

The Wallerawang Collieries Ltd
Castlereagh Highway
CULLEN BULLEN NSW 2790

Attention: Elizabeth Wood

11 May 2012



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BAAL BONE COLLIERY
COMPLIANCE NOISE AUDIT
MAY 2012

1.0 INTRODUCTION

Atkins Acoustics was engaged by The Wallerawang Collieries Ltd to conduct an environmental compliance noise audit for Baal Bone Colliery (*BBC*). The results and findings presented in this report are based on site attended noise monitoring conducted on Wednesday May 2012 between 3.30pm and 12.00 midnight. Inquiries with site operations confirmed that site activities during the day and evening included mine ventilation and mobile plant associated with an on-site training program. During the nighttime audit noise from the mine ventilation system was audible. The reference measurement locations (*Attachment 1*) selected for noise monitoring are summarised in *Table 1*.

Table 1. Noise Monitoring Locations

Measurement Location	Description
R1	'Muldon' Residence
R2/R3	'Speirs/Desch' Residence

2.0 MEASUREMENT INSTRUMENTATION

The instrumentation selected included a SVAN949 Sound and Vibration Analyzer. The SVAN meter was programmed to record and store statistical noise levels at 15-minute intervals. The reference calibration level of the instrument was checked prior to and after the measurements with a Bruel & Kjaer Sound Level Calibrator Type 4230 and remained within ± 0.5 dB(A). The meter and calibrator carried appropriate and current NATA calibration certificates.

3.0 WEATHER CONDITIONS

Weather conditions during the monitoring ranged from calm to light variable winds from the west, clear sky and temperatures ranging between 6-20°C.

4.0 PROJECT CONSENT NOISE LIMITS

The Licence noise limits for *BBC* are documented in Schedule 3 'Specific Environmental Conditions' of the *DoPI* Conditional Approval (Project Approval 09_0178) dated 14 January 2011.

4.1 Noise Assessment Limits ROM Surface Infrastructure (09_0178)

Condition 4.

By 31 December 2011, the Proponent will ensure that noise generated by the project does not exceed the long-term noise assessment criteria in *Table 1* at any residence on privately owned land or on more than 25 percent of any privately-owned land.

Table 1: Long Term Noise Assessment Criteria

Assessment Location	All periods <i>dBA LAeq, 15 min</i>	Night <i>dBA LA1, 1 min</i>
Location R1	46	47
Location R2	41	48
Location R3	41	48
All other privately-owned land	35	45

Condition 5.

Until 31 December 2011, the Proponent will ensure that noise generated by the project does not exceed the interim noise assessment criteria in *Table 2* at any residence on privately owned land or on more than 25 per cent of any privately-owned land.

Table 2: Interim Noise Impact Assessment Criteria

Assessment Location	All periods <i>dBA LAeq, 15 min</i>	Night <i>dBA LA1, 1 min</i>
Location R1	48	47
Location R2	43	48
Location R3	43	48
All other privately-owned land	35	45

Notes to Tables 1 and 2:

- Noise generated to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy; and
- These noise assessment criteria do not apply if the Proponent has an agreement with the relevant owner/s to generate higher noise levels, and the Proponent has advised the *DoPI* in writing of the terms of this agreement.

4.2 Comments

Referenced to the *BBC* Noise Management Plan (*NMP*) and the *EPA, Industrial Noise Policy* environmental noise (*INP Section 2.2.1*) is measured or assessed at the most affected point on or within the residential property boundary or, if this is more than 30m from the residence, at the most affected point within 30m of the residence. In accordance with *INP* procedures, the noise levels reported in this report were measured within approximately 30m of the residences.

5.0 MEASUREMENT RESULT

Table 3 presents a summary of the measured ambient sound pressure levels, calculated *BBC* noise contributions and observations recorded during the February 2012 audit.

Table 3. Attended Noise Measurement Results
dBA re: 20×10^{-6} Pa

Measurement Location (Start Time)	Measured Ambient Sound Pressure Levels						Licence Noise Limits	Measured Predicted Colliery Noise	Comments
	L _{Aeq}	L _{A90}	L _{A50}	L _{A10}	L _{A1}	L _{Amax}	L _{Aeq} *	L _{Aeq}	
Daytime Audit (3.00pm to 6.00pm)									
Location R1 (1630 hours)	46.3	33.3	36.1	41.0	62.1	65.2	46	<35	Coal Pac Cullen Bullen Dozer, trucks; Highway traffic; Cows; Insects; Birds.
Location R1 (1645 hours)	36.8	33.1	36.0	38.6	42.3		46	<35	Coal Pac Cullen Bullen Dozer, trucks; Highway traffic; Insects; Birds. Cows
Location R2/3 (1545 hours)	48.2	35.8	39.7	45.2	55.5	58.9	41	<35	Coal Pac Cullen Bullen Dozer and trucks; Radio in shed; Highway traffic; Insects; Birds.
Location R2/3 (1600 hours)	40.4	33.8	36.1	41.6	50.2	59.4	41	<35	Coal Pac Cullen Bullen Dozer and trucks; Radio in shed; Highway traffic; Insects; Birds.
Evening Audit (6.00pm to 10.00pm)									
Location R1 (1800 hours)	44.4	32.2	35.2	39.7	53.2	65.0	46	<40	Truck/loader onsite 35/37dBA; impact 41/2dBA; Cows 60/65dBA; Vent fan; Highway traffic
Location R1 (1815 hours)	37.3	32.0	34.8	39.0	44.7	52.0	46	<42	Truck/loader onsite 35/37dBA; Vent fan; Highway traffic
Location R2/3 (1840 hours)	39.2	30.2	36.6	42.7	48.5	51.5	41	<39	Insects; Highway traffic; Vent fan/generator
Location R2/3 (1865 hours)	37.6	26.3	34.7	41.3	45.9	49.5	41	<35	Insects; Highway traffic; Vent fan/generator

