



Rasp Mine
130 Eyre Street, Broken Hill, NSW 2880
PO Box 5073, Broken Hill, NSW 2880, Australia
Tel: +61 8 8088 9111 Fax: +61 8 8088 3392

Registered Office:
Level 4, 100 Mount Street, North Sydney, NSW 2060
PO Box 1967, North Sydney, NSW 2059, Australia
Tel: +61 2 9925 8100 Fax: +61 2 9925 8111
www.cbhresources.com.au

MIN.12
MA:JMS

May 23, 2014

Mr Kane Winwood
Team Leader
Development Assessment Systems and Approval
Department of Planning and Environment
23 – 33 Bridge Street
SYDNEY. NSW 2000

**RASP MINE PROJECT – RESPONSE TO SUBMISSIONS FOR
MODIFICATIONS TO CRUSHER HOURS AND TRUCKING ORE OFF-SITE.**

Dear Mr Winwood

Broken Hill Operations Pty Ltd (BHOP) has applied for a modification to its Project Approval (00_0718) to extend the hours for crusher operation and to truck ore off-site. BHOP provided an Environment Assessment (EA) to support the proposed changes which has been exhibited. Subsequent to exhibiting the EA for the proposed modifications, BHOP has removed the request to transport ore off-site by trucking. If this is required in the future BHOP will submit a new modification application and will address the relevant comments at that time.

The modifications to the Project Approval were exhibited from February 8 – 24, 2014. Following exhibition, the Department of Planning and Environment (DOPE) received eight submissions made by government agencies and the community on the proposed modification.

These submissions were raised by:-

- 1 Department of Planning and Environment -
 - 1.1 Environmental Protection Authority
 - 1.2 Office of Environment and Heritage
- 2 Transport of NSW - Roads and Maritime Services
- 3 Department of Trade and Investment, Regional Infrastructure and Services -
 - 3.1 Division of Resources and Energy
 - 3.2 Department of Primary Industries
- 4 Broken Hill City Council
- 5 General Public (2 submissions)

BHOP would like to acknowledge and thank all stakeholders for taking the time to review the EA report and for submitting a response.

The following outlines BHOP's response to these submissions:-

Submissions by Government Agencies:

1.0 Submission by Department of Planning and Environment –

1.1 Environmental Protection Authority

The Environmental Protection Authority (EPA) indicated that further information was required before an assessment could be made. In response BHOP engaged EMGA Mitchell McLennan (EMM) to conduct additional attended noise measurements at receptors stated in the submission (March 3 – 7, 2014).

The report from EMM provides a detailed description of the methodologies used to conduct the noise measurements, the results of the attended noise monitoring and the modifications BHOP has made to reduce site noise (refer Appendix A, EMM Letter Report, 20 May 2014). The report also outlined three key issues highlighted by the EPA during consultation:-

- *The on-site Automatic Weather Station (AWS) should be made operational; and*
- *A comparison of measurements of weather parameters, particularly wind speed and direction, between the Bureau of Meteorology (BOM) AWS and on-site AWS should be made over a sufficient period, to facilitate an assessment of whether the BOM AWS data can be reliably used as a surrogate location for site wind speed measurements during any future failure of the on-site AWS; and*
- *Propose the scope of further attended monitoring during the night time period post approval, until sufficient data is collected during wind speeds of up to 3m/s to confirm to the satisfaction of the EPA that night time crusher operation consistently complies with license limits.*

BHOP has made arrangements to repair the AWS and will undertake a comparison with local BOM data to confirm a surrogate location. In consultation with EMM BHOP propose to conduct quarterly noise monitoring for the next 12 months to confirm that night time crusher operation consistently complies with license limits.

