



WILPINJONG COAL PTY LTD

Environment Protection Licence (EPL) 12425

[Link to Environment Protection Licence EPL12425](#)

**LICENCE MONITORING DATA
MONTHLY SUMMARY REPORT**

for

1 February 2022 to 28 February 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.

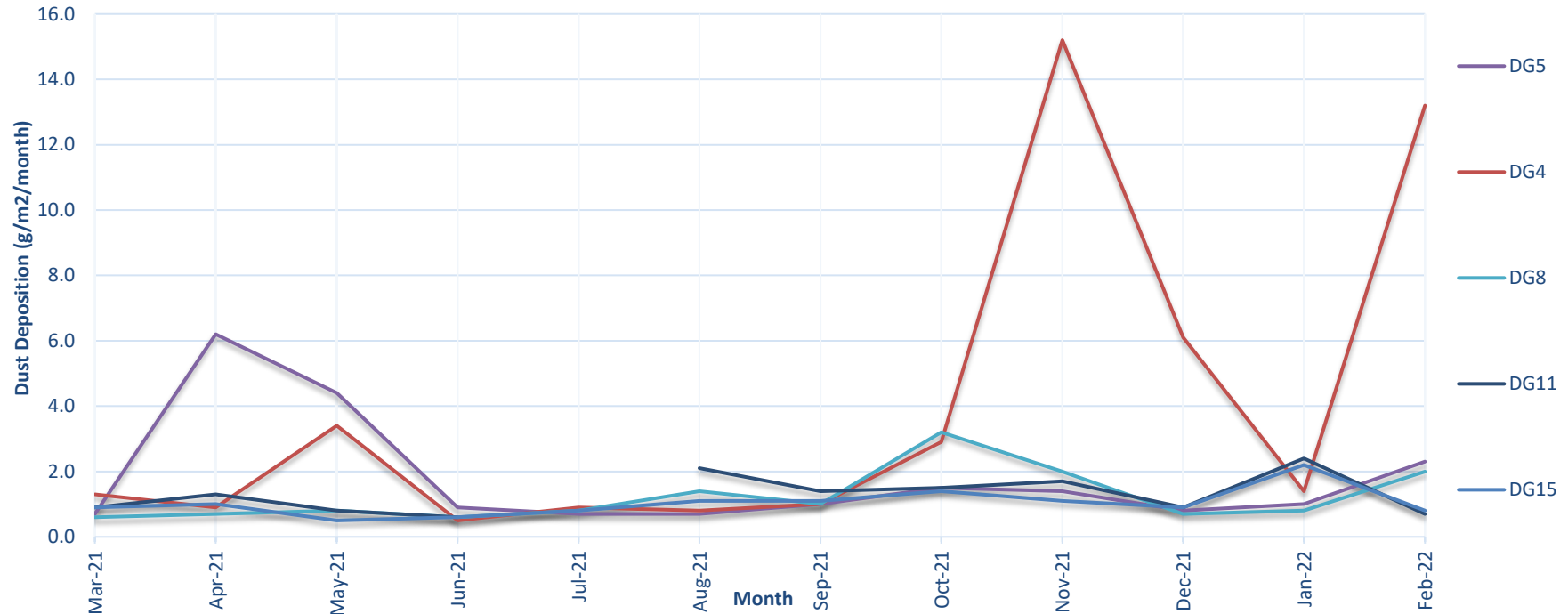
Table 1 - Air Monitoring

| 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 | | | | 13.2 | | | | 25/02/22 | 21/03/22 |
| 4 | DG5 | Particulates - TIM | grams per square metre per month | Monthly | 1 | | | | 2.3 | 1.8 | 4.0 | No | 25/02/22 | 21/03/22 |
| 6 | DG8 | Particulates - TIM | grams per square metre per month | Monthly | 1 | | | | 2.0 | | | | 25/02/22 | 21/03/22 |
| 9 | DG11 | Particulates - TIM | grams per square metre per month | Monthly | 1 | | | | 0.7 | | | | 25/02/22 | 21/03/22 |
| 17 | DG15 | Particulates - TIM | grams per square metre per month | Monthly | 1 | | | | 0.8 | | | | 25/02/22 | 21/03/22 |
| 13 | HV1 | PM10 | micrograms per cubic metre | Every 6 days | 5 | 8.8 | 11.5 | 10.1 | | | 50 | No | 27/02/22 | 18/03/22 |
| 19 | HV4 | PM10 | micrograms per cubic metre | Every 6 days | 4 | 9.2 | 15.4 | 13.4 | | | 50 | | 27/02/22 | 18/03/22 |
| 20 | HV5 | PM10 | micrograms per cubic metre | Every 6 days | 5 | 7.5 | 14.0 | 11.5 | | | 50 | | 27/02/22 | 18/03/22 |
| 22 | TEOM3 | PM10 | micrograms per cubic metre | Continuous (24 Hr Average) | 92.9% | 3.6 | 13.7 | 8.0 | | | 50 | No | | |
| 23 | TEOM4 | PM10 | micrograms per cubic metre | Continuous (24 Hr Average) | 100.0% | 5.2 | 21.4 | 11.7 | | | 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% if 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 April 2021, DG5 recorded 6.2g/m² of total insoluble matter. The sampler recorded bird droppings as being present in the funnel justifying an organic composition of 50%. It is determined that mining operations did not contribute to this exceedance.
4. In May 2021, DG5 recorded 4.4g/m² of total insoluble matter. The sampler recorded a dead mouse as being present in the funnel majorly contributing to the exceedance. It is determined that mining operations did not majorly impact the result.
5. In July 2021, DG11 was shot three times damaging the monitoring site. A result was not obtainable for the month.
6. 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.

