



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT SYSTEM**

Document Owner:	Environmental Superintendent
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Revision Period:	3 years
Issue:	6A
Last Revision Date:	02/08/2023

WHC_PLN_NAR_NOISE MANAGEMENT PLAN

NOISE MANAGEMENT PLAN

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ACRONYMS USED THROUGHOUT THIS DOCUMENT

AS	-	Australian Standard
CCC	-	Community Consultative Committee
CHPP	-	Coal Handling and Preparation Plant
dB	-	Decibel
dB(A)	-	A-weighted decibel
DPE	-	Department of Planning and Environment
EA	-	Environmental Assessment
EPA	-	Environment Protection Authority
EPL	-	Environment Protection Licence
EMS	-	Environmental Management Strategy
ha	-	hectare
ISO	-	International Standards Organisation
NCOPL	-	Narrabri Coal Operations Pty Ltd
NMP	-	Noise Management Plan
PA	-	Project Approval
RBL	-	Rating Background Level
TARP	-	Trigger Action Response Plan



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1 INTRODUCTION

1.1 Introduction

The Narrabri Mine is located approximately 30km south-southeast of Narrabri, and 10km north-northwest of Baan Baa (see Figure 1). The mine is operated by Narrabri Coal Operations Pty Ltd (NCOPL) as an underground mining operation.

The mine lies within a 5,298 hectare (ha) area covered by mining lease ML 1609 (“the mine site”), with an indicative mining area of approximately 3,630ha, and a surface facilities area of approximately 457ha.

The mine operates under Environment Protection Licence (EPL) 12789 and Project Approval (PA) 08_0144, which was granted by the Minister for Planning on 26 July 2010, as modified, and incorporates:

- Underground longwall mining with an annual production rate of 11 Mtpa;
- Mine ventilation and gas drainage;
- Mine dewatering;
- Processing, stockpiling and loading of coal, which includes construction of a Coal Handling and Preparation Plant (CHPP);
- Placement of processing reject and storage of saline water;
- Construction and use of a water pipeline from the Namoi River;
- Transportation of the coal from the mine site to Port Newcastle via train;
- Final rehabilitation of surface disturbance following completion of the project; and
- All ancillary and related activities.

It is recognised that the operation of the Narrabri Mine has the potential to generate noise impacts within and beyond the boundaries of the mine site. In order to manage the potential for impacts on noise amenity, and in compliance with Schedule 4, Condition 4 of PA 08_0144, this Noise Management Plan (NMP) has been developed.

The initial NMP for the Stage 2 Longwall Project was prepared by Spectrum Acoustics in consultation with the Environmental Protection Authority (EPA). This plan has been developed with reference to relevant legislation, approvals and guidelines in accordance with Schedule 6, Condition 2 of PA 08_0144.

The area surrounding the mine is utilised for agricultural or forestry purposes and prior to the development of the mine was not subjected to significant noise levels from transportation or industrial sources (i.e. present for a high proportion of time). Therefore, the Rating Background Level (RBL) was determined to be at or below 30dB(A) (L90) at all receivers during day, evening and night periods.



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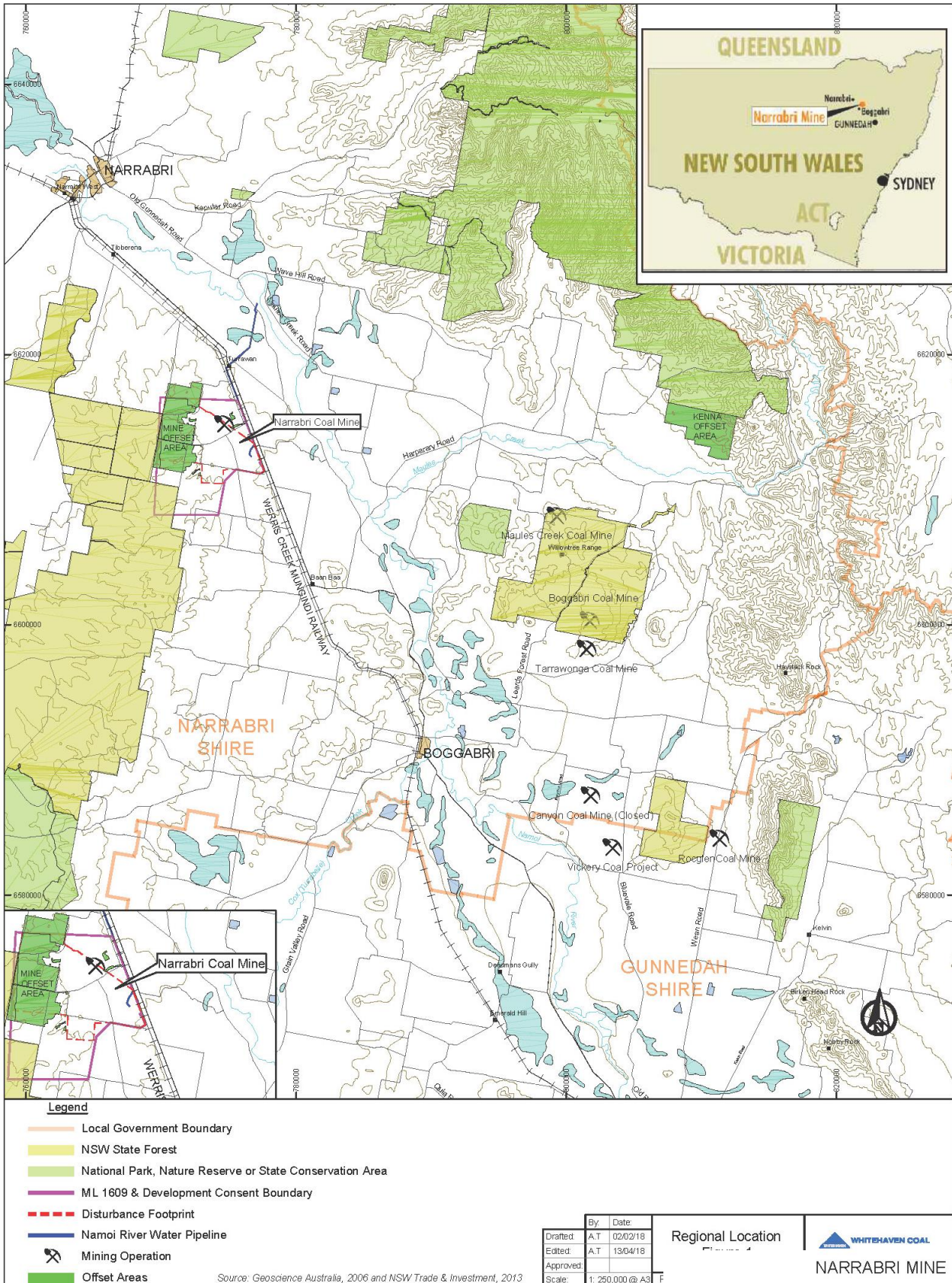


