



**WILPINJONG COAL PTY LTD**

**Environment Protection Licence (EPL) 12425**

[Link to Environment Protection Licence EPL12425](#)

**LICENCE MONITORING DATA  
MONTHLY SUMMARY REPORT**

for

**1 July 2015 to 31 July 2015**



## **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.

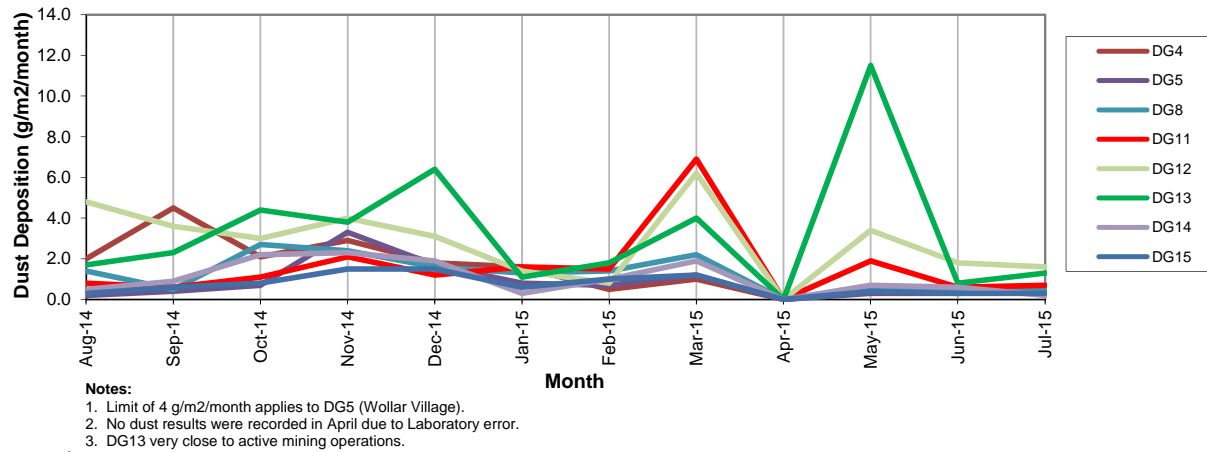
The location of the above monitoring equipment in relation to Wilpinjong Coal Mine is shown in Figure 8.

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.