Figure 1b. DG 5 Results - Annual Average

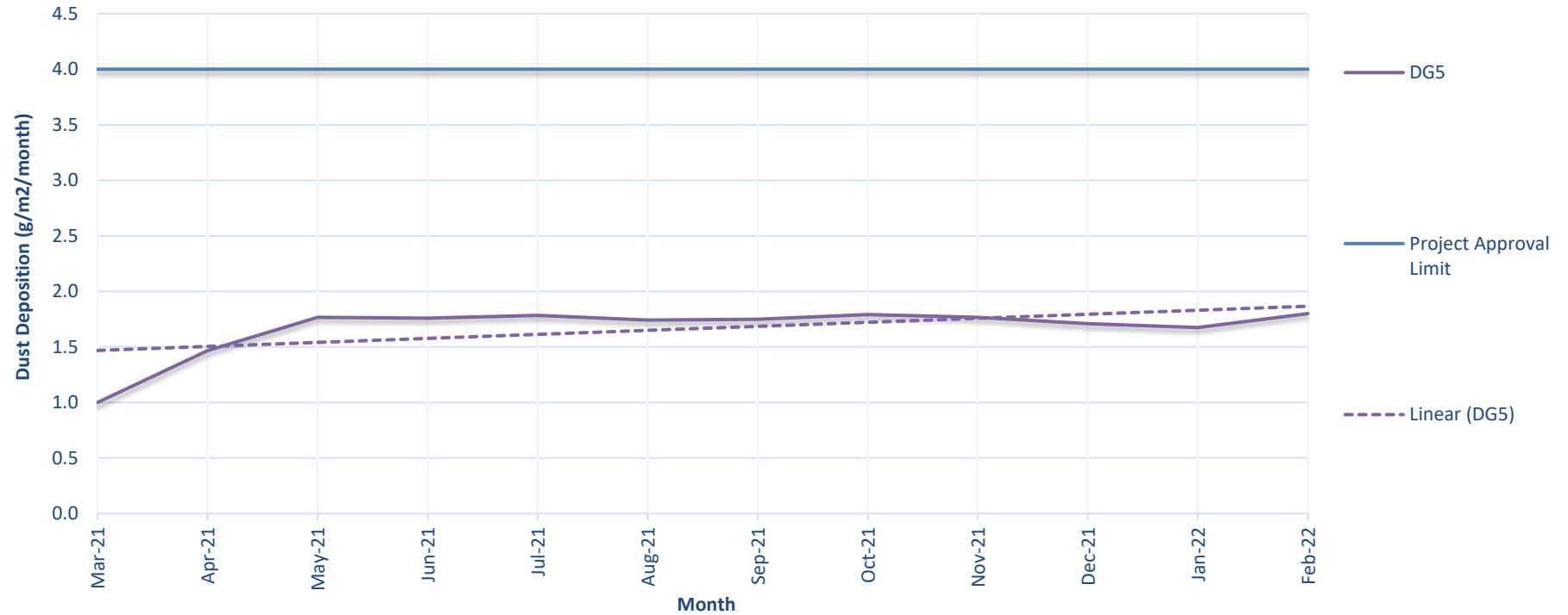
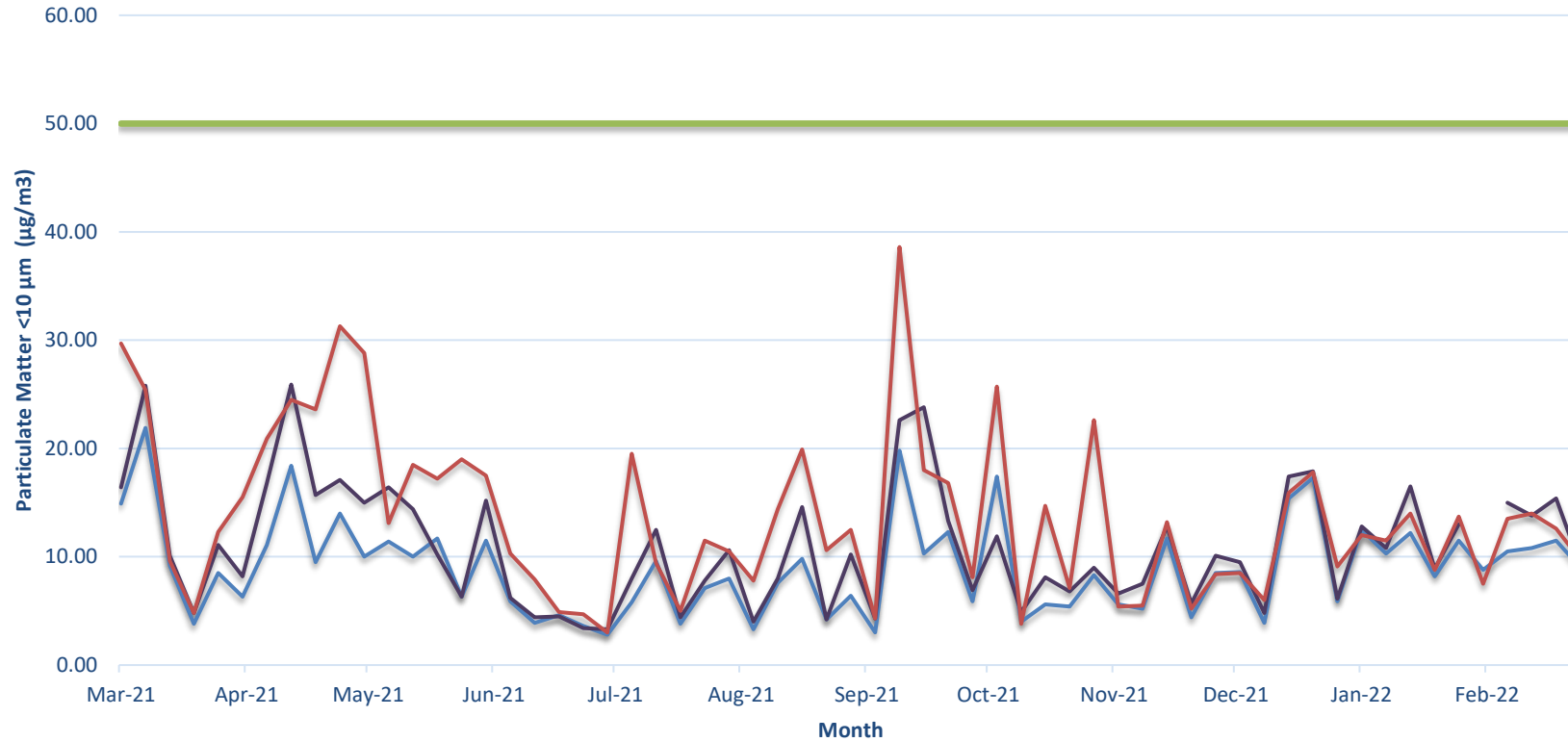


