



WILPINJONG COAL PTY LTD

Environment Protection Licence (EPL) 12425

[Link to Environment Protection Licence EPL12425](#)

**LICENCE MONITORING DATA
MONTHLY SUMMARY REPORT**

for

1 December 2023 to 31 December 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.

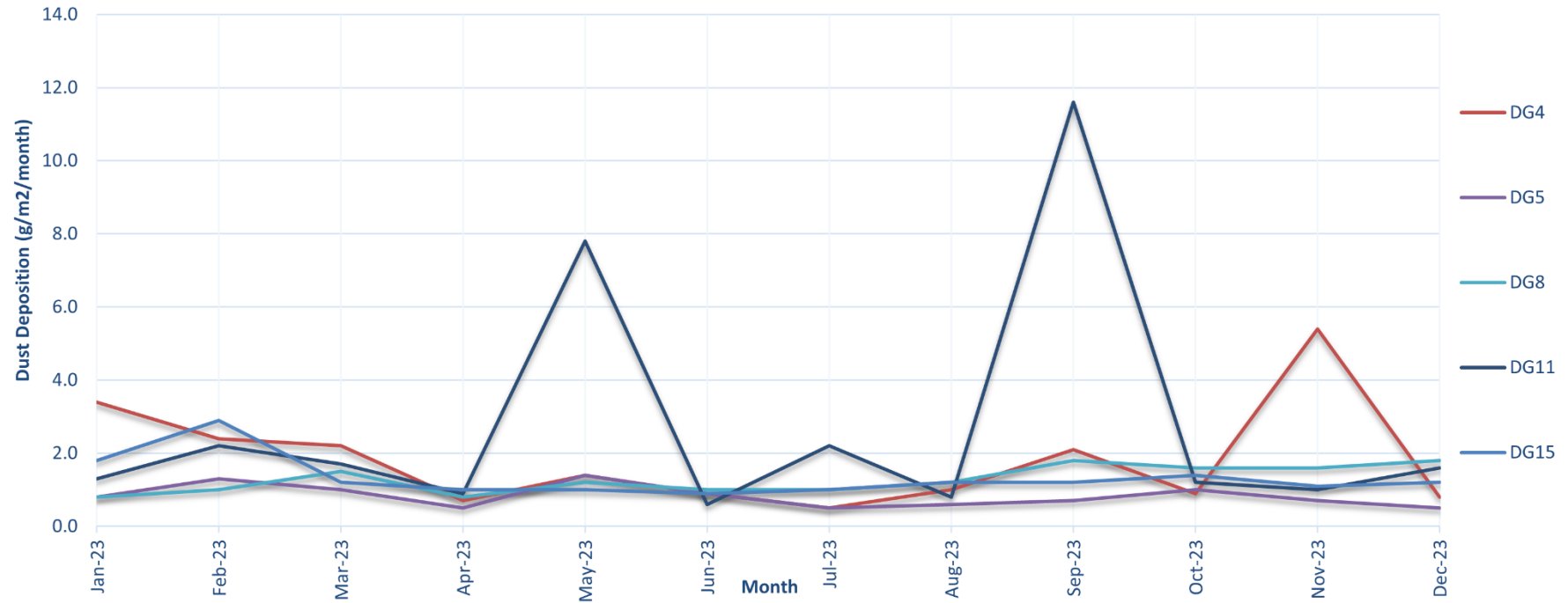
Table 1 - Air Monitoring

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				5.4				21/12/23	15/01/24
4	DG5	Particulates - TIM	grams per square metre per month	Monthly	1				0.7	0.8	4.0	No	21/12/23	15/01/24
6	DG8	Particulates - TIM	grams per square metre per month	Monthly	1				1.6				21/12/23	15/01/24
9	DG11	Particulates - TIM	grams per square metre per month	Monthly	1				1.0				21/12/23	15/01/24
17	DG15	Particulates - TIM	grams per square metre per month	Monthly	1				1.1				21/12/23	15/01/24
13	HV1	PM10	micrograms per cubic metre	Every 6 days	5	7.8	33.1	17.6			50	No	31/12/23	15/01/23
19	HV4	PM10	micrograms per cubic metre	Every 6 days	5	8.1	38.5	20.9			50		31/12/23	15/01/23
20	HV5	PM10	micrograms per cubic metre	Every 6 days	5	9.6	34.1	19.1			50		31/12/23	15/01/23
22	TEOM3	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	96.8%	6.3	29.0	14.8			50	No		
23	TEOM4	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	96.8%	6.8	36.5	16.7			50			

Notes:

- 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. During the sampling period ending 22 May 2023, hazard reduction burns were undertaken within nearby national parks. This aligns with the elevated result of 7.8g/m² of total insoluble matter for the sampling period.
3. During the sampling period ending 26th of September 2023, DG_11 results showed 30% ash, 5% fine dark particles and 65% organic matter. A range of small fires present in the area throughout the month. Insects, bird droppings, grazing activity in the area. Special note: Ball of hair recorded in sample and a wasp nest on the bottle.

