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# Management Plan

## Environmental Noise

**Risk Statement: High**

This document will be reviewed on a yearly basis, unless a process change occurs earlier than this period. The information in this document relates to management, monitoring and associated reporting required by Development Consent 11\_0060 and Mining Leases 1247, 1367 and 1641.

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## Revision Summary

First Issue	Issue Date	Implementation Requirements	Approved By
0	Feb 03	L O Larsen	

Version No.	Revision Date	Clause No.	Revision Details	Approved By
1	Sept 03		C L Silveira (Update to include NMT feedback)	
2	Sept 04		L S Elliott (annual review, minor grammatical changes)	
3	Oct 05		A J Ryan (annual review, minor grammatical changes, change Manager titles)	
4	Sept 06		R C Morphett (minor changes only)	
5	Nov 07		Reviewed by Environment Team – changes made to comply with Project Approval 06-0026.	NMT 20.12.07
6	Jan 09		Reviewed by T Hardie - Added risk ranking, updated section 7.0 Reporting and section 10.0 Related Procedures.	
7	Sept 13		Review by E&H Advisor Ali Youssef	
8	May 14		Reviewed and Updated by Bharath Ramakrishnappa – changes made to comply with Project Approval 11_0060.	
9	Oct 15		Reviewed by E&H Advisor. Changes made in response to Govt. review.	
10	Jan 16		Reviewed by E&H Advisor. Updated according to Govt. comments. Table 1 updated and Page 12.	
11	Mar 16		Reviewed by Bharath Ram. Updated to include the comments Govt. comments from Table 5.	
12	Oct 17		Reviewed by N Jones. Minor changes only.	
13	Feb 18		Updated to new MP format, minor amendments. N.Jones	
14	Feb 19		Reviewed by N.Jones.	

Approval Position	Automatic Notifications

Hard Copy Locations	Associated Documents to be reviewed

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# 1. OVERVIEW

## 1.1 Introduction

Northparkes Mines (NPM) is a copper and gold mine located 27 kilometres North West of Parkes in the Central West of New South Wales, Australia. Northparkes is a joint venture between China Molybdenum Co. Ltd (CMOC) (80%) and the Sumitomo Groups (20%).

NPM has been operating since 1993 following the grant of the original development consent (504/90) by the NSW Land and Environment Court. Since that time, seven additional development consents, inclusive of modification notices have been issued and have been surrendered to Parkes Shire Council. Combined, these approvals permitted the development and operation of two open cut mines, two underground block cave mines, construction of an additional Tailings Storage Facility and storage warehouse, a mine and mill upgrade to increase production to 8.5 million tonnes per annum and associated works.

NPM was granted project approval (Northparkes Mine Extension Project 11\_0060) under Section 75J of the Environmental Planning and Assessment (EP&A) Act 1979 in May 2014 in accordance with the supporting document Environmental Assessment Northparkes Mines – Step Change Project (2013). This approval permits the ongoing operation of existing activities and the continuation of underground block cave mining in two existing ore bodies, the development of underground block cave mining in the E22 resource, additional campaign open cut mining located in existing mining leases, augmentation to approved Tailings Storage Facilities (TSFs) and an extended mine life of seven years until 2032 at the approved ore processing rate of up to 8.5 Mtpa.

## 1.2 Location

Northparkes Mines is located 27 kilometres North West of Parkes in the Central West of New South Wales, Australia, located on the edge of the inland slopes west of the Great Dividing Range. The NPM site is generally flat, with some low undulations, ranging in elevation from 288 metres Australian Height Datum (mAHD) to 301 mAHD. The area surrounding the NPM site is also generally flat with the most significant regional feature being Goonumbla Hill, which extends to a height of 386 mAHD, located approximately 4 kilometres south of the Project Area.