Figure 1: Narrabri Mine Location



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As outlined in the NSW Noise Policy for Industry (EPA, 2017), noise levels below 30dB(A) shall be taken as 30dB(A) for the purposes of assessing industrial noise. As such the 30dB(A) (L90) background level was adopted for all residential receivers in the Stage 2 Longwall Project Environmental Assessment (EA) (R.W. Corkery, 2009). For further details on the baseline noise data refer to the Stage 2 Longwall Project EA and previous Annual Reviews.

The noise model for PA 08_0144 Modification 5 EA (Resource Strategies, 2015) predicted that two privately-owned properties would be subject to noise levels >35dB(A), based on worst case conditions that include temperature inversions. NCOPL has entered into a private agreement with one of the properties and the other property has since been purchased by NCOPL.

The operational fleet that forms the basis of the modelling is presented in Table 1.

Table 1: Noise Source Sound Power Levels

Operational noise sources ¹	Number	Sound Power Level (dB)
Conveyors	-	80db/m
Dozer at stockpile	2	117
	2	118
Crusher (attenuated)	1	103
CHPP (attenuated)	1	111
Bypass Crusher (attenuated)	1	107
Rail Load-out	1	102
Workshop	1	95
Ventilation fans (attenuated)	1	117
Goaf drainage fan	1	115
Personnel carrier	1	110
Locomotives idling on rail loop	1	102
Truck at rejects	1	107
Dozer at rejects	1	107
Water cart	1	105
Gas drainage pumps	>10	102
Drill	2	109
TOTAL sound power	-	125

Note 1: The sound power levels of the CHPP, bypass crusher, dozers and ventilation fans have been updated based on onsite sound power level measurements.

1.2 Noise Management

The noise impact assessment criteria as applicable under PA 08_0144 are presented in Section 2.3. In effect, the NMP:

- Identifies the noise impact assessment criteria for the mine;
- Identifies the measures that will be implemented to ensure compliance with noise limits and minimise noise impacts;
- Proposes noise monitoring programs, incorporating real time noise and continuous temperature inversion monitoring and attended monitoring, to assess and actively manage noise impacts and then report the levels of impact in relation to the mining and ancillary activities identified in Section 1.1, but limited to transport on private sections of road/rail; and
- Provides a mechanism whereby any noise complaint can be dealt with quickly and effectively.



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The NMP has been prepared with reference to relevant legislation and guidelines and is consistent with the commitments in the following documentation:

- Noise and Vibration Impact Assessment – included as Volume 2 (Part 6) of the Specialist Consultant Studies Compendium accompanying an Environmental Assessment for the Narrabri Coal Mine Stage 2 Project;
- Final Statement of Commitments for the Narrabri Coal Mine Stage 2 Project – specifically commitments 10.1-10.22; and
- The PA 08_0144 Modification 7 EA.

1.3 **Purpose and Scope**

The purpose of this NMP is to identify the standards and procedures necessary for effective noise management at the mine and to assign responsibilities to personnel to undertake these tasks.

This plan applies to noise management associated with the surface components of the mine, which includes the underground ventilation infrastructure located on the surface.

1.4 **Noise Management Revisions and Consultation**

The Stage 2 NMP was prepared by Spectrum Acoustics, approved as the experts to develop the plan by the Department of Planning and Environment (DPE) (formerly the Department of Planning, Industry and Environment) in May 2011, and approved on 6 December 2011. The last revision to the NMP was approved by the DPE on 5 June 2018.

This revision of the NMP (Revision 6A) includes minor updates to ensure the plan remains up to date in accordance with Schedule 6 Condition 3 of PA 08_0144.

Previous revisions of the NMP have been supplied to the EPA as required by PA 08_0144 and all correspondence to date has resulted in advice from the EPA that comments on management plans will not be provided.



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2 STATUTORY REQUIREMENTS

This NMP has been prepared to fulfil the requirements of relevant legislation, approved conditions, commitments from the Stage 2 EA and relevant standards and guidelines.

2.1 Relevant Legislation

The *Protection of the Environment Operations Act 1997* (POEO Act) is the principal piece of legislation governing noise emissions in NSW. The POEO Act requires an EPL be held for scheduled activities which include coal mining. NCOPL hold EPL 12789.

2.2 Noise Management Plan Requirements

The requirements of PA 08_0144 with respect to this NMP are contained within Schedule 4, Conditions 4 and 5, and Schedule 6, Condition 2, refer to Table 2 below.