Figure 1b. DG 5 Results - Annual Average

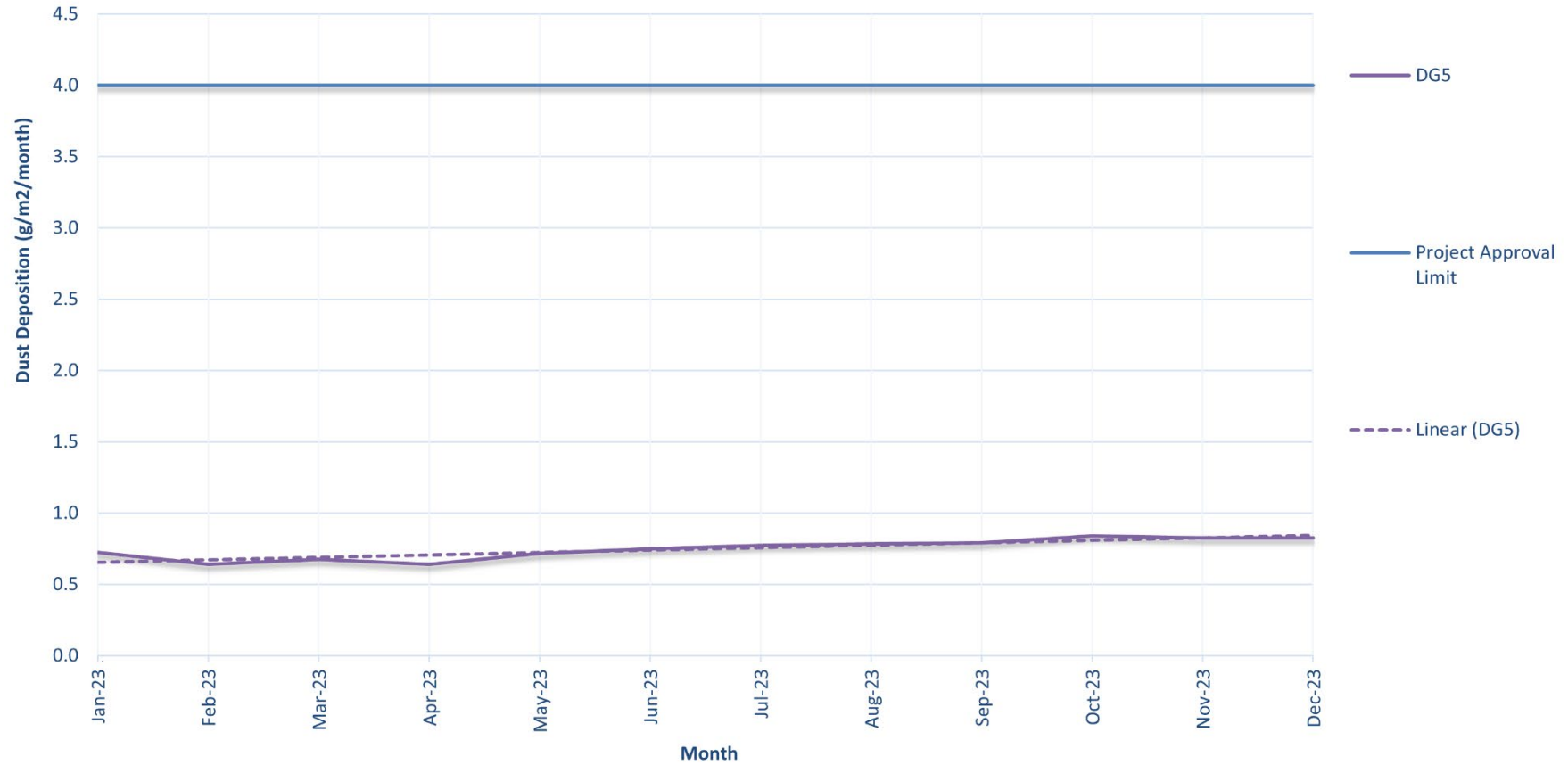
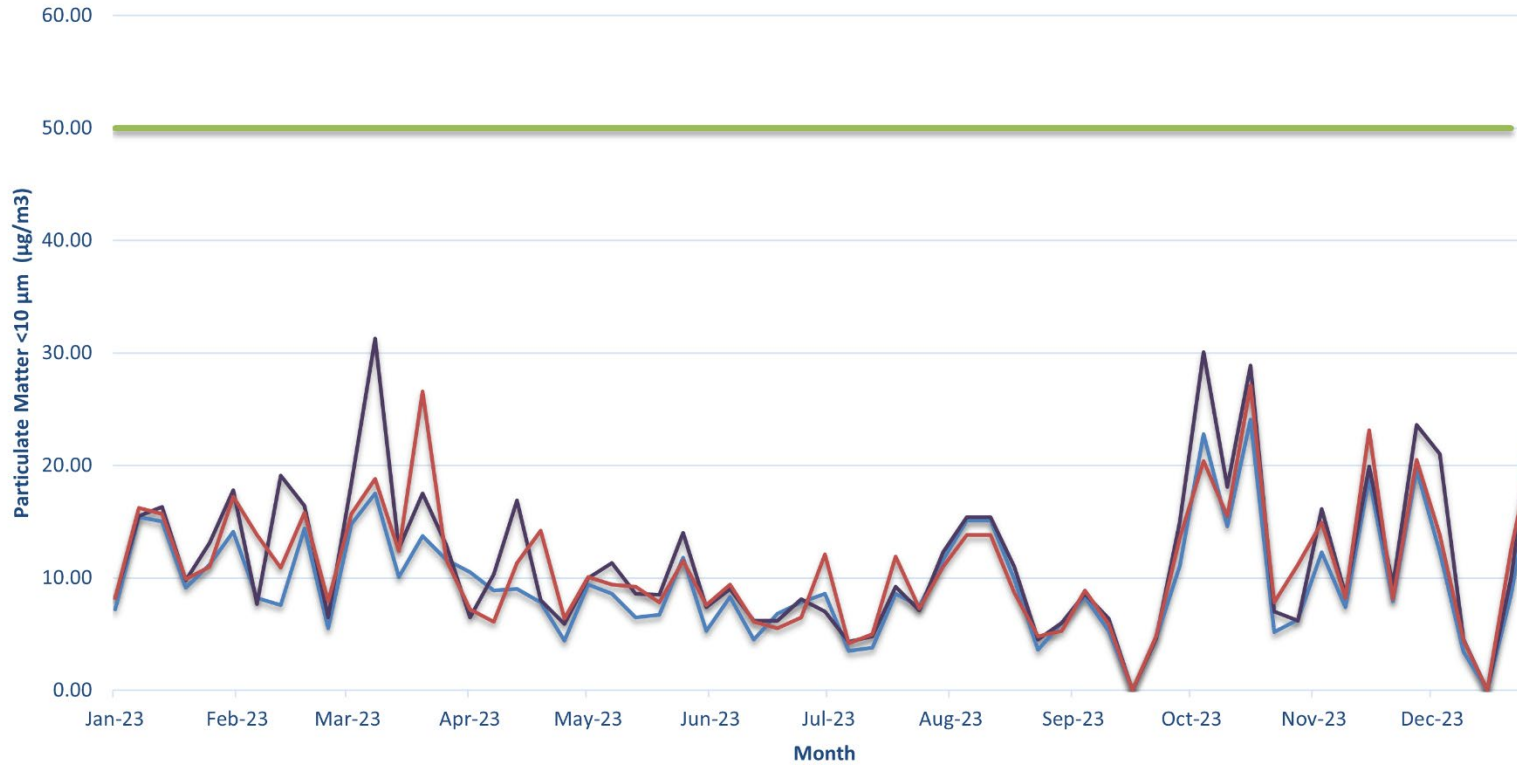