Figure 2. HV (PM10) Results - 12 Month Trend

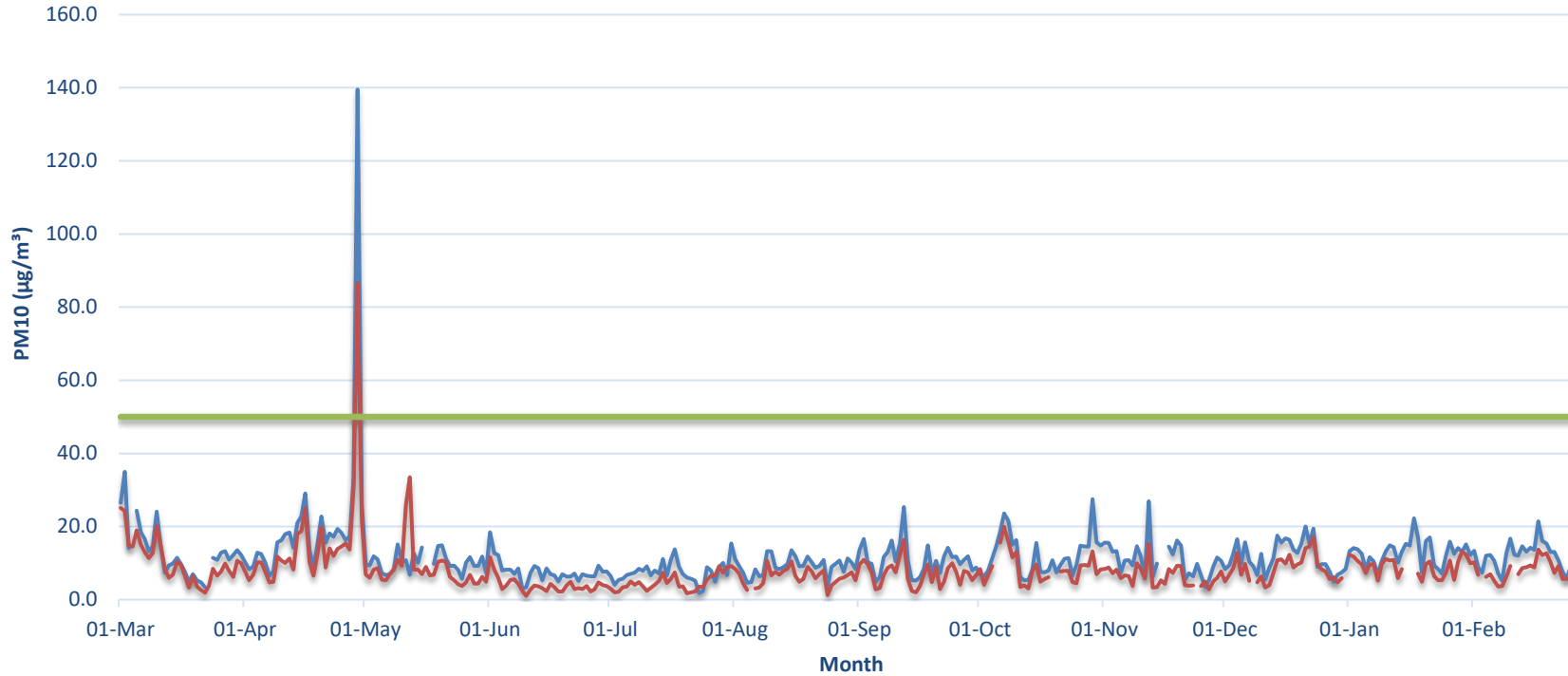


Notes:

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.

