

The Wallerawang Collieries Ltd
Castlereagh Highway
CULLEN BULLEN NSW 2790

Attention: Elizabeth Wood

14 August 2012

BAAL BONE COLLIERY
NOISE COMPLIANCE AUDIT
AUGUST 2012



**ATKINS
ACOUSTICS**

Postal Address
P.O. Box 432
Gladesville
N.S.W. 1675
AUSTRALIA
A.C.N. 068 727 195
A.B.N. 19 068 727 195
Telephone: 02 9879 4544
Fax: 02 9879 4810
Email: AtkinsAcoustics@bigpond.com.au

Atkins Acoustics and Associates Pty Ltd.
Consulting Acoustical & Vibration Engineers

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 Monday 13 August 2012 between 10.30am and 11.30pm. Inquiries with site operations confirmed that site activities during the day and evening included mine ventilation and on-site underground training. 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 carried appropriate and current NATA calibration (*Attachment 2*).

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 -1 to 10°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 noted during the 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 (10.30am to 11.45am)									
Location R1 (1109 hours)	37.9	31.3	33.1	38.0	46.4	49.8	46	<35	Coal Pac dozer, trucks <30dBA; highway traffic; cows; insects; birds.
Location R1 (1124 hours)	40.4	31.8	32.7	36.7	44.8	52.6	46	<35	Highway traffic; insects; birds. cows, BBC ventilation fan <30dBA
Location R2/3 (1030 hours)	40.4	30.4	32.8	40.0	48.8	54.5	41	<35	Highway traffic; insects; birds.
Location R2/3 (1045 hours)	38.8	30.2	32.5	40.7	48.8	54.9	41	<35	Highway traffic; insects; birds.
Evening Audit (6.00pm to 7.45pm)									
Location R1 (1800 hours)	37.6	32.4	35.5	40.9	44.8	49.8	46	<40	Highway traffic; insects.
Location R1 (1815 hours)	39.6	34.5	37.9	42.4	46.8	51.2	46	<42	Highway traffic; insects; ducks
Location R2/3 (1842 hours)	43.1	37.0	40.9	46.3	51.3	54.5	41	<39	Highway traffic; insects; cows
Location R2/3 (1857 hours)	38.3	34.4	36.9	40.5	46.0	50.8	41	<35	Highway traffic; insects

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 (2240 hours)	33.8	31.4	32.7	34.7	42.8	49.8	46	47	<35	<38	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.
Location R1 (2245 hours)	34.3	30.3	32.1	36.1	42.4	52.5	46	47	<35	<30	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.
Location R2/3 (2200 hours)	35.1	30.6	32.3	37.4	43.6	51.2	41	48	<35	<38	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.
Location R2/3 (2215 hours)	35.5	30.3	32.4	36.2	40.8	51.8	41	48	<35	<39	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.

Table 4 presents a summary of the measured L_{Aeq} octave band frequency sound pressure levels with the overall 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	53.3	45.8	42.9	40.3	37.0	28.0	25.3	27.2	28.3	37.9	54.9
Location R1	57.1	47.2	43.1	41.1	42.0	28.4	25.0	25.2	28.5	40.0	58.4
Location R2/3	43.7	43.1	39.1	32.1	32.5	36.1	35.6	29.6	29.6	40.4	47.2
Location R2/3	49.2	46.5	38.6	30.6	31.4	31.6	29.4	30.2	34.6	38.8	49.9
Evening											
Location R1	44.0	49.6	43.3	32.7	33.0	34.2	26.7	24.0	26.3	37.6	50.8
Location R1	55.7	52.5	46.9	34.3	35.7	36.4	28.4	24.5	26.3	39.6	56.3
Location R2/3	41.0	43.2	46.2	36.0	36.7	39.9	35.4	31.7	28.0	43.1	49.3
Location R2/3	43.9	45.3	43.0	33.0	34.0	34.8	29.7	24.9	26.1	38.3	48.4
Night											
Location R1	57.8	48.5	43.0	32.2	32.1	29.5	22.4	21.7	26.3	35.1	58.2
Location R1	64.7	54.6	43.3	34.6	33.8	25.9	22.6	21.6	25.8	35.5	64.3
Location R2/3	35.4	34.3	35.9	30.6	30.2	23.4	27.0	24.5	26.8	33.8	40.6
Location R2/3	38.4	40.1	35.6	29.3	28.4	27.3	27.3	25.8	37.0	34.3	42.9

5.1 Review of Site Investigations

Inquires with the *BBC Environmental Officer* confirmed that no noise incidents have been reported for the period between 10 May 2012 - 12 August 2012.

6.0 DISCUSSION

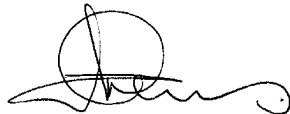
For the purpose of assessing the compliance status of *BBC* with licence noise limits a site-attended audit and noise measurements were conducted on Monday 13 August 2012.

Inquiries with site operations confirmed that site activities during the audit included mine ventilation and on-site underground training. During the day and night audits 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 road traffic on the Castlereagh Highway.

The $L_{Aeq, 15 \text{ min}}$ noise level contributions 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



ATTACHMENT . SVAN949 Calibration Certificate.