Figure 2. HV (PM10) Results - 12 Month Trend

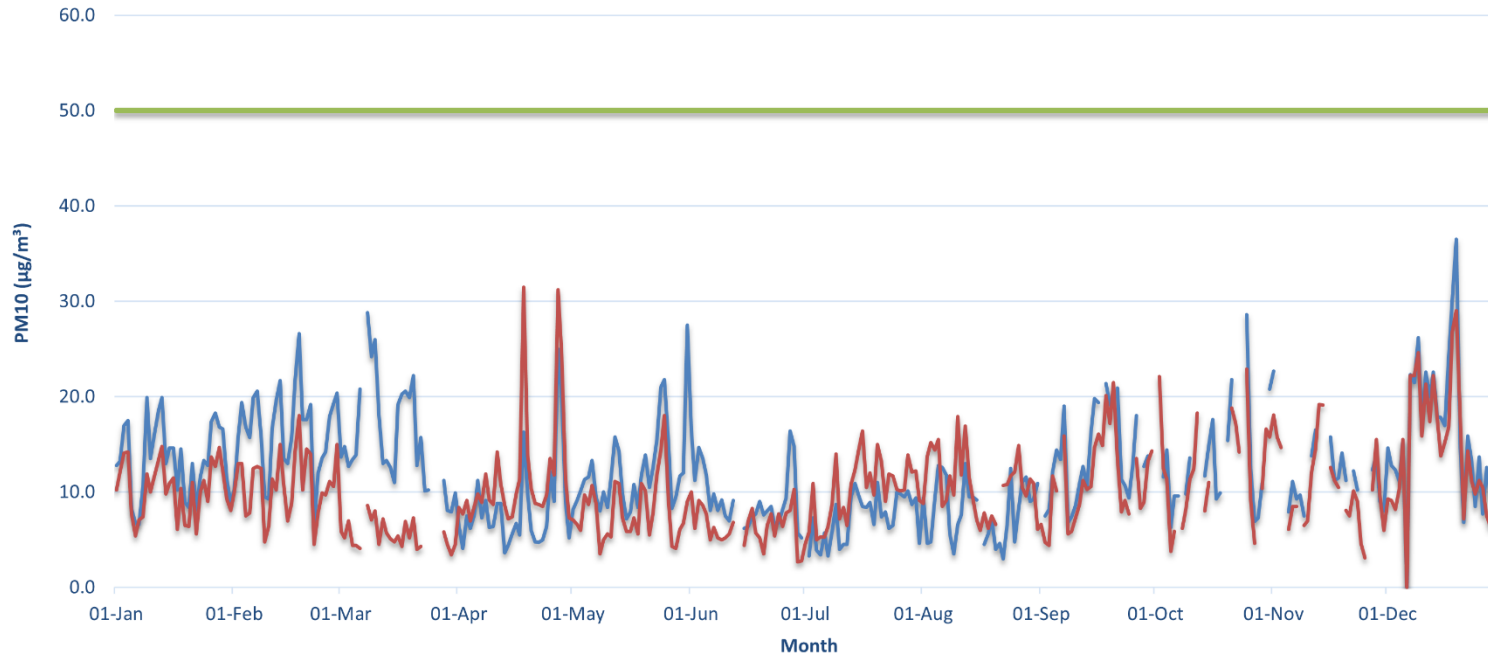


Notes:

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.

— HV1 (Wollar) — HV4 (Robinsons) — HV5 (Araluen Road) — 24 hour PM10 limit (refer notes)

