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Noise Monitoring Program  
Newstan Ventilation Fan  
Awaba Colliery

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Fassifern NSW 2283

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# Noise Monitoring Program

## Newstan Ventilation Fan

### Awaba Colliery

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## **1 INTRODUCTION**

This Noise Monitoring Plan (NMP) addresses the conditions of Development Consent (DA 73-11-98) in particular those of Condition 6.4 D relating to the noise control of the Newstan ventilation shaft located at Awaba Colliery.

The following NMP for the Newstan ventilation shaft contains details of the assessment criteria, monitoring locations and procedures, and compliance checking procedures for subsequent reporting in accordance with the Department of Planning and Infrastructure (DPI) and the Environment Protection Authority (EPA) requirements.

## **2 OBJECTIVES**

The objectives of the NMP are to fulfil the requirement of Schedule 2, Condition 6.4D of Development Consent DA 73-11-98 MOD4.

The objectives of the NMP are as follows:

- Ensure all relevant statutory requirements and standards are met.
- Include regular attended monitoring and a noise monitoring protocol for evaluating compliance with the applicable noise impact assessment criteria.
- Maintain an effective response mechanism to deal with issues and complaints.
- Ensure the results of noise monitoring comply with applicable criteria.

### 3 PROJECT APPROVAL

Schedule 2, Condition 6.4 of the Development Consent details the requirements for the NMP as follows:

#### 6.4D Noise Control – Newstan Ventilation Shaft Site at Awaba

##### Operational Noise Criteria

The Applicant shall ensure that the noise generated at the Newstan ventilation shaft site at Awaba does not exceed the noise impact assessment criteria in Table 3A for any privately owned residence.

Table 3A: Noise impact assessment criteria dB(A)

Location	Day $L_{Aeq}(15 \text{ minute})$	Evening $L_{Aeq}(15 \text{ minute})$	Night $L_{Aeq}(15 \text{ minute})$
All privately owned residences	38	40	36

Notes:

- Noise from the development is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the  $L_{Aeq}(15 \text{ minute})$  noise limits in the above table. The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
- Where it can be demonstrated that direct measurement of noise from the development is impractical, the OEH may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
- The noise emission limits identified in the above table apply under meteorological conditions of:
  - wind speeds of up to 3 m/s at 10 metres above ground level; or
  - temperature inversion conditions of up to 3°C/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.
- In this condition:
  - Day is defined as the period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays;
  - Evening is defined as the period from 6pm to 10pm; and
  - Night is defined as the period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays.

##### Construction Activities

The Applicant shall ensure that noise caused by construction activities at the Newstan ventilation shaft site at Awaba outside of the hours 7am to 6pm Monday to Friday and 8am to 1pm Saturdays does not exceed the operational noise criteria in Table 3A.

##### Noise Monitoring

Prior to the commencement of construction activities at the Newstan ventilation shaft site at Awaba the Applicant shall prepare and implement a Noise Monitoring Program for the Awaba surface facilities and ventilation shaft site to the satisfaction of the Director-General. This program must:

- be submitted to the Director-General for approval; and
- provide for the monitoring of both construction and operational activities.