Key concerns raised in the EPA submission include the following:

Noise:

- *The existing operational activities at the Rasp mine appear unlikely to be complying with noise limits assigned to the mine.*

BHOP has undertaken additional noise monitoring between March 3 – 7, 2014, refer Appendix A, EMM Report. This noise monitoring was undertaken with the operation of all night time activities including the filtration plant and at all receptor points as indicated in the EPA submission. Noise results included all measurements with winds less than or equal to 3m/s in accordance to the site's conditions of approval and as confirmed during consultation with the EPA following their submission. Noise levels were found to be within 1 or 2 dB(A) of the noise criteria as outlined in the Project Approval and are therefore, according to the NSW Industrial Noise Policy, deemed in compliance.

- *The direct noise measurement figures provided in the EA to qualify the modelled noise impacts of the proposal are based on the filtration plant noise impacts being edited out of the results.*

BHOP has responded to this item and ensured that all fixed and mobile plant were in operation during the week of additional monitoring March 3 – 7, 2014 (Appendix A, EMM Report, section 3.1).

- *A road traffic noise assessment is not provided to assess the impacts on receptors along haul routes from the proposed milling of up to 60 000 tonnes of ore off-site.*

BHOP no longer intends to transport ore via the road. Therefore, BHOP has removed this request from the submission to modify the EA.

1.2 Submission by Department of Planning and Environment – Office of Environment and Heritage.

- *The Office of Environment and Heritage has no comments to make on the proposed modification.*

2.0 Submission by Transport of NSW - Roads and Maritime Services

- *Roads and Maritime Services objected to the proposed transport of ore by trucking.*

BHOP has removed this request from the modification application. If this is required in the future, BHOP will submit a new modification application and will address all relevant comments at that time.

No further comments were made on the EA modification.

3.0 Submission by Department of Trade and Investment, Regional Infrastructure and Services–

3.1 Division of Resources & Energy

- *The Division of Resources and Energy has no comments to make on the proposed modification.*

3.2 Department of Primary Industries

- *The Office of Water, Fisheries NSW and Crown Lands advised that it has no issues in relation to the proposed modification.*
- *The Office of Agricultural Sustainability and Food Security have no comment as the proposed modifications do not impact on agriculture land.*

4.0 Submission by Broken Hill City Council (BHCC)

Broken Hill City Council has provided comments in relation to the proposed modification. Those comments are as follows:

Compliance auditing:

- *As a general principle BHCC suggest that all consents, licences, leases or authorisations by a public authority and relevant codes of practice should be audited prior to granting any modifications and that modifications should include a full assessment of current status of all conditions and commitments.*

BHOP has no comment to make to this point as it does not pertain directly to this application.

Noise:

- *It is noted that the filtration shed has been excluded from the results and predictions.*

BHOP has responded to this item and ensured that all fixed and mobile plant were in operation during the week of additional monitoring March 3 – 7, 2014 (Appendix A EMM Letter Report, Section 3.1).

During noise measurements in January, it was found that sporadic elevated noise emanated from the filtration plant during filter washing operations. Modifications to the filtration recirculation line were made to reduce noise emission from this source. The existing pipe work which housed the orifice plate was removed, along with numerous flanges and three 90° bends. This has eliminated the need to have the orifice plate in the line and reduced the noise being emitted from the pumps/pipework (refer Appendix A EMM Letter Report, Section 3.1).

- *Concern that cumulative impacts are not taken into account with the exclusion of the filtration shed.*

BHOP reiterates that all fixed and mobile plant was in operation during the week of monitoring March 3 – 7, 2014. The results presented in Appendix A, EMM Report, Table 2 indicate that noise levels were found to be within 1 or 2dB(A) of the noise criteria as outlined in the Project Approval and are therefore, according to the NSW Industrial Noise Policy, deemed in compliance.