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

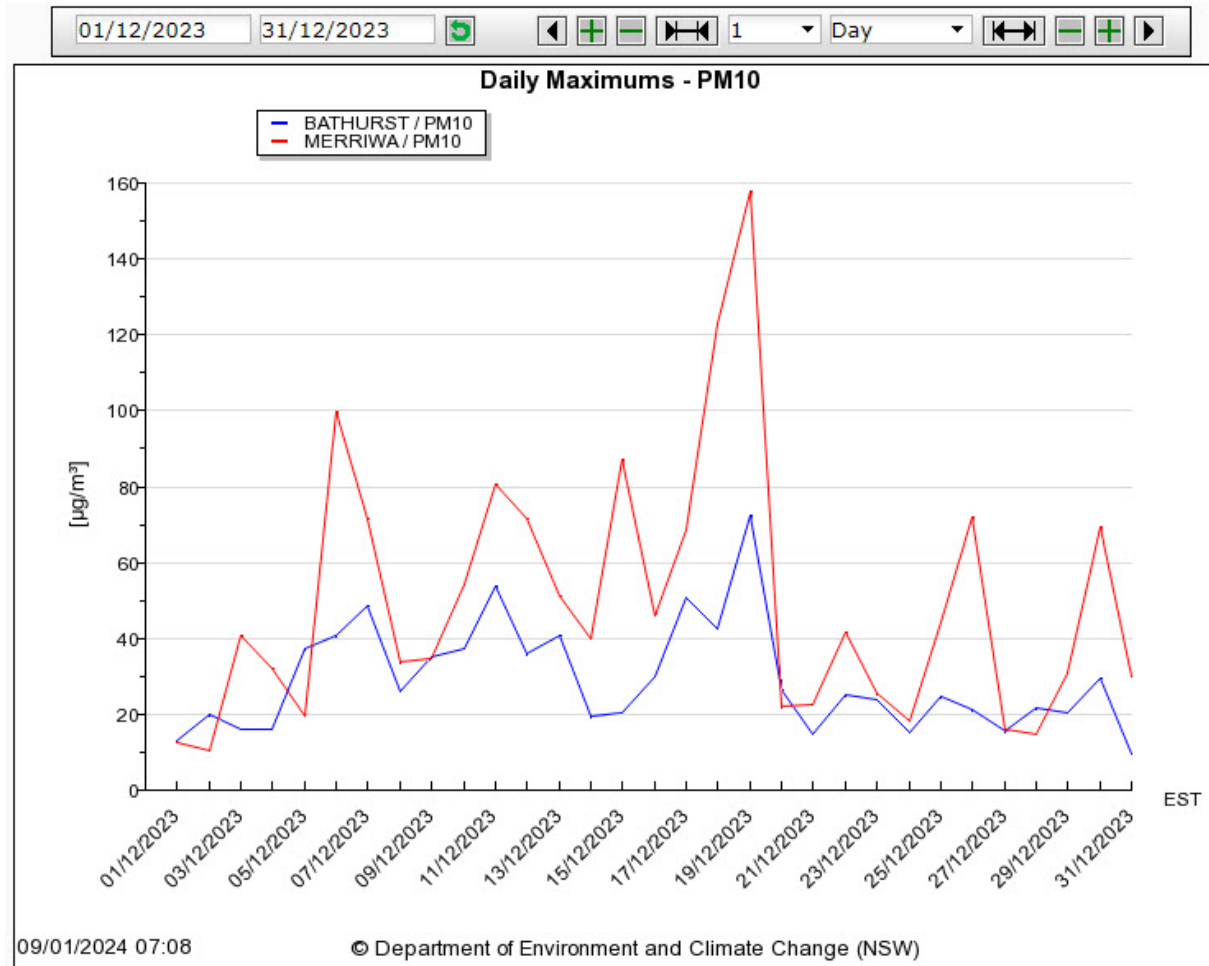


Notes:

1. Limit doesn't apply for extraordinary events such as bushfires, prescribed burning or dust storms
2. Power outages and maintenance during March 2023 resulted in periods of no data at TEOM 3 and 4.
3. TEOM 3 failed in March 2023 for a period of five days due to low flows, extreme filler loads and a cricket discovered inside the unit during repair.
4. TEOM 4 failed in March 2023 for a period of two days - cause of failure unknown. The unit was restarted by Novecom.
5. TEOM 3 experienced a power interrupt in October 2023 resulted in period of no data.

— 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	84%	141	453	377	500	No		
		Oil and Grease	milligrams per litre (mg/L)	Weekly during any discharge	0	<5	<5	<5	10.0	No	19-Dec-2023	15-Jan-2023
		pH	pH Unit	Continuous during discharge	84%	6.7	8.3	7.3	≥6.5≤8.5	No		
		Total Suspended Solids	milligrams per litre (mg/L)	Weekly during any discharge	0	<1	<1	<1	50	No	19-Dec-2023	15-Jan-2023
		Volume discharged	megalitres per day	Continuous during discharge	84%	2.773	5.252	4.572	6.5	No		
30	Clean Water Dam Discharge	Turbidity	Nephelometric Turbidity Units	Continuous during discharge	100%	<i>No discharge recorded during the month</i>			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.

Table 4.1 Total measured noise levels, dB – December 2023 ¹

Location	Start date and time	L _{Amax}	L _{A1}	L _{A10}	L _{Aeq}	L _{A50}	L _{A90}	L _{Amin}
N6	5/12/2023 23:19	43	35	34	32	31	28	25
N14	6/12/2023 00:23	52	49	47	44	44	40	31
N15	5/12/2023 23:00	53	42	40	37	36	31	26
N17	5/12/2023 22:24	48	47	46	43	41	39	38
N19	5/12/2023 22:00	48	44	43	42	42	39	32
N20	5/12/2023 23:46	43	31	29	27	27	25	23

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

Low-frequency linear spectra measured from all sources during each attended 15-minute measurement are shown in Table 4.2. If low-frequency noise levels from site triggered a modifying factor, additional analysis is provided in Section 4.2 of this report.

Table 4.2 Measured low-frequency L_{eq} noise levels, dB(Z) - December 2023 ¹

Location	Start date and time	Frequency (Hz)											
		12.5	16	20	25	31.5	40	50	63	80	100	125	160
N6	5/12/2023 23:19	-	-	-	37	34	34	37	36	37	36	31	30
N14	6/12/2023 00:23	54	47	41	38	33	34	39	32	30	28	23	22
N15	5/12/2023 23:00	-	-	41	39	37	38	41	37	39	38	34	32
N17	5/12/2023 22:24	-	-	-	37	33	32	32	32	37	31	25	21
N19	5/12/2023 22:00	-	-	-	36	33	32	33	32	29	26	19	15
N20	5/12/2023 23:46	-	-	-	-	-	25	23	17	15	14	13	11

Notes: 1. Levels in this table are not necessarily the result of activity at site.
2. "-" indicates noise levels were below the sound level meter minimum measurable levels.