Table 2: Approval Conditions and Relevant NMP Sections

Project Approval Condition	Section of Document
<p>Noise Management Plan (Schedule 4, Condition 4)</p> <p>The Proponent shall revise the Noise Management Plan for the Stage 1 project to encompass all proposed mine activities and potential impacts associated with noise management (Stages 1 and 2) and subsequently implement the revised version of this Noise Management Plan to the satisfaction of the Secretary. This plan shall:</p>	This Document
(a) be prepared in consultation with EPA by a suitably qualified expert whose appointment has been approved by the Secretary;	1.4
(b) be submitted to the Secretary for approval by the 30 June 2011;	N/A
(c) include a noise monitoring program incorporating: <ul style="list-style-type: none"> • real time noise and temperature inversion monitoring; and • Attended noise monitoring to monitor the performance of the project;	5
(d) include reactive noise control measures to manage noise impacts for sensitive receivers; and	3, 4 and 5.1.2
(e) include a protocol to establish whether the project is complying with the noise impact assessment criteria in Table 1.	3.8
<p>Continuous Improvement (Schedule 4, Condition 5)</p> <p>The Proponent shall:</p>	
(a) implement all reasonable and feasible best practice noise mitigation measures;	3
(b) investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance; and	6.2
(c) report on these investigations and the implementation and effectiveness of these measures in the Annual Review,	6.2



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Project Approval Condition	Section of Document
to the satisfaction of the Secretary.	
Management Plan Requirements (Schedule 6, Condition 2) The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	This Document
(a) detailed baseline data;	1.1
(b) a description of;	-
<ul style="list-style-type: none"> • the relevant statutory requirements (including any relevant approval, licence or lease conditions); 	2
<ul style="list-style-type: none"> • any relevant limits or performance measures/criteria; 	2.3
<ul style="list-style-type: none"> • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures; 	3, 5
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	3, 5
(d) a program to monitor and report on the;	-
<ul style="list-style-type: none"> • impacts and environmental performance of the project; 	5
<ul style="list-style-type: none"> • effectiveness of any management measures (see (c) above); 	6
(e) a contingency plan to manage any unpredicted impacts and their consequences;	4.3
(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	6.2
(g) a protocol for managing and reporting any:	-
<ul style="list-style-type: none"> • incidents; 	5.4.2
<ul style="list-style-type: none"> • complaints; 	4.2
<ul style="list-style-type: none"> • non-compliances with statutory requirements; and 	4.1
<ul style="list-style-type: none"> • exceedances of the impact assessment criteria and/or performance criteria; and 	4
(h) a protocol for periodic review of the plan.	6.1.1

2.3 Noise Impact Assessment Criteria

Noise impact assessment criteria for the development were established during the environmental assessment phase using relevant guidelines identified in Section 2.7. These criteria have been incorporated in PA 08_0144 Schedule 4, Condition 1 to 3 which states:

- 1) *The Proponent shall ensure that the noise generated by the project does not exceed the levels set out in Table 1.*



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Table 1: Impact assessment criteria dB(A)

Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night	
			LAeq(15 minute)	LA1(1 minute)
All Privately owned Residences	35	35	35	45

Notes:

- To determine compliance with the $LA_{eq(15\text{ minute})}$ limit, noise from the project is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary. Where it can be demonstrated that direct measurement of noise from the project is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.
 - These noise limits apply to applicable receivers under all meteorological conditions except for any one of the following:
 - wind speeds greater than 3metres/second at 10 metres above ground level; or
 - stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
 - stability category G temperature inversion conditions.
 - 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, or as otherwise agreed by the Secretary.
 - To determine compliance with the $LA_{1(1\text{ minute})}$ noise limits, noise from the project is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the project is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).
 - These limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.
- 2) If the noise generated by the project exceeds the Criteria in Table 2 at any residence on privately owned land then the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 5-7 of Schedule 7.

Table 2: Noise acquisition criteria dB(A).

Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night
			LAeq(15 minute)
All Privately owned Residences	40	40	40

Note: Noise generated by the project is to be measured in accordance with the notes presented below in Table 1. For this condition to apply the exceedances of the criteria must be systemic.

- 3) If the noise generated by the project is equal to or exceeds the criteria in Table 3 at any residence on privately owned land, then the Proponent shall, upon receiving a written request from the landowner, implement reasonable and feasible noise mitigation measures (such as double glazing, insulation and/or air conditioning) at the residence in consultation with the landowner. If within 3 months of receiving this request from the landowner, the Proponent 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.



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Table 3: Additional noise mitigation criteria.

Location	Day LAeq(15 minute)	Evening LAeq(15 minute)	Night
			LAeq(15 minute)
All Privately owned Residences	38	38	38

Note: Noise generated by the project is to be measured in accordance with the notes presented below Table 1. For this condition to apply, the exceedances of the criteria must be systemic.

These noise criteria should be considered in conjunction with Conditions L4.1 to L4.6 of EPL 12789, which address monitoring requirements, prevailing meteorological conditions and contributing noise sources. The monitoring locations where the impact assessment criteria are to be assessed are specified in EPL 12789, as outlined in Section 5.1.

2.4 Notification Requirements

PA 08_0144 specifies the notification requirements relating to noise impacts and surrounding receivers. In particular Schedule 7, Condition 1 states:

- 1) *If the results of the monitoring required in schedule 4 identify that impacts generated by the project are greater than the relevant impact assessment criteria, except where a negotiated agreement has been entered into in relation to that impact, then the Proponent shall, within 2 weeks of obtaining the monitoring results, notify the Secretary, the affected landowners and tenants (including tenants of mine-owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the criteria in schedule 4.*

2.5 Temperature Inversion Conditions

PA 08_0144 prescribes the meteorological conditions for which the impact assessment criteria do not apply, refer to Section 2.3. The site's EPL 12789 also outlines meteorological conditions that the impact criteria for that licence do not apply, refer to Section L4.5 of EPL 12789. The method for determining temperature inversion conditions onsite is outlined in Section 5.2.

2.6 Continuous Improvement

Schedule 4, Condition 5 of PA 08_0144 outlines the requirements for continuous improvement as stated below:

- 5) *The Proponent shall:*
 - a) *implement all reasonable and feasible best practice noise mitigation measures;*
 - b) *investigate ways to reduce the noise generated by the project, including off-site road and rail noise and maximum noise levels which may result in sleep disturbance; and*
 - c) *report on these investigations and the implementation and effectiveness of these measures in the Annual Review,*

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2.7 Relevant Standards and Guidelines

Guidelines and standards applying to noise at the Narrabri Mine include:

- New South Wales *Noise Policy for Industry*, Environment Protection Authority (EPA) 2017.
- Australian Standard (AS) 1055:2018 – *Acoustics – Description and measurement of environmental noise*.
- AS 2702:1984 – *Acoustics – Methods for the Measurement of Road Traffic Noise*.
- AS/NZS IEC 61672.1:2019 – *Electroacoustics - Sound level meters – Specifications*.



