



WILPINJONG COAL PTY LTD

Environment Protection Licence (EPL) 12425

[Link to Environment Protection Licence EPL12425](#)

**LICENCE MONITORING DATA
MONTHLY SUMMARY REPORT**

for

1 September 2022 to 30 September 2022

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.

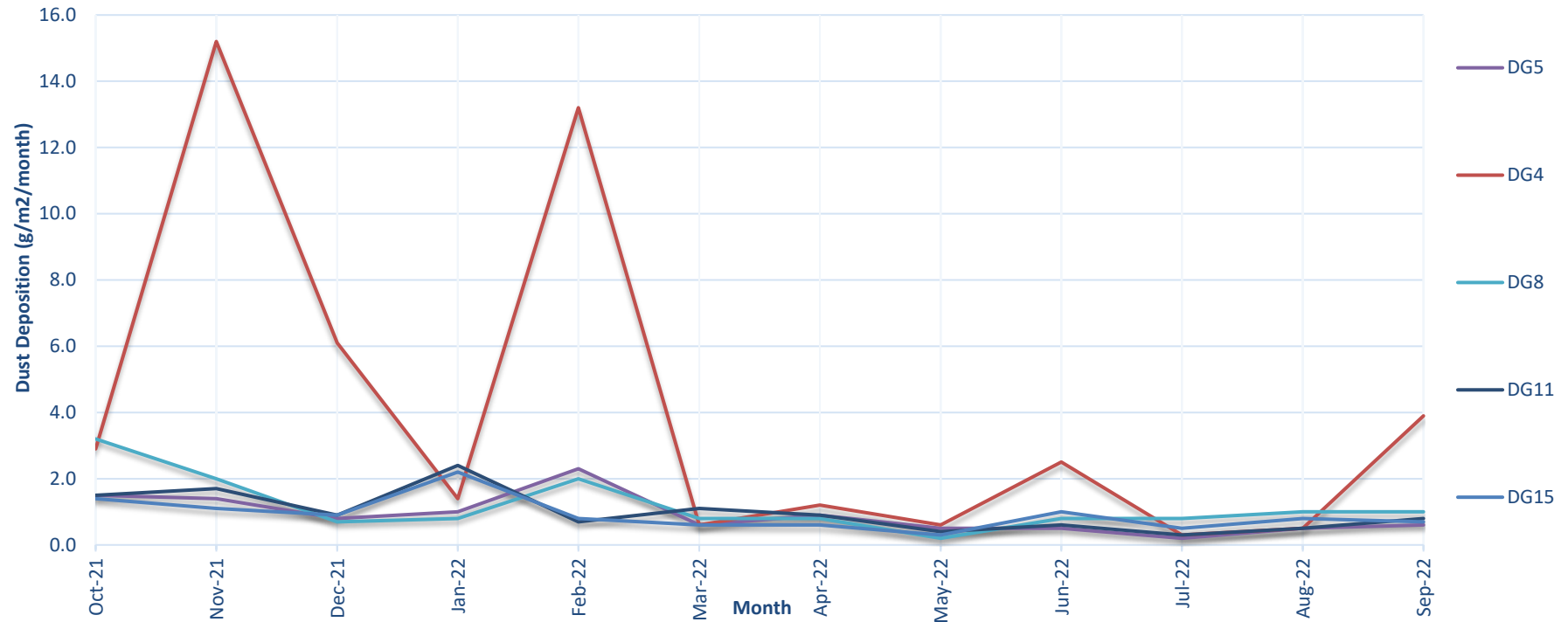
Table 1 - Air Monitoring

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				3.9				27/09/22	26/10/22
4	DG5	Particulates - TIM	grams per square metre per month	Monthly	1				0.6	0.9	4.0	No	27/09/22	26/10/22
6	DG8	Particulates - TIM	grams per square metre per month	Monthly	1				1.0				27/09/22	26/10/22
9	DG11	Particulates - TIM	grams per square metre per month	Monthly	1				0.8				27/09/22	26/10/22
17	DG15	Particulates - TIM	grams per square metre per month	Monthly	1				0.7				27/09/22	26/10/22
13	HV1	PM10	micrograms per cubic metre	Every 6 days	5	2.4	7.2	2.3			50	No	25/09/22	21/11/22
19	HV4	PM10	micrograms per cubic metre	Every 6 days	5	4.8	10.0	6.7			50		25/09/22	21/11/22
20	HV5	PM10	micrograms per cubic metre	Every 6 days	2	5.6	9.3	7.5			50		25/09/22	21/11/22
22	TEOM3	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	100.0%	2.8	8.3	5.6			50	No		
23	TEOM4	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	100.0%	4.9	13.2	8.7			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. In February 2022, DG4 recorded 5.3g/m² of total insoluble matter. Upon further inspection, only 5% of the composition was attributed to dark particles indicating that the result was not due to mining operations. The result predominantly consisted of organic matter (80%).
3. In November 2021, DG4 recorded 15.2g/m² of total insoluble matter of which 75% was organic material. It is therefore determined that the influence of mining operations contributed less than the limit of 4g/m²/month.
4. In December 2021, DG4 recorded 6.1g/m² of total insoluble matter. The sampler recorded insects and spider webs within the funnel most likely influencing the result.