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

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

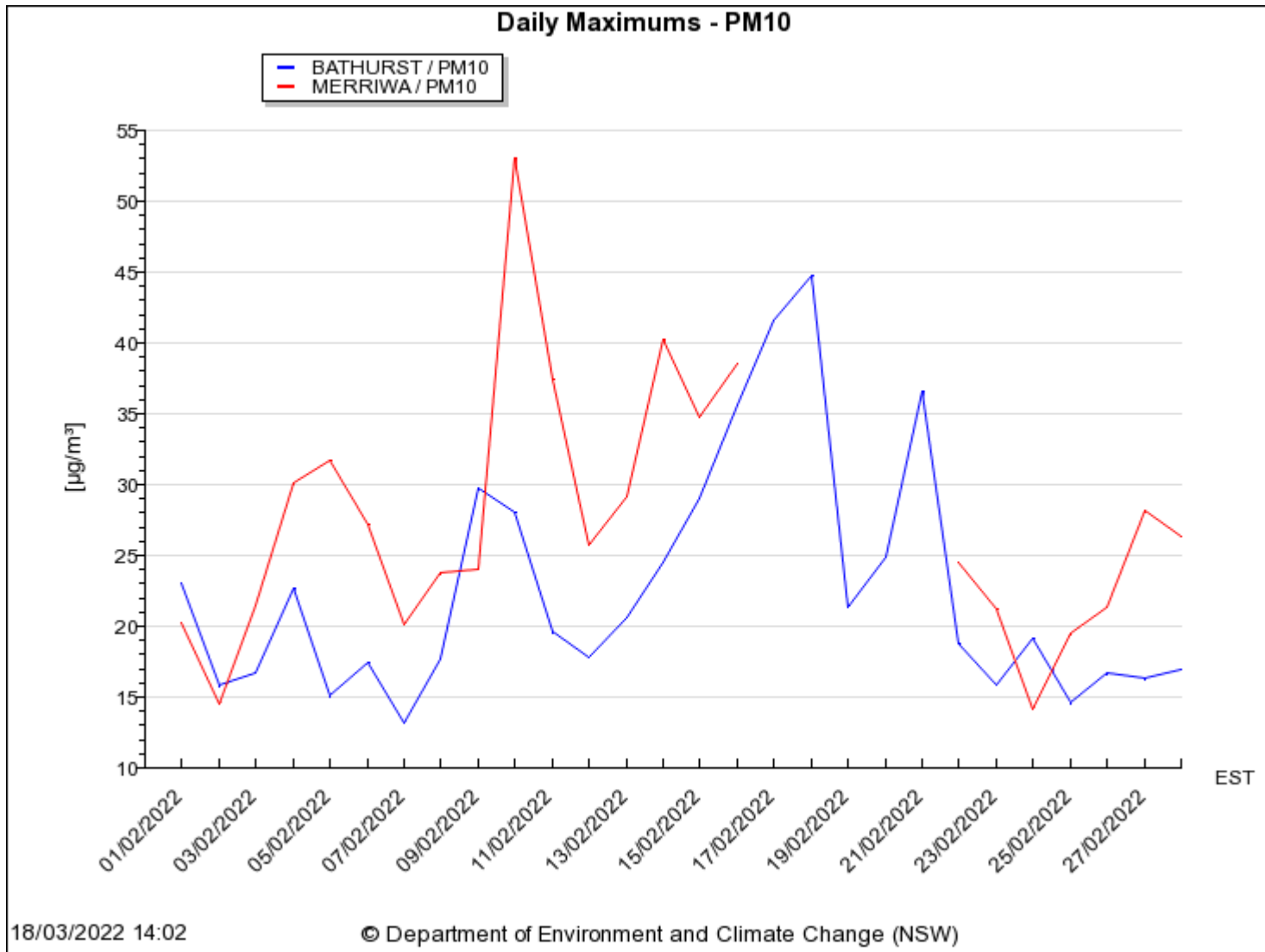


Notes:

1. Limit doesn't apply for extraordinary events such as bushfires, prescribed burning or dust storms
2. Power outages during March 2021 resulted in periods of no data at TEOM 4.
3. The significantly elevated dust level recorded on 29 April 2021 was due to a nearby hazard reduction burn undertaken by National Parks and Wildlife Services.
4. The operating system of TEOM 4 locked up on 16 May 2021 preventing accurate data recording until 18 May 2021. The same occurrence caused invalid data between 15-16 November at this unit.
5. Planned power outages on 5 August 2021 and 5 October 2021 prevented a valid 24 hour average value from being recorded at TEOM 3.
6. Planned maintenance prevented valid 24 hour average values from being recorded between October 19 and 20 2021 at TEOM 3.
7. Unplanned power outages on 5 October, 24 November, 8 and 31 December 2021 and 15-17 January and 3 February 2022 prevented valid 24 hour average values from being recorded at TEOM 3 during those dates.

— 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.

Water 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% | 197 | 467 | 346 | 500 | No | | |
| | | Oil and Grease | milligrams per litre (mg/L) | Weekly during any discharge | 4 | <5 | <5 | <5 | 10.0 | No | 23-Feb-2022 | 21-Mar-2022 |
| | | pH | pH Unit | Continuous during discharge | 100% | 6.6 | 8.5 | 7.2 | ≥6.5≤8.5 | No | | |
| | | Total Suspended Solids | milligrams per litre (mg/L) | Weekly during any discharge | 4 | <1 | <1 | <1 | 50 | No | 23-Feb-2022 | 21-Mar-2022 |
| | | Volume discharged | megalitres per day | Continuous during discharge | 100% | 1.582 | 4.869 | 3.299 | 5.0 | No | | |
| 30 | Clean Water Dam Discharge | Turbidity | Nephelometric Turbidity Units | Continuous during discharge | 100% | 10 | 45 | 34 | 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 – FEBRUARY 2022

| Location | Start Date and Time | Wind Speed m/s ¹ | Stability Class ¹ | Criterion dB | Criterion Applies? ² | WCP $L_{Aeq,15min}$ dB ³ | Exceedance ⁴ |
|----------|---------------------|--------------------------------|------------------------------|--------------|---------------------------------|--|-------------------------|
| N6 | 10/02/2022 23:19 | 2.1 | E | 37 | Yes | IA | Nil |
| N14 | 11/02/2022 00:30 | 1.7 | D | 35 | Yes | IA | Nil |
| N15 | 10/02/2022 23:00 | 2.3 | E | 37 | Yes | IA | Nil |
| N17 | 10/02/2022 22:26 | 2.3 | E | 38 | Yes | IA | Nil |
| N19 | 10/02/2022 22:00 | 3.9 | E | 35 | No | IA | NA |
| N20 | 10/02/2022 23:45 | 2.2 | E | 35 | Yes | IA | Nil |