Table 4.3 Measured atmospheric conditions – December 2023

Location	Start date and time	Temperature °C	Wind speed m/s	Wind direction °Magnetic north ¹	Cloud cover 1/8s
N6	5/12/2023 23:19	22	<0.5	-	1
N14	6/12/2023 00:23	21	<0.5	-	3
N15	5/12/2023 23:00	21	<0.5	-	0
N17	5/12/2023 22:24	24	<0.5	-	0
N19	5/12/2023 22:00	26	1.0	240	1
N20	5/12/2023 23:46	24	<0.5	-	3

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

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 5 December 2023 at six monitoring locations.

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

Noise limits may not be applicable due to meteorological conditions at the time of monitoring.

Wilpinjong Coal received the report from EMM Consulting Pty Ltd on 14th December 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	December	10	74.60	105.50	93.20	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	December	10	0.02	1.10	0.31	5 mm/s (95% blasts) 10 mm/s (100% blasts)	no

Figure 7. Overpressure (dBL) recorded during Month

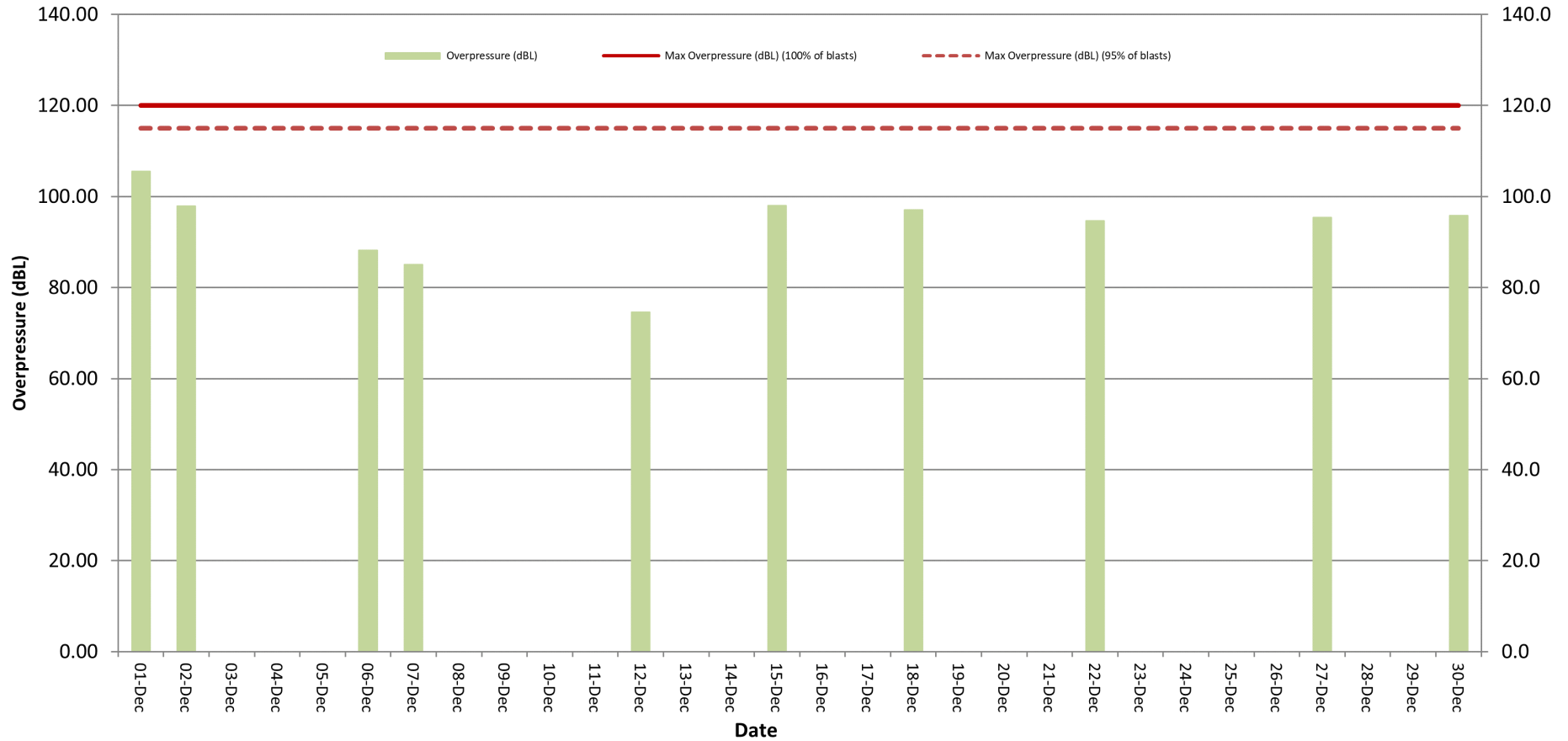
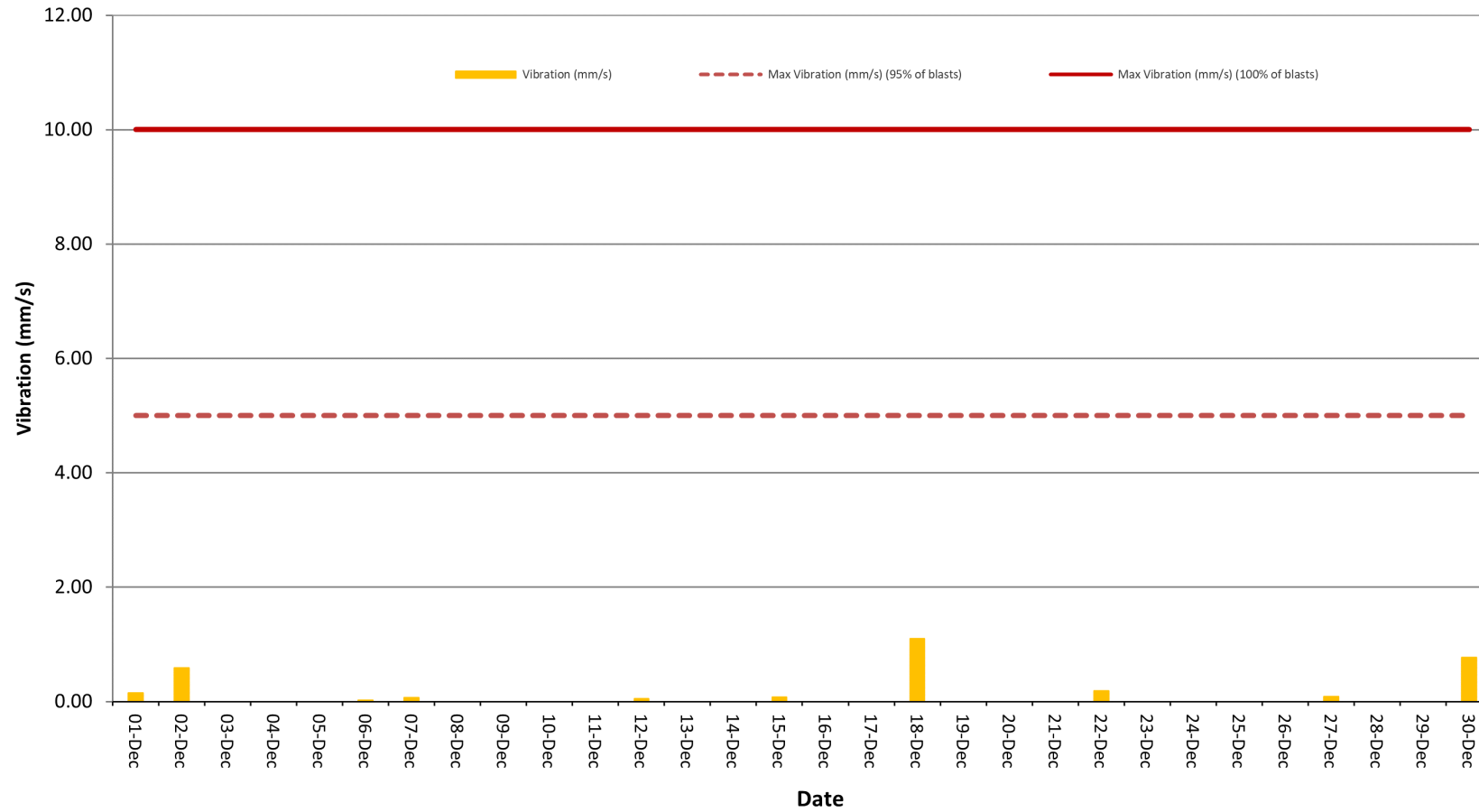