Figure 1b. DG 5 Results - Annual Average

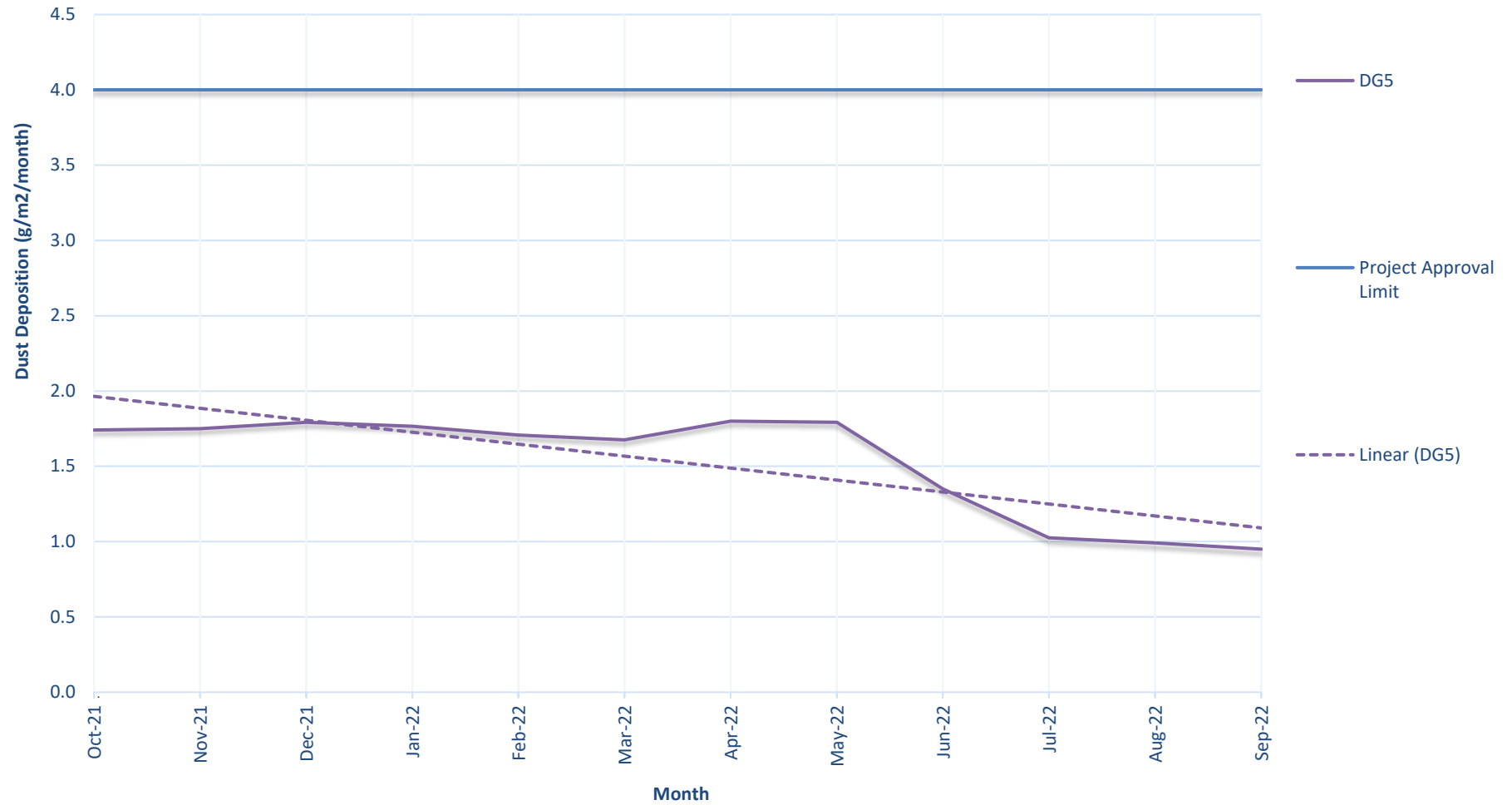
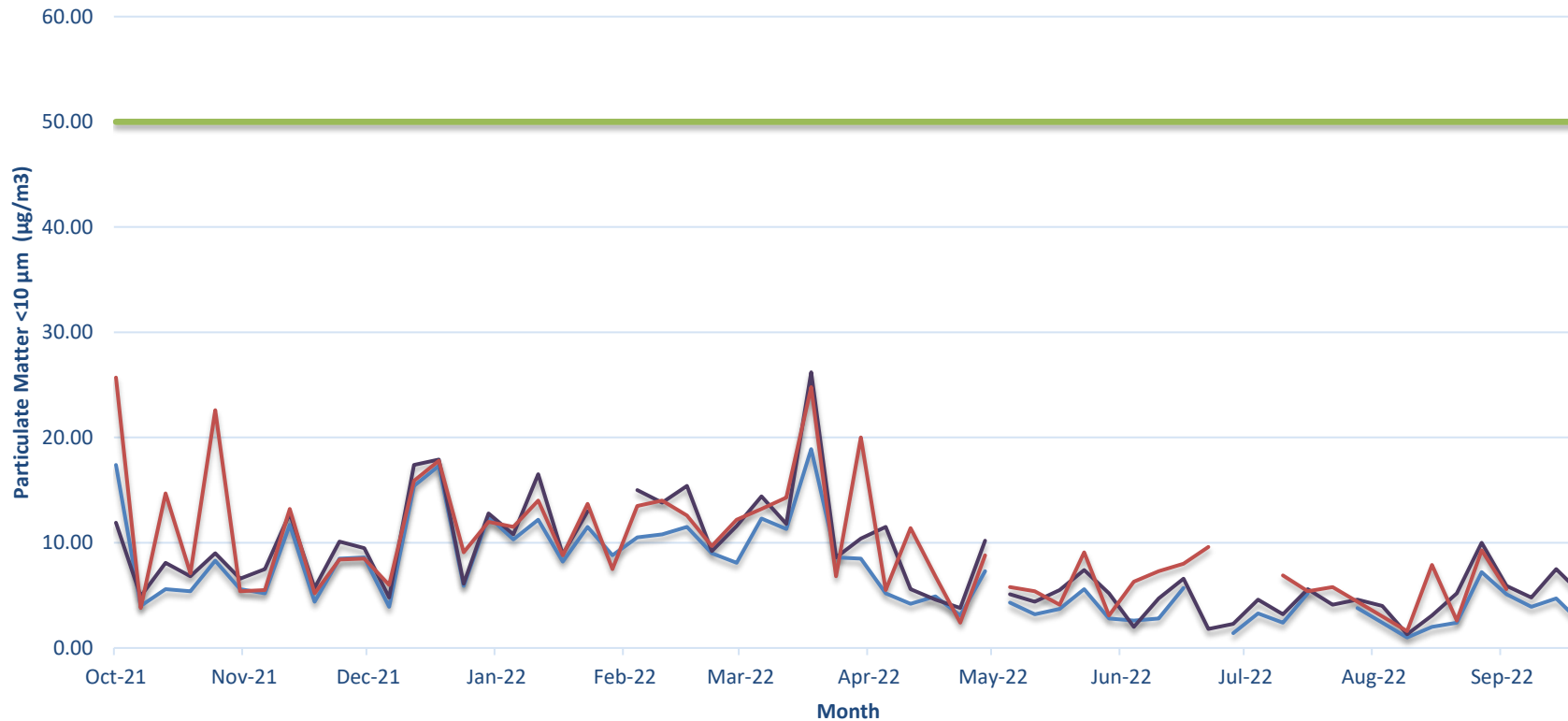


