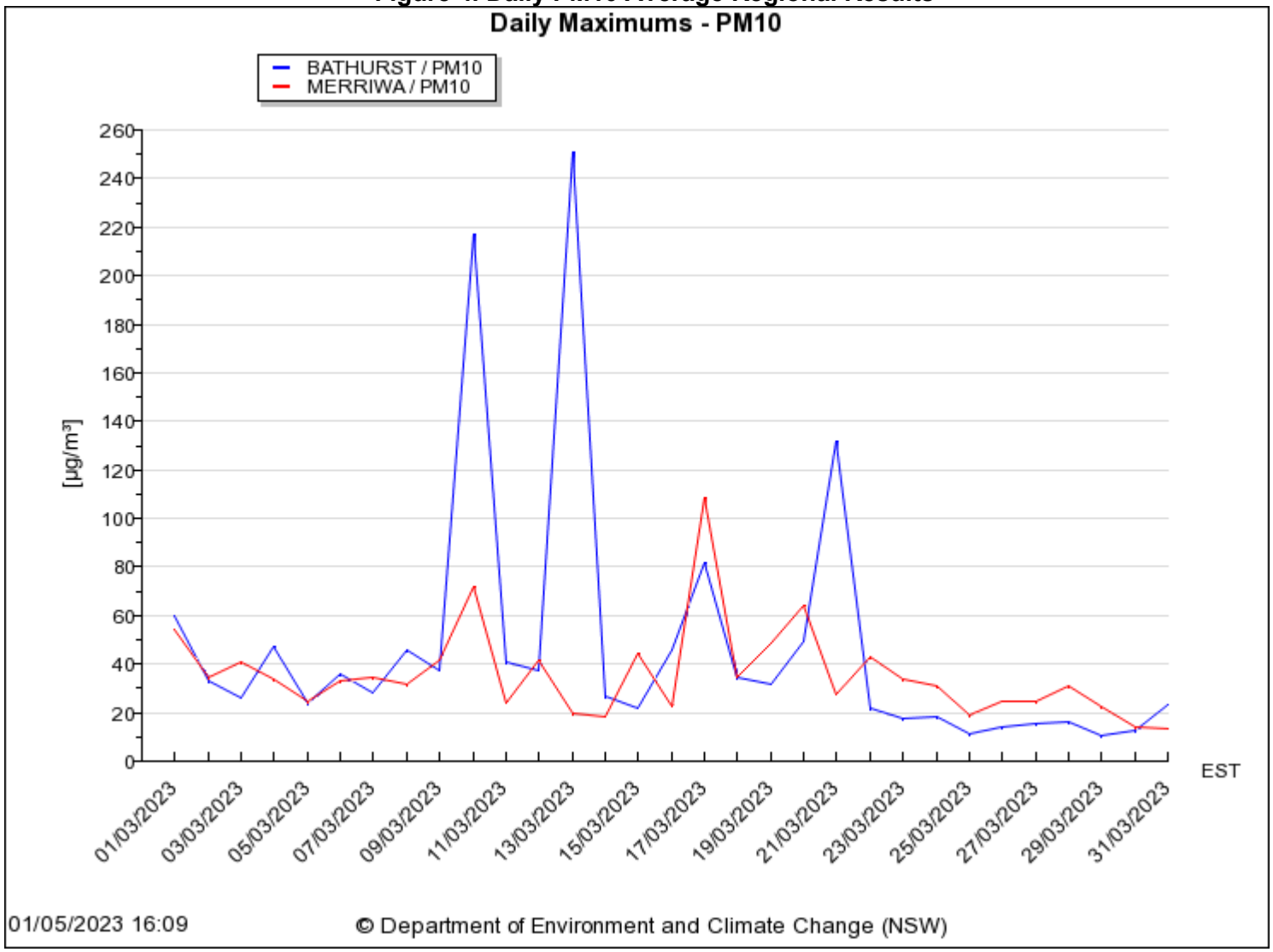
Figure 3. TEOM (PM10) Results - 12 Month Trend