Figure 8. Vibration (mm/s) recorded during Month



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.

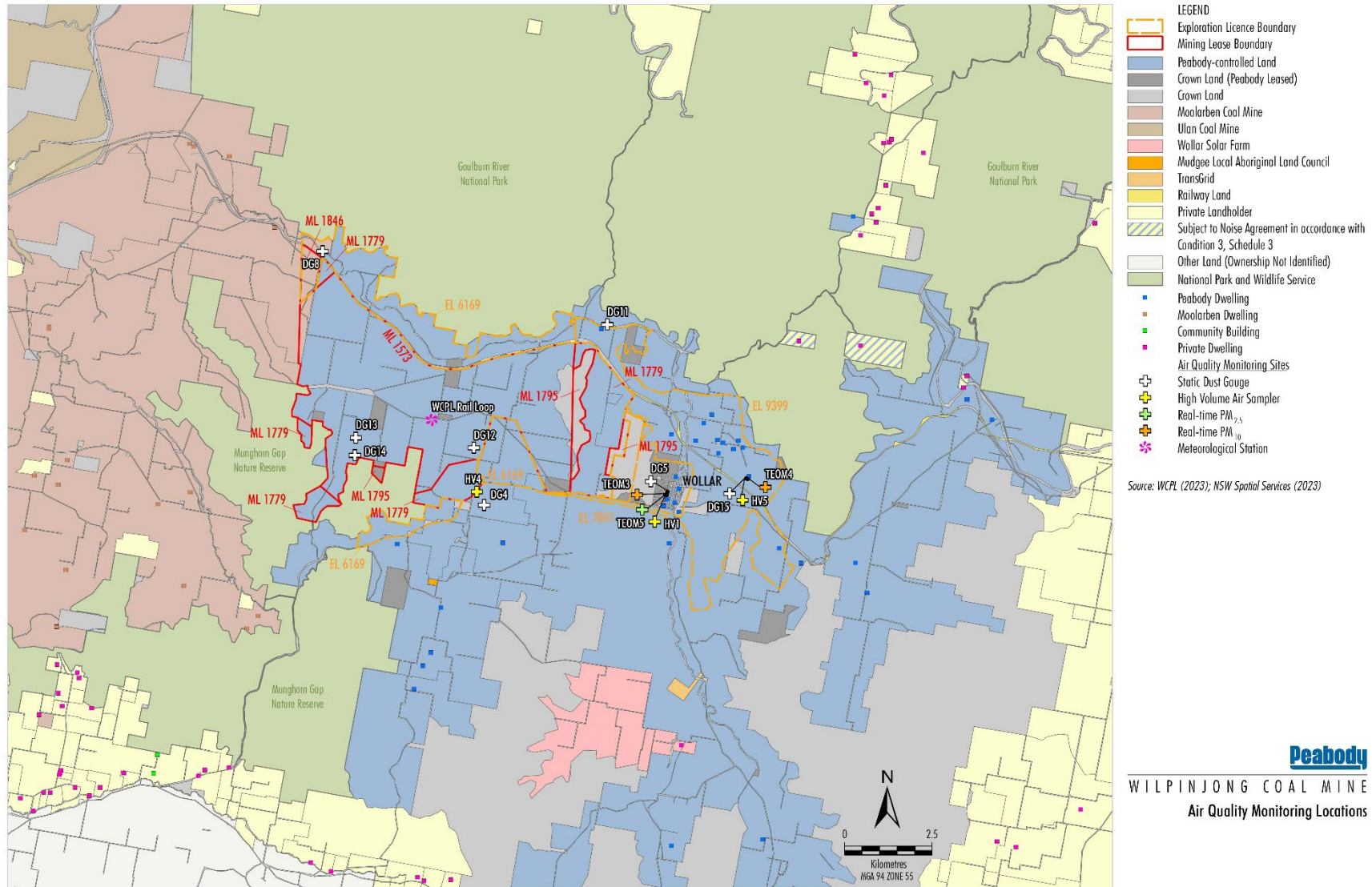
The temperature lapse rate is a measure of stable atmospheric conditions and is determined by measuring air temperature at two elevations 58m apart (i.e. 2m and 60m from ground level) and extrapolating the temperature difference over 58m to determine the lapse rate per °C/100m.

