



**WILPINJONG COAL PTY LTD**

**Environment Protection Licence (EPL) 12425**

[Link to Environment Protection Licence EPL12425](#)

**LICENCE MONITORING DATA  
MONTHLY SUMMARY REPORT**

for

**1 December 2014 to 31 December 2014**

## **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.

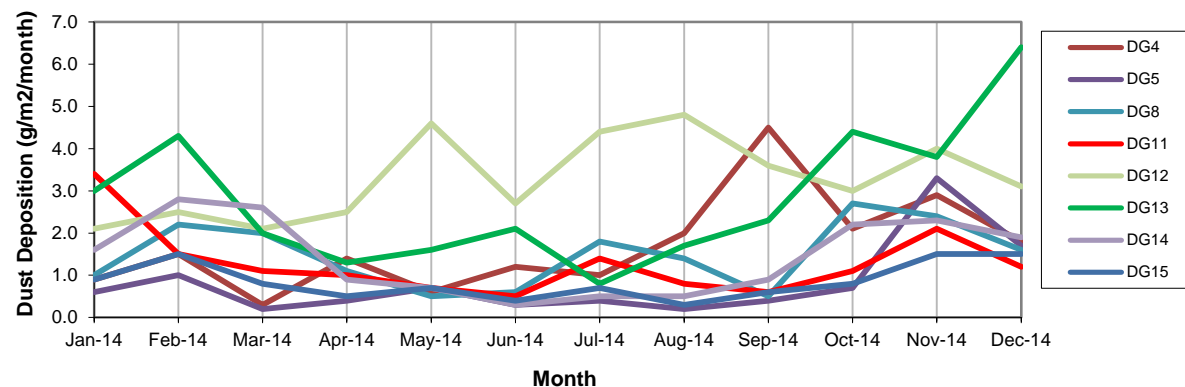
The location of the above monitoring equipment in relation to Wilpinjong Coal Mine is shown in Figure 8.