Notes:
1. Limit dosen't apply for extraordinary events such as bushfires, prescribed burning or dust storms
2 Power outages and maintenance during May, June and October 2022, and March 2023 resulted in periods of no data at TEOM 3 and 4.
3. Instrumentation error at TEOM 3 prevented accurate data recording on 30 July and 6, 10-11 October 2022.
4. Planned maintenance prevented valid 24 hour average values from being recorded between 19 May and 22 June 2022 at TEOM 3.
5. Unplanned power outages between 13-16 May, 5-6 July, and on 20 October 2022 prevented valid 24 hour average values from being recorded at TEOM 3.
6. On April 4, 2022, electrical work was undertaken to install an adjacent monitoring unit at TEOM 4 during which time the unit was down (10:30am to 5:45pm)
7. TEOM 3 failed in March 2023 for a period of five days due to low flows, extreme filter loads and a cricket discovered inside the unit during repair.
8. TEOM 4 4 failed in March 2023 for a period of two days - cause of failure unknown. The unit was restarted by Novecom.

TEOM 4 (Araluen Rd) TEOM 3 (Wollar) 24 hour PM10 Limit (refer Notes)

Figure 4. Daily PM10 Average Regional Results



Surface Water Monitoring

Surface water runoff is isolated and diverted around disturbed areas through the construction of water diversion bunds. Runoff from disturbed areas is diverted into on-site water retention dams.

A Reverse Osmosis (RO) Plant treats all water from the retention dams before it is discharged to Wilpinjong Creek. The EPL specifies limits for the quantity and quality of water that may be discharged from the site.

Table 2 - Site Water Discharge Monitoring

EPL ID No.	Monitoring Point ID.	Pollutant	Unit of Measure	Monitoring Frequency required by EPL	No. of times measured during month	Min. Value	Max. Value	Mean Value	Limit	Exceed[n] (yes/no)	Date Last Sampled	Date Reported
24	RO Plant Discharge	Conductivity	microSiemens per centimetre (uS/cm)	Continuous during discharge	100%	102	467	413	500	No		
		Oil and Grease	milligrams per litre (mg/L)	Weekly during any discharge	5	<5	<5	<5	10.0	No	28-Mar-2023	2-May-2023
		pH	pH Unit	Continuous during discharge	100%	6.5	8.2	7.3	≥6.5≤8.5	No		
		Total Suspended Solids	milligrams per litre (mg/L)	Weekly during any discharge	5	<1	<1	<1	50	No	28-Mar-2023	2-May-2023
		Volume discharged	megalitres per day	Continuous during discharge	100%	2.934	5.114	4.598	6.5	No		
30	Clean Water Dam Discharge	Turbidity	Nephelometric Turbidity Units	Continuous during discharge	100%	*No discharge recorded during he month*			As per EPL 12425	No		

Noise Monitoring

Environmental noise monitoring ("monitoring") is carried out monthly.

The purpose of the monitoring is to assess whether mining operations are consistent with the objectives of the EPL and the development consent conditions.

In terms of this monitoring, it is undertaken:
1. by an independent noise consultant;
2. during the night-time; and
3. at the sites shown in **Figure 7**.

On pages 11 and 12 of this report are the noise levels and findings from the consultant's report.

Peabody

Table 4.1 Total measured noise levels – March 2023 [1]

Location	Start date and time	L_{Amax} dB	L_{A1} dB	L_{A10} dB	L_{Aeq} dB	L_{A50} dB	L_{A90} dB	L_{Amin} dB
N6	17/03/2023 00:28	51	40	37	36	35	34	31
N14	16/03/2023 23:30	50	42	42	41	41	40	38
N15	16/03/2023 23:00	47	43	42	40	40	38	35
N17	16/03/2023 22:24	45	38	36	34	33	31	28
N19	16/03/2023 22:00	41	34	32	30	30	29	26
N20	17/03/2023 00:00	53	49	41	38	35	29	26

Notes: 1. Levels in this table are not necessarily the result of activity at site.

Atmospheric condition data measured by the operator during each measurement using a hand-held weather meter is shown in Table 4.2. The wind speed, direction, and temperature were measured at approximately 1.5 metres above ground. Attended noise monitoring is not done during rain, hail, or wind speeds above 5 m/s at microphone height.

Table 4.2 Measured atmospheric conditions – March 2023

Location	Start date and time	Temperature °C	Wind speed m/s	Wind direction °Magnetic north[1]	Cloud cover 1/8s
N6	17/03/2023 00:28	16	0.0	-	0
N14	16/03/2023 23:30	20	0.0	-	0
N15	16/03/2023 23:00	23	0.0	-	0
N17	16/03/2023 22:24	21	0.0	-	0
N19	16/03/2023 22:00	26	0.0	-	0
N20	17/03/2023 00:00	20	0.0	-	0

Notes: 1. "-" indicates calm conditions at monitoring location.