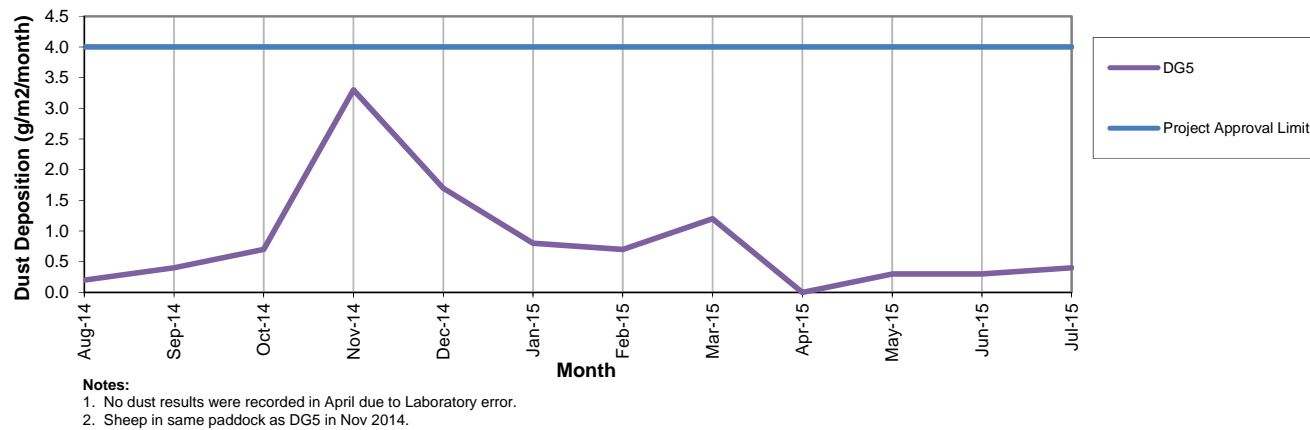
**Table 1**

| 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 <sup>n</sup> (yes/no) | Date Last Sampled | Date Reported |
|------------|----------------------|--------------------|----------------------------------|--------------------------------------|------------------------------------|------------|------------|------------|-------------|----------------|-------|------------------------------|-------------------|---------------|
| 3          | DG4                  | Particulates - TSM | grams per square metre per month | Monthly                              | 1                                  |            |            |            | 0.4         |                |       |                              | 29/07/15          | 12/08/15      |
| 4          | DG5                  | Particulates - TSM | grams per square metre per month | Monthly                              | 1                                  |            |            |            | 0.4         | 0.8            | 4.0   | No                           | 29/07/15          | 12/08/15      |
| 6          | DG8                  | Particulates - TSM | grams per square metre per month | Monthly                              | 1                                  |            |            |            | 0.5         |                |       |                              | 29/07/15          | 12/08/15      |
| 9          | DG11                 | Particulates - TSM | grams per square metre per month | Monthly                              | 1                                  |            |            |            | 0.7         |                |       |                              | 29/07/15          | 12/08/15      |
| 10         | DG12                 | Particulates - TSM | grams per square metre per month | Special Frequency 1                  | 1                                  |            |            |            | 1.6         |                |       |                              | 29/07/15          | 12/08/15      |
| 11         | DG13                 | Particulates - TSM | grams per square metre per month | Special Frequency 1                  | 1                                  |            |            |            | 1.3         |                |       |                              | 29/07/15          | 12/08/15      |
| 12         | DG14                 | Particulates - TSM | grams per square metre per month | Special Frequency 1                  | 1                                  |            |            |            | 0.2         |                |       |                              | 29/07/15          | 12/08/15      |
| 17         | DG15                 | Particulates - TSM | grams per square metre per month | Monthly                              | 1                                  |            |            |            | 0.3         |                |       |                              | 29/07/15          | 12/08/15      |
| 13         | HV1                  | PM10               | micrograms per cubic metre       | Every 6 days                         | 5                                  | 1.1        | 9.0        | 5.0        |             |                |       |                              | 28/07/15          | 12/08/15      |
| 19         | HV4                  | PM10               | micrograms per cubic metre       | Every 6 days                         | 5                                  | 1.9        | 6.4        | 5.3        |             |                |       |                              | 28/07/15          | 12/08/15      |
| 20         | HV5                  | PM10               | micrograms per cubic metre       | Every 6 days                         | 5                                  | 1.0        | 14.6       | 7.3        |             |                |       |                              | 28/07/15          | 12/08/15      |
| 22         | TEOM3                | PM10               | micrograms per cubic metre       | Continuous (24 Hr Average)           | 100.0%                             | 3.6        | 11.7       | 7.4        |             |                |       |                              |                   |               |
| 23         | TEOM4                | PM10               | micrograms per cubic metre       | Continuous (24 Hr Average)           | 100.0%                             | 0.4        | 18.9       | 6.2        |             |                |       |                              |                   |               |

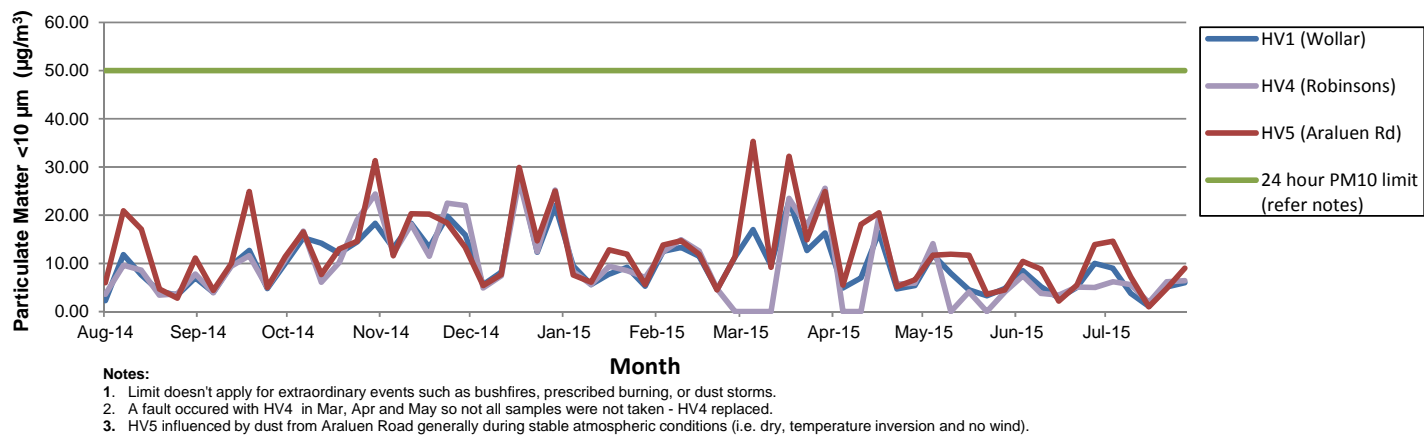
**Figure 1a. DG Results - 12 Month Trend**