Figure 2. HV (PM10) Results - 12 Month Trend

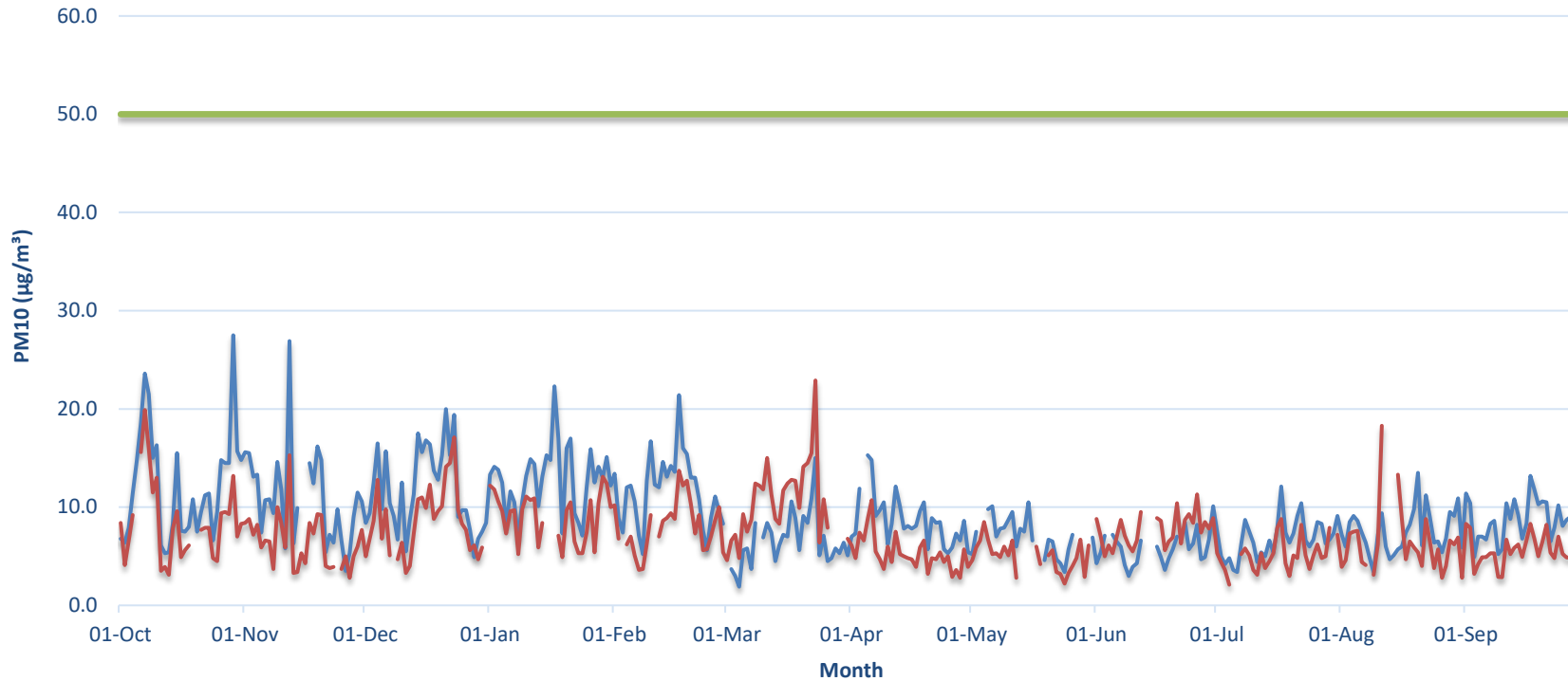


Notes:

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 HV4 on 3 February 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.