Table 4.3 Site noise levels and limits – March 2023

Location	Start date and time	Wind		Stability class	Limits apply? [1]	Site limits, dB		Site levels, dB		Exceedances, dB	
		Speed m/s	Direction [4]			$L_{Aeq,15minute}$	$L_{A1,1minute}$	$L_{Aeq,15minute}$ [2]	$L_{A1,1minute}$	$L_{Aeq,15minute}$	$L_{A1,1minute}$
N6	17/03/2023 00:28	0.0	-	G	No	37	45	IA	IA	N/A	N/A
N14	16/03/2023 23:30	0.0	-	G	No	35	45	IA	IA	N/A	N/A
N15	16/03/2023 23:00	0.0	-	G	No	37	45	<20	<20	N/A	N/A
N17	16/03/2023 22:24	0.0	-	G	No	38	45	27	30	N/A	N/A
N19	16/03/2023 22:00	0.9	330	G	No	35	45	IA	IA	N/A	N/A
N20	17/03/2023 00:00	0.4	308	G	No	35	45	IA	IA	N/A	N/A

Notes:
1. Noise emission limits do not apply during periods of rainfall or winds greater than 3 metres per second (at a height of 10 metres).
2. Site-only $L_{Aeq,15minute}$, includes modifying factor penalties if applicable.
3. NA in exceedance column means criterion was not applicable due to atmospheric conditions outside those specified in consent.
4. Degrees magnetic north, "-" indicates calm conditions.

6 Summary

EMM was engaged by Wilpinjong Coal Pty Ltd to conduct a monthly noise survey of operations at WCP. The survey purpose was to quantify the acoustic environment and compare site noise levels against specified limits from the relevant EPL and consent.

Attended environmental noise monitoring described in this report was done during the night period of 16/17 March 2023 at six monitoring locations.

Noise levels from site complied with relevant limits at all monitoring locations during the March 2023 survey.

Wilpinjong Coal received the report from EMM Consulting Pty Ltd on 4th April 2023.

Blasting

Monitoring is carried out near sensitive locations during blasting activities to determine the vibration in the air (overpressure) and earth (ground vibration). A summary of the results of this monitoring, and the limits specified in the EPL, are shown in **Tables 3** and **4**. **Figures 7 & 8** shows the actual overpressure and vibration levels recorded during the month.

Table 3 – Overpressure Monitoring Results

Location	Month	Number of Blasts	Minimum overpressure (dB(L))	Maximum overpressure (dB(L))	Mean overpressure (dB(L))	EPL overpressure Limits (dB(L))	Exceedance (yes/no)
Approx. 50m west of the Wollar Public School	March	10	74.6	108.4	90.17	115dB (95% blasts) 120dB (100% blasts)	no

Table 4 – Vibration Monitoring Results

Location	Month	Number of Blasts	Minimum vibration (mm/sec)	Maximum vibration (mm/sec)	Mean vibration (mm/sec)	EPL vibration Limits (mm/sec)	Exceedance (yes/no)
Approx. 50m west of the Wollar Public School	March	10	0.01	1.34	0.21	5 mm/s (95% blasts) 10 mm/s (100% blasts)	no