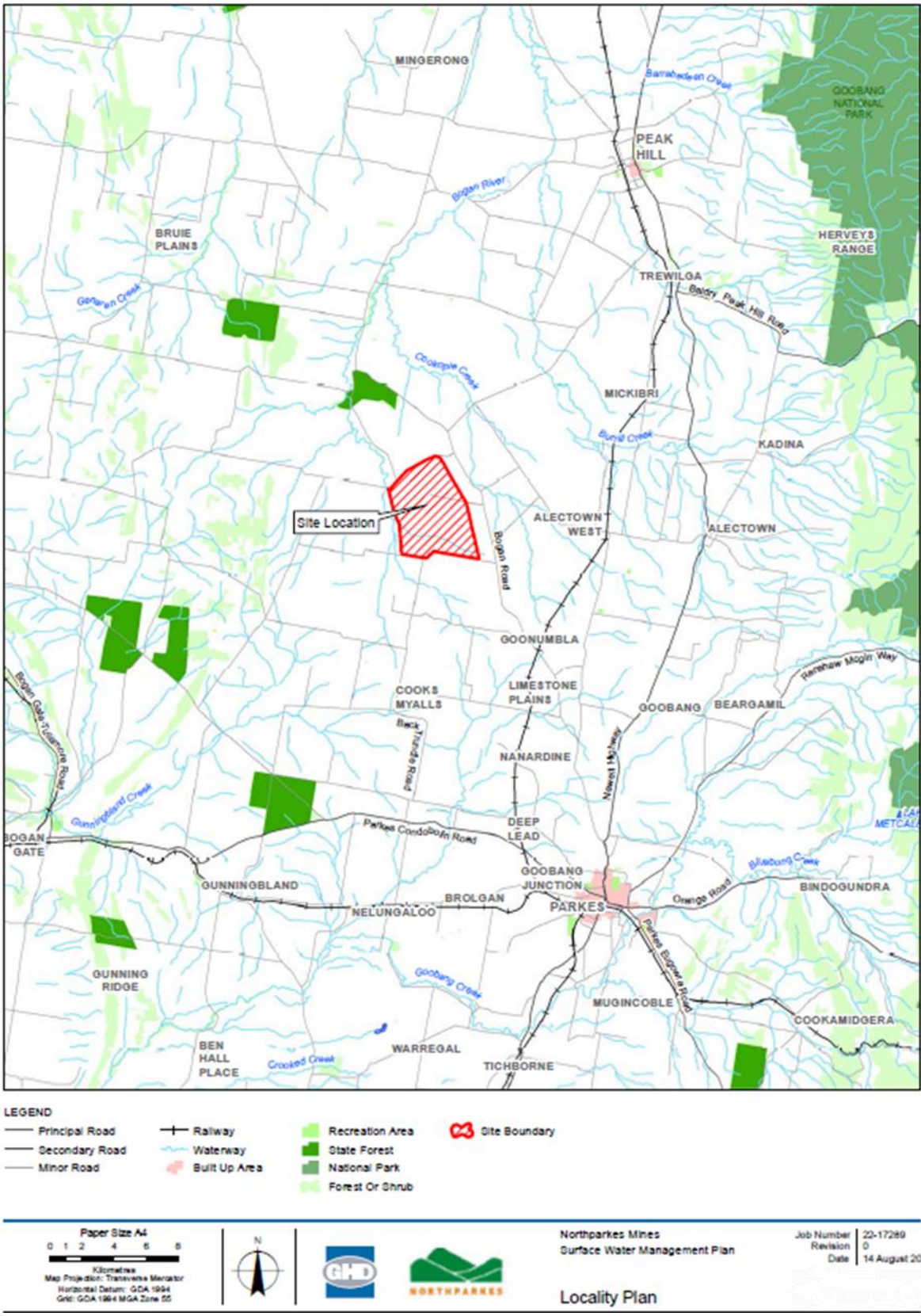


Figure 1 Northparkes Mine Location

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## 2. SCOPE

This Management Plan applies to all activities undertaken by Northparkes Mines including mining and exploration activities; processing of copper / gold ore resources; project development; maintenance activities; mine closure; logistics; associated service and support function.

### 2.1 Baseline Data

A detailed Noise Impact Assessment (NIA) was undertaken as part of the Environmental Assessment Northparkes Mines – Step Change Project (2013). The assessment was undertaken in accordance with the NSW Industrial Noise Policy (INP). The NIA provides details of existing noise levels in the area surrounding the site, determines noise impact assessment criteria for the site, predicts noise levels that will be generated by the site under a range of scenarios, including conservative worst case project and meteorological conditions, and assesses the potential for the site to cause noise impacts. On the basis of this assessment a number of recommendations in relation to noise monitoring and noise mitigation controls were provided.

The NIA assessed a number of site scenarios including the assumed worst case project design assumptions. In relation to potential noise impacts, the potential worst case operational scenario includes existing approved operations, proposed open cut mining operations and construction of Rosedale TSF occurring concurrently during the evening and night time period. These scenarios have been assessed in the context of representative worst case noise attenuating meteorological conditions including source to receiver winds and temperature inversions. Accordingly, the modelled scenarios within the NIA represent a conservative worst case representation of potential noise impacts associated with the site, which may occur within the first five to eight years of the 19 year project life.