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3 MANAGEMENT SAFEGUARDS AND AMELIORATIVE ACTIONS

The following actions or strategies will be implemented to minimise the potential for noise impacts at residential receivers identified in Section 5.

3.1 Noise Controls

In order to minimise this potential for exceedance the following controls will or have been adopted:

- Prior to being brought onto site, or upon commissioning, all additional plant and equipment will be required to exhibit sound power levels consistent with those identified within the Modification 5 EA (Resource Strategies, 2015) (SoC 10.5);
- Sound power levels for key mobile site equipment, i.e. dozers and drill rigs, are to be reviewed annually. High frequency reversing alarms will not be permitted on key mobile equipment brought onto site or will be rectified as required. Rather, all reversing alarms will be of the broadband frequency type;
- Limit the use of a bulldozer at the Reject Emplacement Area during temperature inversion conditions (SoC 10.12);
- Limit the number of truck movements to the Reject Emplacement Area to 1 load per 15 minute period during temperature inversion conditions (SoC 10.13);
- Limit operation of pre-drainage gas flaring to a maximum of three flaring units at any one time, with flares designed as an enclosed flare surrounding the burner head with a refractory shell that is internally insulated to reduce noise, luminosity and heat radiation in accordance with the enclosed flare method;
- Ensure specific noise attenuation is provided to surface drills when operating over LW118 to LW120 to achieve a sound power level of 109dB(A) (SoC 10.14);
- Utilise hard barriers to noise propagation paths where necessary during drilling operations. The type of barrier to be used will be based on site specific requirements, and may include the use of shipping containers placed strategically around the drilling rig;
- The approved hours of operation (SoC 2.1-2.10 of PA 08_0144) will be adhered to as per SoC 10.1 (refer to Table 3);

Table 3: Approved Hours of Operation

Activity	Hours / Days
Pit Bottom Area development	24 hours / 7 days
Underground mining	24 hours / 7 days
Gas drainage	24 hours / 7 days
Ventilation fan operation	24 hours / 7 days
Coal processing and handling	24 hours / 7 days
Rail loading and transportation	24 hours / 7 days
Surface maintenance	24 hours / 7 days



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CHPP reject disposal	24 hours / 7 days ¹
Raw materials / supply delivery	7:00am to 10:00pm / 7 days
<p>Note: Reject disposal activities will generally be restricted to 7:00am to 10:00pm, 7 days per week. However, it is possible that the proportion of reject material generated by the CHPP may exceed the predicted average 5% level for short periods. To account for these periods of elevated reject production, contingent hours of operation will be 24 hours / 7 days (when inversion conditions do not prevail).</p>	

- NCOPL will utilise the mobile noise units as outlined in Section 5.1.2; and
- Monitoring of emitted noise levels will be undertaken during mining operations to verify compliance with noise criteria and to assess the need, if any, for additional noise attenuation measures.

3.2 Transport Noise Controls

- The site access road is sealed and regularly maintained (SoC 10.18);
- Strict adherence to the approved hours of operation for transport activities will be enforced by mine management (refer to Table 3) (SoC 10.16);
- All project employees and contractors will be instructed to enter and exit the mine site in a courteous manner and without undue traffic noise (SoC 10.17);
- All unsealed access roads will be regularly maintained to limit body noise from empty trucks, signposted and speed limited (40km/hr) to minimise transport noise (SoC 10.18); and
- The rail track within the rail loop is inspected monthly to monitor rail condition and highlight issues requiring rectification.

3.3 Construction Noise Controls

While most construction activities are complete at the site, the following still applies to construction of the brine storage ponds:

- Prior to being brought onto site, or upon commissioning, all additional plant and equipment will be required to demonstrate sound power levels consistent with those identified within the Modification 5 EA (Resource Strategies, 2015) (SoC 10.5);
- Scraper operations will be restricted under temperature inversion conditions until noise compliance is identified (SoC 10.6); and
- The approved hours of operation (SoC 2.1-2.10 of PA 08_0144) will be adhered to, i.e. between the hours of 7:00am to 10:00pm, 7 days per week.

3.4 Other Noise Controls

- Equipment with lower sound power levels will be used in preference to more noisy equipment (SoC 10.2);
- NCOPL will engage with the local community to ensure any concerns in relation to noise are addressed, mainly through the Community Consultative Committee (CCC) and complaints handling (refer Section 4.2) (SoC 10.4); and



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- Where noise exceedances systemic in nature are identified above the noise limits outlined in Section 2.3 at privately-owned residences, negotiated agreements should be sought or the process for property acquisition as outlined in PA 08_0144.

3.5 Risk Management

- All personnel are required to identify, assess and eliminate or control noise management risks at the mine and report these to the Environmental Superintendent; and
- The Environmental Superintendent will update the NMP where appropriate to include control measures identified as a result of risk assessments undertaken as part of the operation of the mine.

3.6 Completed Controls

NCOPL report on completed noise controls in the Annual Review. Completed controls include and are not limited to;

- Replacement of the acoustic attenuators on fan discharge ducts with acoustic baffles on all main ventilation fans;
- Progressive replacement of reversing alarms on all existing surface vehicles and machinery to be of the low frequency type;
- Replacement of coal stockpile bulldozers with units exhibiting lower sound power levels;
- Noise attenuation ring installation to the final drive of the two coal stockpile dozers to reduce the noise of the track slap;
- Routine maintenance of roads and rail;
- Rotary breaker is fully enclosed (SoC 10.10); and
- CHPP is enclosed and 50% of the internal surface is lined with an acoustic insulation (SoC 10.11).