Figure 7. Overpressure (dBL) recorded during Month

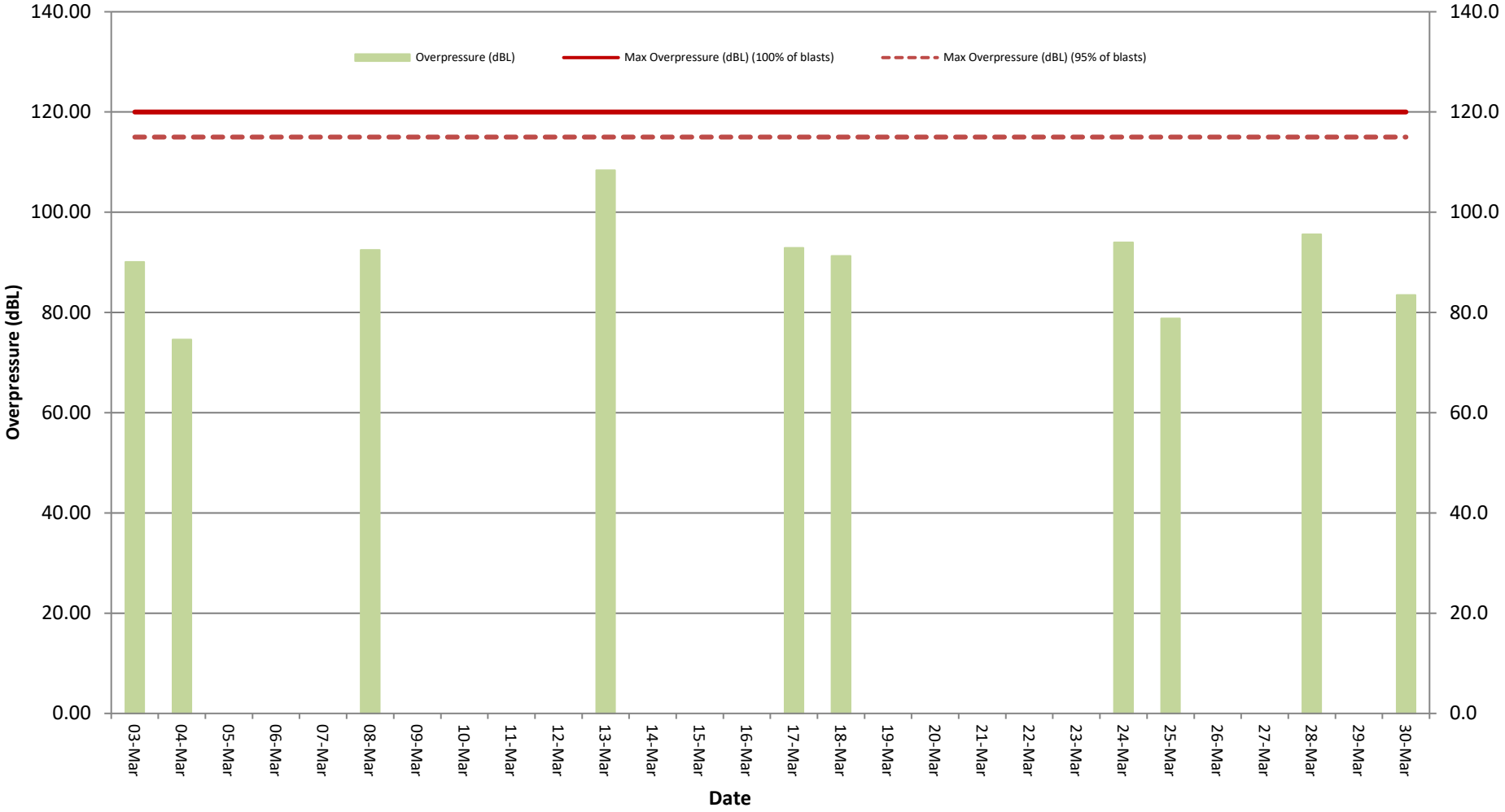
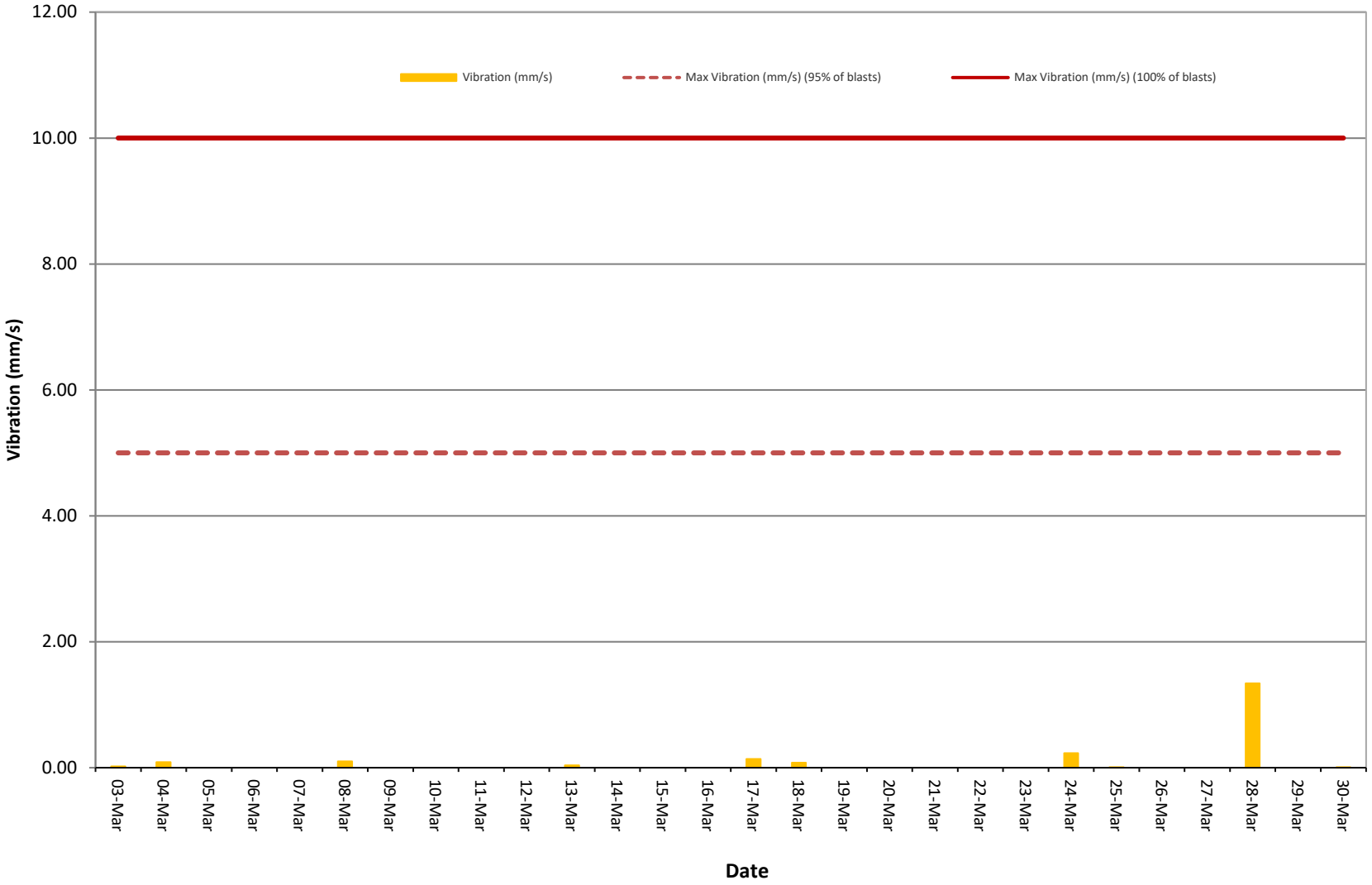