NPM undertakes regular background noise monitoring as a part of the noise monitoring program. Based on these monitoring results at identified sensitive receivers surrounding NPM operations, it can be reasonably assumed that due to the rural nature of the area surrounding the site, the existing background noise level is at or below 30 dB(A). In addition to this, the surrounding land use is dominated by agricultural holdings with no other industrial noise sources in the area surrounding the site. Therefore the existing industrial  $L_{Aeq}$  period (where period is day, evening or night) noise levels is more than 10 dB below the Acceptable Noise Level as defined by the INP (EPA 2000). Accordingly, for the purposes of defining appropriate noise impact assessment criteria, a background noise level of 30dB(A) has been assumed.

## 3. OBJECTIVES

The objectives of the Noise Management Plan (NMP) are:

- ensure that environmental noise from operations is minimised and appropriately controlled
- ensure that impacts on surrounding residents are minimised
- keep the local community and regulators informed of activities where required and respond quickly and effectively to issues or complaints
- carryout regular monitoring to ensure compliance against noise limits
- adequately manage and mitigate potential noise impacts from the construction and operational activities

### 3.1 Regulatory Requirements

The Noise Management Plan (NMP) addresses the relevant components of schedule 3 conditions 1 – 5 of the NSW Project Approval (PA11\_0060) for the Northparkes Mines Step Change Project. These conditions are outlined in Table 1 below.

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**Table 1** NSW Development Consent Conditions – Schedule 3

Condition	Related Section in NMP												
<b>Noise Criteria</b>													
<p>1. The Proponent shall ensure that the noise generated by the project does not exceed the criteria in Table 1 at any residence on privately-owned land.</p> <p style="text-align: center;"><b>Table 2</b> Noise impact assessment criteria dB(A)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Property</th> <th rowspan="2">Day LAeq(15min)</th> <th rowspan="2">Evening LAeq(15min)</th> <th colspan="2">Night</th> </tr> <tr> <th>LAeq(15min)</th> <th>LA1(1min)</th> </tr> </thead> <tbody> <tr> <td>All privately-owned land</td> <td style="text-align: center;">35</td> <td style="text-align: center;">35</td> <td style="text-align: center;">35</td> <td style="text-align: center;">45</td> </tr> </tbody> </table> <p><b>Note:</b> To interpret the land referred to in Table 1, see the applicable figures in Appendix 4.</p> <p>Operational noise generated by the project is to be measured in accordance with the relevant requirements of the <i>NSW Industrial Noise Policy</i>. Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.</p>	Property	Day LAeq(15min)	Evening LAeq(15min)	Night		LAeq(15min)	LA1(1min)	All privately-owned land	35	35	35	45	Section 5.4.1
Property				Day LAeq(15min)	Evening LAeq(15min)	Night							
	LAeq(15min)	LA1(1min)											
All privately-owned land	35	35	35	45									
<p>2. The Proponent shall only carry out the construction works associated with the upgrade of McClintocks Lane, the construction of the McClintocks Lane access road and the upgrade of the intersection of McClintocks Lane and Bogan Road during the day.</p>	Section 5.4.1												
<p>3. During construction of the works referred to in condition 2 of schedule 3, the noise criteria in Table 1 do not apply to the residences located in the vicinity of the works. The Proponent shall implement all reasonable and feasible measures to minimise construction noise impacts on the residences in the vicinity of these works.</p>	Section 6												
<p>4. The Proponent shall:</p> <ol style="list-style-type: none"> <li>a) implement best management practice to minimise the construction, operational and road noise of the project;</li> <li>b) operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval;</li> <li>c) minimise the noise impacts of the project during meteorological conditions when the noise limits in this approval do not apply (see Appendix 5); and</li> <li>d) carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval,</li> </ol> <p>To the satisfaction of the Secretary.</p>	Section 6 & Section 7												
<p>5. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must:</p> <ol style="list-style-type: none"> <li>a) be prepared in consultation with the EPA, and submitted to the Secretary prior to the commencement of construction;</li> <li>b) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval;</li> <li>c) describe the proposed noise management system in detail; and</li> <li>d) include a monitoring program that: <ul style="list-style-type: none"> <li>• evaluates and reports on: <ul style="list-style-type: none"> <li>– the effectiveness of the noise management system;</li> <li>– compliance against the noise criteria in this approval; and</li> <li>– compliance against the noise operating conditions;</li> </ul> </li> <li>• includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time (so the real-time noise monitoring program can be used as a better indicator of compliance with the noise criteria in this approval and trigger for further attended monitoring); and</li> <li>• defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents</li> </ul> </li> </ol>	Section 6 & Section 7  Section 7  Section 7.1												



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### 3.2 Comments from Regulators

On 01 September 2015, NPM received comments from Department of Planning and Environment requesting NPM to amend additional information in the Environmental Management Strategy. The comments are detailed in Table 2 along with NPM comments for each component of the Condition is addressed within this document.

