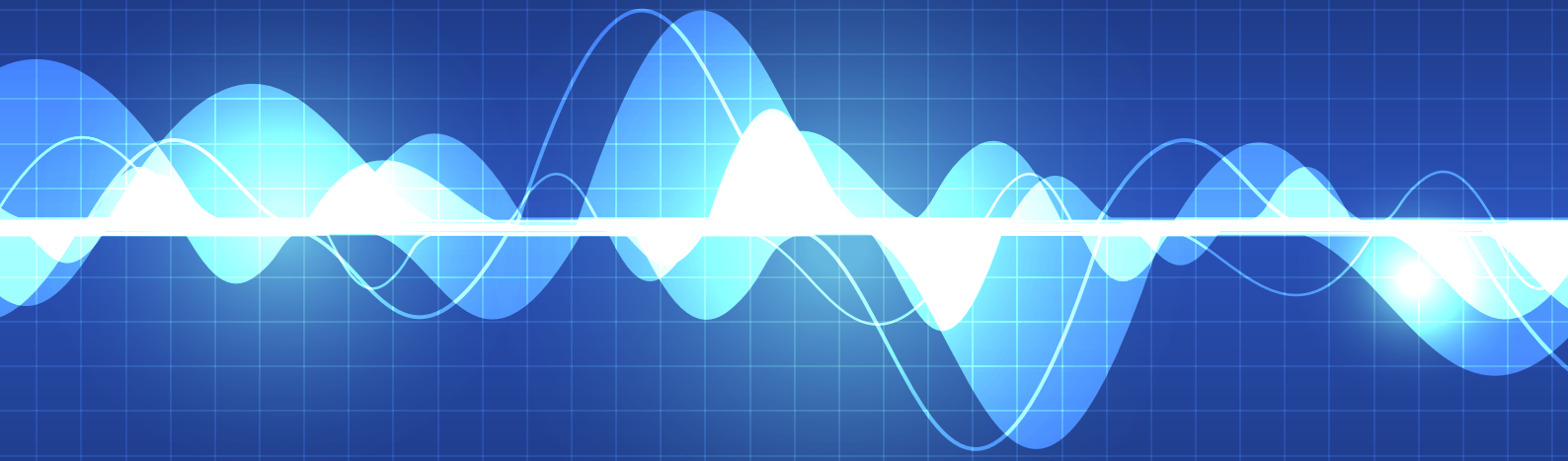
Ashton Coal

Monthly attended noise monitoring
April 2020

Prepared for Ashton Coal Operations Pty Ltd
a l·è 2020



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Monthly attended noise monitoring - April 2020

Prepared for Ashton Coal Operations Pty Ltd
May 2020

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Ashton Coal

Monthly attended noise monitoring - April 2020

Report Number

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Client

Ashton Coal Operations Pty Ltd

Date

12 May 2020

Version

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Senior Acoustic Consultant
12 May 2020

Approved by

Katie Teyhan
Associate
12 May 2020

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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Table of Contents

Appendices

Tables

Figures

1 Introduction

EMM Consulting Pty Limited (EMM) was engaged to complete monthly attended noise surveys on behalf of Ashton Coal Operations Pty Ltd (Ashton Coal).

The purpose of the monitoring was to address requirements of the approved Ashton Coal Noise Management Plan (NMP), prepared to satisfy the requirements of the Development Consent DA 309-11-2001-I (DC) and Environment Protection License (EPL) 11879.

This report presents the results and findings of attended noise monitoring conducted on 14 April 2020.

The following material was referenced as part of this assessment:

- Department of Planning, Industry and Environment (DPIE), Development Consent 309-11-2001-I, as modified on 20 June 2016 (current as of 14 April 2020);
- Environment Protection Authority (EPA), Environment Protection License 11879, as varied on 21 November 2019 (current as of 14 April 2020);
- Ashton Coal Project Noise Management Plan (NMP), approved by DPIE on 10 October 2017 (current as of 14 April 2020);
- NSW EPA, Industrial Noise Policy (INP), 2000;
- NSW EPA, Industrial Noise Policy Application notes, 2017; and
- NSW EPA, Noise Policy for Industry (NPfI), 2017.

2 Glossary of acoustic terms

Several technical terms are discussed in this report. These are explained in Table 2.1.