Figure 8. Vibration (mm/s) recorded during Month



Weather Monitoring

Continuous weather monitoring occurs onsite at the location shown on Figures 5 and 6 (**Meteorological Station**). The Meteorological Station continuously monitors for: rainfall; relative humidity; temperature (i.e. at 2m, 10m & 60m), barometric pressure, wind speed, wind direction and temperature lapse rate.

The temperature lapse rate is a measure of stable atmospheric conditions and is determined by measuring air temperature at two elevations 58m apart (i.e. 2m and 60m from ground level) and extrapolating the temperature difference over 58m to determine the lapse rate per ºC/100m.

Table 5 shows the meteorological data recorded during the month.

Table 5 – Monthly Meteorological Data

Date	Temperature (°C)									Humidity (%)			Prevailing Wind				Rain	Bar	Lapse Rate
	2m			10m			60m						Speed			Dir	(mm)	(hPa)	(oC/100m)
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	(Deg)			Max
1/03/2023	23.9	15.4	32.2	23.8	16.2	31	23.6	16.6	29.7	58.1	20.8	95.1	0.8	0	5.3	168	0	1003.5	4.6
2/03/2023	23.9	19.2	30.5	23.5	19.3	29.3	22.9	19	28.5	57	29.5	79.6	3.2	0.7	5.2	61	0	1007	-0.2
3/03/2023	22.9	16.7	29.3	22.5	16.8	28.1	22.1	16.6	27.3	59.6	34	88.7	2.8	0.7	5.5	56	0	1010.6	2.3
4/03/2023	22.7	18.1	28.4	22.4	18.3	27.2	21.8	18	26.4	58.4	37.5	78.2	3.2	1.8	4.8	63	0	1011.9	0.2
5/03/2023	24.2	15	33.5	24.1	15.8	32.5	24	16.2	31.4	53	25.8	86.6	0.3	0	3.1	4	0	1007.4	8.4
6/03/2023	27.9	19.9	37	28.2	20.9	36.4	28.9	22.8	35.2	37	11.4	67.5	3	0	8.5	263	0	1002.2	13.2
7/03/2023	26.6	18.5	33.1	26.8	20.3	31.9	26.9	23.2	30.6	32.1	14.9	60.1	2.7	0	6.4	237	0	1002	14.2
8/03/2023	21.8	13.5	29.7	22.1	15.2	28.7	21.9	15.7	27.5	32.2	9.9	58.3	2.7	0	7.5	241	0	1001.2	7.0
9/03/2023	19.3	9.8	27.1	19.6	11	26.3	19.6	12.7	25	41.4	19.1	73.4	1.6	0	5.1	224	0	1005.1	8.4
10/03/2023	20.4	8.9	31.8	20.6	10.1	30.5	21.2	11.4	29.7	48.5	20.2	74.8	0.6	0	3.5	56	0	1008.9	9.1
11/03/2023	22.4	13.1	30.8	22.2	13.5	29.4	22.7	15.5	28.6	64.6	35.7	93	1.2	0	3.8	272	0	1009.4	7.4
12/03/2023	23	17.5	30.7	22.7	17.8	29.4	22.6	19.1	28.1	70.2	38.5	92.5	1.2	0	4.7	55	12.6	1006.3	3.9
13/03/2023	20.9	18.8	24.1	20.5	18.7	23.2	20	18.3	22.1	68.7	54.4	79	4.3	1.8	7.4	64	0	1010.7	0.2
14/03/2023	20.7	18.8	24.9	20.3	18.6	24.2	20	18.2	23.6	73.3	57.3	84.8	3	1.4	5.1	64	0.2	1012.5	1.6
15/03/2023	24	17.2	31.6	23.8	17.7	30.9	23.7	18.7	29.8	57.5	25.1	88.2	0.7	0	4.2	221	0.2	1009.1	8.1
16/03/2023	24.3	12.9	34.7	24.6	13.8	33.9	25	15.4	32.7	48.8	17.7	88.7	1.6	0	6.4	226	0	1008.2	10.2
17/03/2023	23.9	11	34.7	24.2	12.4	33.7	25	15.5	32.6	42.3	10.2	83.7	1.2	0	4.9	211	0	1010.9	11.2
18/03/2023	23.8	13	36.7	24.2	13.9	36.2	25	14.9	35.1	52.1	12.1	91.4	0.8	0	4.4	259	0	1015.1	12.1
19/03/2023	25.3	12.4	38.7	25.9	13.8	37.6	27.2	16.1	37	42.3	13.5	76.5	0.9	0	4	243	0	1014.3	15.1
20/03/2023	21.7	14.9	29.5	21.7	15.7	28.5	22.2	17.9	27.5	59.8	44.1	70.2	3.1	0	7	60	0	1018.6	9.3
21/03/2023	19.9	18.5	22.7	19.5	18.1	21.9	18.8	17.7	20.9	68.2	55.8	76.9	4.5	3	6.7	67	0	1023.2	-0.9
22/03/2023	20.7	15.1	30.9	20.3	15.4	29.1	20	16.1	28.1	72	37.7	91.5	1.4	0	4.3	78	7.2	1018.1	1.9
23/03/2023	22.2	17.2	30.6	22	17.3	29.7	21.7	17.5	28.9	74.4	39.6	95	0.7	0	7.9	258	8.6	1014.5	2.5
24/03/2023	21.8	15.5	29.4	21.7	16	28.4	21.3	16	27.4	71	39.9	95	1.3	0	4.5	54	0	1013.1	2.6
25/03/2023	20.5	17.6	23.6	20.3	17.6	23	19.7	17.3	22	77.2	63.3	93.9	3.5	0	5.4	66	26.4	1014	-0.2
26/03/2023	20.9	17.1	25.3	20.8	17.3	24.8	20.2	17.2	23.9	71.5	56.1	85.8	2.5	0.9	4.3	61	0	1013.1	1.1
27/03/2023	20	16	26.8	20.1	16.4	26	19.7	16.6	24.9	85.8	59.7	94.5	0.6	0	3.6	40	0.8	1011.5	1.4
28/03/2023	20.7	17.7	25.6	20.7	18	24.8	20.4	17.9	24.1	83.6	60.6	95.4	0.9	0	3.1	60	0.2	1011.3	2.1
29/03/2023	20.3	17.5	25.4	20.4	18	24.8	19.9	17.6	23.7	75.3	42.6	93.9	1.6	0	5.9	227	8.4	1005.4	1.9
30/03/2023	16.8	11.3	21.9	16.8	12.2	21.1	16.5	13.1	19.9	59.1	33.1	93	2.6	0	5.5	223	0	1006.3	4.2
31/03/2023	15.5	7.1	23	15.6	7.8	22.2	15.5	8.8	21.2	60.9	35.7	93.7	1.6	0	4.6	219	0	1009.9	5.6