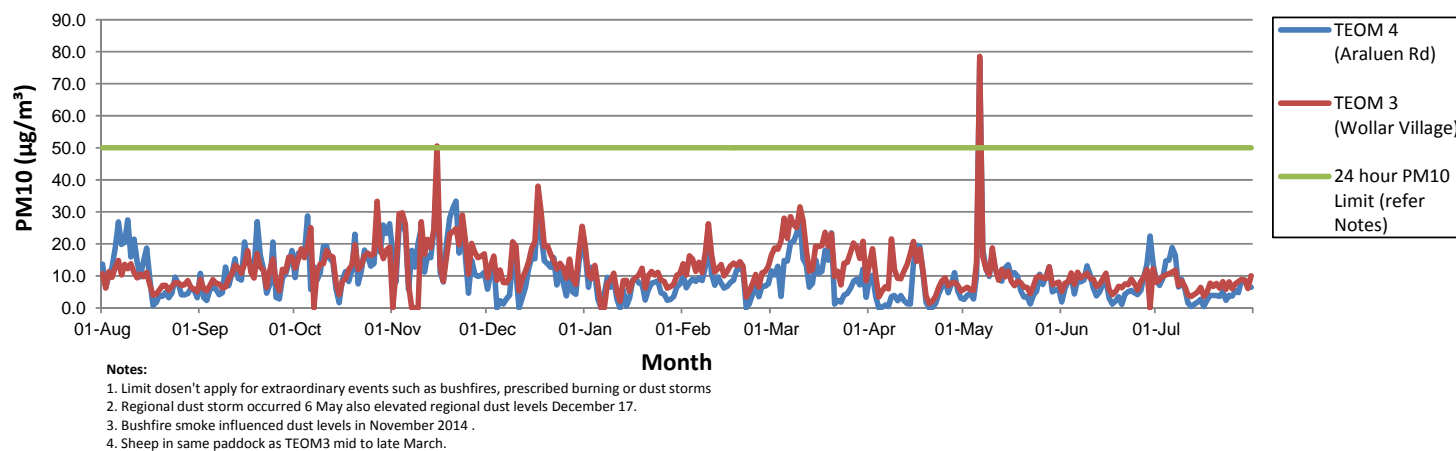
**Figure 1b. DG Results - 12 Month Trend**



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



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



## 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.

A summary of the monitoring results for the month is provided in Table 2. The continuous monitoring results for pH, conductivity and volume are also shown in Figures 4 to 6.

**Table 2**

| 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 | Limit    | Exceed <sup>n</sup> (yes/no) | Date Last Sampled | Date Last Reported |
|------------|----------------------|------------------------|-------------------------------------|--------------------------------------|------------------------------------|------------|------------|------------|-------------|----------|------------------------------|-------------------|--------------------|
| 24         | RO Plant Discharge   | Conductivity           | microSiemens per centimetre (uS/cm) | Continuous during discharge          | 100%                               | 82.2       | 284.3      | 144.0      |             | 500      | No                           |                   |                    |
|            |                      | Oil and Grease         | milligrams per litre (mg/L)         | Weekly during any discharge          | 8                                  | <5         | 20         | 7          |             | 10.0     | Yes                          | 31/07/15          | 12/08/15           |
|            |                      | pH                     | pH Unit                             | Continuous during discharge          | 100%                               | 6.5        | 8.4        | 7.1        |             | ≥6.5≤8.5 | No                           |                   |                    |
|            |                      | Total Suspended Solids | milligrams per litre (mg/L)         | Weekly during any discharge          | 8                                  | <1         | 3          | 1          |             | 50       | No                           | 31/07/15          | 12/08/15           |
|            |                      | Volume discharged      | megalitres per day                  | Continuous during discharge          | 100%                               | 0.00       | 1.64       | 0.57       |             | 5.0      | No                           |                   |                    |

The reported Oil & Grease Max. Value is unusual and is being investigated by ALS.

Figure 4 – Volume discharged per day (ML)

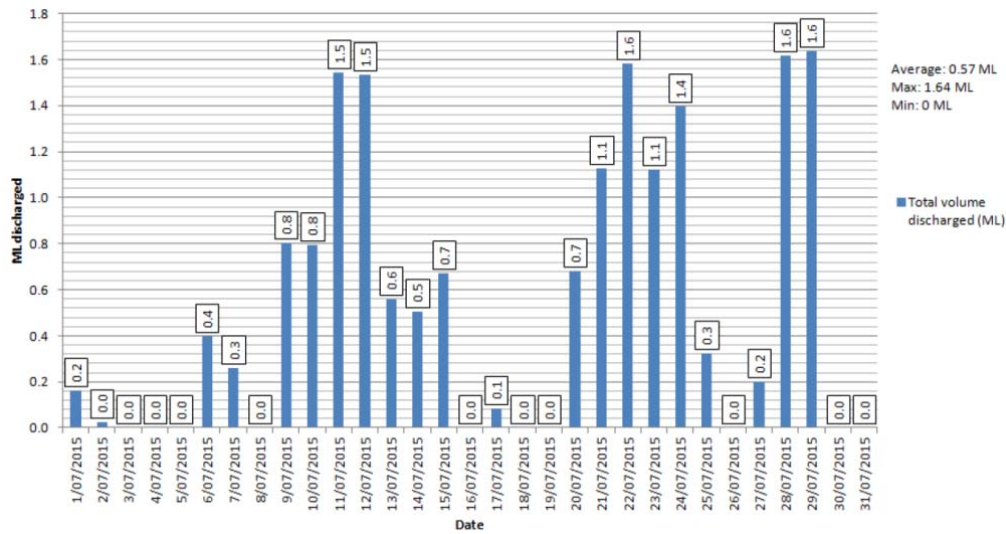


Figure 5 – Conductivity (max, min & average / day)