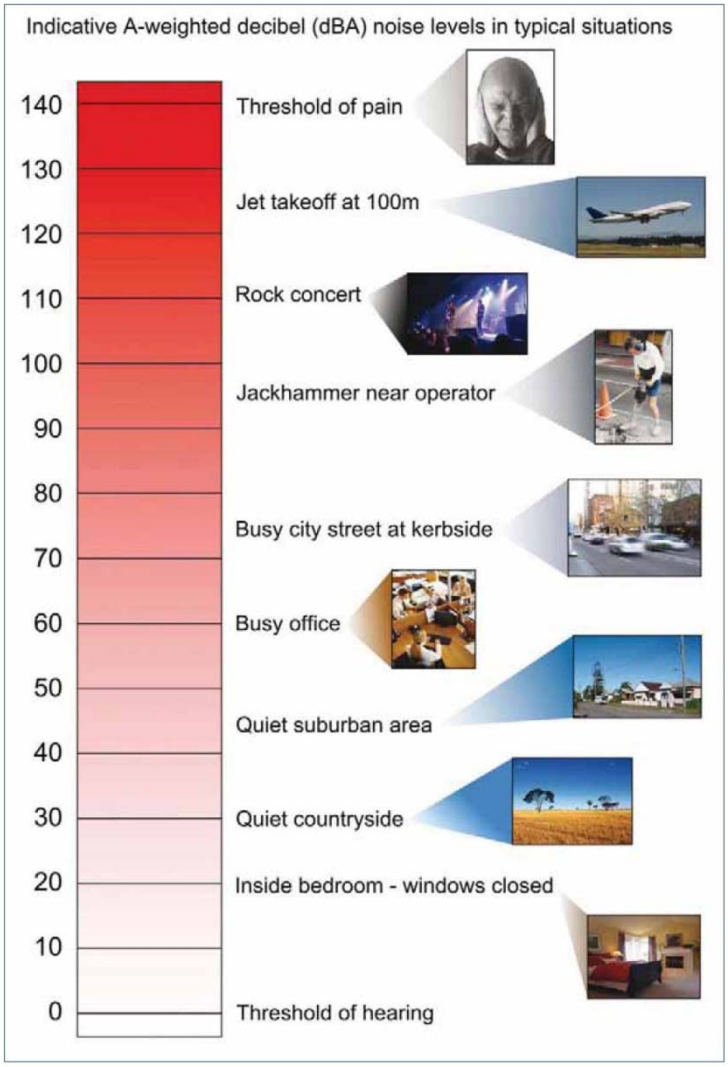
Table 2.1 Glossary of acoustic terms

Term	Description
dB	Noise is measured in units called decibels (dB). There are several scales for describing noise, the most common being the 'A-weighted' scale. This attempts to closely approximate the frequency response of the human ear.
L_{A1}	The 'A-weighted' noise level which is exceeded 1% of the time.
$L_{A1,1\ minute}$	The 'A-weighted' noise level exceeded for 1% of the specified time period of 1 minute.
L_{A10}	The 'A-weighted' noise level which is exceeded 10% of the time. It is approximately equivalent to the average of maximum noise level.
L_{A90}	Commonly referred to as the background noise level. The 'A-weighted' noise level exceeded 90% of the time.
L_{Aeq}	The energy average noise from a source. This is the equivalent continuous 'A-weighted' sound pressure level over a given period. The $L_{Aeq,15\ minute}$ descriptor refers to an L_{Aeq} noise level measured over a 15-minute period.
L_{Amin}	The minimum 'A-weighted' noise level received during a measuring interval.
L_{Amax}	The maximum root mean squared 'A-weighted' sound pressure level (or maximum noise level) received during a measuring interval.
L_{Ceq}	The equivalent continuous 'C-weighted' sound pressure level over a given period. The $L_{Ceq,15\ minute}$ descriptor refers to an L_{Ceq} noise level measured over a 15 minute period. C-weighting can be used to measure low frequency noise.
Day period	Monday – Saturday: 7 am to 6 pm, on Sundays and Public Holidays: 8 am to 6 pm.
Evening period	Monday – Saturday: 6 pm to 10 pm, on Sundays and Public Holidays: 6 pm to 10 pm.
Night period	Monday – Saturday: 10 pm to 7 am, on Sundays and Public Holidays: 10 pm to 8 am.
Temperature inversion	A meteorological condition where the atmospheric temperature increases with altitude.

It is useful to have an appreciation of decibels (dB), the unit of noise measurement. Table 2.2 gives an indication as to what an average person perceives about changes in noise levels. Examples of common noise levels are provided in Figure 2.1.

Table 2.2 Perceived change in noise

Change in sound pressure level (dB)	Perceived change in noise in surrounding environment
up to 2	not perceptible
3	just perceptible
5	noticeable difference
10	twice (or half) as loud
15	large change
20	four times (or quarter) as loud



Source: Road Noise Policy (Department of Environment, Climate Change and Water 2011)

Figure 2.1 Common noise levels

3 Noise limits

3.1 Operational and sleep disturbance noise limits

Ashton Coal noise limits are provided in Table 1, Condition 2 of Appendix 6 of the DC and Condition L4.1 of the EPL. Extracts of the relevant sections of the DC and EPL pertaining to noise are provided in Appendix A and B, respectively. The approved NMP adopts three attended noise monitoring locations that are representative of residences outlined in the DC. The noise monitoring locations and relevant criteria are summarised in Table 3.1.