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

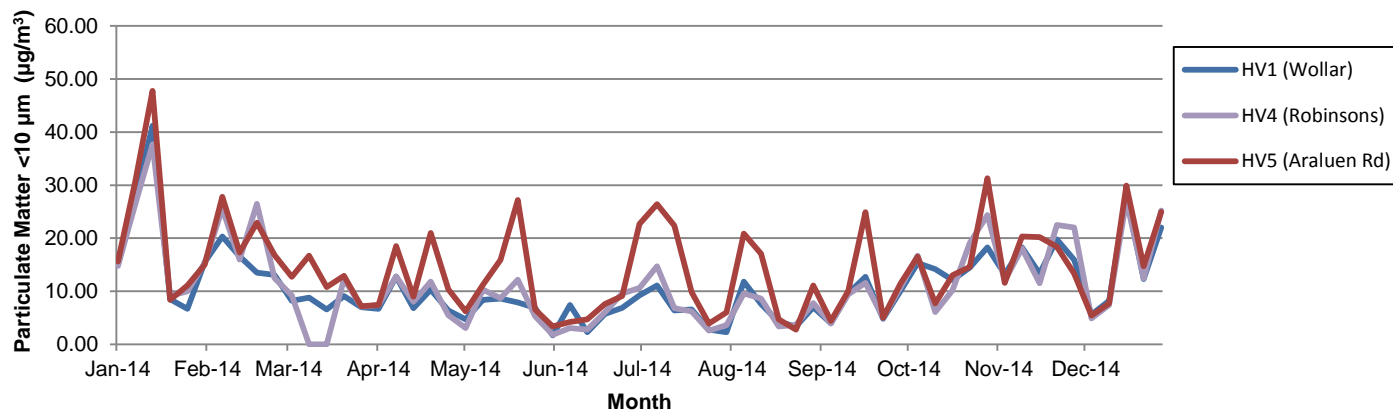
**Table 1**

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				1.8				30/12/14	14/01/15
4	DG5	Particulates - TSM	grams per square metre per month	Monthly	1				1.7	0.8	4.0	No	30/12/14	14/01/15
6	DG8	Particulates - TSM	grams per square metre per month	Monthly	1				1.6				30/12/14	14/01/15
9	DG11	Particulates - TSM	grams per square metre per month	Monthly	1				1.2				30/12/14	14/01/15
10	DG12	Particulates - TSM	grams per square metre per month	Special Frequency 1	1				3.1				30/12/14	14/01/15
11	DG13	Particulates - TSM	grams per square metre per month	Special Frequency 1	1				6.4				30/12/14	14/01/15
12	DG14	Particulates - TSM	grams per square metre per month	Special Frequency 1	1				1.9				30/12/14	14/01/15
17	DG15	Particulates - TSM	grams per square metre per month	Monthly	1				1.5				30/12/14	14/01/15
13	HV1	PM10	micrograms per cubic metre	Every 6 days	5	5.6	28.3	15.3					30/12/14	08/01/15
19	HV4	PM10	micrograms per cubic metre	Every 6 days	5	4.9	27.2	15.4					30/12/14	08/01/15
20	HV5	PM10	micrograms per cubic metre	Every 6 days	5	5.4	29.9	16.5					30/12/14	08/01/15
22	TEOM3	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	100.0%	5.3	38.0	15.0						
23	TEOM4	PM10	micrograms per cubic metre	Continuous (24 Hr Average)	96.8%	0.0	30.9	10.2						

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



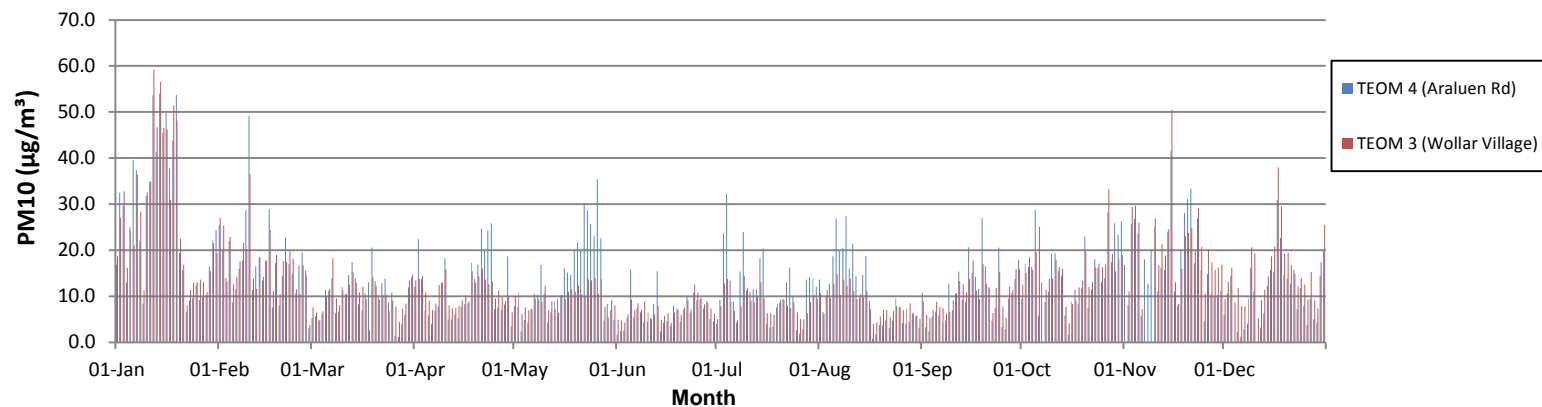
**Figure 2. HV (PM10) Results - 12 Month Trend**