**Table 3 Regulatory comments**

Comments	Section
Remove error messages	Section 3 & 5
Adaptive management requirements (Schedule 6 condition 2) are to be incorporated into the plan. Could be added to Sect 5.5.	Section 8
The requirements to notify landowners (Schedule 5 condition 1) needs to be incorporated into the plan.	Section 8
Detail of procedures is required not just reiteration of conditions.	Section 7
Sect 7.1 just a re-iteration of the condition	Section 7
Last para of Sect 7.1 should be moved to Sect 8.	Section 8
Notification needs to be spelled out rather than condition re-iterated. The Management Plan should be an operational guide.	Section 7
Section 5.1 of the Department's assessment report recommends a proactive management approach to compliance with noise conditions (see P. 20, second last para prior to <u>sleep disturbance</u> section). The Management Plan does not seem to adopt this proactive approach in Section 6.1 Operational control measures section and 'Adverse Weather' section.	Section 6

On 26 November 2015, NPM received comments from the DPE requesting NPM to amend further changes with the Management Plan submitted in October 2015. The comments are detailed in Table 3 along with NPM responses for each component of the Condition addressed within this document.

**Table 4** Regulatory comments on 26 November 2015.

Requirement	Section
References to condition 8 in PA06-0026 on page 12 should be removed and paragraph updated appropriately	Complete
References to condition number 3, 4 and 5 in Table 1 have changes to bullets	Amended changes requested

On 11 March 2016, NPM received comments from the DPE requesting NPM to amend further changes with the Management plan submitted on 17 February 2016. The comments are detailed in Table 5 along with NPM responses for each component addressed within this document.

**Table 5 Regulatory comments on 11 March 2016**

Requirement	Section
Evidence of consultation with the EPA should be provided	Appendix 1
Clearer links between the real time monitoring and noise management controls should be included. Real-time noise monitoring has the potential to trigger early investigation and response before noise levels are exceeded. Please identify how this is being used to facilitate proactive and adaptive management of noise	Section <b>Error! eference source not found.</b> , Section 7.1 and Section 7.2

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The locations of real time monitors should be included (it appears from the track changes that Table 7 has been deleted).	Table 1
Paragraph 5 in section 5.2 is incorrect. Condition 3 of Schedule 3 does not make a noise exception for construction of the Rosedale TSF	Changes amended
Paragraph 2 page 18 reads "This targeted monitoring program will include the use of real time noise monitors.....as a mean to, where possible, avoid the predicted noise impacts." A clearer commitment is required. (Removal of the words "where possible").	Changes Amended
Section 9 refers to the frequency of updates to the Noise Management Plan. This should also include the requirements under Schedule 6, condition 5.	Section 9

## 4. RESPONSIBILITY

Specific accountabilities in relation to management of 'noise' at NPM are outlined in Table 6. Personnel carrying out work under this Management Plan must be familiar with and comply with it in full.

General role responsibilities under this Procedure are outlined in 'HSE Accountabilities' Procedure (3-3563). Personnel carrying out work under this Management Plan must be familiar with and comply with it in full.