Table 3.1 Noise impact assessment criteria

Monitoring location	Day $L_{Aeq,15\ minute}$, dB	Evening $L_{Aeq,15\ minute}$, dB	Night $L_{Aeq,15\ minute}$, dB	Night $L_{A1,1\ minute}$, dB
N2	38	38	36	46
N3	38	38	36	46
N4	38	38	36	46

The DC and the EPL specify the following meteorological conditions under which noise limits do not apply:

- during periods of rain or hail;
- average wind speed at microphone height exceeds 5 m/s;
- wind speeds greater than 3 m/s at 10 metres above ground level; and
- temperature inversion conditions greater than 3°C/100m.

For this assessment, the recorded L_{Amax} has been used as a conservative estimate of the $L_{A1,1\ minute}$. The INP application notes state that the EPA accepts sleep disturbance analysis based on either the $L_{A1,1\ minute}$ or L_{Amax} metrics (EPA 2013), with use of L_{Amax} resulting in a more conservative assessment.

The DC and EPL state that modification factor corrections in the application notes to the INP (2017) shall be applied to the measured mine noise levels where applicable. The application notes to the INP state that Fact Sheet C of the NPfI (EPA 2017) now applies regarding the application of modifying factors.

3.2 Cumulative noise criteria

Ashton Coal cumulative noise limits are provided in Condition 5 and Condition 6 of Schedule 3 of the DC. An extract of the conditions relevant to cumulative noise criteria is provided here.

> 5. The Applicant must implement all reasonable and feasible measures to ensure that the noise generated by the Ashton Mine Complex combined with the noise generated by other mines in the vicinity does not exceed the criteria in Table 4 at any residence on any privately-owned land or on more than 25 per cent of any privately-owned land (except for the noise affected residential receivers in Table 1).

Table 4: Cumulative Noise Criteria dB(A) $L_{Aeq\ (period)}$

Location	Day	Evening	Night
Camberwell Village	55	45	40
All other privately-owned land	50	45	40

> Cumulative noise is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 8 sets out the requirements for evaluating compliance with these criteria.
>
> 6. If the cumulative noise generated by the Ashton Mine Complex combined with the noise generated by other coal mines in the vicinity exceeds the criteria in Table 5 at any residence on privately-owned land or more than 25 per cent of any privately-owned land (except for the noise-affected residential receivers ion Table 1), then upon receiving a written request from the landowner, the Applicant must, together with the relevant mines, acquire the land on as equitable basis as possible, in accordance with the procedures in conditions 7 and 8 of schedule 4.

Table 5: Cumulative Noise Acquisition Criteria dB(A) $L_{Aeq\ (period)}$

Location	Day	Evening	Night
Camberwell Village	60	50	45
All other privately-owned land	55	50	45

> Cumulative noise is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 8 sets out the requirements for evaluating compliance with these criteria.

3.3 Low frequency noise criteria

Condition 3 of Appendix 8 of the DC states that noise generated by Ashton Coal is to be measured in accordance with the relevant requirements of the INP. The INP application notes state that Section 4 of the INP has been withdrawn and the modifying factor adjustments outlined in Fact Sheet C of the NPfI are to be used when assessing the characteristics of a noise source.

Fact sheet C of the NPfI (EPA 2017) provides guidelines for applying modifying factor corrections to account for low frequency noise emissions. The NPfI specifies that a difference of 15 dB or more between site 'C-weighted' and site 'A-weighted' noise emission levels identifies the potential for an unbalanced spectrum and potential increased annoyance.

Where a difference of 15 dB or more between site 'C-weighted' and site 'A-weighted' noise emission levels is identified, the one-third octave noise levels recorded should be compared to the values in Table C2 of the NPfI (EPA 2017), which has been reproduced in Table 3.2 below.

Table 3.2 One-third octave low-frequency noise thresholds

	One-third octave $L_{Zeq,15\ minute}$ threshold level												
Frequency (Hz)	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**	**50**	**63**	**80**	**100**	**125**	**160**
dB (Z)	92	89	86	77	69	61	54	50	50	48	48	46	44

The following modifying factor correction is to be applied where the site 'C-weighted' and site 'A-weighted' noise emission level is 15 dB or more and:

- where any of the one-third octave noise levels in Table 3.2 are exceeded by up to and including 5 dB and cannot be mitigated, a 2 dB positive adjustment to measured/predicted A-weighted levels applies for the evening/night period; or

- where any of the one-third octave noise levels in Table 3.2 are exceeded by more than 5 dB and cannot be mitigated, a 5 dB positive adjustment to measured/predicted A-weighted levels applies for the evening/night period.

Hence, where relevant throughout each survey the operator has estimated the difference between site 'C-weighted' and site 'A-weighted' noise emission levels by matching audible sounds with the response of the analyser (L_{Ceq}-L_{Aeq}). Where this was deemed to be 15 dB or greater, the measured one-third octave frequencies have been compared to the values in Table 3.2 to identify the relevant modifying factor correction (if applicable). This method has been applied to this assessment as presented in Section 5.