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

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

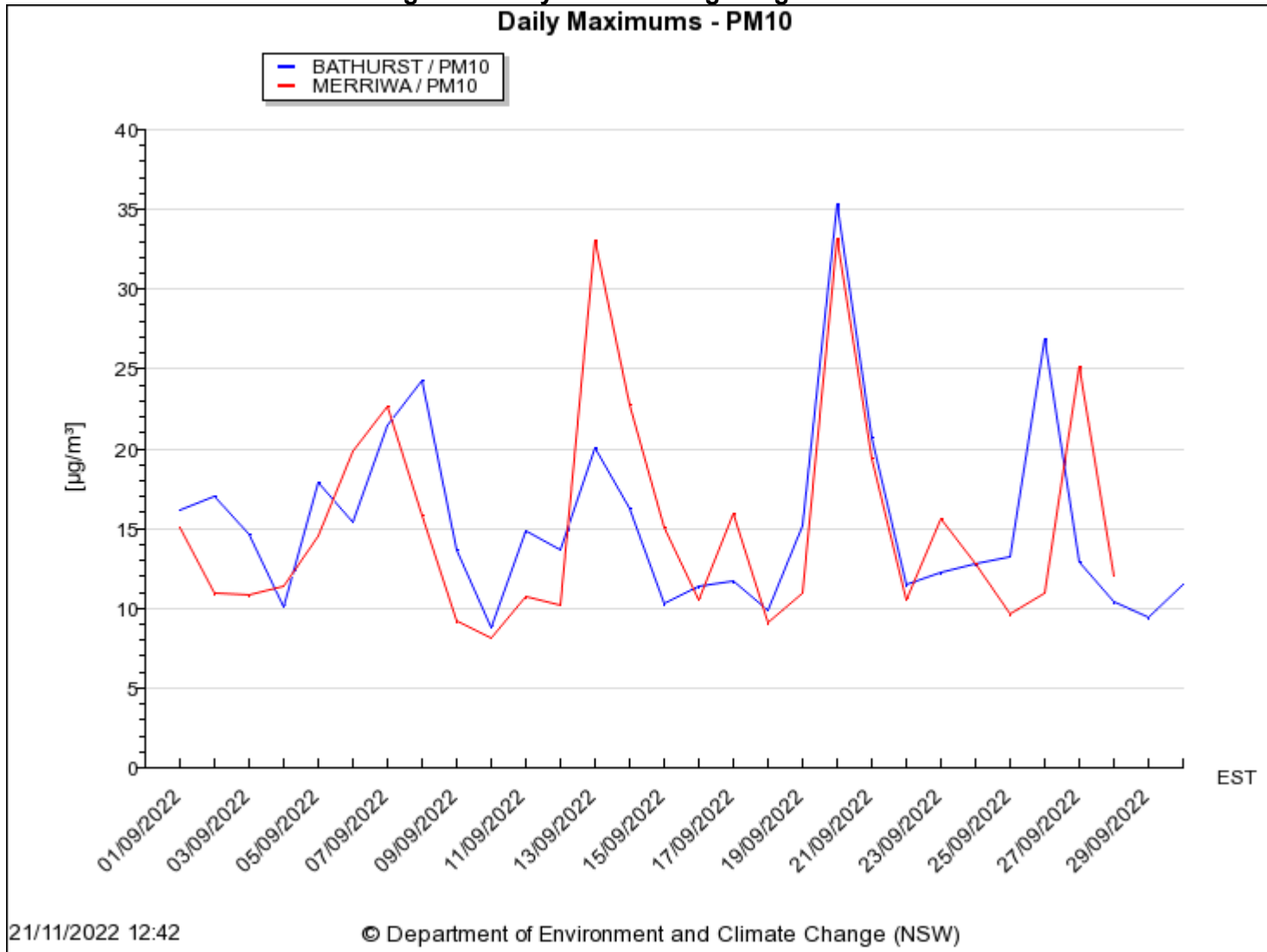


Notes:

1. Limit doesn't apply for extraordinary events such as bushfires, prescribed burning or dust storms
2. Power outages and maintenance during March, May and June 2022 resulted in periods of no data at TEOM 3 and 4.
3. Instrumentation error at TEOM 4 prevented accurate data recording between 15 - 17 November 2021. TEOM 3 was subjected to the same issue on 30 July 2022.
4. A planned power outage on 5 October 2021 prevented a valid 24 hour average value from being recorded at TEOM 3.
5. Planned maintenance prevented valid 24 hour average values from being recorded between 19 - 20 October 2021 and 19 May and 22 June 2022 at TEOM 3.
6. Unplanned power outages on 5 October, 24 November, 8 and 31 December 2021 and 15-17 January, 3 February, 13-16 May and 5-6 July 2022 prevented valid 24 hour average values from being recorded at TEOM 3 on those dates.
7. Communication with TEOM 3 was interrupted until the system was remotely restarted on 11 February 2022. This interruption led to inadequate data capture to yield an accurate 24-hour average on that day.

— 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* (yes/no)	Date Last Sampled	Date Reported
24	RO Plant Discharge	Conductivity	microSiemens per centimetre (uS/cm)	Continuous during discharge	100%	286	477	418	500	No		
		Oil and Grease	milligrams per litre (mg/L)	Weekly during any discharge	4	<5	<5	<5	10.0	No	27-Sep-2022	21-Nov-2022
		pH	pH Unit	Continuous during discharge	100%	6.6	8.2	7.1	≥6.5≤8.5	No		
		Total Suspended Solids	milligrams per litre (mg/L)	Weekly during any discharge	4	<1	<1	<1	50	No	27-Sep-2022	21-Nov-2022
		Volume discharged	megalitres per day	Continuous during discharge	100%	1.974	4.950	4.444	5.0	No		
30	Clean Water Dam Discharge	Turbidity	Nephelometric Turbidity Units	Continuous during discharge	<i>No reportable discharge for 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 4.2 $L_{Aeq,15minute}$ generated by WCP against project specific criteria – September 2022