**Notes:**

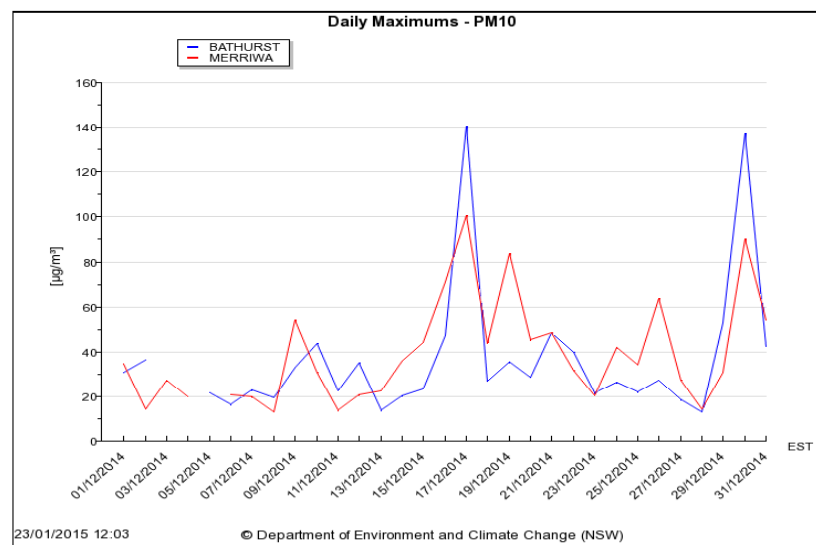
1. In January higher dust levels recorded as a results of lower average rainfall and regional bushfires.
2. In March a fault was discovered with HV4 so samples were not taken until HV4 replaced.
3. HV5 influenced by dust from Araluen Road.

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



**Notes:**

1. TEOM 4 (Araluen Rd) influenced by dust from Araluen Road.
2. Bushfire smoke influenced dust levels in Jan, Feb & Nov 2014.
3. Elevated regional dust levels recorded on and around December 17. Refer below graph from EPA PM<sub>10</sub> dust monitoring stations at Bathurst and Merriwa.



## 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.

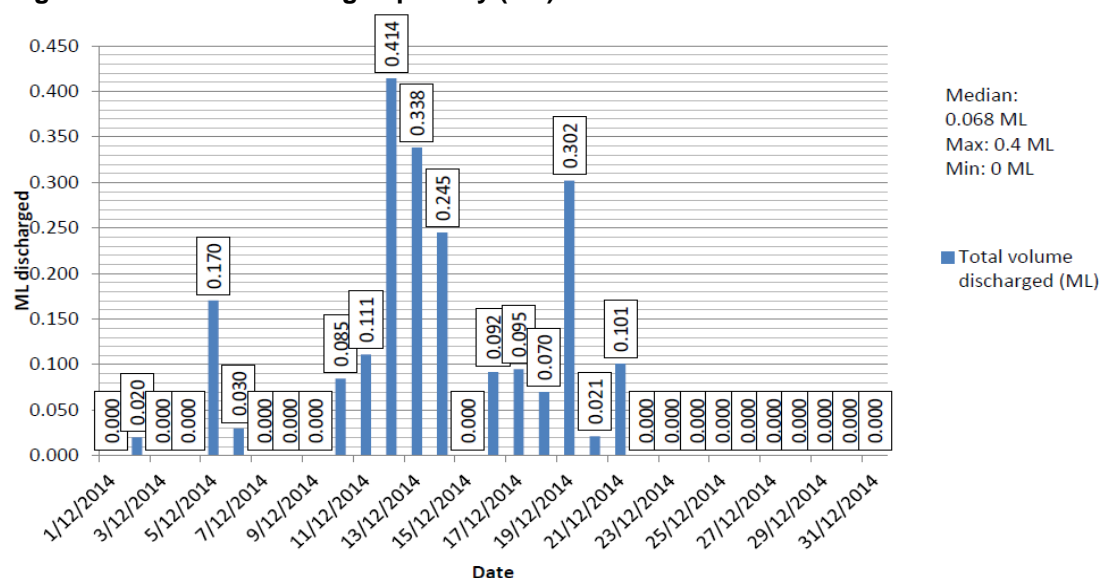
A Reverse Osmosis (RO) Plant treats all water from the retention dams before it is discharged to Wilpinjong Creek. The EPL specifies limits for the quantity and quality of water that may be discharged from the site.