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; and
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 – FEBRUARY 2022

| Location | Start Date and Time | Wind Speed m/s ¹ | Stability Class ¹ | Criterion dB | Criterion Applies? ² | WCP $L_{A1,1min}$ dB ³ | Exceedance ⁴ |
|----------|---------------------|--------------------------------|------------------------------|--------------|---------------------------------|--------------------------------------|-------------------------|
| N6 | 10/02/2022 23:19 | 2.1 | E | 45 | Yes | IA | Nil |
| N14 | 11/02/2022 00:30 | 1.7 | D | 45 | Yes | IA | Nil |
| N15 | 10/02/2022 23:00 | 2.3 | E | 45 | Yes | IA | Nil |
| N17 | 10/02/2022 22:26 | 2.3 | E | 45 | Yes | IA | Nil |
| N19 | 10/02/2022 22:00 | 3.9 | E | 45 | No | IA | NA |
| N20 | 10/02/2022 23:45 | 2.2 | E | 45 | Yes | IA | Nil |

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; and
4. NA in exceedance column means criterion was not applicable due to atmospheric conditions outside those specified in EPL.

6 SUMMARY

Global Acoustics 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 undertaken during the night period of 10/11 February 2022 at eight monitoring locations.

Noise levels from WCP complied with relevant noise limits at all monitoring locations during the February 2022 monitoring. Criteria may not always be applicable due to meteorological conditions at the time of monitoring.

Global Acoustics Pty Ltd

Wilpinjong Coal received the report from Global Acoustics Pty Ltd on 15th March 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 | February | 10 | 73.1 | 97.8 | 87.4 | 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 | February | 10 | 0.01 | 1.43 | 0.23 | 5 mm/s (95% blasts) 10 mm/s (100% blasts) | no |