- *Concern that residents in Proprietary Square, Crystal Street and Argent Lane have not been included in noise assessment.*

The additional noise monitoring (March 3 – 7, 2014) included receptors for Proprietary Square, Iodide Street (corner with Crystal Street) and Argent Street. Noise measurements at Proprietary Square (a residential complex owned by a neighboring mining company) located on a mining lease were completed. However, wind speeds exceeded the EPA's 3 m/s threshold and therefore are not included. Similarly, wind speeds precluded reporting of noise measurements at Argent Street. Noise measurements at Iodide Street/Crystal Street were within 1 to 2 dB(A) of criteria and are therefore deemed in compliance. (Refer Appendix A, EMM Letter Report, Table 2).

Road Transport of Ore:

- *A number of comments are provided in regards to the transport of ore off-site by trucking and a request for further information before an assessment and comment can be made.*

BHOP no longer intends to transport ore via the road. Therefore, BHOP has removed this request from the submission to modify the EA.

5.0 Response to Submissions from the Public

Submission by Robyn Gould

- *Robyn Gould has made comments in relation to the proposed trucking of ore off site. No comment was made in relation to the proposed 24hr crusher operation.*

BHOP no longer intends to transport ore via the road. Therefore, BHOP has removed this request from the submission to modify the EA.

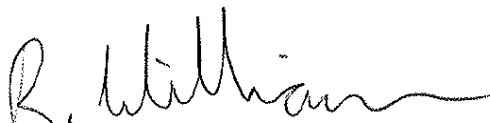
Anonymous submission

- *Concerns were raised of hazardous material being mined from surface areas of the mine lease and transported off-site by truck. Concerns were raised about the chemical analysis of this material and its possible health effects without a full biological accessibility study of the material. No Comment was made in relation to the proposed 24hr crushing operation.*

BHOP no longer intends to transport ore via the road. Therefore, BHOP has removed this request from the submission to modify the EA. BHOP also wishes to state that all mining is conducted underground in accordance with its Project Approval.

Please contact the undersigned if you require clarification or additional information.

Yours faithfully

A handwritten signature in black ink, appearing to read 'R. Williamson', with a long, sweeping horizontal flourish at the end.

ROB WILLIAMSON
GENERAL MANAGER
Ph: 08 8088 9106

23 May 2014

Paul Walson
 Environment and Community Manager
 Broken Hill Operations Pty Ltd
 CBH Resources - Rasp Mine

Re: | Response to submissions on noise

Dear Paul,

The following letter provides additional information and clarifications in response to the EPA and Broken Hill City Council's submission on noise for the RASP mine. Specifically, this response will address noise related issues for the current and proposed extended hours of operation (for crushing).

1 Noise criteria

Condition 17 of Schedule 3 of the project approval (PA 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 (PSNL's) as derived in accordance with the NSW Environment Protection Authority (EPA) 2000, *Industrial Noise Policy* (INP) in previous noise assessments.

Operational noise limits for the site reproduced from PA 07_0018 are provided in Table 1. The night-time limits that are of relevance to this report range between 35 dB(A) to 39 dB(A).

Table 1 Operational noise limits

Receiver no	Location	Operational noise limit, $L_{eq,15min}$ 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 and 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 and 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

2 Methodology

2.1 Attended noise measurements

Attended noise measurements were completed using a Brüel and Kjær 2250 one-third octave band integrating sound level meter. Field calibration of the instrument was undertaken using a Brüel and Kjær type 4230 calibrator. Measurements were undertaken in accordance with Australian Standard AS1055-1997 "Description and Measurement of Environmental Noise" Parts 1, 2 and 3.

The measurements were completed between 4 and 7 March 2014, to determine noise levels from site related operations at close distance. These consisted of 15-minute attended measurements. The measurements identified the processing plant's filtration area (filtration shed) as the dominant source from site. Due to the position and orientation of the filtration shed as well as the surrounding terrain, it was concluded that northern assessment locations, including A11 and A12, would experience higher noise levels from the filtration process than southern assessment locations, including A1, A13 and A14.

2.2 Attended noise monitoring at assessment locations

Attended noise monitoring was conducted for the trial crushing phase during four consecutive night-time periods from 2 to 5 September 2013 (Noise Sampling 1 (NS 1)), 6 to 10 January 2014 (NS 2) and again during five consecutive nights 3 to 7 March 2014 (NS 3). A requirement of the EPA was to capture at least seven days of data and this was achieved.