3.7 Noise Model Validation and Review

Noise model validations will be undertaken in response to sustained exceedances recorded at a privately-owned residence or as required for future modifications to PA 08_0144 where noise is identified as a key environmental issue.

3.8 Noise Management Protocol

The noise management protocol establishes proactive controls to ensure compliance with noise impact assessment criteria. It is required by Schedule 4, Condition 4(e) of PA 08_0144.



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Table 4: Noise Management Protocol

Control / Action	Timing / Trigger	Responsibility	Monitoring	Reporting
NCOPL and all contractors will provide environmental training on noise control and awareness for all personnel and sub- contractors.	This training will take place before the commencement of work by any employee, contractor, or sub- contractor whose work is likely to create loud noise.	NCOPL Manager / Individual Contractors.	This awareness training will be incorporated into site inductions.	The effectiveness of this control will be monitored by the Environmental Superintendent and will be reported annually in the Annual Review.
Mining equipment will be required to satisfy maximum sound power levels as specified in Table 1 of this NMP.	Mining equipment used on site must be certified as compliant with the relevant noise standard and will be tested on site entry.	Contract Coordinators / Environmental Superintendent.	Key mobile mining equipment noise levels will be reviewed annually.	Sound power levels of key mining equipment will be recorded.
Site equipment will be selected so as to have the lowest practical level of sound emission and will be maintained in good order.	This will be a continual process.	Contract Coordinators / Environmental Superintendent.	Noisy equipment is to be highlighted in regular mechanical inspections. Maintenance records are to be maintained and provided upon request.	Annual Review
Due attention will be paid to adverse weather conditions, so that modifications can be made to the work program where necessary. A real time link between monitoring equipment and the site is in place advising of adverse meteorological conditions (e.g. temperature inversion conditions, windy conditions).	This will be a continual process.	NCOPL Manager / Supervisors / Individual Contractors	On-site monitoring will highlight adverse conditions. The effectiveness of this will also be determined in the community consultation process.	Annual Review
All reversing alarms on key mobile equipment will be of the broadband type.	Before use of machinery on site.	Contract Coordinators / Individual Contractors.	General monitoring and observation by NCOPL personnel.	Annual Review
All complaints will be registered and responded to in accordance with the complaints procedure in the NMP.	Whenever a complaint is received.	Environmental Superintendent.	This control will be monitored in the complaints handling and follow-up process.	Annual Review



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Control / Action	Timing / Trigger	Responsibility	Monitoring	Reporting
Attended monitoring of emitted noise levels will be undertaken to verify compliance with noise criteria and to assess the need for additional noise attenuation measures.	On a quarterly basis for attended monitoring.	Environmental Superintendent.	By suitably qualified acoustical consultant.	Monitoring results and the effectiveness of any controls used will be reported in the relevant AR. Exceedances will be reported as outlined in Section 5.4.2.
Real time monitoring of emitted noise levels will be undertaken to assist in managing the operation and to assess the need for additional noise attenuation measures.	On a continuous basis by real time noise monitors.	Environmental Superintendent.	Trained NCPOL employee.	Monitoring results and the effectiveness of any controls used will be reported in the relevant Annual Review.
Temperature inversion incidence and strength will be monitored continuously.	On a continuous basis.	Environmental Superintendent.	Trained NCOPL employee.	Monitoring results and the effectiveness of any controls used will be reported in the Annual Review.
Contingency actions will be implemented in accordance with Sections 3.4, 4.1, 4.3, and 6.1.2.	When noise criteria exceedances are identified.	Environmental Superintendent.	Attended and real-time noise monitoring.	Exceedances will be notified in accordance with Section 5.4.2 and reported in the Annual Review.



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4 MANAGEMENT OF EXCEEDANCES, COMPLAINTS AND NON-COMPLIANCE

The following management measures for exceedances and non-compliances do not relate to:

- mine-owned residences; or
- privately-owned residences where private agreements are in place and the DPE have been advised in writing of the terms of the agreement.

Should sustained exceedances/non-compliances at these locations be recorded then NCOPL will consider extending the monitoring program to the nearest privately-owned residences to assess compliance.

4.1 Noise Impact Assessment Criteria Exceedances

If attended noise monitoring results exceed the levels outlined in Section 2.3 and taking into consideration Section 11.1.3 of the *Noise Policy for Industry*, i.e. measured noise levels must exceed the relevant criterion by 2 dB before the development is 'deemed to be in non-compliance', notifications will be made as soon as practicable (as outlined in Section 5.4.2 and advice will be sought to identify options to address noise related impacts. Such actions will include:

- Additional testing within 1 month to confirm the elevated noise is sustained in nature. Further discussion will be undertaken with EPA and DP&E regarding additional monitoring requirements to determine whether a sustained exceedance constitutes a non-compliance;
- Consideration to changes to operational procedure or equipment type; and
- The installation of sound attenuation measures to plant and equipment, where necessary.

Where it is identified that the above options cannot achieve compliance with noise criteria, confirmed through attended noise monitoring, NCOPL will undertake negotiations with the affected landowners with a view to entering into private agreements. Such negotiations may include options with regard to provision of insulation, double-glazing of windows, air-conditioning, or other measures designed to reduce noise impact at the affected property in accordance with conditional requirements.

Only attended noise monitoring will be utilised to determine compliance. Real time monitoring will be used for operational management purposes only.

4.1.1 Independent Review and Land Acquisition

If an owner of privately-owned land considers the mine to be exceeding noise compliance criteria, they may ask the Secretary in writing for an independent review of the impacts on their land. Conditions 3 and 4 of Schedule 7 of PA 08_0144 specify the independent review process.

Within 3 months of receiving a written request from a landholder with acquisition rights, NCOPL shall make a binding written offer as detailed in Conditions 5-7, Schedule 7 of PA 08_0144. Noise acquisition criteria are specified in Schedule 4, Condition 2 while Schedule



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7, Condition 6 requires NCOPL to pay all reasonable costs associated with the land acquisition process.