Figure 7. Overpressure (dBL) recorded during Month

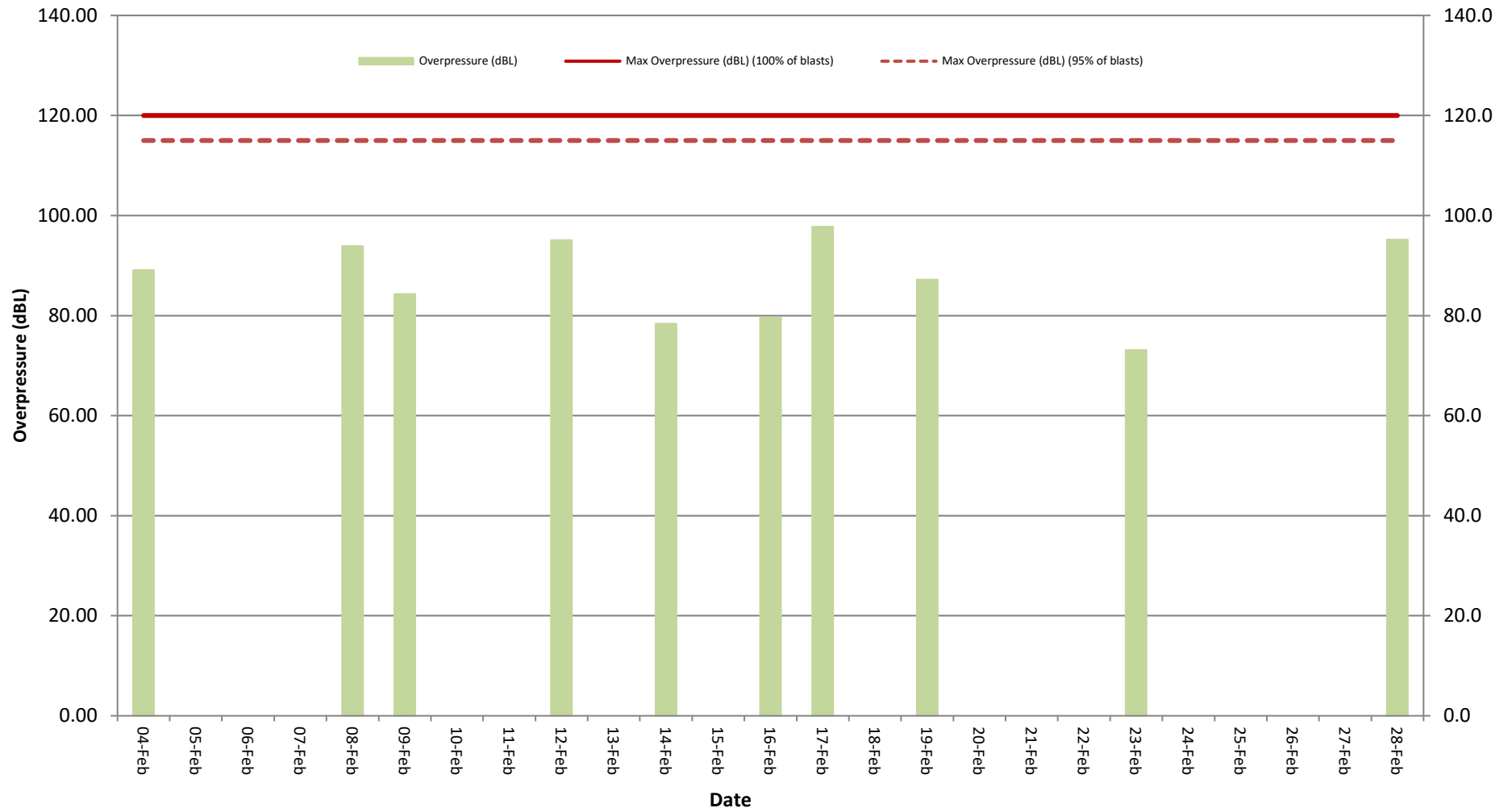
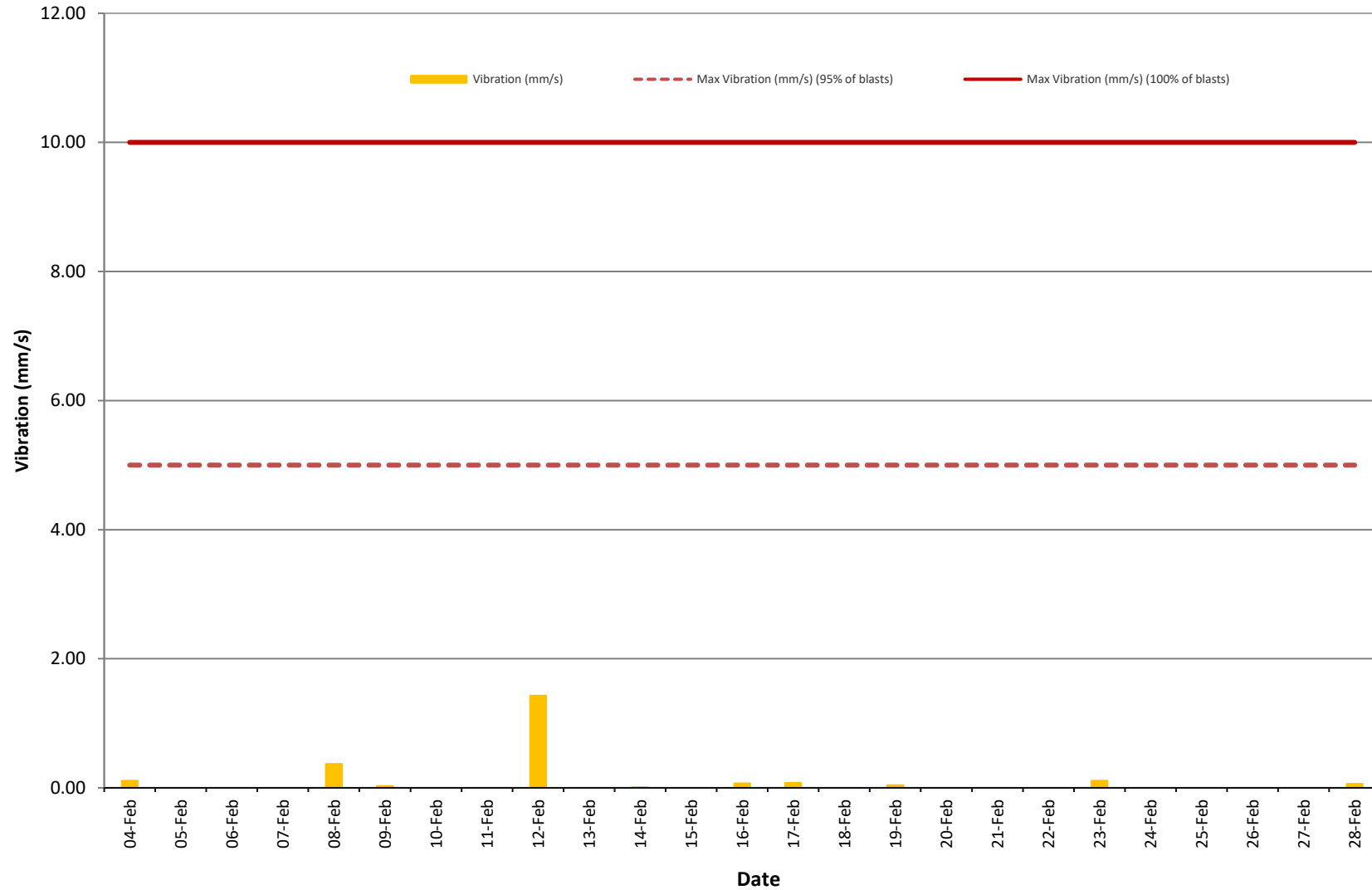