3 Noise monitoring assessment - night time crusher trial

The data in Table 1 was obtained through attended noise measurements in March 2014. Refer to Figure 5 for assessment locations A1, A3, A11, A12, A13, A14, Iodide St (corner Chrystal St), Argent St, and Proprietary Square.

3.1 Plant in operation

All fixed and mobile plant were operating during the week of measurements in March 2014 (NS 3). These included:

- Crusher & Run-of-mine (ROM) front-end-loader (FEL). FEL typically not used at night – 200T ore preloaded to last most nights;
- Ball mill;
- Filtration plant;
- Concentrate trucks to rail;
- Forklift to rail wagons; and
- Haul trucks to ROM Pad.

The above operated concurrently for the trial but do not normally, for example, forklifts and the FEL were operated specifically for this exercise to ensure all noise activities were captured. Therefore, a worst case scenario was provided.

3.2 Noise management

Several management and mitigation measures have been implemented at site as a consequence of trial noise measurements in 2013, and January 2014 where trucking and filtration plant noise were identified and targeted for attenuation. The measures implemented include:

- Plant and equipment operator training. This included correct gear selection to minimize noise emission, retraining in travelling haul road procedure and educating personnel of the noise criteria for site.
- Maintaining the crusher bin volume, allowing the crusher to be loaded to maximum capacity at all times and reducing the noise generated by rockfall onto the grizzly.
- Optimisation of haul truck speed and gear changing via the use of intermediate markers along the haulage route.
- Haul truck driving procedures to minimise off-site noise. That is, when two haul trucks are travelling on the haul road in opposite directions, the loaded haul truck has right of way and the unloaded truck must pull into a passing bay and wait to be passed. This reduces the cumulative effect on noise emission of two trucks on the haul road.
- Extension of both length and height of the existing earth bund along the southern haul road (from Kintore Pit to ROM pad).
- Installation of noise abatement material in the crusher building.
- Construction of a 2.5 m high by 6 m long tyre wall to reduce noise transition from the filtration area of the processing plant.
- Redesign of the washcloth recirculation line to remove pipework which housed the orifice plate in the filtration shed.

Some images of these works are provided in Figure 1 to 4.



Figure 1 Overlapping windroses on access route to old tailings storage facility (TSF)



Figure 2 Noise insulation in crusher building (50mm glasswool)



Figure 3 Pipework done to reduce noise from orifice plate



Figure 4 Tyre bund around filtration shed pipework

3.3 Noise measurement results

The results in Table 1 are limited by prevailing weather conditions applicable according to the site's conditions of approval (eg winds less than or equal to 3m/s and as confirmed during consultation with the EPA in the time since their submission). The data presented covers the most exposed assessment locations north and south of the site and includes noise from the main sources as identified previously (eg ROM pad FEL, crusher and processing area including the mill and filtration facility). These locations are consistent with the suggestions in the EPA's submission.

Note that observations at Location A3 confirmed site noise was not audible and therefore not measurable during our visit. The results demonstrate no non-compliances (as defined by the INP, which adopts a 2 dB field measurement tolerance) during the three days of monitoring with valid weather conditions. The data and our observations show:

- the crusher is not a dominant noise source;
- constant noise from the approved mill and general process area was evident;
- the improvements to the filtration plant noise was noticeable and resulted in reduced noise off-site;
- no non-compliances in L_{eq} limits (assessed against evening and night criteria);
- haul truck operations are being managed and related off-site noise levels have improved over the three surveys;
- Non-site related sources include local and distant traffic, planes, wind induced vegetation noise, insects, birds, domestic pets, and low level noise from a water pump near A14; and
- generally L_{eq} noise from non site related sources is higher than site L_{eq} .