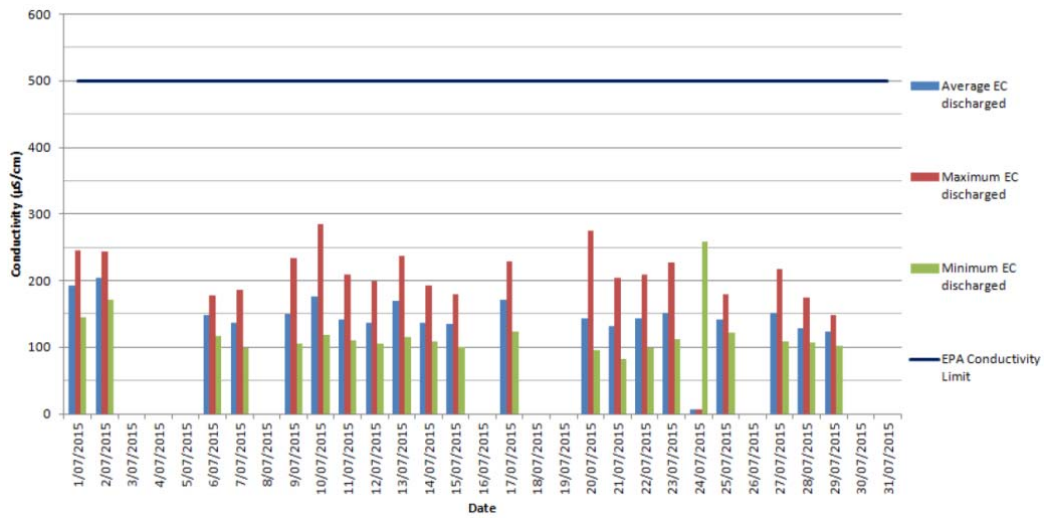
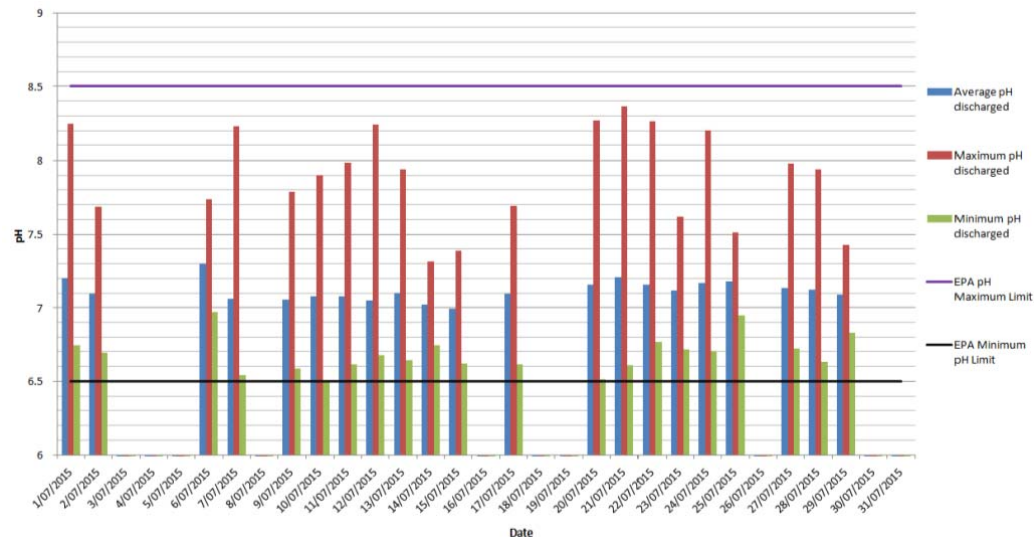


Figure 6 – pH (max, min & average / day)





## **Noise Monitoring**

Environmental noise monitoring ("monitoring") is carried out on a monthly basis.

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 9.

On pages 9 and 10 of this report are the noise levels and findings from the consultant's report.



Table 4.2:  $L_{Aeq,15min}$  GENERATED BY WCP AGAINST PROJECT APPROVAL IMPACT ASSESSMENT CRITERIA – JULY 2015

| Location | Start Date and Time | Wind Speed m/s <sup>4,6</sup> | VTG °C per 100m <sup>4,6</sup> | Criterion dB <sup>5</sup> | Criterion Applies? <sup>1</sup> | WCP $L_{Aeq,15min}$ dB <sup>2,3</sup> | Exceedance <sup>5</sup> |
|----------|---------------------|-------------------------------|--------------------------------|---------------------------|---------------------------------|---------------------------------------|-------------------------|
| N6       | 15/07/2015 01:01    | 0.0                           | 4.7                            | 35                        | No                              | 29                                    | NA                      |
| N13      | 15/07/2015 01:38    | 0.0                           | 5.5                            | 36                        | No                              | <20                                   | NA                      |
| N14      | 14/07/2015 23:40    | 0.0                           | 3.8                            | 35                        | No                              | <25                                   | NA                      |
| N15      | 14/07/2015 22:59    | 1.6                           | 1.7                            | 35                        | Yes                             | 31                                    | Nil                     |
| N16      | 14/07/2015 22:31    | 2.0                           | 0.7                            | 37                        | Yes                             | 30                                    | Nil                     |
| N17      | 14/07/2015 22:00    | 2.8                           | 0.2                            | 35                        | Yes                             | 1A                                    | Nil                     |
| N18      | 15/07/2015 00:15    | 0.0                           | 4.8                            | 35                        | No                              | 1A                                    | NA                      |