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

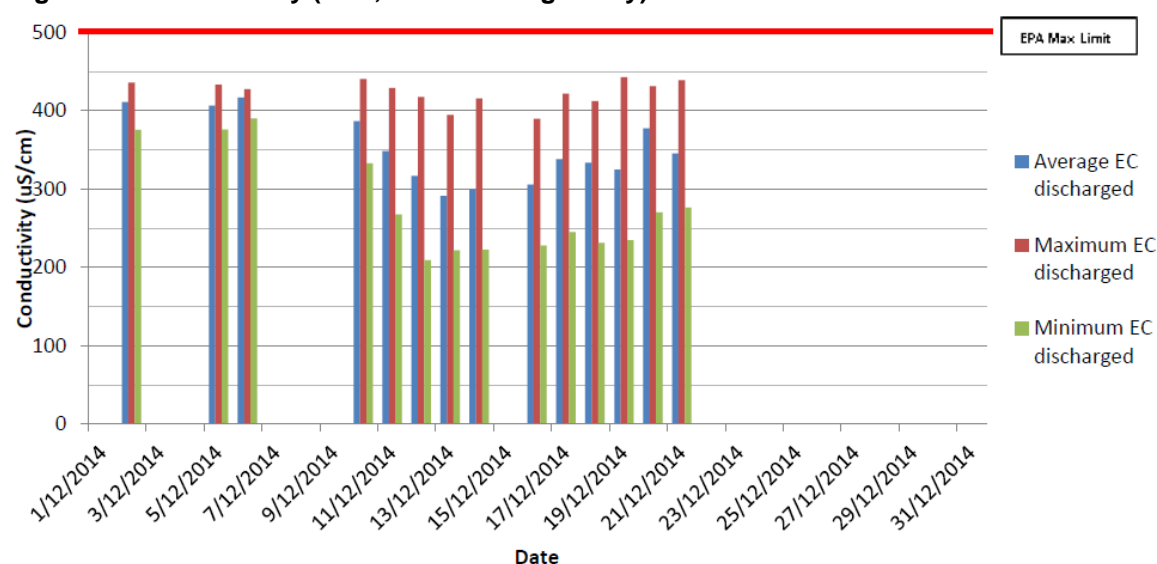
**Table 2**

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%	209.0	443.0	350.0		500	No		
		Oil and Grease	milligrams per litre (mg/L)	Weekly during any discharge	5	<5	<5	<5		10.0	No	23/12/14	19/01/15
		pH	pH Unit	Continuous during discharge	100%	6.5	8.3	6.9		≥6.5≤8.5	No		
		Total Suspended Solids	milligrams per litre (mg/L)	Weekly during any discharge	5	<2	<2	<2		50	No	23/12/14	19/01/15
		Volume discharged	megalitres per day	Continuous during discharge	100%	0.00	0.40	0.07		5.0	No		