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)	(°C/100m)	
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	(Deg)			Max
1/12/2023	23.4	15.2	28.7	23.3	16	28.1	22.8	17	27	52.3	27.8	87.5	2.7	0	4.7	258	0	1002.9	4.2
2/12/2023	21.5	16.4	28.3	21.5	16.5	27.5	21	16	26.4	61.2	31.8	91.6	2.7	0.4	5.5	258	1.6	1006.5	5.1
3/12/2023	23	14	30.1	23	15	29.4	22.6	15.2	28.4	48.9	21	86.3	1.1	0	5.4	233	0	1009.9	6.1
4/12/2023	22.2	15.4	29.9	22.1	16.1	29.2	21.4	16.1	27.6	56.7	28.8	87	1.7	0.2	4.2	51	0	1014	1.4
5/12/2023	25.1	13.4	35	25.4	14.3	34.7	25.4	14.9	33.6	49.8	18.3	90.9	0.7	0	3.7	224	0	1013.7	10.4
6/12/2023	28.5	17.9	38.4	28.7	19.5	38	28.7	21.1	36.8	41.1	15.2	71.5	1.2	0	6.3	233	0	1012.1	9.3
7/12/2023	27.2	16	38.5	27.2	16.7	37.6	26.5	16.8	35.9	46.4	17.8	82.1	1.3	0	7.7	92	0	1013.7	3.2
8/12/2023	28.6	20.6	38.7	28.7	21	37.9	28.4	21.1	36.7	51.3	20.7	84.6	0.3	0	4.3	293	0.2	1012.8	6.5
9/12/2023	30.6	19.8	39.8	30.8	20.7	38.9	30.8	22.1	37.6	44.1	18	82.5	1.6	0	5.7	264	0	1009.2	6.7
10/12/2023	27.5	22.8	33.1	27.5	22.9	32.6	26.8	22.1	31.5	55.5	35.8	74.1	3.1	0	4.6	50	0	1012	5.6
11/12/2023	28.6	19.9	37.4	28.4	20.4	36.7	27.7	20.1	35.4	50.4	14	86.5	1.8	0	6.6	52	0	1011.4	0.5
12/12/2023	26	19.7	32.9	25.8	19.9	32.7	25	19.4	31.5	52.6	25.2	74.8	3.4	1.9	5.6	56	0	1013.4	-0.4
13/12/2023	27.7	19.4	37.3	27.4	19.4	36.1	26.5	18.8	34.4	50.7	20.9	81.4	0.6	0.2	6.8	311	0	1009.7	-0.2
14/12/2023	28.6	20.9	36.3	28.7	21.6	35.7	28.2	21.9	34.5	44	15.6	77.5	2.9	0	9	238	0	1004.6	7.2
15/12/2023	27.1	17.9	34.9	27.2	18.7	34	26.9	19.6	32.8	39.2	10.5	70.7	1.2	0	6.8	237	0	1004.1	6.8
16/12/2023	25.9	15.3	32.9	25.9	16	32.1	25.5	16.9	31.1	36.8	11.2	85.8	2.8	0	7.5	234	0	1004.3	5.6
17/12/2023	24.6	13.6	35.8	24.7	14.9	35	24.7	17.6	34.1	42.1	12.1	65.2	1.1	0	5.8	44	0	1008	8.6
18/12/2023	28.5	21.4	38.1	28.4	21.4	37.1	27.9	20.7	36.1	43.8	10.3	77.2	0.6	0	4.3	64	0	1008.2	8.2
19/12/2023	26.7	20.8	33.2	26.9	21.1	33	26.9	20.5	32.1	51.7	23.6	85.5	0.8	0	4.5	281	1.2	1007.7	7.5
20/12/2023	19.2	16.6	21.4	19.2	16.7	21.2	18.6	16	20.4	88.5	81	92.4	1.9	0	5.2	73	23.4	1011	0.2
21/12/2023	19.2	15.8	23.8	19	15.9	22.8	18.3	15.3	21.7	73.4	56.7	90.5	2.9	0.8	5.8	66	0	1012.4	-0.4
22/12/2023	20.7	14.5	27.3	20.4	14.7	26.6	19.8	14.8	25.6	56.9	33.8	78.3	2.2	0.5	4.4	57	0	1011.8	0.7
23/12/2023	19.6	14.7	28.1	19.5	14.9	27.2	18.9	14.6	26.1	67.7	36.4	88.2	1	0	6.5	69	2.8	1009	2.1
24/12/2023	19.8	14.7	28.5	19.8	14.9	27.6	19.4	14.5	26.4	75	41.2	93.7	0.8	0	3.7	86	26.2	1004	3.2
25/12/2023	22.5	17.3	33	22.5	17.3	32.2	22	17	30.9	72.4	30.1	90.1	1.8	0	4.7	59	3.2	1001.9	1.8
26/12/2023	23.7	17	31.8	23.8	17.1	30.8	23.5	16.9	29.2	55.2	16	95.3	1.2	0	5.6	273	0	1003.5	8.9
27/12/2023	22	13	28.3	22.2	13.8	27.7	22.4	15.9	26.8	49.1	29.7	83.9	2.4	0	6.2	244	0	1006.8	8.1
28/12/2023	23.4	13	31.2	23.6	13.9	30.6	23.7	14.5	29.6	50.5	26	85.1	1.7	0	5.3	224	0	1008.4	8.9
29/12/2023	22.2	15.8	30.3	22.5	16.5	29.8	22.5	17.9	28.8	60.2	29.3	83	1.4	0	7.5	230	0.8	1009.8	6.3
30/12/2023	23.6	15.2	30.1	23.5	15.8	29.2	23	16.2	27.9	56.7	22.9	93.5	1.1	0	5	196	0.2	1006.7	4.4
31/12/2023	19.9	18.4	22.3	19.8	18.4	21.8	19.1	17.7	20.7	69.4	60.8	77.3	5.3	3.4	6.8	69	0	1015.2	-0.7