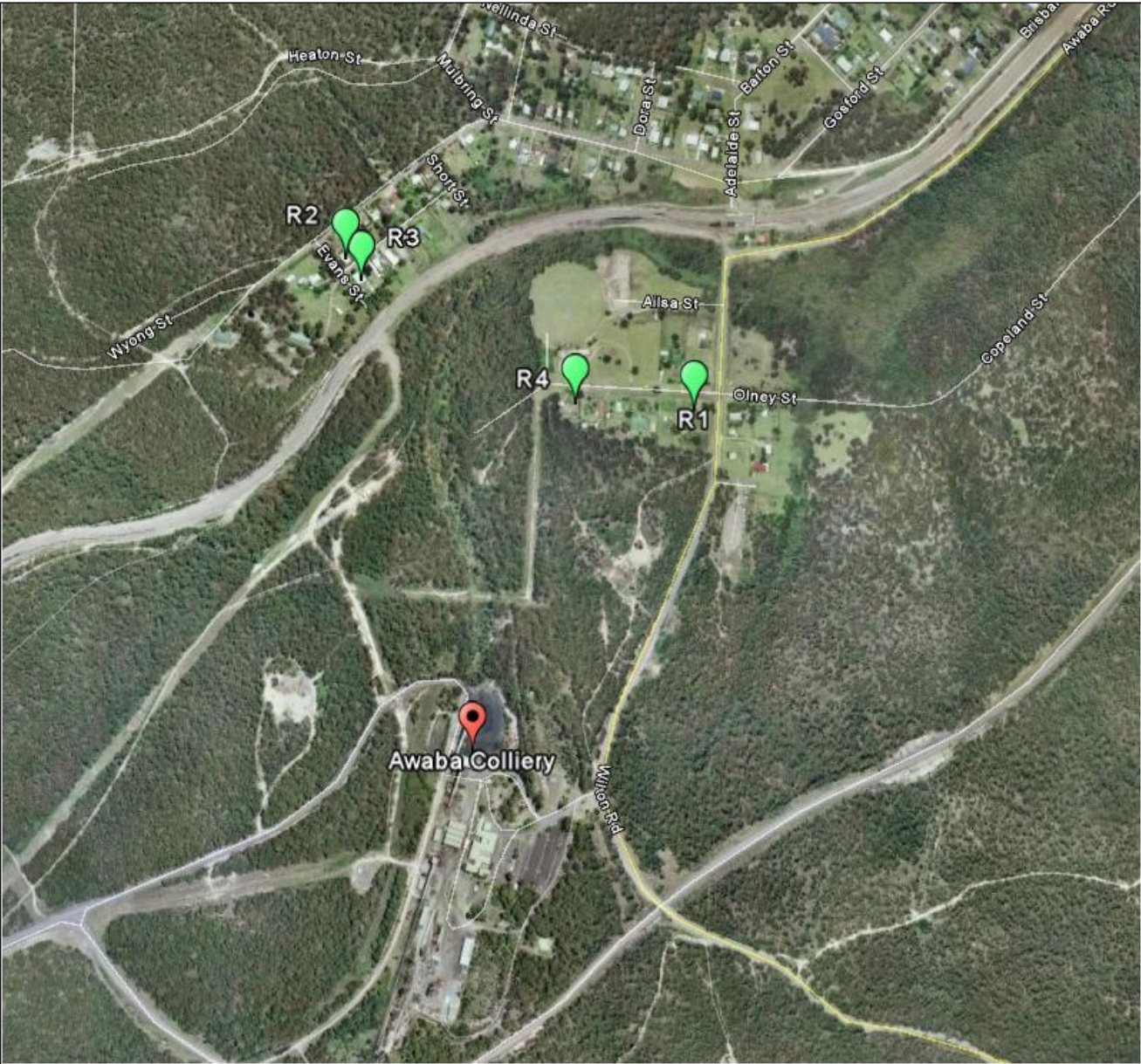
## 4 SENSITIVE RECEIVERS

A number of residences are located in the area surrounding the ventilation shaft site. The nearest residences have been identified as sensitive receptor locations to be taken into account during the assessment. A list of the nearest sensitive receptors (R1 to R4) identified in the immediate vicinity of the Project Site, and their respective distances from the Project Site boundary, are presented in **Table 1** and **Figure 1**.

**Table 1 Nearest Sensitive Receptors**

Receptor ID	Location	Location (m, MGA56)		Distance (km) / Direction From Site Boundary	Elevation (m, AHD)
		Easting	Northing		
R1	9 Olney Street, Awaba	363733	6346064	0.6 / NNE	30
R2	15 Evans Street, Awaba	363203	6346323	0.8 / N	32
R3	51 Puddy Lane, Awaba	363220	6346274	0.7 / N	29
R4	1A Olney Street, Awaba	363547	6346080	0.5 / NNE	32

Figure 1 Surrounding Sensitive Receptor Locations



Source: Google Earth

## 5 NOISE MONITORING PROGRAM

The NMP is designed to ensure that noise is measured at representative locations in the vicinity of the ventilation site. Data from the NMP will be used to determine the noise impact of ventilation fan's construction and operation at the surrounding receivers, and the compliance status in relation to the relevant Development Consent conditions.

### 5.1 General Requirements

The noise measurement procedures employed throughout the monitoring program shall be guided by the requirements of AS 1055-1997 "*Acoustics - Description and Measurement of Environmental Noise*" and the NSW Industrial Noise Policy.

### 5.2 Operator Attended Noise Surveys

Operator attended noise surveys shall be conducted at two (2) potentially most affected receiver locations relevant to ventilation fan at the time of monitoring, in order to quantify noise emissions and estimate the LAeq noise contribution from the ventilation fan construction and operation as well as the overall ambient noise level.

The operator attended noise surveys will be conducted at the commencement of construction and on a monthly basis thereafter. At the commencement of operation of the ventilation fan monitoring will revert to a quarterly basis. If any significant changes to the construction or operation method that has the potential to impact on noise at the surrounding receivers an additional noise survey should be considered.

The operator shall quantify and characterise the maximum (LAmax), the energy equivalent (LAeq) and background (LA90) noise levels from ambient noise sources and mining operations over a 15 minute measurement period.

During attended monitoring, digital recordings will be conducted to allow for additional post analysis of the mine contributed LAeq(15minute) and LA1(1minute) noise levels and to assist in source identification.