**Table 6** NPM responsibilities for Noise Management

Role	Responsibility
All Personnel	<p>Everyone is responsible for identifying hazards with this Management Plan and initiating management of change to correct those deficiencies.</p> <ul style="list-style-type: none"> <li>• be familiar with and comply with this Management Plan</li> <li>• assess noise requirements and ensure that excessive noise is not generated</li> <li>• operate machinery and equipment properly and efficiently</li> <li>• report excessive noise immediately</li> </ul>
Manager Director	<p>Review this Management Plan (for effectiveness and its performance against its objective/s). Ensure that the system and this Management Plan are consistent with CMOC Standards, the site HSEQMS and meets the requirements of relevant legal obligations.</p>
PSE Manager	<p>Ensure that the system and this Management Plan are consistent with CMOC Standards, the site HSEQMS and meets the requirements of relevant legal obligations.</p>
Superintendents / Contract Superintendents / Team Leaders	<p>Ensure relevant employees and contractors under their direction are trained and comply with this Management Plan</p> <p>Ensure all equipment is adequately maintained and operated effectively.</p>
Departmental Managers	<p>Ensure relevant personnel and contractors within their responsibility are aware of and comply with this Management Plan.</p> <p>Monitor the implementation and use of this standard in their department and implement corrective action for any deviations found.</p>
Environment Superintendent	<p>Report against performance criteria in the Annual Review (AR).</p> <p>Report complaints and outcomes of investigations in the AR.</p> <p>Manage activities on site in accordance with this management plan.</p> <p>Modify activities that cause excessive noise emissions.</p>
Environment Team	<p>Maintain and co-ordinate reporting for the monitoring program.</p> <p>Provide advice on effective and efficient noise management controls.</p> <p>Communicate noise monitoring results at relevant community forums.</p>

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## 5. KEY ISSUES

### 5.1 Potential Impacts

Potential impacts resulting from operations were modelled as part of the NIA which was undertaken as part of the Environmental Assessment Northparkes Mines – Step Change Project (2013).

Scenario 1 represents a continuation of the existing approved 24 hour a day seven days a week operation of the existing ore processing plant, underground mining and associated supporting activities. The loading and dispatch of copper concentrate on road haulage trucks to the Goonumbla rail siding was included with processing plant operations under this scenario. Scenario 1 represents the majority of future mining operations, both prior to and post, concurrent Rosedale TSF construction and campaign open cut mining.

Scenario 2 incorporates existing approved operations with the proposed open cut mining in E26 and E31 and the associated out-of-pit placement of waste material to the east and west of the E26 open cut. Scenario 2 additionally includes the concurrent construction of the Rosedale TSF on a 24 hour, seven days per week arrangement.

Scenario 3 incorporates existing approved operations with the proposed open cut mining in E26 and E28 and the associated out-of-pit placement of waste material to the east and west of the E26 open cut. Scenario 3 additionally includes modelling of the construction of the Estcourt TSF. It noted that Estcourt TSF is currently approved and operational. The Estcourt TSF activities included in the model include those for the construction of additional lifts to Estcourt TSF relative to that currently approved to be undertaken on a 24 hour, seven day per week arrangement.

**Table 7** Summary of Predicted Noise Impacts

Meteorological Conditions	Scenario 1: Existing Conditions	Scenario 2: Existing Operations Plus		Scenario 3: Existing Operations Plus	
		Mining in E26 and E31	Rosedale TSF Construction	Mining in E26 and E28	Estcourt Construction
<b>Neutral Calm Conditions – Day, Evening and Night</b>					
No. Properties with predicted exceedance	0	0	1	0	0
Properties affected			Avondale 1		
Maximum exceedance	-	-	3dB	-	-
<b>Gradient Wind – Evening and Night</b>					
No. Properties with predicted exceedance	0	0	1	0	0
Properties affected			Hubberstone 1		
Maximum exceedance	-	-	2dB	-	-
<b>F Class Stability Conditions – Winter Evening and Night</b>					
No. Properties with predicted exceedance	0	3	3	3	3
Properties affected		Hubberstone, Avondale 1 and Adavale			
Maximum exceedance	-	3dB	7dB2, 5dB3	2dB	3dB

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**Note 1:** The Avondale property is subject to an existing commercial agreement with NPM over life of Project.

**Note 2:** The predicted 7dB exceedance of Project Specific Noise Level (PSNL) is at the Avondale property which is subject to an existing commercial agreement with NPM over the life of the Project.

**Note 3:** The predicted 5dB exceedance of PSNL is at the Hubberstone property, a privately owned residence.

## 5.2 Operational Noise Impacts

Continuation of underground mining and associated ore handling and processing is predicted to generate noise levels less than the project-specific noise criteria at all residential receivers under all modelled metrological conditions. This operational scenario represents typical operations for the majority of the Project's 19 year life.

Scenarios 2 and 3 represent worst case operational situations when existing underground mining activities and ore processing are combined with open cut mining and TSF construction. NPM's open cut operations will be conducted on a campaign basis whilst Rosedale TSF construction will be staged over approximately 12 months within the initial five to eight years of the mine's life.