It is of note that the NPfI (EPA 2017) states that low-frequency noise corrections only apply under the standard or noise-enhancing (i.e. applicable) meteorological conditions.

4 Assessment methodology

4.1 Attended noise monitoring

To quantify noise emissions from Ashton Coal, 15-minute attended noise monitoring surveys were completed at representative locations as per the approved NMP. Noise monitoring locations and their coordinates are listed in Table 4.1 and are shown in Figure 4.1.

Table 4.1 Attended noise monitoring locations

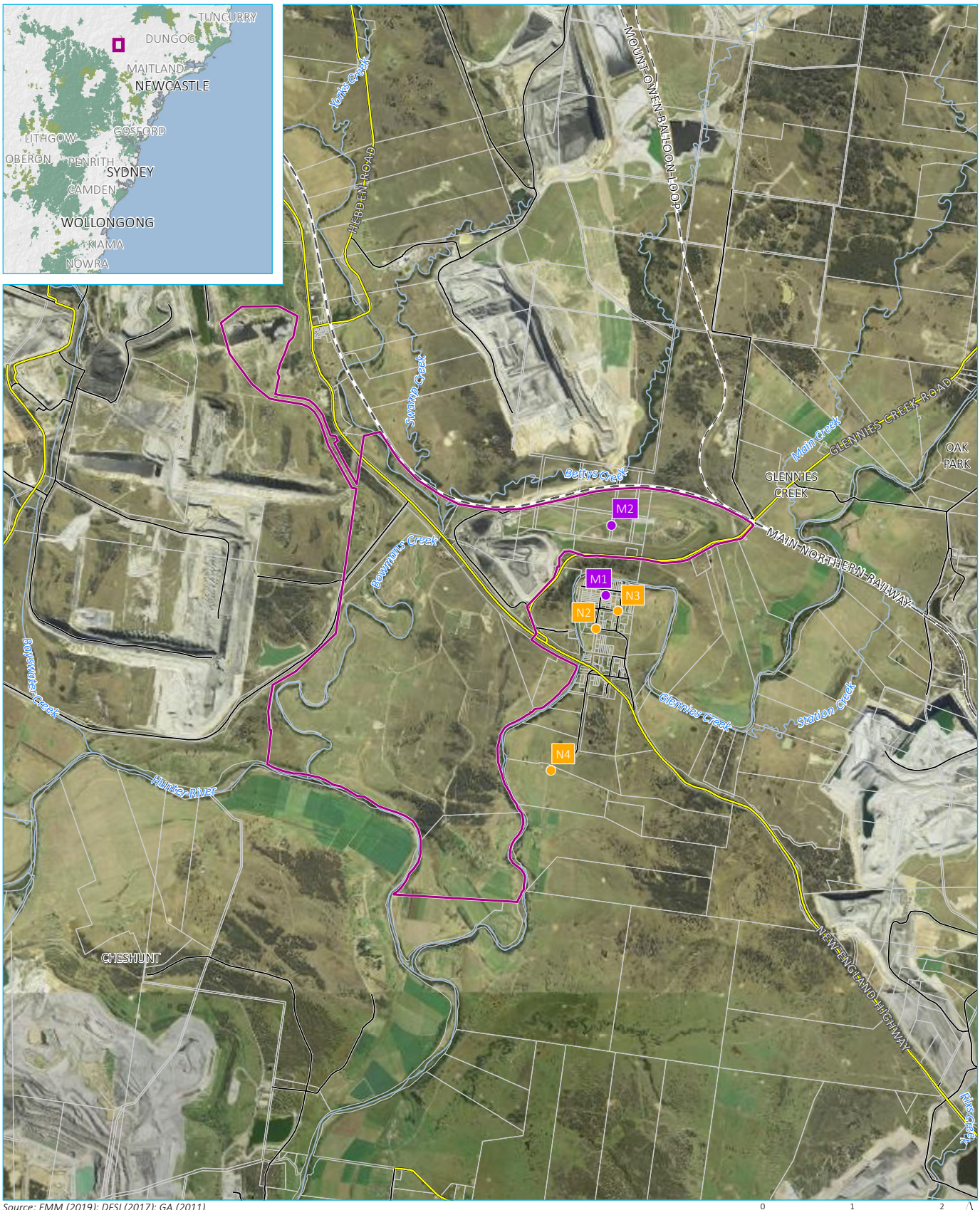
Monitoring location	Description	MGA56	
		Easting	Northing
N2	Camberwell Village (west)	320297	6405670
N3	Camberwell Village (north east)	320554	6405839
N4	South of New England Highway	319776	6404101

Attended noise monitoring is scheduled to be "unannounced" and, to EMM's knowledge, Ashton Coal were not aware of the monitoring prior to its commencing. Noise monitoring is avoided during any scheduled downtime or major maintenance. Information provided by Ashton Coal after the noise monitoring was completed confirmed that regular operations were occurring during the monitoring period.