Noise monitoring will involve noise measurements at the following locations identified in **Figure 1**:

- Location R4
- Location R3



## 6 INSTRUMENTATION AND MEASUREMENT PARAMETERS

### 6.1 Operator-Attended Surveys

All acoustic instrumentation employed throughout the NMP shall meet with the requirements of AS IEC 61672.1-2004 *Electroacoustics - Sound level meters - Specifications* and carry current NATA and manufacturer calibration certificates. Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding  $\pm 0.5$  dBA.

Portable sound level meters used for operator attended noise monitoring should be capable of conducting real time third octave analysis and audio recording.

### 6.2 Meteorological Parameters

All noise measurements shall be accompanied by both qualitative description (including cloud cover) and quantitative measurements of prevailing local weather conditions throughout the survey period.

Meteorological measurements shall be guided by the requirements of AS 2923-1987 "*Ambient Air-Guide for Measurements of Horizontal Wind for Air Quality Applications*" and the OEH.

The weather station situated on the Awaba Colliery mine site will be programmed to continuously record the meteorological parameters as shown in **Table 2**.

**Table 2 Meteorological Measurement Parameters**

Measured Parameter	Unit	Sample Interval
Mean wind speed	m/s	15 minute
Mean wind direction	Degrees	15 minute
Aggregate rainfall	mm	15 minute
Mean air temperature (including sigma-theta)	C°	15 minute

Incidents of temperature inversion will be quantified from measurements of sigma theta data from the weather station.

### 6.3 Plant and Equipment Observations and Log

During the attended noise measurements, the operator shall record any significant mine generated noise sources (i.e. haul trucks, dozers, etc). In addition, the operator shall obtain copies of the relevant fixed plant and mobile equipment mining operating shift logs to be included in the noise monitoring report.

## **7 DATA ANALYSIS**

### **7.1 Determining Compliance**

The LAeq (15minute) noise level contributions from all mining operations as well as the overall ambient noise levels together with the weather and mine operating conditions shall be reported on a monthly and annual basis.

The contributed noise emissions from mining operations shall be evaluated and assessed against the noise level criteria given in Development Consent and NIA. Compliance may be determined by:

- Analysis of operator attended noise monitoring results.
- Post analysis of audio recordings.
- Direct measurement of the consent criteria - LAeq(15minute).
- Operator estimated LAeq(15minute) contribution.
- Calculation from near field measurements.
- Measurement at a representative location.
- A combination of any or all the methods shown.

## **8 REPORTING**

### **8.1 Noise Monitoring Report**

All routine monitoring results will be documented and reported to the Newstan Environmental Coordinator initially on a monthly basis.

Monthly reports should consist of the following information:

- Summary of all attended and unattended noise monitoring results.
- Measured/calculated and/or operator estimated Newstan ventilation fan LAeq(15minute) contributed noise levels for each monitoring location.
- Statement of compliance/ non-compliance.
- Details of any complaints relating to noise and their state of resolution.

### **8.2 Reporting Non-Compliances**

In the event of a potential exceedance of the relevant noise emission criteria, an investigation will be undertaken. Consideration will be given to the margin of exceedance and the source of emission, if it has been identified. The noise, weather and plant operating data shall be documented so that the matter can be investigated and appropriate actions undertaken accordingly.

Additional noise measurement methods such as near field monitoring or unattended directional noise monitoring may be utilised to investigate noise emissions in relation to noise complaints, or to determine compliance with the Development Consent conditions where potential non-compliances have been measured or are difficult to quantify from operator-attended or unattended noise measurements.

Details of any exceedances and results of related investigations will be reported to the relevant agencies through the Annual Return and in the Newstan Colliery Annual Environmental Management Report (AEMR).

### **8.3 Recording Noise Complaints**

Newstan Colliery will keep a record of any noise complaint made to Newstan Colliery or any employee or any agent of Newstan Colliery in relation to noise from the Colliery. Records will include:

- Date and time of complaint.
- Method by which complaint was made.
- Personal details from the complainant.
- Nature of the complaint.
- Action taken by Newstan Colliery and any follow up.
- If no action was taken, the reason why no action was taken.
- All noise complaints will be reported in the Newstan Colliery AEMR.

## **9 PERFORMANCE INDICATORS**

Compliance of this NMP with the Development Consent conditions and any other relevant agency requirements will be measured according to the following performance indicators:

1. Compliance with relevant noise criteria at monitoring locations.
2. The frequency and nature of complaints reported to the colliery in relation to noise.
3. Contractor and employee awareness of the company's Environmental Policy and this NMP.
4. Compliance with this NMP, as indicated by statutory reporting.

## **10 PERIODIC REVIEW**

The NMP will be reviewed on an annual basis by Centennial.