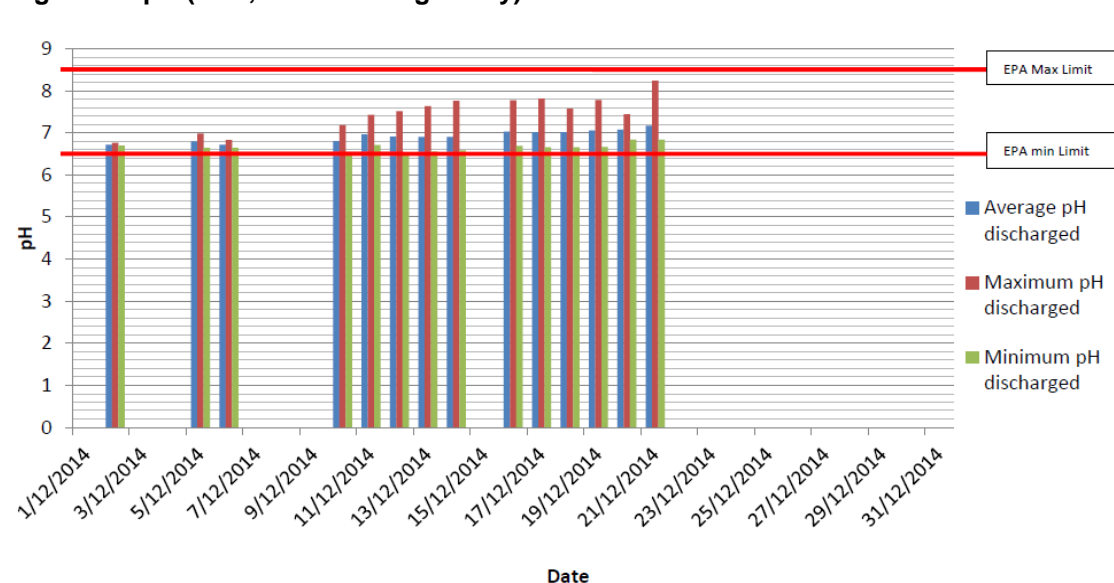
**Figure 4 – Volume discharged per day (ML)**



**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 – DECEMBER 2014

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	21/12/2014 23:08	2.1	-0.2	35	Yes	1A	Nil
N13	22/12/2014 01:12	2.1	0.3	35	Yes	27	Nil
N14	21/12/2014 22:40	1.8	-0.2	35	Yes	1A	Nil
N15	21/12/2014 23:31	1.7	0.2	35	Yes	1A	Nil
N16	22/12/2014 00:29	1.5	0.3	35	Yes	1A	Nil
N17	22/12/2014 00:01	1.7	0.0	35	Yes	1A	Nil
N18	21/12/2014 22:04	2.1	-0.2	35	Yes	1A	Nil

Notes:

- The noise criteria are to apply under all meteorological conditions except: wind speeds greater than 3 m/s at 10 metres above ground level, or, temperature inversion (VTG) greater than 5.5 degrees 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 – DECEMBER 2014

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	21/12/2014 23:08	2.1	-0.2	45	Yes	1A	Nil
N13	22/12/2014 01:12	2.1	0.3	45	Yes	33	Nil
N14	21/12/2014 22:40	1.8	-0.2	45	Yes	1A	Nil
N15	21/12/2014 23:31	1.7	0.2	45	Yes	1A	Nil
N16	22/12/2014 00:29	1.5	0.3	45	Yes	1A	Nil
N17	22/12/2014 00:01	1.7	0.0	45	Yes	1A	Nil
N18	21/12/2014 22:04	2.1	-0.2	45	Yes	1A	Nil

Notes:

- The noise criteria are to apply under all meteorological conditions except: wind speeds greater than 3 m/s at 10 metres above ground level, or, temperature inversion (VTG) greater than 5.5 degrees 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 – DECEMBER 2014

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	21/12/2014 23:08	2.1	-0.2	35	Yes	1A	Nil
N13	22/12/2014 01:12	2.1	0.3	36	Yes	27	Nil
N14	21/12/2014 22:40	1.8	-0.2	35	Yes	1A	Nil
N15	21/12/2014 23:31	1.7	0.2	35	Yes	1A	Nil
N16	22/12/2014 00:29	1.5	0.3	37	Yes	1A	Nil
N17	22/12/2014 00:01	1.7	0.0	35	Yes	1A	Nil
N18	21/12/2014 22:04	2.1	-0.2	35	Yes	1A	Nil

Notes:

- Noise emission limits apply for winds up to 3 metres per second (at a height of 10 metres, vertical temperature gradients of up to 3 degrees/100m with wind speed up to 2 m/s or temperature inversion conditions (VTG) greater than 3 degrees 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 – DECEMBER 2014