Where possible throughout each survey, the operator has quantified the contribution of each significant noise source. This was done by matching audible sounds with the response of the analyser (where applicable) and/or via post-analysis of data (e.g. low pass filtering).

4.2 Instrumentation

A Brüel & Kjær 2250 Type 1 sound analyser (s/n 2759405) was used to conduct 15-minute attended measurements and record 1/3 octave frequency and statistical noise indices. The sound analyser was calibrated before and on completion of the survey using a Brüel & Kjær type 4230 calibrator (s/n 1276091). The instrumentation's calibration certificates are provided in Appendix C.



Source: EMM (2019); DFSI (2017); GA (2011)

0 1 2 km

GDA 1994 MGA Zone 56

N

KEY

- Site boundary
- Noise monitoring location
- Meteorological station
- Rail line
- Main road
- Local road
- Watercourse/drainage line
- Cadastral boundary

Noise monitoring locations and Ashton colliery boundary

Ashton Coal
Monthly attended noise monitoring
Figure 4.1

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4.3 Attended noise monitoring exceedance procedure

Ashton Coal has developed an attended monitoring exceedance procedure that is to be implemented if measurements show Ashton Coal noise emissions are above the relevant noise criteria. This response plan is implemented if site noise levels are determined to be above the relevant noise criteria and when noise limits are applicable due to suitable meteorological conditions. The following noise management initiatives are implemented:

- Consultant will record the reading and advise Ashton Coal of the exceedance. Ashton Coal will implement remedial action as required.
- A follow up measurement is to be conducted (within 75 minutes after the first measurement and no earlier than 10 pm).
- If the follow up measurement indicates that site noise levels are above the relevant noise criteria and that noise limits are applicable, the consultant will record the result, note the site has failed and is deemed a 'noise affected night' at that location. An additional monitoring test should be scheduled to be undertaken at the same location within one week and move on to the next monitoring location.
- If the follow up measurement indicates that site noise levels are below the relevant noise criteria and that noise limits are applicable, the consultant will record the result, note the site has passed, schedule an additional monitoring test to be undertaken at the location within one week and move on to the next monitoring location.

4.4 Determination of stability category

As per Condition L4.4, this assessment determined the stability categories throughout the attended monitoring period using the direct measurement method as per Appendix E2 of the INP (EPA 2000).

The temperature lapse rate between the two weather stations (M1 – Sentinex Unit 40 located in Camberwell Village and M2 – Ashton Coal 'repeater' meteorological station located in the north eastern open cut (NEOC) area) was calculated using the following formula:

$$\text{Temperature lapse rate} = (\Delta T) \times (100/(\Delta H))$$

Where:

- ΔT = temperature measured at M2 (at 10 metres above ground level) minus temperature measured at M1 (at 10 metres above ground level); and
- ΔH = the vertical height difference between M2 and M1 (equal to 73 metres).

Table E5 of the INP (EPA 2000) is reproduced in Table 4.2 and presents the stability categories and associated ranges in temperature lapse rates.

Table 4.2 Stability categories and temperature lapse rates

Stability category	Temperature lapse rate (ΔT) (°C/100 m)
A	$\Delta T < -1.9$
B	$-1.9 \leq \Delta T < -1.7$
C	$-1.7 \leq \Delta T < -1.5$
D	$-1.5 \leq \Delta T < -0.5$
E	$-0.5 \leq \Delta T < 1.5$
F	$1.5 \leq \Delta T < 4.0$
G	$\Delta T \geq 4.0$

Source: INP (EPA 2000).

Other meteorological data, such as wind speed, has been sourced directly from meteorological station M1, as the wine vane of meteorological station M2 was offline at the time of the monitoring.

5 Review of data and discussion

5.1 Summary

Results of attended noise measurements are summarised in Table 5.1. Ashton Coal contribution and total mine noise were determined for each survey using in-field observations and post-analysis of data as required (e.g. removing higher frequencies that are not mine related i.e. above 630 Hz). Attended monitoring was completed on 14 April 2020.

The meteorological data for the monitoring period was sourced from Ashton Coal's two weather stations (M1 and M2) to determine applicability of criteria in accordance with the DC and EPL. Noise limits were found to be not applicable during all three measurements due to the presence of a G class stability category at the time of the measurements.

Low frequency noise was conservatively assessed by comparison of the total measured one-third octave L_{Aeq} noise levels to the NPfI one-third octave low-frequency noise thresholds. Measured noise levels did not exceed the relevant LFN thresholds during any of the measurements where Ashton Coal was audible. Therefore, in accordance with the NPfI, LFN modifying factors were found to be not relevant and hence were not applied to estimated site noise levels at any of the locations.

At all locations where site noise was audible, Ashton Coal noise contributions and cumulative mine noise contributions were below (i.e. complied with) the relevant noise limits, where applicable.