Figure 6 – Air (Dust) Monitoring Locations

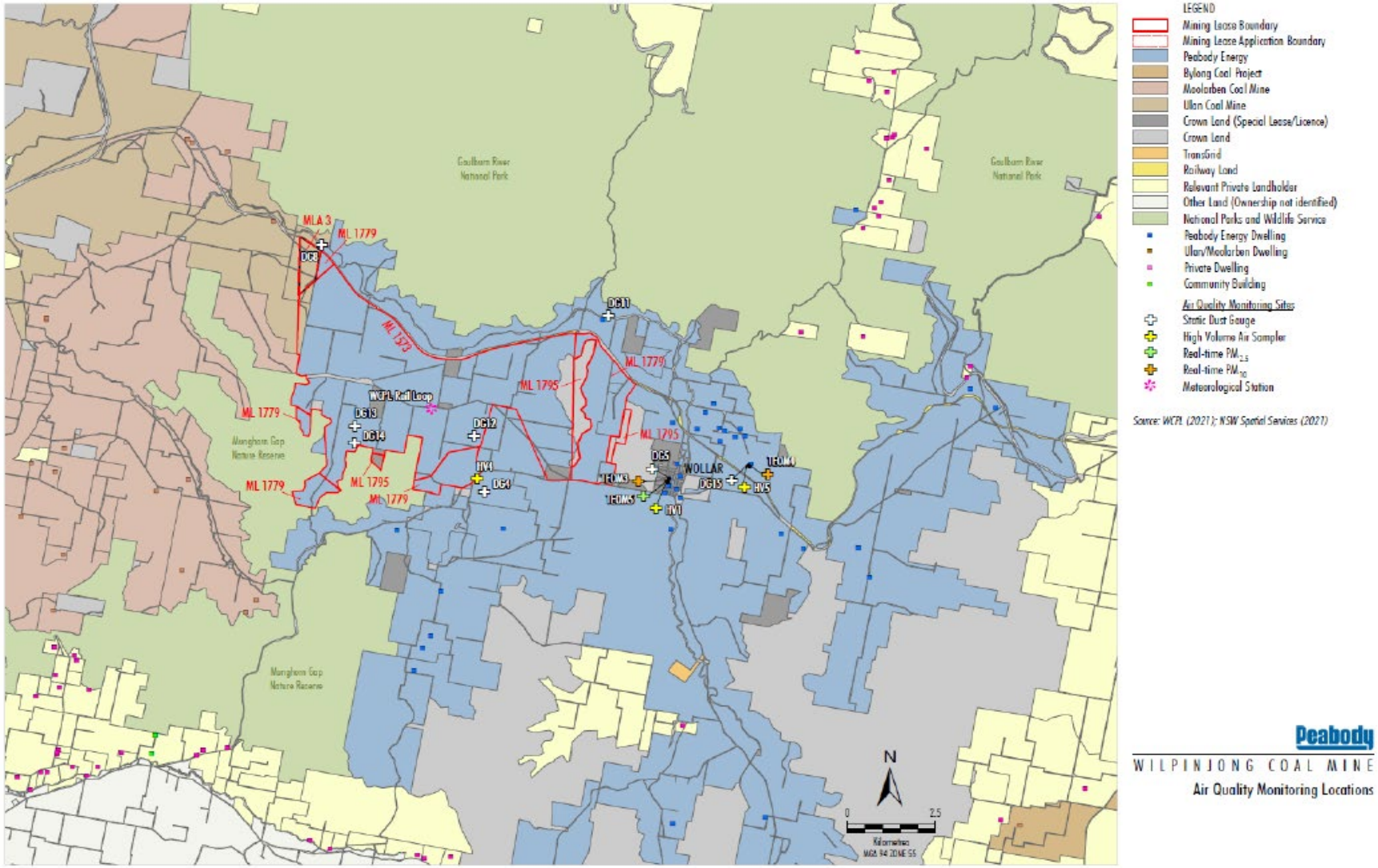


Figure 7 – Attended Noise