Location	Start Date and Time	Wind Speed m/s ¹	Stability Class ¹	Criterion dB ⁵	Criterion Applies? ²	WCP L_{Aeq} dB ^{3,4}	Exceedance dB ^{4,5}
N6	20/09/2022 00:42	0.8	G	37	No	IA	NA
N14	20/09/2022 00:15	0.0	G	35	No	<25	NA
N15	19/09/2022 23:00	0.0	G	37	No	<25	NA
N17	19/09/2022 22:28	1.3	F	38	Yes	27	Nil
N19	19/09/2022 22:00	0.0	F	35	Yes	<25	Nil
N20	19/09/2022 23:31	0.0	G	35	No	IA	NA

- Notes:
1. Wind speed is sourced from the WCP weather station, stability class is determined based on WCP inversion tower data.
 2. Noise emission limits apply for all meteorological conditions, except for the following: wind speeds greater than 3 m/s above ground level; or stability category F temperature inversions and wind speeds greater than 2 m/s at 10m above ground level; or stability category G temperature inversion conditions.
 3. Site-only $L_{Aeq,15minute}$ attributed to WCP, including modifying factors if applicable.
 4. NA in exceedance column means criterion was not applicable due to atmospheric conditions outside those specified in EPL.

Table 4.3 $L_{A1,1minute}$ generated by WCP against project specific criteria - September 2022

Location	Start Date and Time	Wind Speed m/s ¹	Stability Class ¹	Criterion dB ⁵	Criterion Applies? ²	WCP $L_{A1,1min}$ dB ^{3,4}	Exceedance dB ^{4,5}
N6	20/09/2022 00:42	0.8	G	45	No	IA	NA
N14	20/09/2022 00:15	0.0	G	45	No	<25	NA
N15	19/09/2022 23:00	0.0	G	45	No	<25	NA
N17	19/09/2022 22:28	1.3	F	45	Yes	34	Nil
N19	19/09/2022 22:00	0.0	F	45	Yes	26	Nil
N20	19/09/2022 23:31	0.0	G	45	No	IA	NA

- Notes:
1. Wind speed is sourced from the WCP weather station, stability class is determined based on WCP inversion tower data.
 2. Noise emission limits apply for all meteorological conditions, except for the following: wind speeds greater than 3 m/s above ground level; or stability category F temperature inversions and wind speeds greater than 2 m/s at 10m above ground level; or stability category G temperature inversion conditions.
 3. Site-only $L_{A1,1minute}$ attributed to WCP, including modifying factors if applicable.
 4. NA in exceedance column means criterion was not applicable due to atmospheric conditions outside those specified in EPL.

6 Summary

Global Acoustics (now part of EMM) was engaged by Wilpinjong Coal Pty Ltd to conduct a monthly noise survey of operations at WCP, an open cut coal mine located approximately 40 kilometres north-east of Mudgee. The purpose of the attended noise monitoring survey is to quantify and describe the acoustic environment around the site and compare results with specified limits.

Attended environmental noise monitoring described in this report was done around WCP during the night period of 19/20 September 2022.

Noise levels from WCP complied with relevant noise limits at all monitoring locations during the September 2022 survey.

Criteria may not always be applicable due to meteorological conditions at the time of monitoring.

Wilpinjong Coal received the report from Global Acoustics Pty Ltd on 7th October 2022.

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	September	9	75.8	116.3	97.17	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	September	9	0.02	2.44	0.51	5 mm/s (95% blasts) 10 mm/s (100% blasts)	no