Table 5.1 Ashton Coal attended noise monitoring results – April 2020

Location	Date	Start time	Total noise levels, dB							Site contributions, dB			Noise limits, dB		Meteorological conditions[3] limits apply (Y/N)	Exceedance, dB	Comments
			L_{Amin}	L_{A90}	L_{Aeq}	L_{A10}	L_{A1}	L_{Amax}	L_{Ceq}	LFN mod. factor[1]	L_{Aeq}	L_{Amax}[2]	L_{Aeq}	L_{Amax}[2]			
N2	14/4	22:02	37	41	51	55	61	65	62	Nil	35	35	36	46	0.0 m/s (Calm) G class stability 6.6°C/100m VTG N	N/A	**Ashton Coal mine hum consistently audible.** Insects, frogs, traffic on the New England Highway and other mines in the vicinity consistently audible. Train on the main line (unrelated to Ashton Coal), bird noise and distant dogs barking occasionally audible.
N3	14/4	22:19	36	38	45	46	54	70	59	Nil	34	34	36	46	0.2 m/s @ 344° G class stability 6.3°C/100m VTG N	N/A	**Ashton Coal mine hum consistently audible.** Insects, frogs and other mines in the vicinity consistently audible. Traffic on the New England Highway frequently audible. Car passby, aircraft noise and distant dogs barking occasionally audible.
N4	14/4	22:41	36	38	43	46	52	62	62	Nil	31	31	36	46	0.0 m/s (Calm) G class stability 5.3°C/100m VTG N	N/A	**Ashton Coal mine hum consistently audible.** Insects, frogs and other mines in the vicinity consistently audible. Traffic on the New England Highway frequently audible.

Notes:
1. Modifying factor correction for low frequency noise in accordance with Fact Sheet C of the NPfI (refer Section 3.3).
2. For assessment purposes the L_{Amax} and the $L_{A1,1\ minute}$ are interchangeable.
3. Meteorological data were taken as an average over 15 minutes from the Ashton Coal weather station (Refer to Section 5.1). VTG assumes the temperature sensors on the two weather stations are in proper working order and calibrated to manufacturers requirements.
4. IA = inaudible.
5. N/A = not applicable.

5.2 N2 - Camberwell Village (west)

Ashton Coal operations were audible during the entire operator-attended noise survey including consistent conveyor hum. The Ashton Coal mine noise contribution was estimated at up to 35 dB $L_{Aeq,15\ minute}$. Conveyor hum from site generated an estimated 35 dB L_{Amax}. Ashton Coal noise contributions would have complied with the DC and EPL noise limits, had they applied. Other ambient noise sources included other mines in the vicinity, traffic on the New England Highway, insects, frogs, bird noise, distant dogs barking and a train on the main line (unrelated to Ashton Coal).

Mining operations in the vicinity were consistently audible during the operator-attended noise survey at monitoring location N2. The total cumulative mine noise contribution was estimated to be $L_{Aeq,night}$ 37 dB ($L_{Aeq,15\ minute}$ 40 dB - 3 dB as per NPfI methodology) which is below the cumulative mine noise night-time criterion (i.e. $L_{Aeq,night}$ 40 dB). Therefore, the total cumulative mine $L_{Aeq,night}$ noise contribution was below the cumulative mine noise criterion.

5.3 N3 - Camberwell Village (north east)

Ashton Coal operations were audible during the entire operator-attended noise survey including consistent conveyor hum. The Ashton Coal mine noise contribution was estimated at up to 34 dB $L_{Aeq,15\ minute}$. Conveyor hum from site generated an estimated 34 dB L_{Amax}. Ashton Coal noise contributions would have complied with the DC and EPL noise limits, had they applied. Other ambient noise sources included other mines in the vicinity, traffic on the New England Highway, insects, frogs, a car passby, aircraft noise and distant dogs barking.

Mining operations in the vicinity were consistently audible during the operator-attended noise survey at monitoring location N3. The total cumulative mine noise contribution was estimated to be $L_{Aeq,night}$ 34 dB ($L_{Aeq,15\ minute}$ 37 dB - 3 dB as per NPfI methodology) which is below the cumulative mine noise night-time criterion (i.e. $L_{Aeq,night}$ 40 dB). Therefore, the total cumulative mine $L_{Aeq,night}$ noise contribution was below the cumulative mine noise criterion.

5.4 N4 - South of New England Highway

Ashton Coal operations were audible during the entire operator-attended noise survey including consistent conveyor hum. The Ashton Coal mine noise contribution was estimated at up to 31 dB $L_{Aeq,15\ minute}$. Conveyor hum from site generated an estimated 31 dB L_{Amax}. Ashton Coal noise contributions would have complied with the DC and EPL noise limits, had they applied. Other ambient noise sources included other mines in the vicinity, traffic on the New England Highway, insects and frogs.