Notes:

- Noise emission limits apply for winds up to and including 3 metres per second at a height of 10 metres, temperature inversion conditions between 1.5°C and 3°C/100m with winds up to and including 2 m/s, or temperature inversion conditions up to and including 3°C/100m;
- These are results for WCP in the absence of all other noise sources;
- Bolded results in red are those greater than the relevant criterion (if applicable);
- Wind speed is sourced from WCP weather station, Vertical Temperature Gradient (VTG) is sourced from the WCP inversion tower;
- NA in criterion column means the criteria are not applicable at this location, NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable or criterion not specified; and
- Criterion may or may not apply due to rounding of meteorological data values.

Table 4.3:  $L_{A1,1min}$  GENERATED BY WCP AGAINST PROJECT APPROVAL IMPACT ASSESSMENT CRITERIA – JULY 2015

| Location | Start Date and Time | Wind Speed m/s <sup>4,6</sup> | VTG °C per 100m <sup>4,6</sup> | Criterion dB <sup>5</sup> | Criterion Applies? <sup>1</sup> | WCP $L_{A1,1min}$ dB <sup>2,3</sup> | Exceedance <sup>5</sup> |
|----------|---------------------|-------------------------------|--------------------------------|---------------------------|---------------------------------|-------------------------------------|-------------------------|
| N6       | 15/07/2015 01:01    | 0.0                           | 4.7                            | 45                        | No                              | 33                                  | NA                      |
| N13      | 15/07/2015 01:38    | 0.0                           | 5.5                            | 45                        | No                              | <25                                 | NA                      |
| N14      | 14/07/2015 23:40    | 0.0                           | 3.8                            | 45                        | No                              | <25                                 | NA                      |
| N15      | 14/07/2015 22:59    | 1.6                           | 1.7                            | 45                        | Yes                             | 39                                  | Nil                     |
| N16      | 14/07/2015 22:31    | 2.0                           | 0.7                            | 45                        | Yes                             | 33                                  | Nil                     |
| N17      | 14/07/2015 22:00    | 2.8                           | 0.2                            | 45                        | Yes                             | 1A                                  | Nil                     |
| N18      | 15/07/2015 00:15    | 0.0                           | 4.8                            | 45                        | No                              | 1A                                  | NA                      |

Notes:

- Noise emission limits apply for winds up to and including 3 metres per second at a height of 10 metres, temperature inversion conditions between 1.5°C and 3°C/100m with winds up to and including 2 m/s, or temperature inversion conditions and including 3°C/100m;
- These are results for WCP in the absence of all other noise sources;
- Bolded results in red are those greater than the relevant criterion (if applicable);
- Wind speed is sourced from WCP weather station, Vertical Temperature Gradient (VTG) is sourced from the WCP inversion tower;
- NA in criterion column means the criteria are not applicable at this location, NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable or criterion not specified; and
- Criterion may or may not apply due to rounding of meteorological data values.

Table 4.4:  $L_{Aeq,15min}$  GENERATED BY WCP AGAINST EPL ASSESSMENT CRITERIA – JULY 2015

| Location | Start Date and Time | Wind Speed m/s <sup>4,6</sup> | VTG °C per 100m <sup>4,6</sup> | Criterion dB <sup>5</sup> | Criterion Applies? <sup>1</sup> | WCP $L_{Aeq,15min}$ dB <sup>2,3</sup> | Exceedance <sup>5</sup> |
|----------|---------------------|-------------------------------|--------------------------------|---------------------------|---------------------------------|---------------------------------------|-------------------------|
| N6       | 15/07/2015 01:01    | 0.0                           | 4.7                            | 35                        | No                              | 29                                    | NA                      |
| N13      | 15/07/2015 01:38    | 0.0                           | 5.5                            | 35                        | No                              | <20                                   | NA                      |
| N14      | 14/07/2015 23:40    | 0.0                           | 3.8                            | 35                        | No                              | <25                                   | NA                      |
| N15      | 14/07/2015 22:59    | 1.6                           | 1.7                            | 35                        | Yes                             | 31                                    | Nil                     |
| N16      | 14/07/2015 22:31    | 2.0                           | 0.7                            | 35                        | Yes                             | 30                                    | Nil                     |
| N17      | 14/07/2015 22:00    | 2.8                           | 0.2                            | 35                        | No                              | 1A                                    | NA                      |
| N18      | 15/07/2015 00:15    | 0.0                           | 4.8                            | 35                        | No                              | 1A                                    | NA                      |

Notes:

- Noise emission limits apply for winds up to and including 3 metres per second (at a height of 10 metres), temperature inversion conditions of up to up to and including 3°C/100m with winds up to and including 2 m/s, or temperature inversion conditions up to and including 3°C/100 metres;
- These are results for WCP in the absence of all other noise sources;
- Bolded results in red are those greater than the relevant criterion (if applicable);
- Wind speed is sourced from WCP weather station, Vertical Temperature Gradient (VTG) is sourced from the WCP inversion tower;
- NA in criterion column means the criteria are not applicable at this location, NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable or criterion not specified; and
- Criterion may or may not apply due to rounding of meteorological data values.