Monitoring Locations

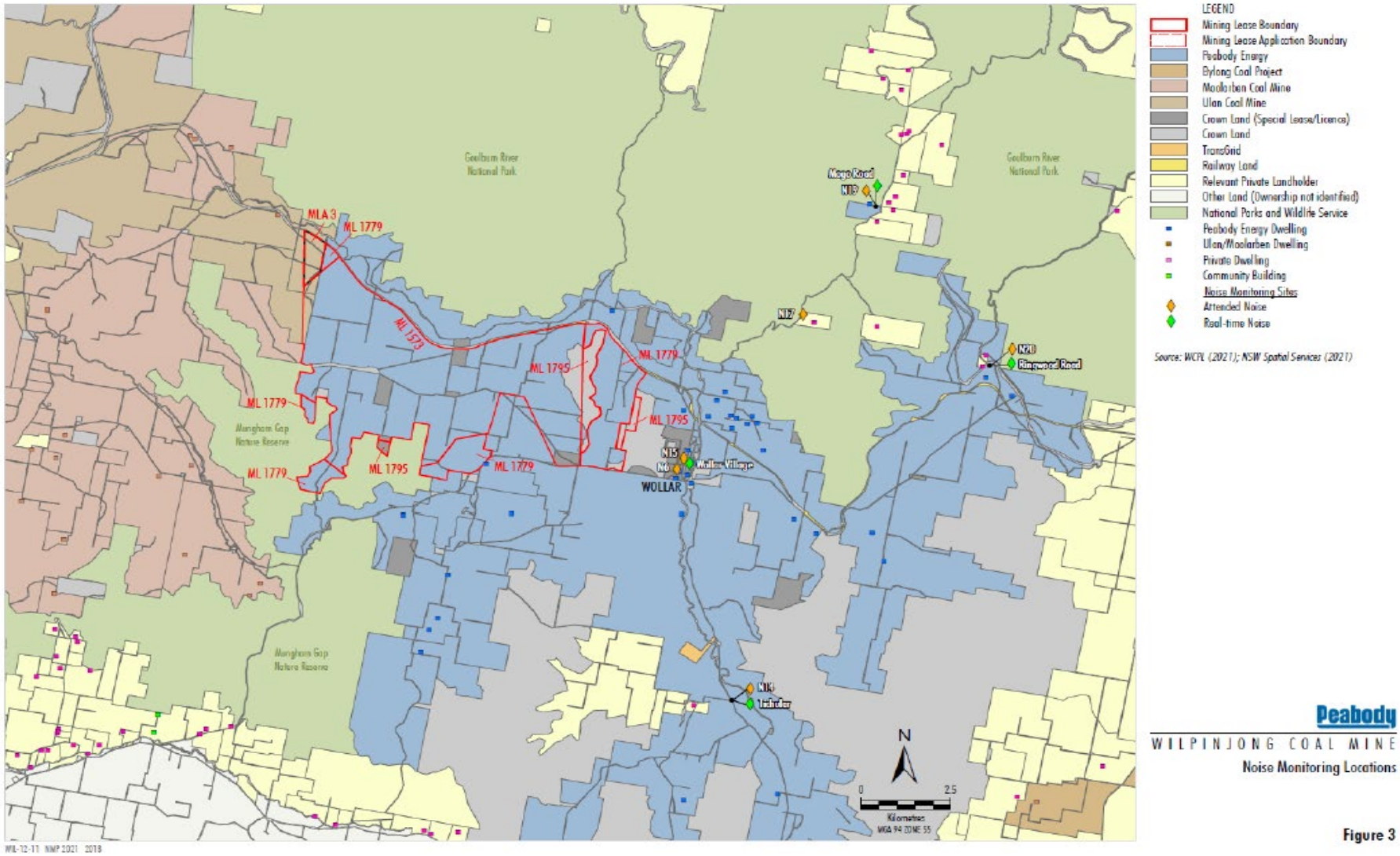


Figure 8 – Wollar Village Environmental Monitoring Sites