Figure 7. Overpressure (dBL) recorded during Month

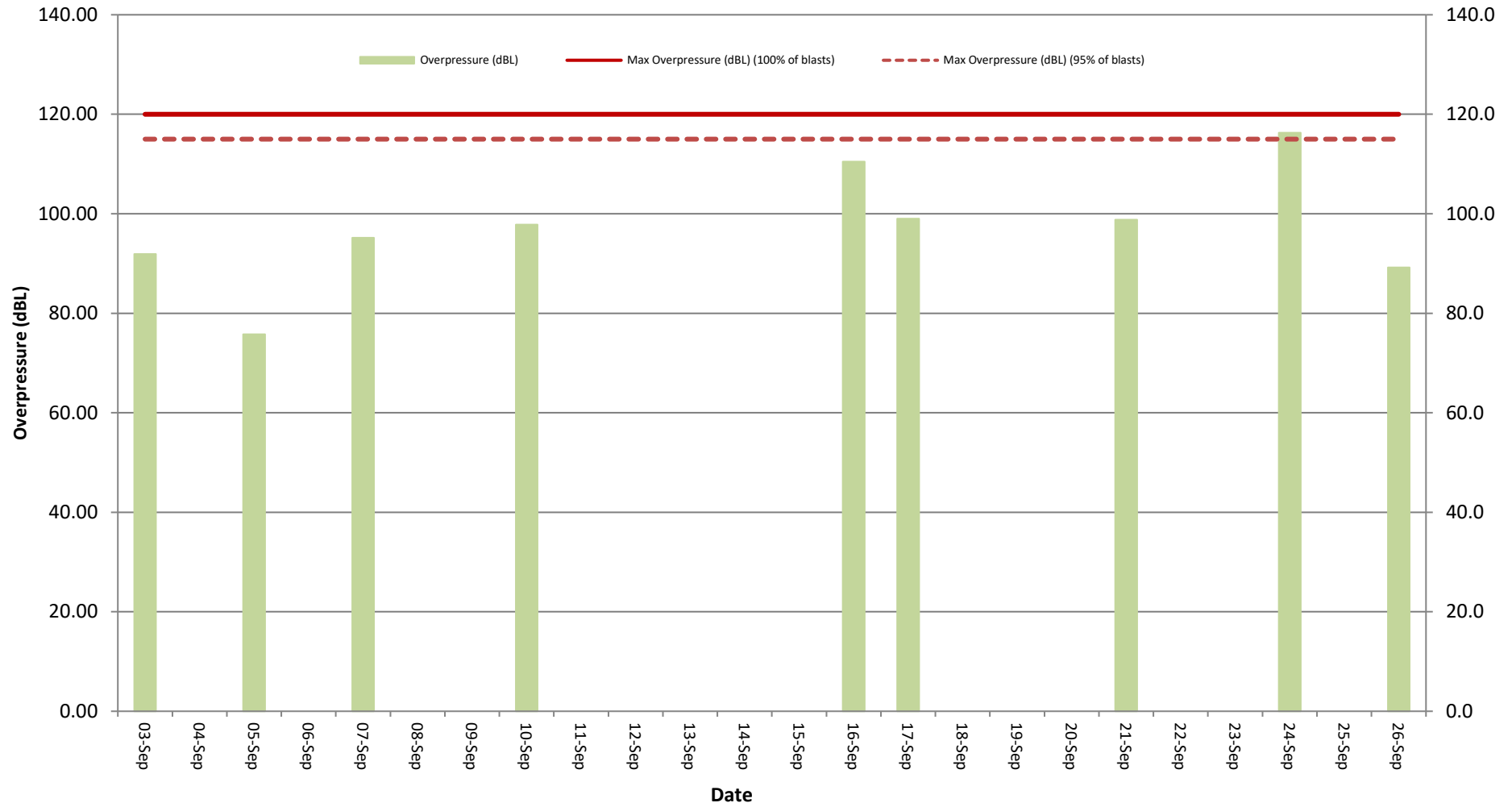
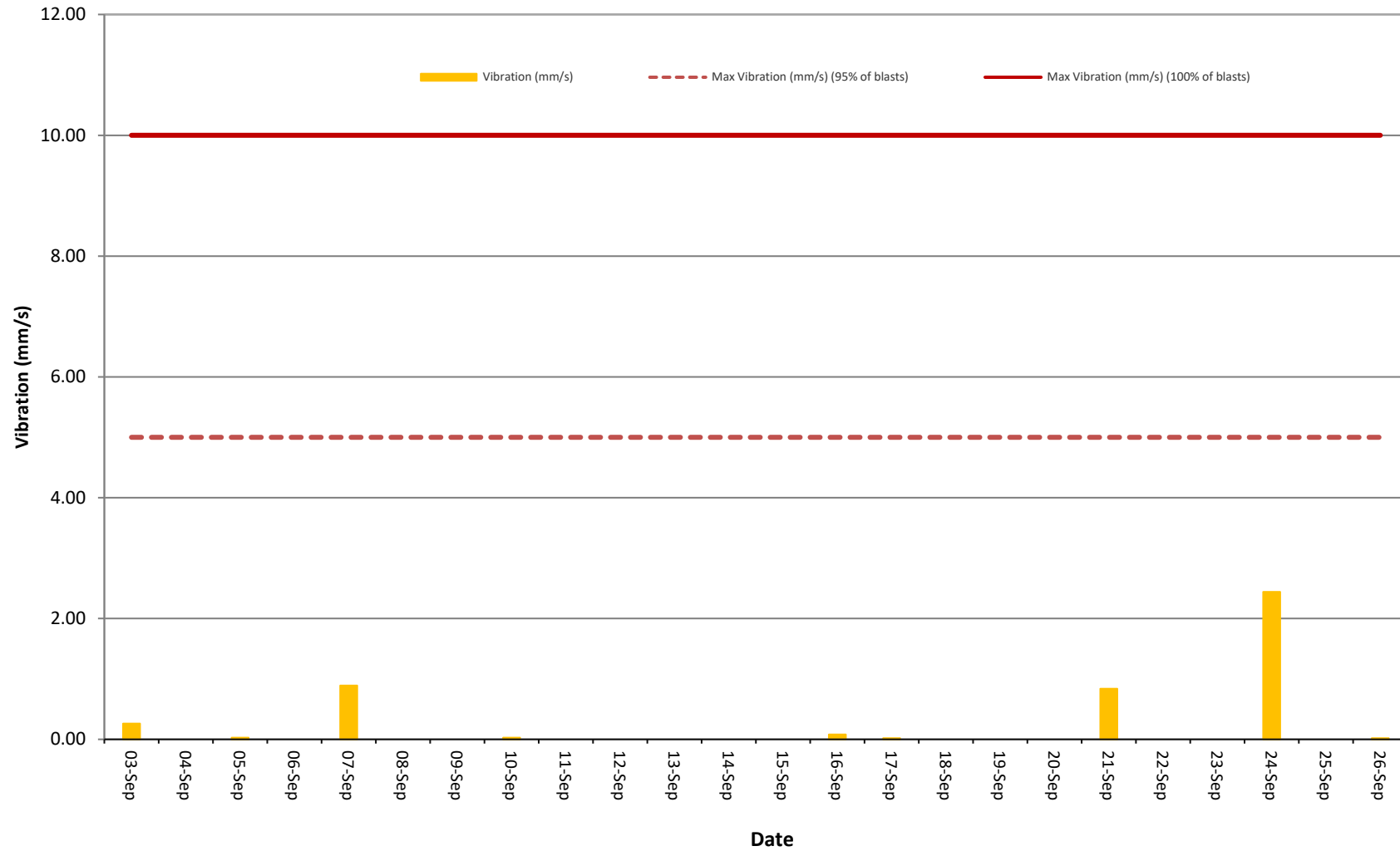