4.2 Complaints Handling

NCOPL will provide an initial response to any complaint within 24 hours of receipt of the complaint. As per EPL 12789 Condition M5 and E2, any complaints made to NCOPL will be recorded with the below details.

M5.1 The Licencee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activities to which the license applies.

M5.2 The record must include details of the following:

- a) *The date and time of the complaint*
- b) *The method by which a complaint was made*
- c) *Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;*
- d) *The nature of the complaint*
- e) *The action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and*
- f) *If no action was taken by the licensee, the reasons why no action was taken.*

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

E2.1 Noise impacts where wind speeds exceeds 3 metres per second at 10 metres above the ground must be addressed by:

- a) *Documenting noise complaints received to identify any higher level of impacts or wind patterns;*

where levels of noise complaints indicated a higher level of impact then actions to quantify and ameliorate any enhanced impacts where wind speed exceeds 3 metres per second at 10 metres above the ground should be developed and implemented.

In addition, the following actions will be undertaken:

- A publicly advertised telephone complaints line will be in place to receive complaints during operating hours and record complaints at other times.
- A complaint form completed.
- If necessary, follow-up monitoring comprising attended $L_{Aeq(15 \text{ minute})}$ measurements during the day, evening and night periods will be undertaken to confirm the source of the complaint is adequately mitigated.
- A summary of the complaints will be kept in a Complaints Register by NCOPL and made available to the NCOPL CCC, the complainant (on request) and on the Whitehaven website. A summary of complaints received every 12 months will be provided to the DPE, Narrabri Shire Council, EPA, and the CCC through the Annual Review.



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Based on the nature of individual complaints and the noise levels recorded, mitigation measures and/or acquisition rights could be triggered if the levels recorded are above those specified in Section 2.3 and are systemic in nature.

4.3 Contingency Measures

If noise levels at any residence exceed the levels outlined in Section 2.3, advice will be sought to identify options to address noise related impacts. Such actions will include:

- Additional testing to confirm the elevated noise is systemic in nature;
- Additional testing to confirm the equipment has a sound power level that was identified in the Stage 2 EA;
- Implement any reasonable and feasible mitigation measures identified by the acoustic consultant;
- Consider changes to operational procedures or equipment types; and
- The installation of sound attenuation measures to plant and equipment, where necessary, to ensure that noise emissions comply with the relevant noise levels in Section 3.1.

Where it is identified that the above options cannot achieve compliance with the noise criteria, NCOPL will undertake negotiations with the affected landowners with a view to entering into private agreements (refer to Section 4.1). Should an agreement not be reached then the landowner could request acquisition as outlined in Section 4.1.1.



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5 MONITORING AND REPORTING

Periodic (attended) and real-time (continuous) monitoring of noise levels is required in accordance with Condition 4, Schedule 4 of PA 08_0144, which is reproduced in Section 2.3 of this NMP.

5.1 Noise Monitoring Programs

Noise monitoring includes attended monitoring at the residences identified on Figure 2 and Table 5 as well as real-time noise monitoring and temperature inversion monitoring. The real-time monitoring is used to assess performance and the attended monitoring is used to determine compliance with the noise impact assessment criteria outlined in Section 2.3. Temperature inversion monitoring is undertaken to verify impact of temperature inversions on noise compliance.

The monitoring program is designed to be specific, measurable, achievable, realistic and timely (SMART). Specific targets are established in Section 2.3. Measurable, achievable, and realistic monitoring methods are described below in Section 5, while the timeliness of each method is also provided.

5.1.1 Attended Noise Monitoring

The attended monitoring is undertaken on a quarterly basis over a period of three (3) consecutive days. In circumstances where the attended monitoring program does not provide conditions conducive to validation monitoring over the three days (i.e. wind speed and/or inversions outside the valid range of values in Condition 1, Schedule 4 of PA 08_0144) then within one (1) month an additional set of monitoring will be conducted at a time that covers those events. The locations of attended noise monitoring sites are shown in Figure 2.

In circumstances where noise complaints are made relating to operations at the mine site, additional targeted noise investigations may also be undertaken at those receivers in order to assess and/or validate the complaint, refer to Section 4.2.

Attended noise monitoring events target times when the mine is in full operation to ensure maximum potential affectation of low frequency noise is assessed, particularly during operations of the rail load out facility, and operation of the CHPP.

5.1.2 Real Time Noise Monitoring

In order to actively manage noise emissions onsite and to adequately comply with the requirement for proactive noise control measures (outlined in Section 3), NCOPL maintains a real time continuous noise management system.

The key features of the monitoring system are as follows:-

- Real time access to monitoring information;
- Alarms generated based on certain parameters that include 15-minute noise levels approaching compliance limits;
- Universal user interface platform (web browser);
- Automatic daily reporting;



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- Streaming audio to PC; and
- Continuous audio recording (.mp3 format).

Attended monitoring will be used to ensure calibration of the monitor and to assess inversion related impacts.

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Table 5: Noise Monitoring Program

Identification	Parameter	Location	Monitoring type	Unit of measure	Frequency	Responsibility
N5 ¹	Ambient noise	Within 30 m of the residence on the property "Oakleigh"	Attended	LA _{eq} (15minute) LA _{max} LA ₁ LA ₁₀ LA ₉₀ LA _{min}	Quarterly	Suitably Qualified Acoustical Consultant
N6	Ambient noise	Within 30 m of the residence on the property "Newhaven"	Attended		Quarterly	Suitably Qualified Acoustical Consultant
N8 ²	Ambient noise	Within 30 m of the residence on the property "Haylin View"	Attended		Quarterly	Suitably Qualified Acoustical Consultant
N9 ²	Ambient noise	Within 30 m of the residence on the property "High Range"	Attended		Quarterly	Suitably Qualified Acoustical Consultant
N10	Ambient noise	Portable monitor – relocate to areas of potential greatest impact	Real-time		Continuous	NCOPL or Suitably Qualified Acoustical Consultant
W1	Weather parameters	W1 weather station	Real-time	Temperature (°C) Wind speed (m/s)	Continuous	NCOPL or Suitably Qualified Acoustical Consultant
W2	Inversion conditions	W2 weather station	Real-time	Temperature lapse rate (°C/100 m)	Continuous	NCOPL or Suitably Qualified Acoustical Consultant

Notes:

¹ Located adjacent to private landholder 687a "Pine View".