Figure 8. Vibration (mm/s) recorded during Month



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 | | |
| 1/02/2022 | 25.3 | 17.8 | 31.2 | 25.2 | 18.3 | 30.7 | 24.9 | 18.9 | 29.7 | 66.8 | 44.4 | 91.1 | 1.6 | 0 | 5.5 | 257 | 0 | 1001.2 | 3.20 |
| 2/02/2022 | 22.8 | 20.4 | 26.8 | 22.7 | 20.4 | 26.3 | 22.2 | 19.7 | 25.5 | 81.1 | 65.1 | 93.3 | 0.7 | 0 | 4.1 | 33 | 1.6 | 1002.4 | 0.70 |
| 3/02/2022 | 19.8 | 16.6 | 24.2 | 19.6 | 16.8 | 23.4 | 19 | 16.7 | 22.1 | 72.6 | 57.9 | 82.1 | 2.1 | 0.9 | 4.6 | 79 | 2.4 | 1005 | 1.10 |
| 4/02/2022 | 18.4 | 13.9 | 23.3 | 18.2 | 14.3 | 22.4 | 17.6 | 14.5 | 21.3 | 60.7 | 42.1 | 77.9 | 3.9 | 1.3 | 8.6 | 97 | 0 | 1011.9 | 1.60 |
| 5/02/2022 | 18.8 | 15.1 | 23.1 | 18.5 | 15.5 | 22.1 | 17.8 | 15.3 | 21 | 60.4 | 47.2 | 75.6 | 4.1 | 1 | 7.6 | 98 | 0 | 1015.6 | 0.40 |
| 6/02/2022 | 18.9 | 15.8 | 23.7 | 18.7 | 15.8 | 23.1 | 18 | 15.3 | 22.2 | 65 | 44.2 | 83.9 | 3.9 | 1 | 8.2 | 91 | 0 | 1018.8 | -0.20 |
| 7/02/2022 | 18.7 | 14.9 | 23.6 | 18.5 | 15.5 | 22.8 | 17.8 | 15 | 21.9 | 68.4 | 46.1 | 89.7 | 3.1 | 0 | 7.2 | 99 | 0.4 | 1018.4 | 1.90 |
| 8/02/2022 | 18.5 | 11.1 | 25.7 | 18.6 | 11.5 | 25.2 | 18.6 | 12.6 | 24 | 66.7 | 36.4 | 95 | 0.7 | 0 | 3 | 75 | 0.2 | 1013.5 | 6.50 |
| 9/02/2022 | 20.8 | 9.9 | 31.8 | 21.1 | 10.9 | 30.6 | 21.3 | 11.8 | 29.3 | 56.1 | 19.2 | 93.5 | 0.7 | 0 | 3.2 | 231 | 0 | 1009.8 | 7.70 |
| 10/02/2022 | 24 | 12 | 34.2 | 24.1 | 13 | 33.1 | 24.2 | 14.6 | 32 | 49.1 | 21.1 | 85.3 | 0.8 | 0 | 7.9 | 190 | 0 | 1009.5 | 6.50 |
| 11/02/2022 | 22.3 | 17.2 | 28.4 | 22.1 | 17.5 | 27.7 | 21.5 | 17.3 | 26.8 | 67.5 | 40.8 | 93.2 | 2.9 | 0 | 6 | 78 | 6 | 1012.3 | 1.40 |
| 12/02/2022 | 21 | 17.4 | 25.6 | 20.7 | 17.5 | 24.7 | 20 | 17.5 | 23.6 | 60.5 | 40.2 | 78.6 | 3.6 | 0 | 6.1 | 88 | 0 | 1014.8 | 0.70 |
| 13/02/2022 | 20.8 | 15.9 | 26.3 | 20.5 | 16.2 | 25.4 | 19.8 | 15.9 | 24.3 | 61 | 34.6 | 87.8 | 3.1 | 1 | 5.3 | 83 | 0 | 1018.5 | 0.20 |
| 14/02/2022 | 21.8 | 13 | 29.2 | 21.7 | 13.5 | 28.5 | 21.4 | 14.1 | 27.5 | 56.5 | 27.6 | 90.2 | 1.4 | 0 | 3.4 | 86 | 0 | 1020.7 | 4.60 |
| 15/02/2022 | 22.8 | 13.8 | 30 | 22.7 | 14.3 | 29.1 | 22.4 | 15 | 28 | 61.1 | 34.7 | 93 | 1.6 | 0 | 3.7 | 72 | 0 | 1019.5 | 4.00 |
| 16/02/2022 | 22.3 | 14.2 | 29.6 | 22.4 | 15 | 28.9 | 22.1 | 15.2 | 27.6 | 60.9 | 31.3 | 92.7 | 1.1 | 0 | 3 | 75 | 0 | 1015.1 | 7.50 |
| 17/02/2022 | 24.3 | 13.7 | 33.4 | 24.3 | 14.2 | 32.5 | 24.3 | 15.4 | 31.4 | 54.7 | 26.8 | 90.2 | 1.7 | 0 | 5.1 | 255 | 0 | 1008.4 | 7.50 |
| 18/02/2022 | 25.8 | 15.8 | 32.6 | 25.6 | 16.6 | 31.8 | 25.2 | 17.7 | 30.5 | 47 | 16.1 | 88.2 | 1.3 | 0 | 5.6 | 231 | 0 | 1008.2 | 3.70 |
| 19/02/2022 | 22.1 | 19 | 25.5 | 21.8 | 19 | 24.6 | 21.1 | 18.5 | 23.6 | 64.8 | 50.4 | 73.4 | 4.9 | 2.9 | 6.7 | 82 | 0 | 1014.5 | -0.70 |
| 20/02/2022 | 23.2 | 16.7 | 31.6 | 23 | 17 | 31 | 22.6 | 16.7 | 29.7 | 61.6 | 32.9 | 82.6 | 0.4 | 0 | 4 | 52 | 0 | 1008.9 | 6.50 |
| 21/02/2022 | 23.8 | 19.8 | 30.6 | 23.8 | 20.2 | 29.7 | 23.4 | 19.8 | 29 | 62 | 34.4 | 81.3 | 0.6 | 0 | 5.5 | 260 | 0.4 | 1007.3 | 4.70 |
| 22/02/2022 | 22.4 | 17.8 | 28 | 22.1 | 17.9 | 26.9 | 21.5 | 17.8 | 25.5 | 72 | 51.6 | 92.1 | 3 | 0 | 6.1 | 89 | 0 | 1012.5 | 1.10 |
| 23/02/2022 | 23.6 | 20 | 28 | 23.3 | 19.9 | 27.2 | 22.7 | 19.7 | 26.4 | 67.2 | 49.8 | 83 | 3.6 | 1.3 | 5.5 | 78 | 0 | 1013.9 | -0.40 |
| 24/02/2022 | 23.5 | 20.3 | 27 | 23.3 | 20.3 | 26.4 | 22.6 | 19.8 | 25.5 | 73 | 57.8 | 91.6 | 3.9 | 1.5 | 14.3 | 83 | 2.6 | 1109.5 | -0.40 |
| 25/02/2022 | 22.6 | 20.1 | 25 | 22.4 | 20.2 | 24.7 | 21.9 | 19.8 | 24 | 75.6 | 63.1 | 86.4 | 3.4 | 1.9 | 5.8 | 88 | 1.6 | 1011.2 | 0.20 |
| 26/02/2022 | 21.7 | 19.5 | 24.5 | 21.6 | 19.8 | 24.1 | 21 | 19.3 | 23.2 | 73.2 | 61.9 | 81 | 3.3 | 1.2 | 5.1 | 86 | 0.6 | 1011.4 | 0.00 |
| 27/02/2022 | 22.8 | 19.1 | 27.4 | 22.5 | 19.1 | 26.7 | 21.8 | 18.7 | 25.8 | 67.8 | 47.9 | 83.2 | 3.1 | 1.1 | 6.1 | 85 | 0 | 1010.1 | 0.00 |
| 28/02/2022 | 22.6 | 18.8 | 27.1 | 22.4 | 19 | 26.4 | 21.7 | 18.8 | 25.3 | 65.7 | 47.5 | 78.5 | 4.1 | 1.2 | 6.5 | 84 | 0.2 | 1009.3 | 0.20 |