Table 4.5:  $L_{A1,1min}$  GENERATED BY WCP AGAINST EPL IMPACT ASSESSMENT CRITERIA – JULY 2015

| Location | Start Date and Time | Wind Speed m/s <sup>4,6</sup> | VTG °C per 100m <sup>4,6</sup> | Criterion dB <sup>5</sup> | Criterion Applies? <sup>1</sup> | WCP $L_{A1,1min}$ dB <sup>2,3</sup> | Exceedance <sup>5</sup> |
|----------|---------------------|-------------------------------|--------------------------------|---------------------------|---------------------------------|-------------------------------------|-------------------------|
| N6       | 15/07/2015 01:01    | 0.0                           | 4.7                            | 45                        | No                              | 33                                  | NA                      |
| N13      | 15/07/2015 01:38    | 0.0                           | 5.5                            | 45                        | No                              | <25                                 | NA                      |
| N14      | 14/07/2015 23:40    | 0.0                           | 3.8                            | 45                        | No                              | <25                                 | NA                      |
| N15      | 14/07/2015 22:59    | 1.6                           | 1.7                            | 45                        | Yes                             | 39                                  | Nil                     |
| N16      | 14/07/2015 22:31    | 2.0                           | 0.7                            | 45                        | Yes                             | 33                                  | Nil                     |
| N17      | 14/07/2015 22:00    | 2.8                           | 0.2                            | 45                        | No                              | 1A                                  | NA                      |
| N18      | 15/07/2015 00:15    | 0.0                           | 4.8                            | 45                        | No                              | 1A                                  | NA                      |

Notes:

- Noise emission limits apply for winds up to and including 3 metres per second (at a height of 10 metres), temperature inversion conditions of up to 3°C/100m with winds up to and including 2 m/s, or temperature inversion conditions up to and including 3°C/100 metres;
- These are results for WCP in the absence of all other noise sources;
- Bolded results in red are those greater than the relevant criterion (if applicable);
- Wind speed is sourced from WCP weather station, Vertical Temperature Gradient (VTG) is sourced from the WCP inversion tower;
- NA in criterion column means the criteria are not applicable at this location, NA in exceedance column means atmospheric conditions outside conditions specified in development consent and so criterion is not applicable or criterion not specified; and
- Criterion may or may not apply due to rounding of meteorological data values.

## 6 SUMMARY OF COMPLIANCE

Environmental noise monitoring described in this report was undertaken during night period of 14/15 July 2015. Attended noise monitoring was conducted at seven sites. The duration of all measurements was 15 minutes.

### 6.1 Operational Noise Assessment

Wilpinjong Coal Project (WCP) complied with noise limits at the monitoring locations during the July 2015 monitoring period.

### 6.2 Low Frequency Assessment

There were no low frequency modifying factor penalties applied to WCP measured levels as detailed in Table 4.6. No further low frequency assessment was required.

*Wilpinjong Coal received report from Global Acoustics Pty Ltd on 12 August 2015.*

## 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. Figure 7 shows the actual overpressure and vibration levels recorded during the month.