² Property owned by NCOPL.

*This NMP revision has removed attended monitoring location N3 after NCOPL entered a private agreement with the landholder, and subsequently amended EPL12789 on 7 September 2022.



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LEGEND

- ML 1609
- Namoi River pipeline
- Stage 2 underground mining layout
- ★ Meteorological Station
- Noise Monitoring
- Highway
- Roads
- + Railway
- Watercourse
- State forest

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Figure 2

Noise Monitoring Locations

Figure 2: Noise monitoring locations



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Real time noise monitoring occurs continuously with portable monitors enabling them to be relocated to areas of potential greatest impact during the life of operations. The siting of the real time monitors will also give due regard to predominant wind direction (predominantly on a NW-SE gradient) at the time to ensure monitoring is undertaken in the quadrant of greatest impact at that time.

A Trigger Action Response Plan (TARP) has been developed based off alarms generated from the mobile noise units and is provided in Table 6. The TARP requires actions to be implemented depending on the alarm type, i.e. initial or repeating, and recording actions taken and notifications made. Actions that can be implemented include:

- Reviewing the live audio to determine source of alarm;
- Limiting dozer reverse speeds; and
- Relocating noisy equipment if identified as a noise source.

5.2 Temperature Inversion Monitoring

Temperature inversion monitoring is undertaken continuously by directly measuring temperature at two elevations 50m apart (10m & 60m from ground level). The differential over 50 meters is extrapolated to determine temperature lapse rate per °C/100 meters. This is done at the NCOPL Temperature Inversion Tower, EPL 12789 monitoring location 'W2' (Figure 2), in accordance with Appendix E of the *Noise Policy for Industry*. This method will provide an opportunity to assess inversion strength, the impact of the inversion on capacity to adhere to noise limits, and the capacity to adjust operations at surface during inversions if noise levels are identified above consent limits, i.e. during attended monitoring.

A TARP has been developed based off alarms generated from the inversion tower. The TARP requires actions to be implemented depending on the alarm type and recording actions taken and notifications made. Actions that can be implemented include:

- Limiting movements as required in Sections 3.1 & 3.3 for certain equipment;
- Review operational tasks; and
- Check for operational noise issues.

5.3 Noise Monitoring Procedures

Attended noise surveys will be conducted in accordance with the: *NSW Noise Policy for Industry, 2017*, EPL 12789, Environmental Noise Control Manual, applicable Australian Standards, the Stage 2 EA, the PA 08_0144 Modification 5 EA (Resource Strategies, 2015), and the requirements of PA 08_0144, specifically Condition 1, Schedule 4, notes 1, 4 and 5.



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Table 6: Noise Monitoring and Temperature Inversion Conditions TARP

NOTE: This TARP applies to surface operations including CHPP, Civil Services and Drilling operations; and excludes mine ventilation.

Trigger	“RTW” (return to work) issued via SMS and/or email	Weather Alarm “Level 1A TEMPERATURE INVERSION ON” issued via SMS and/or email	Noise Alarm “Level 1B Noise Alert” issued via SMS and/or email	Noise Alarm “LEVEL 2 noise alert” issued via SMS and/or email
Detail on alarm parameters	Noise within noise criteria limits No temperature inversion conditions present	Temperature Inversion conditions present	Low Frequency (mining) noise greater than 34dB continuous for 3 x 5min periods & wind speed < 3m/s	Low frequency (mining) noise greater than 34dB for continuous 1 hour period after first (INITIAL) alarm & wind speed < 3m/s
Noise trailer reference	SENTINEX117 (Far North) / SENTINEX118 (North) / SENTINEX97 (South)			
TARP LEVEL	Normal	Level 1A	Level 1B	Level 2
CHPP Supervisor	Continue normal operations when ALARM END message received.	Check no operational issue causing excessive noise. Review operational tasks e.g. relocate dozer off of high area of coal stockpile or work on the wind side of the stockpile. Coal Track entry required.	As for Level 1A and Shut-down non-essential equipment. Coal Track entry required.	Critical dozing only (i.e. if shearer running or if loading a train). Limit dozer reversing speeds to first gear. Coal Track entry required. Review SENTINEX data for relevant noise trailer, listen to real-time audio to determine source of noise. If considered not to be mining related, send SMS notifications to Drillers/SCS to resume operations.
Tech Services- drilling crews	Continue normal operations when ALARM END message received.	Avoid unnecessary vehicle movement. Shut-down non-essential equipment. Make record of action taken and report to CHPP supervisor for Coal Track entry.	As for Level 1A and Check no operational issue causing excessive noise. Make record of action taken and report to CHPP supervisor for Coal Track entry.	Shutdown drill-rigs (and pre-conditioning operations). Light vehicle and truck movements only. Make record of action taken and report to CHPP supervisor for Coal Track entry.
Civil Services Supervisor	Continue normal operations when ALARM END message received.	Avoid unnecessary vehicle movement. Shut-down non-essential equipment. No dozer work permitted on REA. Only one truck per 15 minutes if carting from CHPP rejects stockpile to REA. Make record of action taken and report to CHPP supervisor for Coal Track entry.	Check no operational issue causing excessive noise. Avoid unnecessary vehicle movement. Shut-down non-essential equipment. Make record of action taken and report to CHPP supervisor for Coal Track entry.	Shutdown all heavy machinery. Light vehicle and truck movements only. Make record of action taken and report to CHPP supervisor for Coal Track entry.