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	21/12/2014 23:08	2.1	-0.2	45	Yes	1A	Nil
N13	22/12/2014 01:12	2.1	0.3	45	Yes	33	Nil
N14	21/12/2014 22:40	1.8	-0.2	45	Yes	1A	Nil
N15	21/12/2014 23:31	1.7	0.2	45	Yes	1A	Nil
N16	22/12/2014 00:29	1.5	0.3	45	Yes	1A	Nil
N17	22/12/2014 00:01	1.7	0.0	45	Yes	1A	Nil
N18	21/12/2014 22:04	2.1	-0.2	45	Yes	1A	Nil

Notes:

- Noise emission limits apply for winds up to 3 metres per second (at a height of 10 metres, vertical temperature gradients of up to 3 degrees/100m with wind speed up to 2 m/s or temperature inversion conditions (VTG) greater than 3 degrees 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 21/22 December 2014. 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 December 2014 monitoring period.

### 6.2 Low Frequency Assessment

None of the measurements occurred during which WCP was measurable (not "inaudible", "not measurable" or less than a maximum cut-off value of 30 dB), was within 5 dB of the relevant criterion and where meteorological conditions resulted in criteria applying (in accordance with the project approval). No further assessment of low frequency noise was undertaken.

**Global Acoustics Pty Ltd**

*Wilpinjong Coal received report from Global Acoustics on 27 January 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	December	8	75.8	108.5	90.8	115dB (95% blasts) 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	December	8	0.05	0.44	0.15	5 mm/s (95% blasts) 10 mm/s (100% blasts)	no