Mining operations in the vicinity were consistently audible during the operator-attended noise survey at monitoring location N4. The total cumulative mine noise contribution was estimated to be $L_{Aeq,night}$ 34 dB ($L_{Aeq,15\ minute}$ 37 dB - 3 dB as per NPfI methodology) which is below the cumulative mine noise night-time criterion (i.e. $L_{Aeq,night}$ 40 dB). Therefore, the total cumulative mine $L_{Aeq,night}$ noise contribution was below the cumulative mine noise criterion.

6 Conclusion

EMM has completed a review of mine noise from Ashton Coal within the surrounding community based on attended measurements conducted on 14 April 2020.

The applicability of noise limits was assessed with reference to Ashton Coal's two meteorological stations (M1 and M2) located to the east of the site. Noise limits were found to be not applicable during all three measurements due to the presence of a G class stability category at the time of the measurements.

The assessment of noise contributions from site included consideration of modifying factors for noise characteristics where relevant and in accordance with the INP.

Ashton Coal noise contributions and cumulative mine noise contributions were at or below (satisfied) the relevant noise limits at all monitoring locations for this round of monitoring.

References

Ashton Coal Noise Management Plan, 2017.

NSW Department of Planning, Industry and Environment, Development Consent DA309-11-2001-I, 2016.

NSW Environment Protection Authority, Environment Protection License 11879.

NSW Environment Protection Authority, Industrial Noise Policy, 2000.

NSW Environment Protection Authority, Industrial Noise Policy Application notes, 2017.

NSW Environment Protection Authority, Noise Policy for Industry, 2017.

Appendix A

Project approval extract

APPENDIX 6
ALTERNATE NOISE CONDITIONS

NOISE

Application

1. Conditions 2 to 3 below have effect during times when open cut mining operations are not being undertaken at the Ashton Mine Complex, in the opinion of the Secretary.

Noise Criteria

2. Except for the noise-affected land in Table 1 of Schedule 3, the Applicant must ensure that the noise generated by the development does not exceed the criteria in Table 1 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land.

Table 1: Noise Criteria dB(A)

Receiver No.	Receiver	Day ($L_{Aeq\ (15min)}$)	Evening ($L_{Aeq\ (15min)}$)	Night ($L_{Aeq\ (15min)}$)	Night ($L_{A1\ (1\ min)}$)
-	All privately-owned land	38	38	36	46

Noise generated by the development is to be measured in accordance with the relevant requirements of the *NSW Industrial Noise Policy*. Appendix 8 sets out the requirements for evaluating compliance with these criteria.

However, these noise criteria do not apply if the Applicant has an agreement with the relevant owner/s of the residence/land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.

Additional Noise Mitigation Measures

3. Upon receiving a written request from the owner of any residence on any privately-owned land where subsequent operational noise monitoring shows the noise generated by the development exceeds the noise limits in Table 2, the Applicant must implement additional reasonable and feasible noise mitigation measures (such as double glazing, insulation, and/or air conditioning) at the residence in consultation with the owner.

If within 3 months of receiving this request from the landowner, the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Table 2: Additional Noise Mitigation Criteria dB(A) $L_{Aeq\ (15min)}$

Receiver No.	Receiver	Day ($L_{Aeq\ (15min)}$)	Evening ($L_{Aeq\ (15min)}$)	Night ($L_{Aeq\ (15min)}$)
-	All privately-owned land	38	38	38

Notes:

- *Noise generated by the development is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 8 sets out the requirements for evaluating compliance with these criteria.*
- *For this condition to apply, the exceedance of the criteria must be systemic.*

APPENDIX 8
NOISE COMPLIANCE ASSESSMENT

Compliance Monitoring

1. Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.

2. Data collected for the purposes of determining compliance with the relevant conditions of this approval is to be excluded under the following meteorological conditions:
   a) during periods of rain or hail;
   b) average wind speed at microphone height exceeds 5 m/s;
   c) wind speeds greater than 3 m/s measures at 10 m above ground level; and
   d) temperature inversion conditions greater than 3°C/100m.

3. Unless otherwise agreed with the Secretary, this monitoring is to be carried out in accordance with the relevant requirements relating for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to:
   a) monitoring locations for the collection of representative noise data;
   b) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and
   c) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.

4. To the extent that there is any inconsistency between the Industrial Noise Policy and the requirements set out in this Appendix, the Appendix prevails to the extent of the inconsistency.

Determination of Meteorological Conditions

5. Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station located in the vicinity of the site (as required by condition 18 of Schedule 3).

Appendix B

EPL extract

L3 Waste

L3.1 The licensee must not cause, permit or allow any waste to be received at the premises unless specified in this licence.

L3.2 The Licensee must not dispose of waste on the premises unless authorised by a condition of this Licence.

L4 Noise limits

L4.1 Noise from the premises must not exceed the noise limits specified in the table below.

Residences referenced in this table are from the consent DA 309-11-2001-i and summarised in the EPA reference DOC19/761196.

Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night LAeq(15 minute)	Night LAeq(1 minute)
EPA Point 13	38	38	36	46
EPA Point 14	38	38	36	46
EPA Point 15	38	38	36	46
All other privately owned residences	38	38	36	46

L4.2 For the purpose of Condition L4.1:
a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,
b) Evening is defined as the period from 6pm to 10pm, and
c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays

L4.3 The noise emission limits identified in condition L4.1 apply under the following meteorological conditions:

a) wind speeds up to 3m/s at 10m above ground level; and
b) temperature inversion conditions up to 3 degrees C/100m.

L4.4 For the purposes of condition L4.1:

a) Data recorded by the closest and most representative meteorological station installed on the premises at EPA Identification Point 12 must be used to determine meteorological conditions; and
b) Temperature inversion conditions (stability category) are to be determined by the methods referred to in Fact Sheet D of the Noise Policy for Industry (2017) using EPA Identification Points 12 and 32.

4 Operating Conditions

Appendix C

Calibration certificates

CERTIFICATE OF CALIBRATION

CERTIFICATE NO: 26290

EQUIPMENT TESTED: Sound Level Calibrator

Manufacturer: B & K
Type No: 4230 **Serial No:** 1276091
Owner: EMM Consulting
Level 3, 175 Scott Street
Newcastle, NSW 2300

Tests Performed: Measured output pressure level was found to be:

Parameter	Pre-Adj	Adj Y/N	Output: (db re 20 µPa)	Frequency: (Hz)	THD&N (%)
Level 1:	NA	N	93.84	990.59	2.82
Level 2:	NA	N	NA	NA	NA
Uncertainty:			±0.11 dB	±0.05%	±0.20 %
Uncertainty (at 95% c.l.) k=2					

CONDITION OF TEST:
Ambient Pressure: 1007 hPa ±1.5 hPa **Relative Humidity:** 49% ±5%
Temperature: 24 °C ±2° C
Date of Calibration: 05/02/2020 **Issue Date:** 05/02/2020
Acu-Vib Test Procedure: AVP02 (Calibrators)
Test Method: AS IEC 60942 - 2017
CHECKED BY: KB **AUTHORISED SIGNATURE:** .....
Jack Rielt

.Accredited for compliance with ISO/IEC 17025 - Calibration
The results of the tests, calibration and/or measurements included in this document are traceable to Australian/national standards.
The uncertainties quoted are calculated in accordance with the methods of the ISO Guide to the Uncertainty of Measurement and quoted at a coverage factor of 2 with a confidence interval of approximately 95%.

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WORLD RECOGNISED ACCREDITATION
Accredited Lab. 9262
Acoustic and Vibration Measurements

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CERTIFICATE NO.: SLM 26291 & FILT 5615

The performance characteristics listed below were tested. The tests are based on the relevant clauses of IEC 61672-3:2013

Tests Performed:	*Clause*	*Result*
Absolute Calibration	10	Pass
Acoustical Frequency Weighting	12	Pass
Self Generated Noise	11.1	Entered
Electrical Noise	11.2	Entered
Long Term Stability	15	Pass
Electrical Frequency Weightings	13	Pass
Frequency and Time Weightings	14	Pass
Reference Level Linearity	16	Pass
Range Level Linearity	17	NA
Toneburst	18	Pass
Peak C Sound Level	19	Pass
Overload Indicator	20	Pass
High Level Stability	21	Pass

Statement of Compliance: The sound level meter submitted for testing has successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed. As public evidence was available, from an independent organization responsible for approving the results of pattern evaluation tests performed in accordance with IEC 61672-2:2013, to demonstrate that the model of sound level meter fully conformed to the requirements in IEC 61672-1:2013, the sound level meter submitted for testing conforms to the class 1 requirements of IEC61672-1:2013.
A full technical report is available if required.

This Sound Level Meter included an Octave Filter Set. Tests were based on IEC 1260: 1995 and AS/NZS 4476 - 1997 and were conducted to test the following performance characteristics:

1. Relative attenuation clause 5.3

Date of Calibration: 05/02/2020 **Issue Date:** 05/02/2020

Checked by: IKB

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CERTIFICATE OF CALIBRATION

CERTIFICATE NO.: SLM 26291 & FILT 5615

Equipment Description:	Sound Level Meter		
Manufacturer:	B & K		
Model No:	2250	**Serial No:**	2759405
Microphone Type:	4189	**Serial No:**	2888134
Preamplifier Type:	ZC0032	**Serial No:**	16037
Filter Type:	1/3 Octave	**Serial No:**	2759405
Comments:	All tests passed for class 1. (See over for details)		
Owner:	EMM Consulting Level 3, 175 Scott Street Newcastle, NSW 2300		
Ambient Pressure:	1007 hPa ±1.5 hPa		
Temperature:	24 °C ±2° C	**Relative Humidity:**	53% ±5%
Date of Calibration:	05/02/2020	**Issue Date:**	05/02/2020
Acu-Vib Test Procedure:	AVP10 (SLM) & AVP06 (Filters)		

CHECKED BY: JKB **AUTHORISED SIGNATURE:** ..... Jack Kielt

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