Figure 6 – Air (Dust) Monitoring Locations



WIL-12-11_EMS 2023_202A

Figure 7 – Attended Noise Monitoring Locations

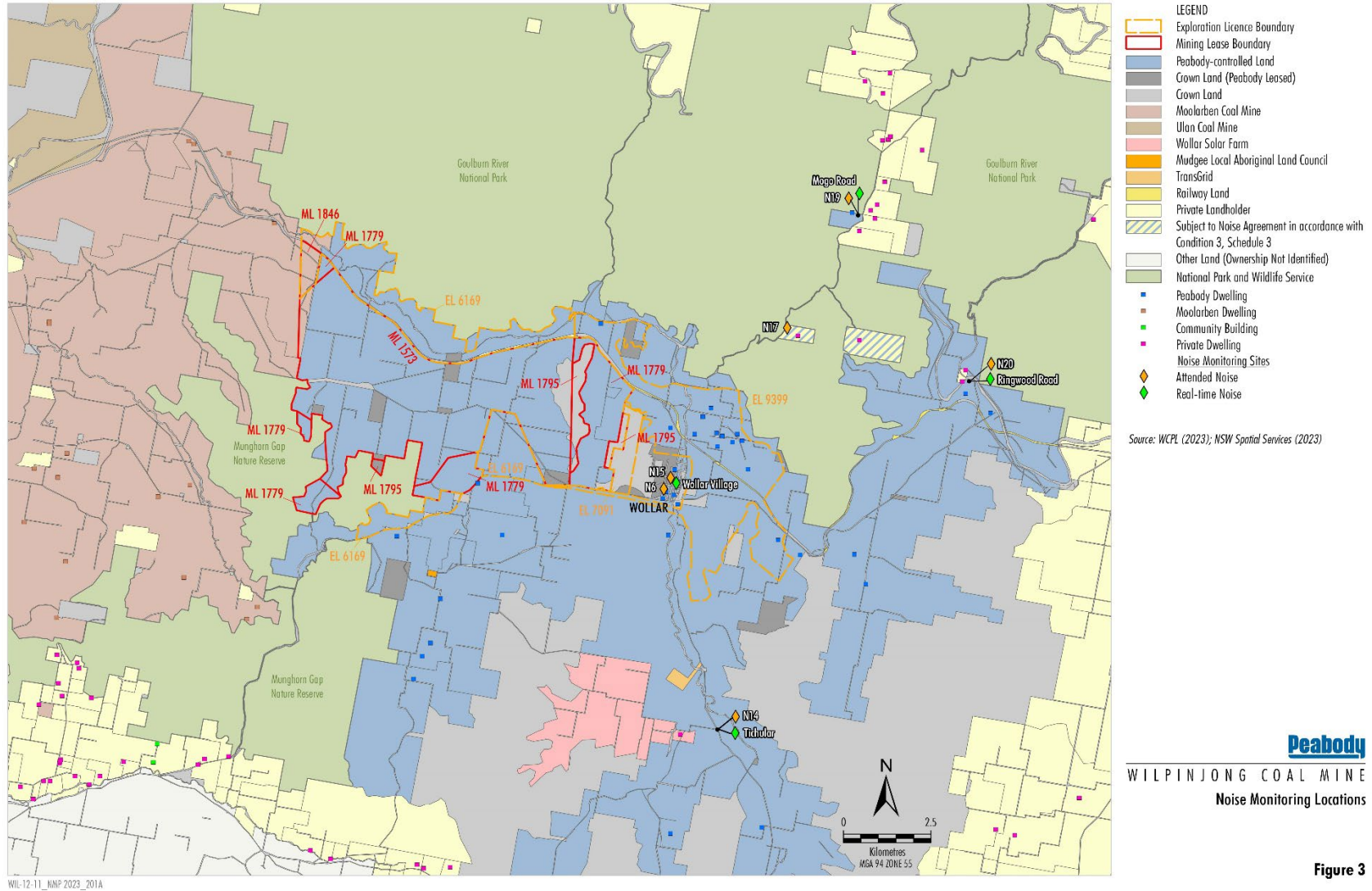


Figure 3

Figure 8 – Wollar Village Environmental Monitoring Sites



WIL-12-11_EHS-2023_201A

Source: WCPL (2023); NSW Spatial Services (2023)

LEGEND		Noise Monitoring Sites	
	Peabody-controlled Land		Attended Noise
	Crown Land (Peabody Leased) *		Real-time Noise
	Crown Land		Blasting Monitoring Sites
	Railway Land		Fixed Blast
	Subject to Noise Agreement in accordance with Condition 3, Schedule 3		Air Quality Monitoring Sites
	Landholder Reference Number		Static Dust Gauge
	Peabody Dwelling		High Volume Air Sampler
	Community Building		Real-time PM _{2.5}
	Private Dwelling		Real-time PM ₁₀

* Special Lease/Licence Holder

Peabody
 WILPINJONG COAL MINE
 Wollar Environmental Monitoring Sites