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

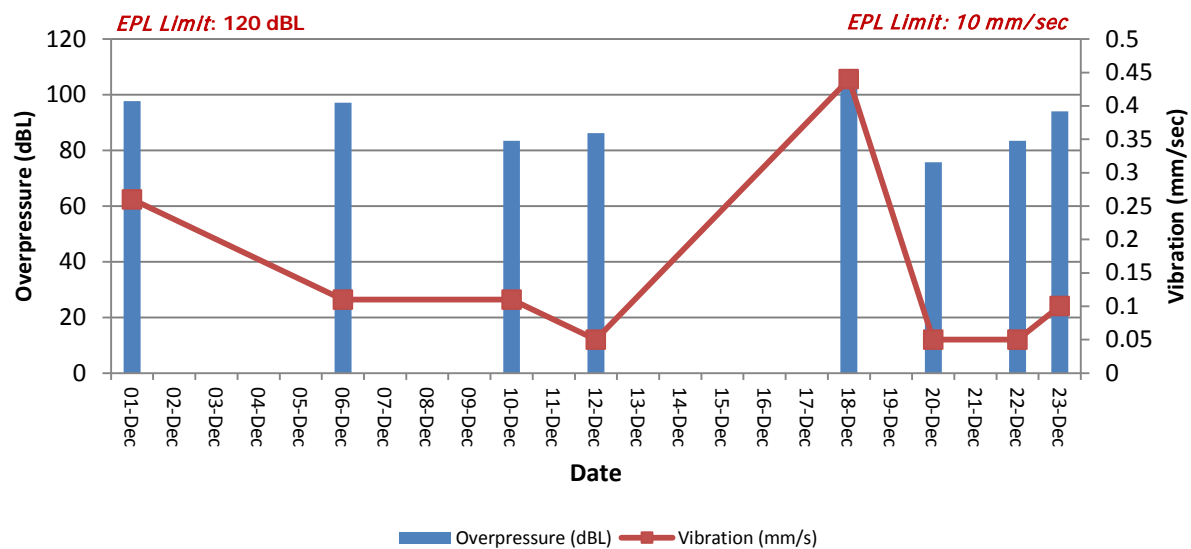
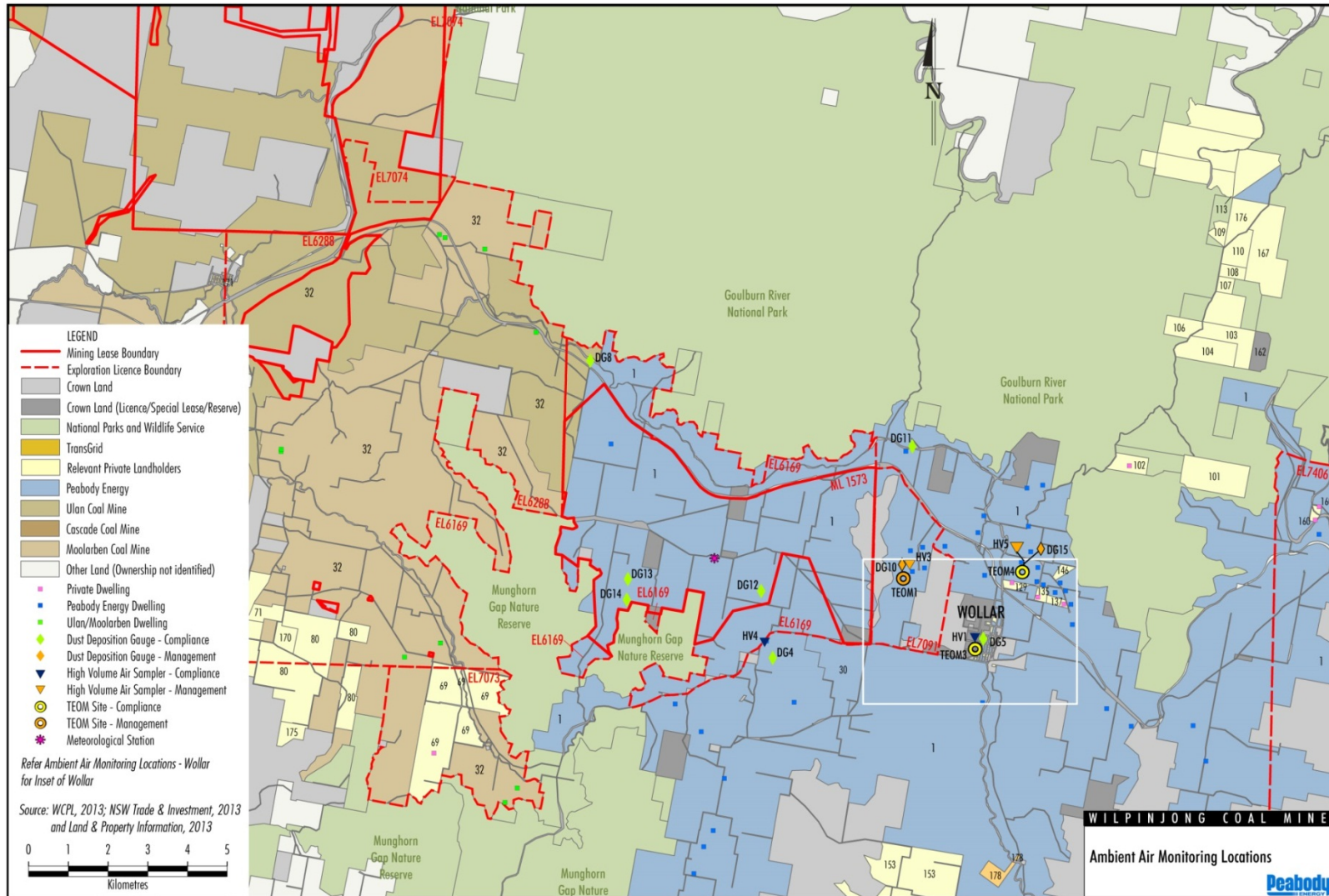


