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Attention: Elizabeth Wood

24 November 2012

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BAAL BONE COLLIERY NOISE COMPLIANCE AUDIT NOVEMBER 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 Thursday 22 November 2012 between 4.30pm and 11.30pm. Inquiries with site operations confirmed that no plant or equipment was operating on-site, other than mine ventilation and water recirculation pumps. 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 meter was programmed to calculate and record statistical levels at 15-minute intervals. The reference calibration level of the meter was checked prior to and after the measurements with a Bruel & Kjaer Sound Level Calibrator Type 4230 and remained within ± 0.5dBA. The meter carried appropriate and current NATA calibration *(Attachment 2).*

3.0 WEATHER CONDITIONS

Weather conditions during the audit varied from calm to light variable winds from the east to north-east, clear sky during the day/evening and 100% cloud cover at night. The day and evening temperatures ranged between 19°C and 20°C. Temperatures at night ranged between 11°C and 12°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 *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 summarised 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 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 (1600-1800 hours)									
Location R1 (1725 hours)	38.6	35.3	37.0	40.7	45.9	51.3	46	<30	BBC vent fan (<30)), highway traffic; breeze in trees insects; birds.
Location R1 (1740 hours)	40.3	34.8	38.1	41.9	48.7	59.7	46	<30	BBC vent fan (<30)), highway traffic; rooster, breeze in trees insects; birds.
Location R2/3 (1645 hours)	41.9	34.1	38.2	43.6	53.1	61.6	41	<30	Breeze in trees, insects; birds.
Location R2/3 (1700 hours)	40.3	33.1	36.9	43.6	48.9	54.7	41	<30	Breeze in trees, insects; birds, plane, highway road traffic.
Evening Audit (6.00pm to 7.45pm)									
Location R1 (1800 hours)	36.9	34.2	36.1	38.9	42.6	46.9	46	<30	Insects. BBC vent fan (<30)), breeze in trees insects; birds.
Location R1 (1815 hours)	38.1	34.8	37.0	39.5	45.3	54.9	46	<30	Insects. BBC vent fan (<30)), breeze in trees insects; birds.
Location R2/3 (1838 hours)	36.9	31.1	35.1	39.8	43.7	57.1	41	<30	Highway traffic; insects. BBC vent fan (<30)), breeze in trees insects; birds.
Location R2/3 (1852 hours)	35.8	32.2	34.1	37.3	44.9	45.3	41	<35	Rooster, highway traffic; insects. BBC vent fan (<30)), breeze in trees insects; birds.

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 (2238 hours)	35.2	31.4	33.6	38.2	42.3	46.0	46	47	<30	<30	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.
Location R1 (2245 hours)	39.1	31.7	35.5	43.4	46.0	48.8	46	47	<35	<30	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.
Location R2/3 (2200 hours)	33.3	30.7	32.6	33.9	40.6	48.1	41	48	<30	<30	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.
Location R2/3 (2215 hours)	33.5	31.0	32.4	34.4	34.3	39.2	41	48	<30	<30	BBC ventilation fan <30dBA; Intermittent highway traffic; insects.

Table 4 presents a summary of the measured L_{Aeq} octave band 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 x 10^{-6} Pa

Measurement Location	Sound Pressure Level										
	31	62	125	250	500	1K	2K	4K	8K	dBA	dBC
Day											
Location R1	56.7	48.3	44.6	36.8	33.4	32.4	31,8	29.4	26.7	38.6	58.3
Location R1	62.7	55.4	45.1	38.2	34.5	34.1	33.3	31.1	27.9	40.3	62.6
Location R2/3	61.2	50.7	44.0	38.0	35.7	36.5	35.7	32.7	30.2	41.9	62.6
Location R2/3	67.4	56.9	45.0	37.6	34.6	33.0	32.1	32.0	30.8	40.3	61.2
Evening											
Location R1	57.2	47.5	43.3	35.6	31.5	30.5	29.6	28.4	26.3	36.9	58.2
Location R1	48.5	44.2	44.3	36.4	32.8	32.4	31.0	29.0	26.5	38.1	51.3
Location R2/3	55.1	47.	41.3	35.6	33.3	30.5	29.5	27.2	26.3	36.9	57.1
Location R2/3	49.3	44.9	40.6	32.9	31.3	28.7	28.8	28.3	25.0	35.8	50.6
Night											
Location R1	63.9	53.6	45.5	36.7	29.7	25.3	25.2	22.2	24.7	35.2	64.5
Location R1	67.6	58.7	50.0	41.5	34.2	29.7	26.8	21.7	23.3	39.1	68.3
Location R2/3	47.8	39.2	33.6	29.9	28.3	23.8	24.4	29.0	23.8	33.3	49.7
Location R2/3	49.9	42.4	36.0	30.7	29.3	26.3	26.3	25.7	23.9	33.5	51.1

5.1 Review of Site Investigations

Inquires with the *BBC Environmental Officer* confirmed that no noise incidents were reported between 12 August 2012 and 21 November 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 Thursday 22 November 2012.

Inquiries with site operations confirmed that site activities during the audit included mine ventilation and water recirculation pumps. The ventilation fan was audible during the audit. Other noise sources identified included the wind in trees, insects and road traffic.

