41.6685.R2:GA/DESKTOP/2011

The Wallerawang Collieries Ltd
Castlereagh Highway
CULLEN BULLEN NSW 2790

Attention: Matthew Belser

12 October 2011

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

BAAL BONE COLLIERY COMPLIANCE NOISE AUDIT OCTOBER 2011

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 Tuesday 4 October 2011 between 3.00pm and 12.00 midnight. Inquiries with site operations confirmed that the surface plant operating comprised stockpile conveyors, the rotary breaker, screening plant, two (2) dozers and a haul truck. 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 ± 0.5dBA. 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 north to north-east, nil to 50% cloud cover. The air temperature ranged between 5-14°C and the relative humidity between 30-40%.

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 *dBA LAeq, 15 min*	Night *dBA LA1, 1 min*
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 *dBA LAeq, 15 min*	Night *dBA LA1, 1 min*
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 October 2011 audit.

Table 3. Attended Noise Measurement Results
dBA re: 20 x 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 (3.30pm to 6.00pm)									
Location R1 (1537 hours)	48.6	31.4	37.1	54.3	58.9	62.9	48(46)	<32	Drift ventilation fan; Insects; Frogs, Road traffic
Location R1 (1554 hours)	53.7	34.1	44.2	59.1	62.7	62.7	48(46)	<45	Dozer (track noise 46-52); Dozer (pushing 46-48); Dozer (reversing alarm 36-37); Insects, Road traffic
Location R2/3 (1620 hours)	36.3	32.2	34.4	38.3	44.5	54.1	43(41)	<35	Dozer (track noise 45-48); Dozer (pushing 35-36); Dozer (reversing alarm 35-36); Insects, Road traffic; Children playing; Dozer behind coal stockpile <30
Location R2/3 (1643 hours)	48.9	33.0	35.5	43.8	62.5	72.2	43(41)	<35	Dozer (track noise 44-48); Dozer (pushing 38-40); Dozer (reversing alarm 36-37); Insects, Road traffic; Three (3) vehicle drive bys
Evening Audit (8.00pm to 10.00pm)									
Location R1 (2045 hours)	47.3	44.1	46.4	49.5	52.0	62.5	48(46)	<47	Dozer (track noise 48-49); Dozer (pushing 46-47); Dozer (reversing alarm 47-48); Insects 43-44
Location R1 (2104 hours)	48.2	44.6	47.6	50.7	53.2	60.7	48(46)	<46	Dozer (track noise 50-52); Dozer (pushing 46-47); Dozer (reversing alarm 46-47); Insects 45
Location R2/3 (2130 hours)	44.0	41.2	43.4	46.3	48.6	52.5	43(41)	<42	Dozer (track noise 48-49); Dozer (pushing 47-48); Dozer (reversing alarm 42-43); Insects 40-41.
Location R2/3 (2149 hours)	43.6	40.2	43.1	45.8	47.7	55.3	43(41)	<41	Dozer (track noise 47-48); Dozer (pushing 45-46); Dozer (reversing alarm 36-37); Insects, One dozer stopped after 14 minutes

- *Includes DECC INP +5dB(A) allowance (INP Section 4)
- Long term licence noise limits s shown in brackets ( )

Table 3. Attended Noise Measurement Results. Cont'd
dBA re: 20 x 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 (2250 hours)	39.2	37.2	38.4	39.9	42.5	63.8	48(46)	47	<37	<40	Drift ventilation fan; CPP; No dozer noise; Insects
Location R1 (2308 hours)	39.9	37.7	39.5	41.7	44.2	46.8	48(46)	47	<43*	<40	Dozer started after 12 minutes; Dozer (pushing 45-46); Dozer (reversing alarm 44-45).
Location R2/3 (2205 hours)	39.5	37.5	39.2	40.9	42.5	47.1	43(41)	48	<44*	<40	Dozer (track noise 48-49); Dozer (pushing 40-41); Dozer (reversing alarm 39-40); One dozer .
Location R2/3 (2221 hours)	41.4	38.4	40.3	42.3	44.7	66.8	43(41)	48	<38	<40	Drift ventilation fan; CPP; No dozer noise; Insects; Resident outdoors

- *Includes DECC INP +5dB(A) allowance (INP Section 4)
- Long term licence noise limits s shown in brackets ( )
- Shaded area non compliance

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 x 10^{-6} Pa

Measurement Location	Sound Pressure Level										
	31	62	125	250	500	1K	2K	4K	8K	dBA	dBC
Day											
Location R1	54.8	44.1	44.7	45.0	35.8	39.1	45.6	39.7	21.2	48.6	56.2
Location R1	56.2	47.0	46.5	43.8	39.8	44.5	51.2	43.4	19.2	53.7	58.0
Location R2/3	52.5	47.8	42.0	35.7	31.7	30.1	29.4	26.7	21.2	36.3	55.4
Location R2/3	55.0	54.2	48.2	46.7	45.8	44.6	41.6	35.8	27.3	48.9	58.7
Evening											
Location R1	55.7	46.3	50.0	44.2	42.1	41.7	41.6	36.9	21.6	47.3	57.5
Location R1	55.7	46.5	5.9	46.7	42.6	43.6	42.1	36.6	20.9	48.3	57.9
Location R2/3	52.0	45.7	42.3	40.6	35.9	37.3	39.9	34.5	8.3	44.0	54.0
Location R2/3	52.0	47.1	45.3	39.8	35.8	37.4	38.9	34.6	17.4	43.6	54.4
Night											
Location R1	56.8	44.7	42.8	36.6	30.7	31.8	35.4	29.6	23.1	39.4	56.5
Location R1	56.5	44.7	43.5	38.8	31.4	33.7	35.1	30.6	16.4	39.9	56.3
Location R2/3	51.0	45.3	43.2	31.9	28.1	29.4	35.6	32.5	17.3	39.5	52.8
Location R2/3	52.1	43.6	38.4	37.6	32.7	29.6	37.7	34.0	17.1	41.4	53.2

5.1 Review of Site Investigations

Inquires with the *BBC Environmental Officer* confirmed that no noise incidents have been reported for the period of 1 July - 4 October 2011.

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 Tuesday 4 October 2011.

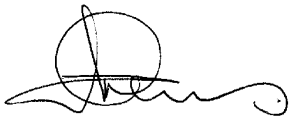
The audit identified that noise from *BBC* was controlled by two (2) dozers working the ROM stockpiles, the drift ventilation fan, the CPP and conveyors. Local influences included insects, frogs and intermittent road traffic on the Castlereagh Highway.

The $L_{Aeq,\ 15\ min}$ noise levels from *BBC* during the day and evening assessment periods satisfied the licence short-term noise limits. During the evening hours it was found that with the *BBC* dozers operating on the ROM stockpiles the $L_{Aeq,\ 15\ min}$ noise levels exceeded the long term licence limits by 1dBA at R1 and R2/3.

With the dozers working the ROM stockpiles during the nighttime hours, the $L_{Aeq,\ 15\ min}$ noise levels from *BBC* exceeded the short-term licence limit at R2/3 by 1dBA and the long-term limit by 3dBA. Without the dozers operating on the stockpiles, noise from *BBC* satisfied both the short-term and long-term licence noise limits. Considering the evening noise measurements at R1 it is expected with the dozer operating, noise from the *BBC* would exceed the long-term licence noise limit.

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