Figure 8 – Air (Dust) Monitoring Locations





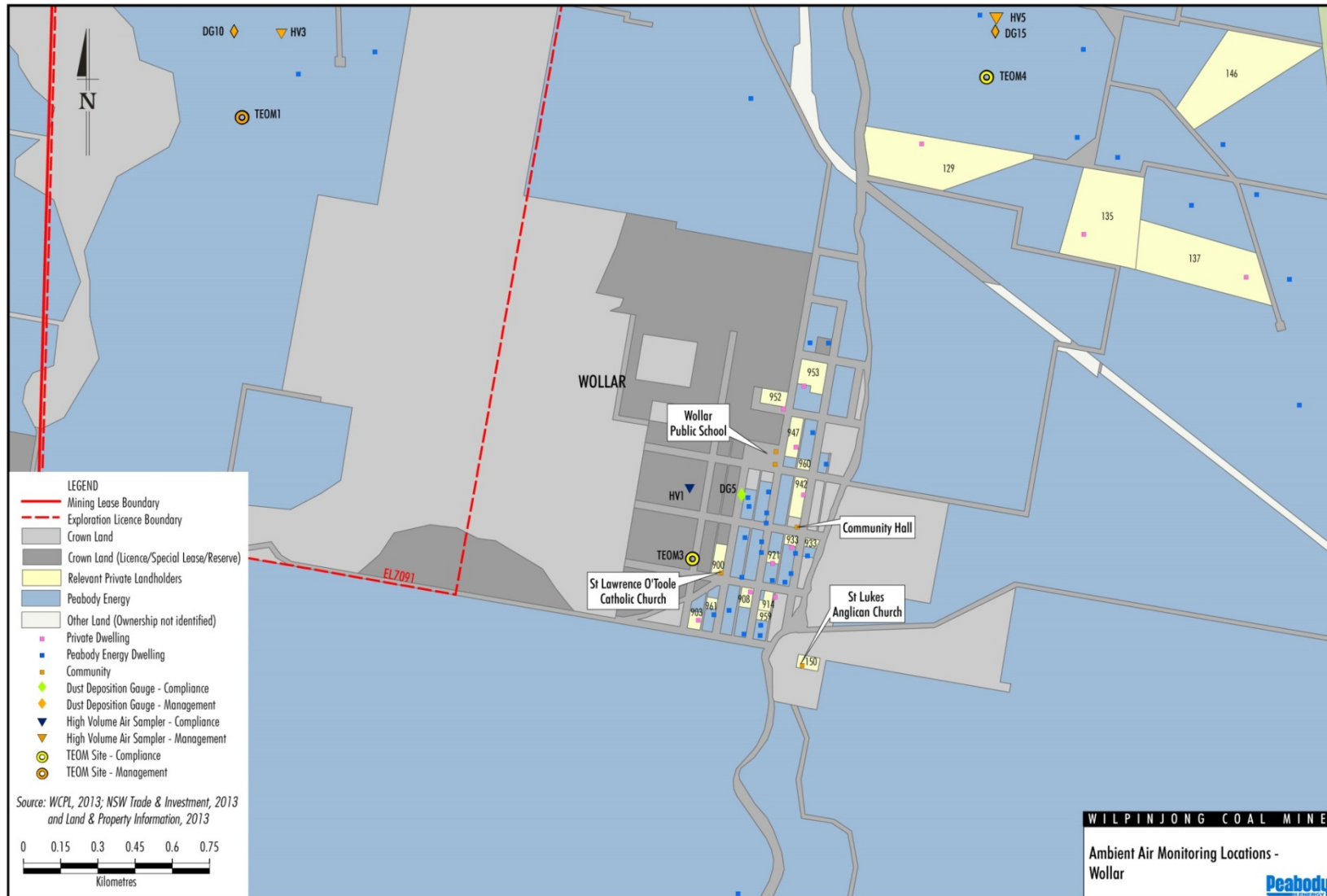


Figure 9 – Attended Noise Monitoring Locations