It should be noted that measurements at Proprietary Square (a residential complex owned by a neighbouring mining company) located on a mining lease were completed. However, wind speeds exceeded the EPA's 3 m/s threshold and therefore are not included. Similarly, wind speeds precluded reporting of noise measurements at Argent Street.

Table 2 **Attended noise measurement summary, dB(A)**

Date	Time (24hr)	Receiver (EIS ID)	Total levels		Site noise	Site criteria	BOM met		Audible noise sources
			L _{eq}	L ₉₀	L _{eq}	L _{eq}	WS (m/s)	WD (deg)	
7/03/2014	2:29	A12	47	37	40	39	2.5	157.5	Site processing plant audible and constant, forklift occasionally. Distant traffic and traffic pass-bys. Insect noise. Occasional wind in trees.
7/03/2014	3:05	A12	39	36	38	39	3.1	180.0	Site processing plant audible and constant, haul truck (HT) just audible. Distant traffic. Insect noise and occasional wind in trees just audible.
7/03/2014	3:23	A11	46	38	39	39	3.1	202.5	Site processing plant audible and constant. Distant traffic and traffic pass-by. Insect noise constant and occasional wind induce noise.
7/03/2014	2:06	Iodide St	47	39	41	39	3.1	180.0	Site processing plant audible and constant, forklift audible. Distant traffic and traffic pass-bys. Insects constant. Some wind induced noise.
7/03/2014	3:41	Iodide St	48	39	40	39	3.1	202.5	Site processing plant audible and constant. Distant traffic and traffic pass-bys. Insect noise constant and occasional wind in trees.
5/03/2014	4:31	A13	51	31	34	35	3.1	0.0	Site processing plant audible and constant, FEL just audible. Insects constant. Traffic pass-by. Nearby quarry truck pass-by and idling nearby.
4/03/2014	23:45	A14	40	32	37	35	2.5	0.0	Site processing plant audible and constant, HT audible, FEL barely audible. Distant traffic and traffic on Eyre St . Insect noise. Pump from nearby water tank constant.
4/03/2014	23:14	A1	37	33	36	35	3.1	22.5	Site processing plant audible and constant, HT audible, FEL barely audible. Distant traffic and traffic on Eyre St . Insect noise.
5/03/2014	4:08	A1	38	33	35	35	3.1	0.0	Site processing plant audible and constant, HT audible. Distant traffic and traffic on Eyre St . Plane above. Insect noise constant and wind in trees.
5/03/2014	5:20	A3	51	32	<33	39	1.9	0.0	Noise environment dominated by ambient noise. HT just audible briefly. Traffic pass-bys. Insect noise constant and wind in trees. Dogs barking briefly.



Figure 5 Noise monitoring locations

3.4 Weather influences

During EMM's three separate occasions of trial noise measurements, the weather conditions varied between assessable and non-assessable according to the site's conditions of approval. To that end, it is our experience that winds of up to 3m/s result in higher off site noise levels than times of temperature inversion for example. Hence the data collected represents worst case weather conditions.

4 Outcome of EPA consultation

Following consultation, the EPA advised of the following three key issues:

- The on-site Automatic Weather Station (AWS) should be made operational; and
- A comparison of measurements of weather parameters, particularly wind speed and direction, between the BOM AWS and on-site AWS should be made over a sufficient period, to facilitate an assessment of whether the BOM AWS data can be reliably used as a surrogate location for site wind speed measurements during any future failure of the on-site AWS; and
- Propose the scope of further attended monitoring during the night time period post approval, until sufficient data is collected during wind speeds of up to 3m/s to confirm to the satisfaction of the EPA that night time crusher operation consistently complies with licence limits.

5 Conclusion

EMM has completed a review of night time crusher trial operations and provided responses to submissions on the application for extension of crushing hours. We find that site (including crushing operations) would not result in non-compliances based on the latest round of sampling.

We trust the above information meets your needs and if you require further information please contact the undersigned.

Yours sincerely



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