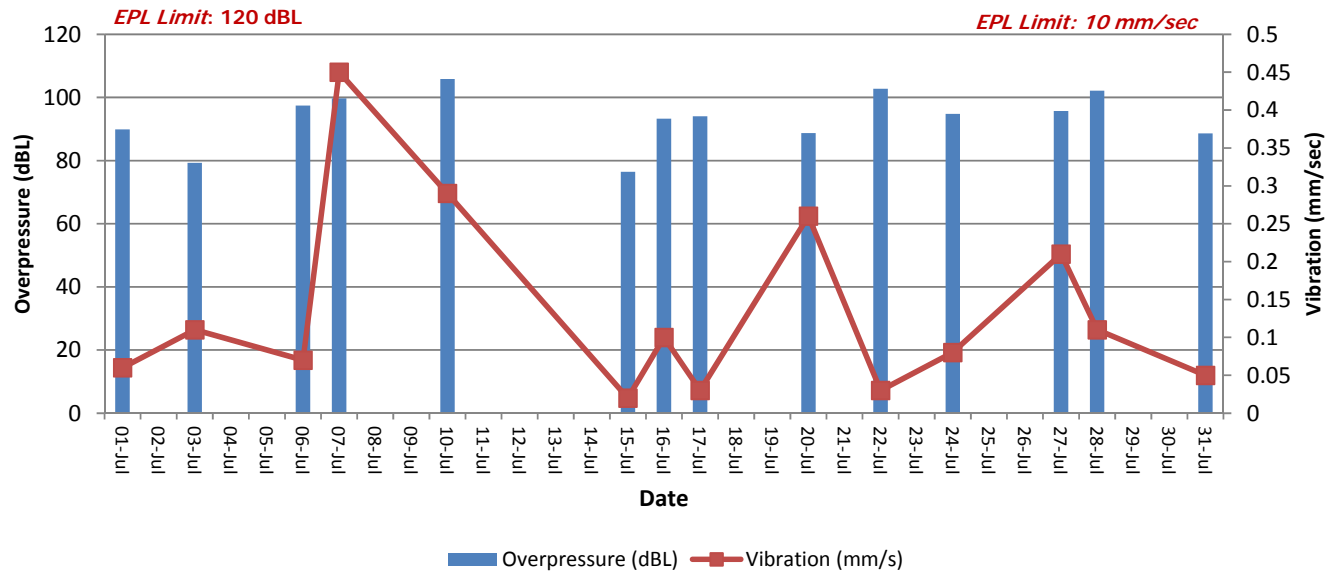
**Table 3 – Overpressure Monitoring Results**

| 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 | July  | 14               | 76.4                         | 105.8                        | 93.5                      | 115dB (95% blasts)<br>120 dB (100% blasts) | no                  |

**Table 4 – Vibration Monitoring Results**

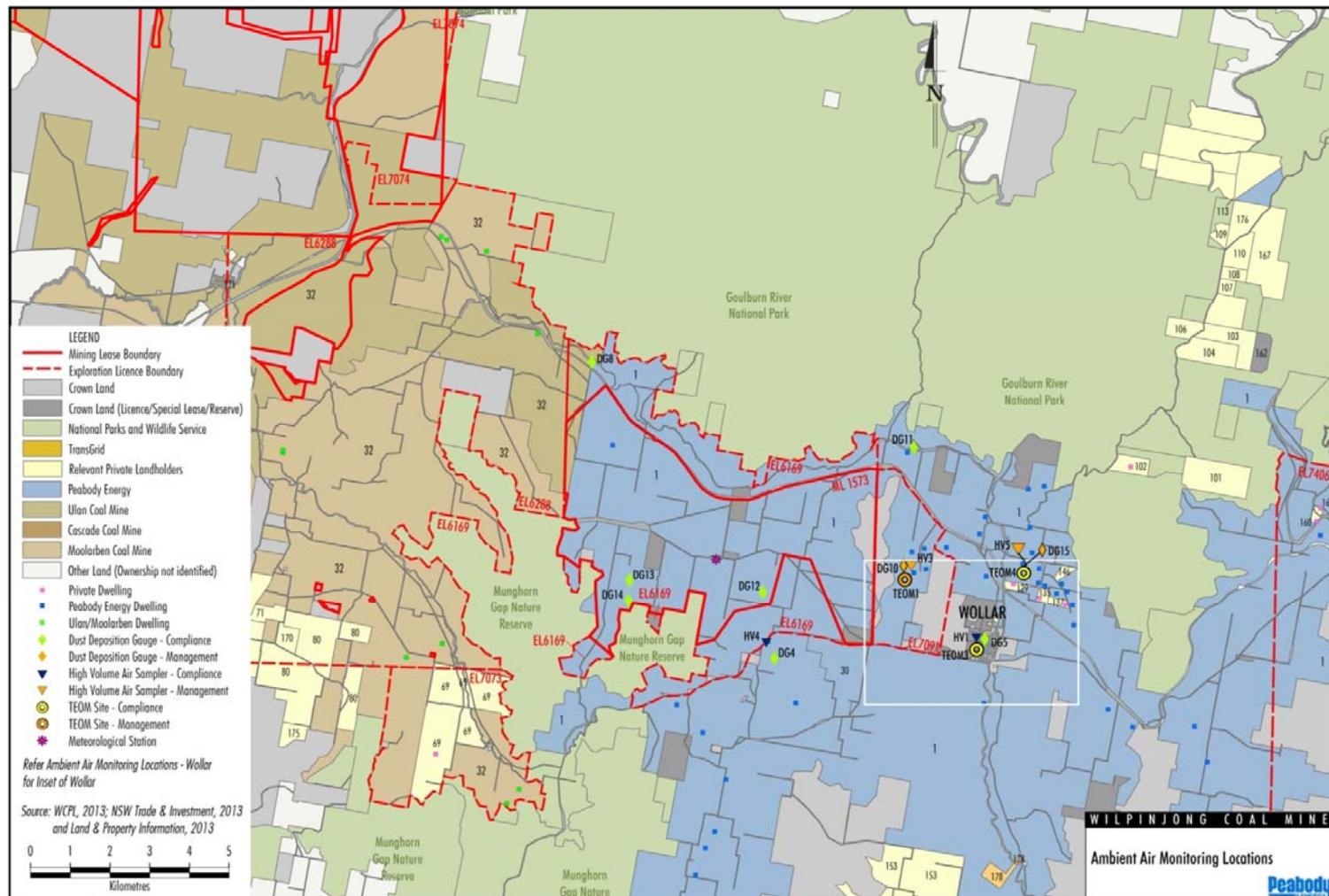
| Location                                     | Month | Number of Blasts | Minimum vibration (mm/sec) | Maximum vibration (mm/sec) | Mean vibration (mm/sec) | EPL vibration Limits (mm/sec)                | Exceedance (yes/no) |
|--|-------|------------------|----------------------------|----------------------------|-------------------------|--|---------------------|
| Approx. 50m west of the Wollar Public School | July  | 14               | 0.02                       | 0.45                       | 0.13                    | 5 mm/s (95% blasts)<br>10 mm/s (100% blasts) | no                  |