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Trigger	"RTW" (return to work) issued via SMS and/or email	Weather Alarm "Level 1A TEMPERATURE INVERSION ON" issued via SMS and/or email	Noise Alarm "Level 1B Noise Alert" issued via SMS and/or email	Noise Alarm "LEVEL 2 noise alert" issued via SMS and/or email
Environmental Superintendent	Monitor weather forecasts and advise work groups of extreme weather events and additional noise control measures that may be required.	NOTE: Environmental Superintendent to conduct regular (monthly) reviews of SentineX noise data and alarm parameters to confirm effectiveness of TARP, and to check site records for compliance with TARP.		



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5.4 Reporting

NCOPL has the following reporting requirements.

Table 7: Reporting requirements

Document	Owner	Frequency	Agency submission	Approval
Noise compliance assessment report	NCOPL / SQP	Quarterly – submission within 30 days of monitoring completion	EPA	R4.1 EPL12789
Annual Review	NCOPL	Annual – submission by 31 March	Secretary	Schedule 6, condition 6 PA 08_0144
Independent environmental audit	SQP / NCOPL	Every three years	Secretary	Schedule 6, condition 7 PA 08_0144

The Annual Review will summarise;

- a) results of the noise monitoring program supported by meteorological data;
- b) analysis of the monitoring results against the impact assessment criteria, previous monitoring results and predictions made in the Stage 2 EA;
- c) where relevant, site activities during the measurement period(s);
- d) continuous improvement initiatives;
- e) records of any complaints made; and
- f) results of any sound exceedance investigations, and subsequent management actions.

A summary of noise monitoring results will be reported to the CCC via the Environment Monitoring Report.

The reports above, along with relevant approvals, strategies, plans, programs, monitoring results, complaint register, and CCC meeting minutes will be uploaded onto the Whitehaven Coal website, when a revision is available, in accordance with Schedule 6, condition 10 of PA 08_0144. This information will be regularly reviewed and kept up-to-date to the satisfaction of the Secretary, with the complaints register updated monthly.

5.4.1 Independent Environmental Audit

Prior to 13 September 2010, and every 3 years thereafter, unless the Secretary directs otherwise, NCOPL will commission and pay the full cost of an Independent Environmental



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Audit (IEA) of the development (Stages 1 and 2), to be conducted in accordance with the requirements of Schedule 6 Condition 7.

The audit team will be led by a suitably qualified auditor and the IEA will be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary.

5.4.2 Incident Notification

The Environmental Superintendent will review the results of attended noise monitoring or following notification from the acoustic consultant, and in accordance with Condition 4, Schedule 6 of PA 08_0144, report any incident of exceedance in noise criteria as soon as practicable to the DPE and EPA (for incidents involving properties listed in EPL 12789). Within 7 days of providing this notification, NCOPL will provide a written report identifying the date, time and nature of the exceedance, identify the cause or likely cause of the exceedance, describe actions taken in relation to the exceedance, and identify any measures being undertaken to minimise the risk of future exceedance of noise criteria. Any exceedance in noise criteria will also be reported in the Annual Review.

The extent of notification and reporting requirements depends on the severity of the issue, and whether the noise level is within modelled noise exceedance limits for incidents involving properties listed in EPL 12789) and/or the affected landholder as well as discussion in CCC Environment Monitoring Reports and the Annual Review.



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6 SITE IMPLEMENTATION

6.1 Plan Monitoring and Corrective Action

6.1.1 Reviews

This document will be reviewed within 3 months of any modification to the conditions of PA 08_0144, or the submission of an:

- a. independent environmental audit;
- b. incident report; or
- c. annual review to the relevant agencies.

Where necessary, this plan will be revised by NCOPL and provided to the Secretary for approval.

6.1.2 Corrective Action

In the event that unpredicted or unforeseen noise impacts are identified, the following protocol (Table 8) will be adopted.

Table 8: Unpredicted Impact Protocol

Step	Procedure
1	Review the unpredicted impact including consideration of: <ul style="list-style-type: none"> • Any relevant monitoring data; and • Current mine activities as well as activities in the vicinity of the issue.
2	Commission an investigation by an appropriate specialist into the unpredicted impact, if considered appropriate.
3	Develop appropriate ameliorative measures based on the results of the above investigations, in consultation with relevant government departments.
4	Implement additional monitoring, where relevant, to measure the effectiveness of the improvement measures.

6.2 Continuous Improvement

NCOPL will investigate and implement improvements to the environmental performance of the project over time as required by Schedule 4, Condition 5 of PA 08_0144. This will be achieved by

- reviewing environmental performance in the Annual Review;
- considering recommendations from independent audits;
- keeping abreast of best practice in the industry for noise management;
- Ongoing liaison with Original Equipment Manufacturers (OEM) to investigate options for noise reducing technologies on plant and equipment, specifically for road, rail and sleep disturbance risks; and
- Ongoing review and implementation of the mobile noise units TARP.

Stakeholder feedback will also form an integral part of assessing noise performance and assist in outlining measures for continuous improvement.

Continuous improvement measures will be reported in the Annual Review.



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7 REFERENCES

Environmental Protection Authority (EPA) (2000), *Industrial Noise Policy*, NSW Government NCOPL – Stage 2 Project Approval (PA) 08_0144 and Statement of Commitments

R.W. Corkery and Co Pty Ltd (2009), *Narrabri Coal Mine Stage 2 Longwall Project: Environmental Assessment*, Prepared for Narrabri Coal Operations Pty Ltd

Resource Strategies (2015), *Narrabri Mine Modification 5 Environmental Assessment*, Prepared for Narrabri Coal Operations Pty Ltd

Spectrum Acoustics Pty Ltd (2009), *Narrabri Coal Mine Stage 2 Longwall Project, Noise and Vibration Impact Assessment (Specialist Consultant Studies Compendium Volume 2, Part 6)*, Prepared for Narrabri Coal Operations Pty Ltd

Spectrum Acoustics Pty Ltd (2013), *Re: Noise Modelling Results – Narrabri Mine*, Prepared for Narrabri Coal Pty Ltd