Figure 8. Vibration (mm/s) recorded during Month



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 (mm)	Bar (hPa)	Lapse Rate (°C/100m)
	2m			10m			60m			Speed			Dir (Deg)						
	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max		Avg	Min	Max	Max		
1/09/2022	14.3	8.7	20.9	14.4	9.6	20.1	14.4	10.8	19.2	69.6	34.8	90.2	0.2	0	3.6	19	0	1020.3	7.4
2/09/2022	12.9	8.5	18.2	12.8	8.9	17.5	12.6	9.7	16.5	68.4	41.6	88.5	0.7	0	3.6	79	0	1019.9	4.2
3/09/2022	10.9	8.5	13.1	10.8	8.3	13	10.3	7.9	12.3	77	65.4	93	3.5	1.5	6	119	12.6	1021.1	-0.2
4/09/2022	10.9	5.3	16.4	11.1	6.1	15.6	11.4	7.8	14.7	70.7	46.9	94.3	2.5	0	6.7	107	0	1021.8	6.5
5/09/2022	10.5	1.4	18	10.5	2	17.3	10.7	3.3	16.6	70.5	39.2	96.7	1	0	4.7	62	0.2	1021.3	5.8
6/09/2022	11.4	3.8	17.4	11.4	4.8	16.8	11.2	6.2	15.5	69.2	42.8	94.4	2.1	0	5.1	76	0	1021.7	5.3
7/09/2022	11.6	3.9	17.3	11.8	5.3	16.8	11.8	6.1	16.1	75.2	56.9	94.2	1.6	0	3.5	78	0	1020.9	5.3
8/09/2022	13.6	8.8	19.7	13.7	10	19.2	13.5	10.4	18.1	75.4	46.3	91.9	1.4	0	4.2	56	2	1016	5.3
9/09/2022	14.3	11.1	19.5	14.2	11.2	18.9	13.8	10.6	18	76.4	41.2	93.7	1.3	0	4.9	290	10.2	1010.9	2.5
10/09/2022	12.8	10.5	16.3	12.6	10.7	15.5	12.1	10.2	14.5	83.1	61	95.4	3.4	0	7.2	270	2.2	1010.7	1.1
11/09/2022	12	7.1	17.1	11.8	7.6	16.3	11.4	7.8	15.3	68.5	45.7	93.3	2.6	0.6	5.7	264	0	1014.5	2.8
12/09/2022	10.6	3.8	17	10.5	4.3	16.3	10.4	4.7	14.9	64.9	40.2	92.5	2.4	0	5.2	245	0.2	1017.3	5.8
13/09/2022	11.3	4	17.9	11.1	5.1	17	11.2	6	16.4	65.6	34	93.3	0.6	0	3.9	271	0	1022.5	4.9
14/09/2022	11.8	6	17.6	11.9	7.1	16.9	11.7	7.8	16.1	67.4	41.7	92.8	2.2	0	4.6	77	0	1023	4.2
15/09/2022	11.4	9.7	13.6	11.4	9.8	13.8	11.1	9.5	13.9	90.9	76.4	95.5	1.1	0	4.7	97	31.2	1013	0.9
16/09/2022	13.8	8.9	20	14.1	10.2	19.5	14.3	10.4	18.6	70	36.1	95.4	2.6	0	6.3	274	2.2	1006.1	6.8
17/09/2022	13.2	6.6	18.7	13.4	7.7	17.9	13.8	11.3	17	63.2	41.4	94.7	3.3	0	8.6	264	0	1007	11.1
18/09/2022	13.3	8	18.3	13.3	9.2	17.4	13.3	10.1	16.5	58.9	41	86.8	3.6	0	9.1	264	0	1012	5.8
19/09/2022	12.1	5.5	19.3	12.3	6.7	18.5	12.7	8.2	17.6	66.5	38.8	94.6	2.1	0	6.5	255	0	1015.2	7.5
20/09/2022	12.1	1.7	20.5	12.3	2.6	20	12.5	3.8	19.1	66.3	36.2	95.7	1.4	0	4	82	0	1018.8	6.5
21/09/2022	12.8	10.2	14.2	12.9	10.6	14.1	12.7	10.9	13.6	87.1	72.5	93.7	1.8	0.5	3.6	81	25.8	1016	2.6
22/09/2022	14.9	10.8	18.3	14.9	11.6	18.2	14.5	12.9	17.5	82.8	65.1	92.9	2.6	0	5.2	90	0.6	1013.3	3.9
23/09/2022	15	9.2	20.6	15.1	9.7	20.3	14.9	9.9	19.3	81.9	56.9	96.3	0.7	0	3.7	61	0	1012.5	3.9
24/09/2022	15.5	8.8	21.3	15.6	10.5	20.4	15.5	11.9	19.5	72.4	41.3	95.9	2.2	0	6.4	255	0.4	1010.2	5.4
25/09/2022	12.5	4.6	20.5	12.7	5.7	19.7	13.4	6.5	18.7	68.9	33.7	96.2	1.2	0	4.2	258	0	1014.4	9.3
26/09/2022	12.1	5.2	19.3	12.3	5.6	18.8	12.6	6.3	17.9	73.9	41.9	95.8	0.3	0	2.7	281	0.2	1014.8	6.3
27/09/2022	14.9	10.9	21.7	15	11.1	20.8	14.9	11	19.9	81.1	52	94.2	0.5	0	3.4	100	5.6	1011	4.4
28/09/2022	12.7	8.2	17.9	12.6	8.7	17	12.2	8.2	16	73.6	46.2	93.5	2.3	0.7	5.7	275	0.2	1010.9	1.9
29/09/2022	13.8	5.7	21.6	13.7	6.2	20.6	13.2	6.1	19.8	72.1	40.5	96.7	0.8	0	4.7	139	0.2	1015.8	1.8
30/09/2022	13.9	7.9	18.6	14	8.4	18	14	10.1	17.2	69.1	47.8	92.9	2.1	0	5.2	94	0	1020.4	5.6

