

26 September 2011

Gwen Wilson

CBH Resources RASP Mine
Level 4 100 Mount Street
North Sydney NSW 2059

Re: RASP Mine Relocated Fan Noise Assessment

Dear Gwen,

1 Introduction

EMGA Mitchell McLennan Pty Limited (EMM) has been engaged to review potential noise impacts associated with the proposed new location of the ventilation fan for the RASP mine operations in Broken Hill NSW.

It is understood that the previous fan location can no longer be utilised given the unstable ground conditions at that site.

2 Noise criteria

2.1 Project approval limits

Condition 16 of Schedule 3 of the Project Approval (07_0018) dated 31 January 2011 provides noise limits the project must meet during its operational phase. These noise limits are consistent with the project specific noise levels (PSNLs) as derived in accordance with the Industrial Noise Policy in our previous noise assessments. These limits are provided in Section 2.2.

2.2 Project specific noise levels

The previous noise assessment for the preferred project provides the project specific noise levels for the selected assessment locations as adopted in the original EA assessment. These are reproduced in Table 2.1.

Table 2.1 INP project specific operational noise criteria

Receiver No	Location	Criterion, $L_{eq,15\text{minute}}$ dB(A)		
		Day	Evening	Night
A1	Piper St North	38	37	35
A2	Piper St Central	38	37	35
A3	Eyre St North	44	41	39
A4	Eyre St Central	44	41	39
A5	Eyre St South	44	41	39
A6	Bonanza & Gypsum Sts	48	41	39
A7	Carbon St	35	35	35
A8	South Rd	48	39	39
A9	Crystal St	46	39	39
A10	Garnet & Blende Sts	42	41	35
A11	Crystal St	46	39	39
A12	Crystal St	46	39	39
A13	419 Eyre St	38	35	35
A14	Piper St North	35	35	35

3 Noise assessment

3.1 Fan details

The proposed ventilation fan unit will typically be 850kW, operate at 745rpm with a fan diameter of 2625mm. The fan itself will be installed approximately 400m underground and 160m from the base of the ventilation rise.

The surface position of the fan duct is at the central northern part of the CML7 lease boundary at MGA grid coordinates 543618mE and 6463202mS with a ground height datum of 331.6m. The other important aspect of the duct position at the surface is that it will be surrounded by a purpose built embankment on all sides that is 8m higher than the natural ground level in this position. This essentially provides acoustic shielding of the duct (noise source at surface) to all surrounding residences off site.

The sound emission of the fan unit itself (not the outlet noise) is shown in Table 3.1. This is based on a typical unit as provided by Howden fans. To model the noise source at the surface position it was necessary to make allowances for losses due to the duct length between the fan unit underground and the outlet at the surface.

Table 3.1 Typical sound power level of ventilation fan at source (Howden data)

Octave centre frequency	Hz	63	125	250	500	1000	2000	4000	8000	Overall	
										dBL	dBA
Inlet SWL	dB	123.4	122.7	128.9	130.2	129.3	126.8	120.8	114.2	135.9	133.5
Outlet SWL	dB	123.4	122.7	128.9	129.2	127.3	123.8	116.8	110.2	134.8	131.5

3.2 Predicted noise levels and assessment

The three dimensional noise model used in all previous assessments for the RASP mine project was updated to include the ventilation fan in its new position as described earlier. The results of predicted noise levels are shown in Table 3.2. These indicate little change to the previous results and show that the relevant noise criteria will be satisfied for all receivers for both the daytime and night time assessment periods. Hence, the contribution from the ventilation fan is insignificant by comparison with all site noise sources at receivers off site.

Table 3.2 Predicted operational noise levels

Location		Predicted $L_{eq,15min}$ Noise Level, dB(A)		INP Operational Criteria, dB(A)		
		Daytime	Night time	Day	Evening	Night
		Calm	Temp. Inv. 3 ⁰ C/100m			
A1	Piper St North	<35	<35	38	37	35
A2	Piper St Central	<35	<35	38	37	35
A3	Eyre St North	37	38	44	41	39
A4	Eyre St Central	<35	<35	44	41	39
A5	Eyre St South	<35	<35	44	41	39
A6	Bonanza & Gypsum Sts	<35	<35	48	41	39
A7	Carbon St	<35	<35	35	35	35
A8	South Rd	<35	<35	48	39	39
A9	Crystal St	<35	<35	46	39	39
A10	Garnet & Blende Sts	35	35	42	41	35
A11	Crystal St	<35	<35	46	39	39
A12	Crystal St	39	39	46	39	39
A13	Eyre St North 2	37	<35	38	35	35
A14	Piper St North	35	<35	35	35	35

4 Conclusion

EMM has completed an updated assessment of operational noise for the proposed RASP mine activities, including the new position of the ventilation fan. The study finds that the new fan position does not materially alter the findings of our previous studies and that the project approval (07_0018) noise limits will be satisfied.

We trust this information meets your requirements and if you need any further clarifications please contact our office.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Najah Ishac', with a stylized flourish at the end.

Najah Ishac (MEngSc, BE, MIEAust, MAAS)
Director
nishac@emgamm.com