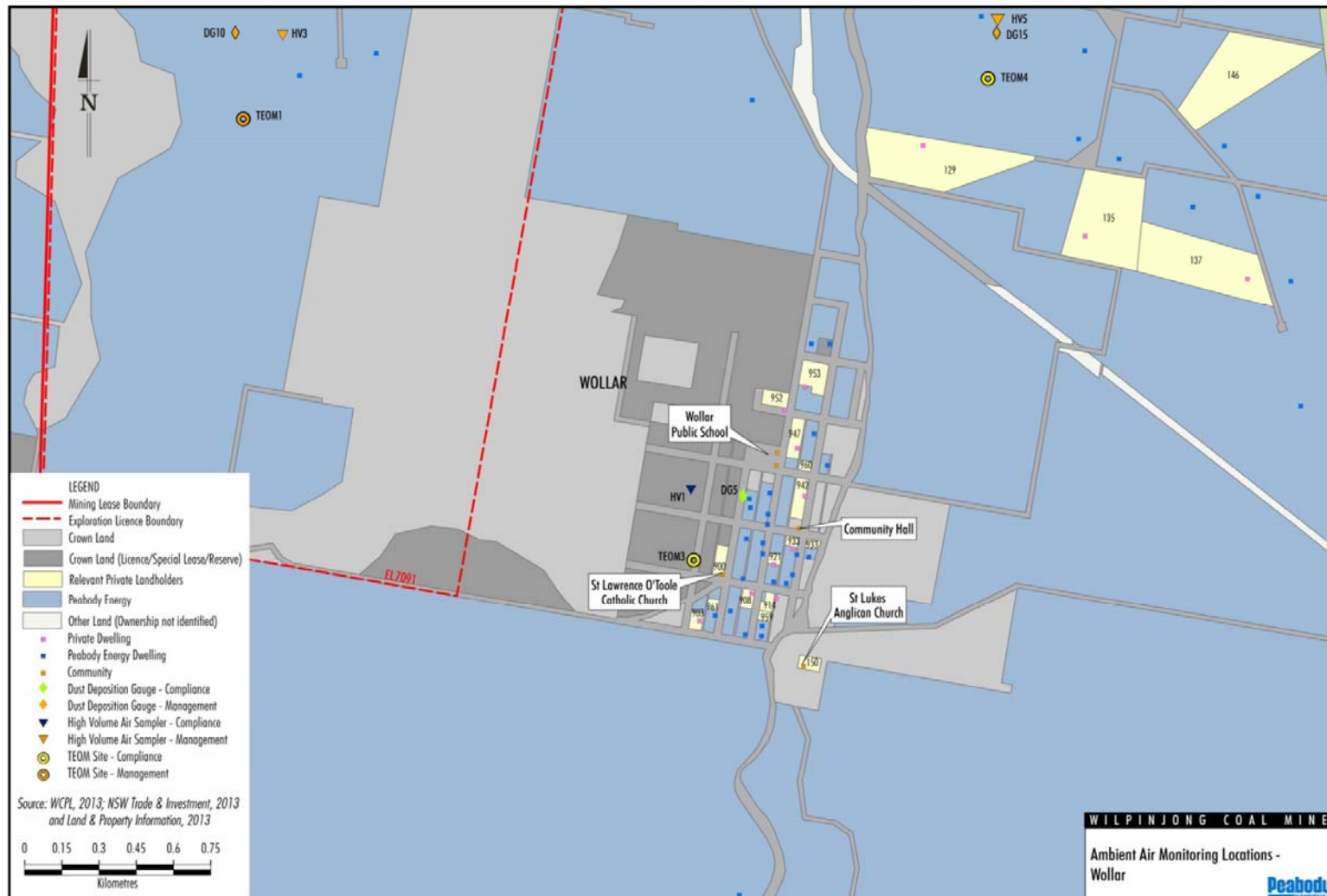
Figure 7. Overpressure (dBL) and Vibration (mm/sec) recorded during Month





**Figure 8 – Air (Dust) Monitoring Locations**





**Figure 9 – Attended Noise Monitoring Locations**