Figure 6 – Air (Dust) Monitoring Locations

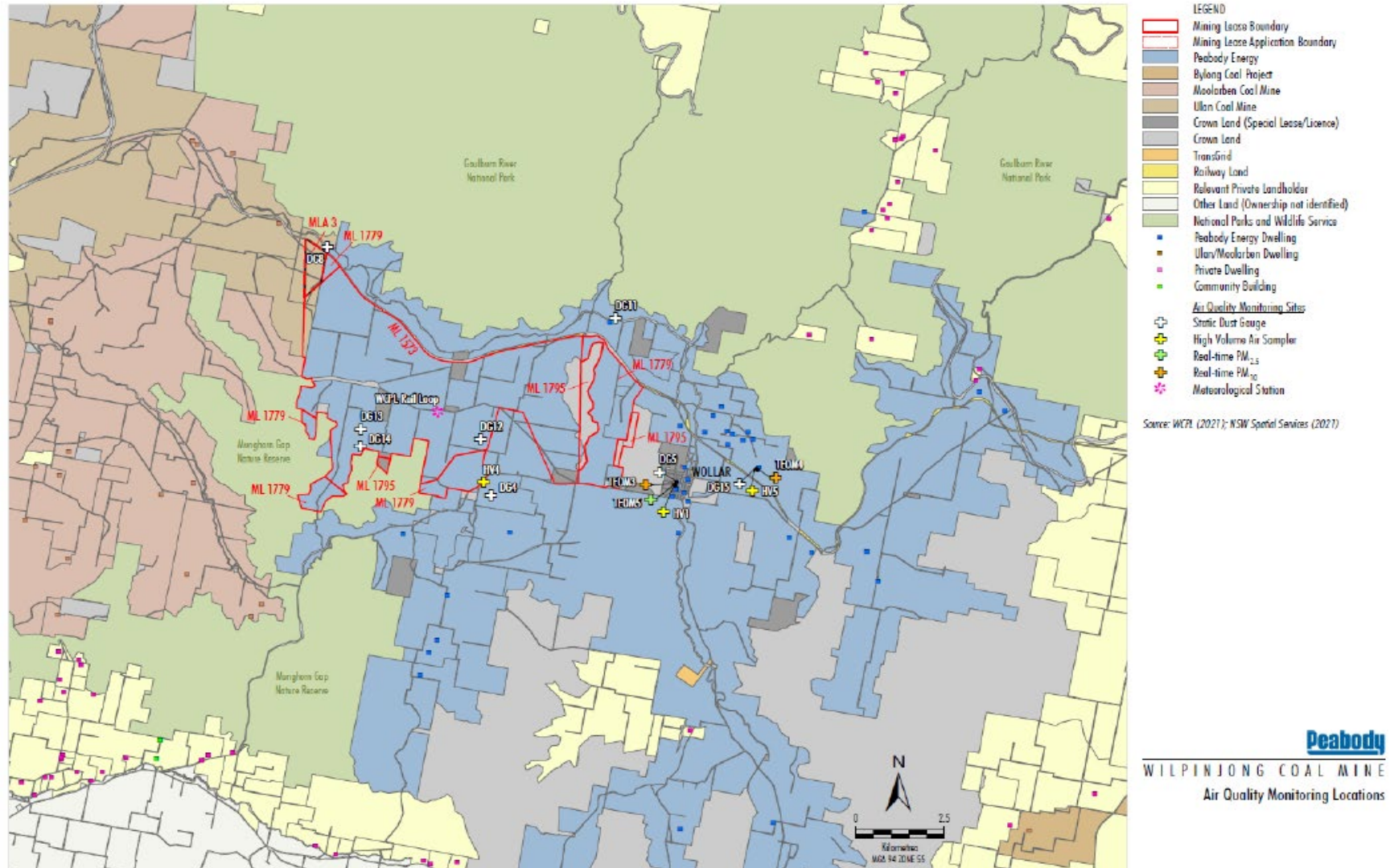


Figure 8 – Wollar Village Environmental Monitoring Sites



LEGEND	
	Peabody Energy
	Crown Land (Special Lease/Licence)
	Crown Land
	Railway Land
	Relevant Private Landholder
1	Landholder Reference Number
	Peabody Energy Dwelling
	Community Building
	Private Dwelling
#	Special Lease/Licence Holder
Noise Monitoring Sites	
◆	Attended Noise
◆	Real-time Noise
Blasting Monitoring Sites	
	Fixed Blast
Air Quality Monitoring Sites	
●	Ambient Air Quality - Odour
⊕	Static Dust Gauge
⊕	High Volume Air Sampler
⊕	Real-time PM _{2.5}
⊕	Real-time PM ₁₀

Source: WCPL (2017); NSW Dept of Industry (2015); NSW Land & Property Information (2016)

Peabody
WILPINJONG COAL MINE
Wollar Environmental Monitoring Sites