Figure 6 – Air (Dust) Monitoring Locations

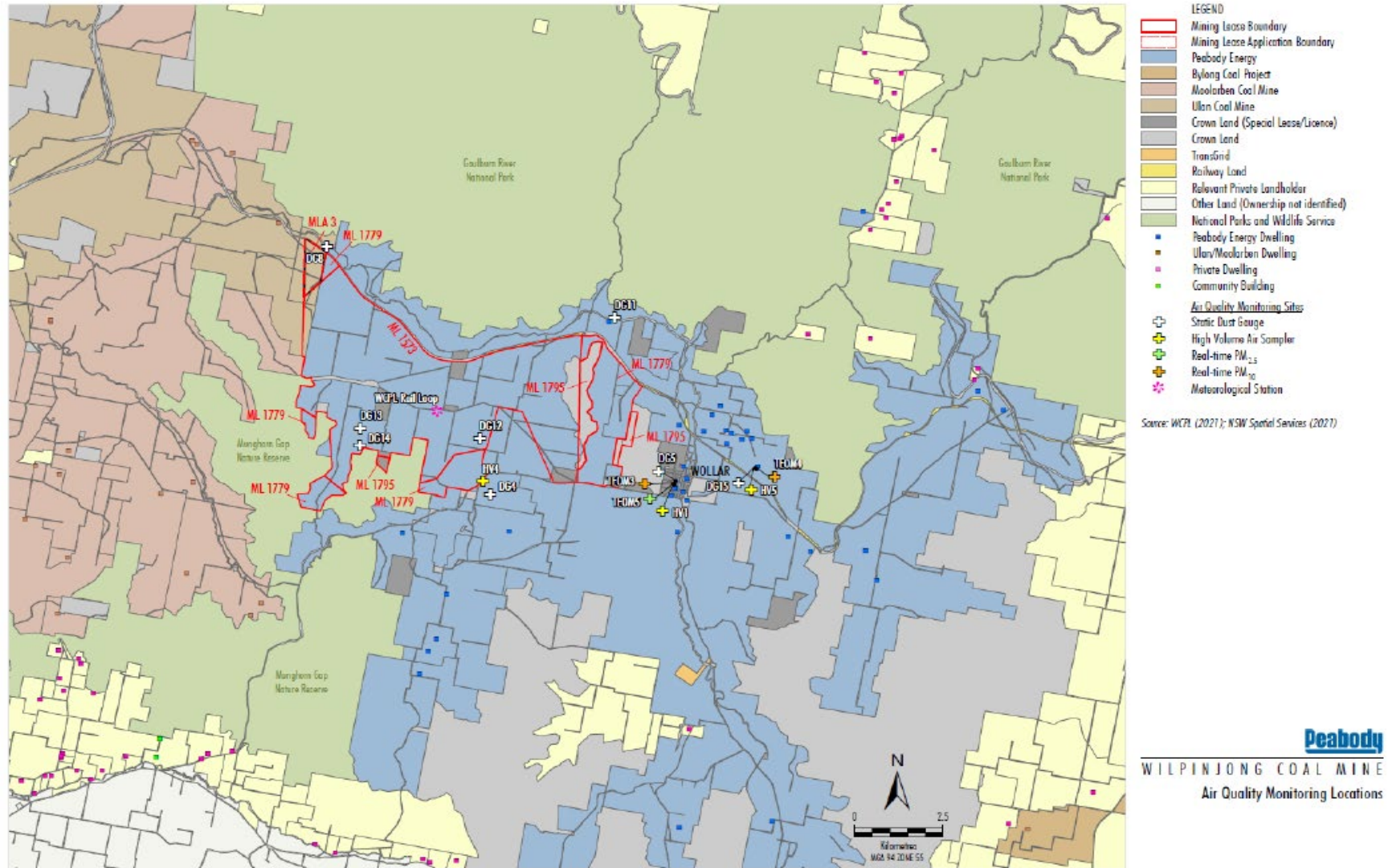


Figure 8 – Wollar Village Environmental Monitoring Sites



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

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

Peabody
WILPINJONG COAL MINE
Wollar Environmental Monitoring Sites