Table 3. Attended Noise Measurement Results. Cont'd
dBA re: 20×10^{-6} Pa

Measurement Location (Start Time)	Measured Ambient Sound Pressure Levels						Licence Noise Limits		Measured Predicted Colliery Noise		Comments
	L _{Aeq}	L _{A90}	L _{A50}	L _{A10}	L _{A1}	L _{Amax}	L _{Aeq} *	L _{Amax}	L _{Aeq}	L _{Amax}	
Night Audit (10.00pm to midnight)											
Location R1 (2232 hours)	37.7	30.6	34.1	41.1	46.7	49.0	46	47	<35	<38	Cows; Ventilation fan 33/4dBA; Intermittent Highway traffic 48/49dBA.
Location R1 (2247 hours)	38.9	32.0	35.0	42.4	48.2	49.5	46	47	<35	<30	Ventilation fan 33/4dBA; Intermittent Highway traffic 48/49dBA.
Location R2/3 (2200 hours)	33.9	29.1	30.3	37.6	42.8	48.0	41	48	<35	<38	Cows; Ventilation fan; Insects; Intermittent Highway traffic 48/50dBA
Location R2/3 (2215 hours)	38.3	31.4	34.5	41.8	47.5	48.0	41	48	<35	<39	Cows; Ventilation fan; Intermittent Highway traffic 48/50dBA.

Table 4 presents a summary of the measured L_{Aeq} octave band frequency levels including the A-weighted and C-weighted levels.

Table 4. Attended Ambient LAeq Octave Band Noise Measurements
L_{Aeq, 15 min} dB re: 20×10^{-6} Pa

Measurement Location	Sound Pressure Level										
	31	62	125	250	500	1K	2K	4K	8K	dBA	dBC
Day											
Location R1	47.9	47.6	41.1	46.0	37.1	44.6	37.5	24.1	19.4	46.3	52.5
Location R1	46.2	46.6	42.0	33.4	34.6	33.5	24.1	20.7	18.8	36.8	49.4
Location R2/3	44.4	48.3	46.3	41.2	45.5	45.8	36.4	32.0	28.7	48.2	53.9
Location R2/3	41.7	43.5	40.3	38.3	37.0	35.2	32.1	31.5	26.9	40.4	47.7
Evening											
Location R1	40.1	41.9	43.2	47.9	41.0	39.9	30.7	24.0	19.8	44.4	50.8
Location R1	46.3	44.0	42.1	36.0	33.5	33.8	26.5	24.0	24.3	37.3	48.7
Location R2/3	48.0	44.8	42.6	36.2	35.2	37.4	27.1	21.0	21.6	39.4	49.9
Location R2/3	50.6	47.1	43.4	34.1	34.5	34.8	24.6	21.7	23.4	37.6	51.5
Night											
Location R1	37.6	40.4	39.7	32.5	33.6	34.9	25.9	24.6	27.2	25.4	37.7
Location R1	38.4	43.3	42.8	32.3	34.7	36.8	26.0	22.5	26.1	38.9	46.8
Location R2/3	33.1	34.9	34.4	28.8	28.6	30.2	23.2	22.7	26.6	33.9	40.0
Location R2/3	38.4	38.7	40.9	34.7	34.4	35.7	25.5	23.5	27.1	38.3	45.0

5.1 Review of Site Investigations

Inquires with the *BBC Environmental Officer* confirmed that no noise incidents have been reported for the period from 14 February 2012 - 9 May 2012.

6.0 DISCUSSION

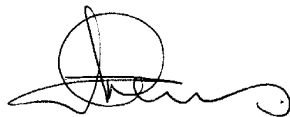
For the purpose of assessing the compliance status of *BBC* with licence noise limits a site-attended audit and noise measurements were conducted on Wednesday 9 May 2012.

Inquiries with site operations confirmed that site activities during the day and evening audits included mine ventilation and mobile plant associated with an on-site training program. During the night audit noise from the mine ventilation system was audible. Local influences to the ambient noise included open cut mining operations associated with Coal Pac (Cullen Bullen) insects, cows and intermittent road traffic on the Castlereagh Highway.

The $L_{Aeq, 15 \text{ min}}$ noise levels from *BBC* during the day, evening and night assessment periods satisfied the licence long-term noise limits.

BBC related L_{Amax} noise levels were not observed to cause exceedances of the licence noise limits at measurement locations for the duration of the attended measurements.

ATKINS ACOUSTICS & ASSOCIATES PTY LTD.



Graham Atkins

ATTACHMENT 1. REFERENCE MEASUREMENT LOCATIONS