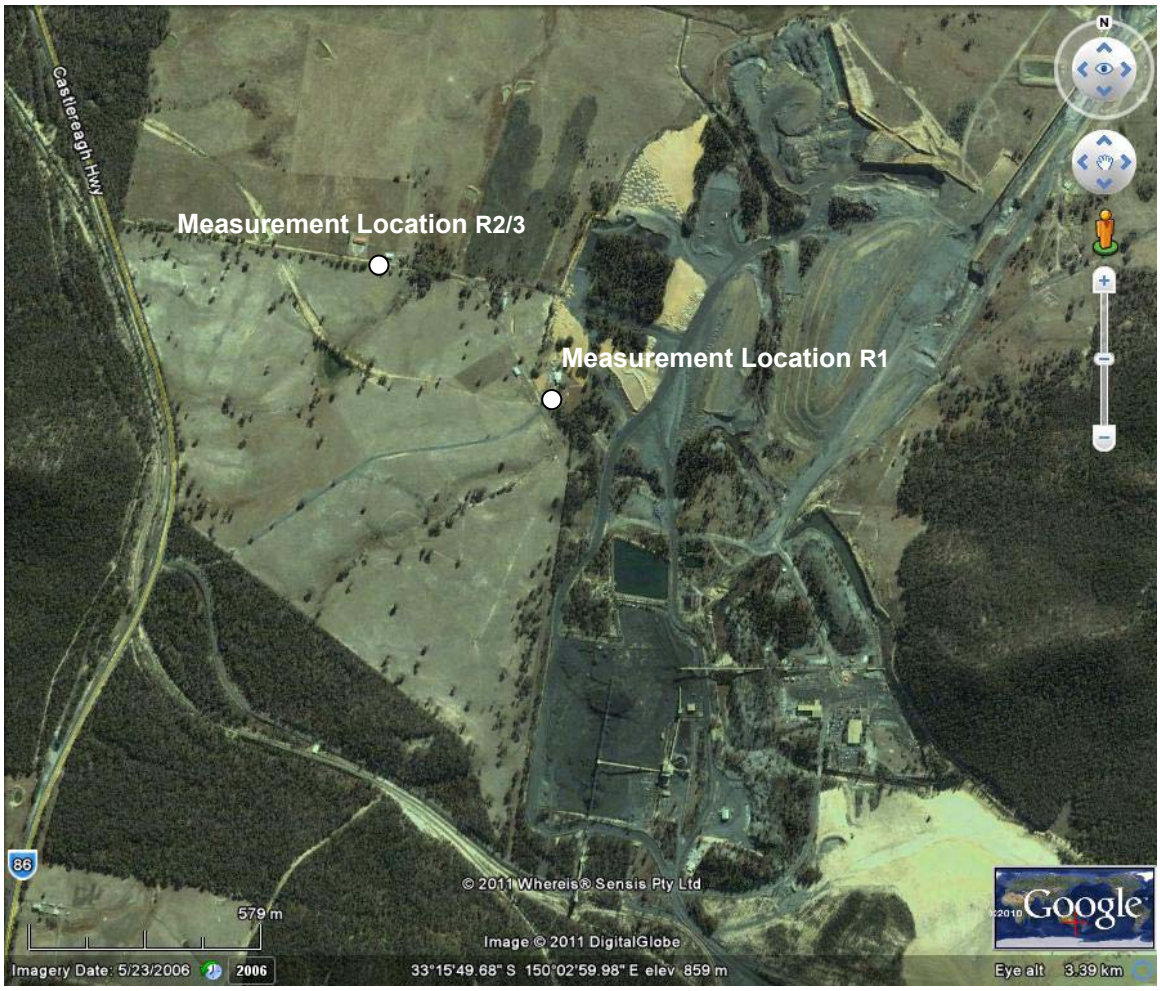
From the audit measurements and assessment the $L_{Aeq,\ 15\ min}$ noise contributions from *BBC* during the day, evening and night assessment periods satisfied the long-term licence noise limits.

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 audit.

ATKINS ACOUSTICS & ASSOCIATES PTY LTD.

Graham Atkins

ATTACHMENT 1. REFERENCE MEASUREMENT LOCATIONS



ATTACHMENT 2: Calibration Certificate.

CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: SLM 38397 & FILT 2524

Equipment Description:	Sound & Vibration Analyzer		
Manufacturer:	Svantek		
Model No:	Svan-949	**Serial No:**	9713
Microphone Type:	SV-22	**Serial No:**	4011885
Filter Type:	1/3 Octave	**Serial No:**	9713
Comments:	All tests passed for type 1.		
Owner:	Atkins Acoustics 8-10 Wharf Road Gladesville, NSW 2111		
Ambient Pressure:	1010 hPa ±1.5 hPa		
Temperature:	23 °C ±2° C	**Relative Humidity:**	51 %RH ±5% RH
Date of Calibration:	05/09/2011	**Issue Date:**	06/09/2011

Acu-Vib Test Procedure: AVP05 (SLM) & AVP06 (Filters) if applicable

CHECKED BY: ..... **AUTHORISED SIGNATORY:** .....

Jack Kielt

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Accredited for compliance with ISO/IEC 17025
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.

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