The results of noise modelling indicate that the potential for maximum exceedance of the project-specific noise levels would be up to 5 dB at Hubberstone, up to 7 dB at Avondale and up to 1 dB at Adavale. NPM currently have an agreement in place with the owner of the Avondale property over the life of the mine.

The potential maximum exceedance of the PSNLs from the operational noise are predicted to occur during F-Class Stability conditions in the winter evening and night-time periods and are primarily associated with the equipment used in the construction of TSFs

The potential for short term exceedances of the current noise criterion of 35dB(A) has been provided for in the provisions of the existing Project Approval (PA11\_0060). The construction of the Rosedale (TSF 3) noise impacts will be managed in accordance with this management plan. NPM will commit to extending this process to manage potential noise impacts associated with these activities as part of the Project.

Based on the modelling of the typically transient noises the calculated LA1, 1 minute noise levels from the operation are expected to comply with the recommended sleep disturbance noise goals at all residential receivers.

### 5.2.1 Construction Noise Impacts

A source to receiver noise model was used to determine construction noise impacts at the nearest residential receiver to the construction activities during standard hours. The construction noise levels at the nearest residential receiver, 12 – Coradgery and 15 – Milpose, are predicted to be at or below 37dB(A) and less than 30 dB(A), respectively. This is below the construction noise management level of 40dB(A) for all residential receivers.

### 5.2.2 Road Noise Impacts

An assessment of the road traffic noise impact has been conducted at each of the nearest residential receivers likely to be influenced by movement of light and heavy vehicles including product trucks, travelling to or from NPM via McClintocks Lane. The noise predictions were based on vehicle movements on both McClintocks Lane and Bogan Road. The road traffic noise impacts were modelled at set back distances to the nearest residential receiver of 2.5 kilometres from the centre line of Bogan Road and 2.5 kilometres from the centre line of McClintocks Lane. The results of traffic noise modelling are presented in Table 8

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**Table 8** Predicted Day and Night Road Traffic Noise Levels, dB(A)

Source of Road Traffic Noise	Predicted LAeq 1 hour		Assessment Criteria <sup>1</sup>
	Peak AM	Peak PM	Day/Night <sup>2</sup>
Bogan Road	40.0	36.3	55/50
McClintocks Lane	38.5	36.2	55/50
Cumulative Noise Leve	42.4	39.3	55/50

**Note 1:** Criteria for existing residences affected by noise from redevelopment of existing local roads.

**Note 2:** Day (7.00 am to 10.00pm) and Night (10.00 pm to 7.00 am).

The results presented in Table 8 indicate the predicted road traffic noise levels from light and heavy vehicles travelling to or from NPM via McClintocks Lane do not exceed the day and night time road traffic noise criteria outlined in the NSW Road Noise Policy (DECCW 2011).

### 5.3 Potential Sources

The potential sources of noise and vibration generated by activities include:

- open cut pit activities
- surface blasting
- tailings storage facility lift construction
- underground mine surface infrastructure (eg hoisting shaft and surface vent fans)
- excavation, transportation and placement of materials (eg reversing alarms, horns)
- processing plant (ie surface crusher, stockpile tower, ball mills)
- exploration drilling activities
- road transport of product

### 5.4 Noise Criteria.

#### 5.4.1 Northparkes Mine Extension Project, Project Approval 11\_0060

##### Project Noise

As per Schedule 3, condition 1 of Northparkes Mine Extension Project, Project Approval 11\_0060, NPM shall ensure that the noise generated by the project the project does not exceed the criteria in Table 9 at any residence on privately-owned land.

**Table 9** Noise Impact Assessment Criteria dB(A)

Property	Day	Evening	Night	
	LAeq(15 min)	LAeq(15 min)	LAeq(15 min)	LA1(1 min)
All privately-owned land	35	35	35	45

Operational Noise generated by the project will be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy.

These limits apply under all meteorological conditions except the following:

- during periods of rain or hail
- average wind speeds at microphone height exceeds 5 m/s
- wind speeds greater than 3 m/s at 10 metres above ground level; or
- temperature inversion conditions of up to 3 °C/100m or alternatively a stability class of G

Except for wind speed at the microphone height, the data to be used for determining meteorological conditions will be that recorded by the meteorological station located onsite.

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These limits do not apply if NPM have an agreement with the relevant owner/s of the residences or land to generate higher noise levels, and NPM has advised the Department in writing of the terms of the agreement.

### Construction Noise

During the following construction works:

- the upgrade of McClintocks Lane
- the construction of the McClintocks Lane access road; and
- the upgrade of the intersection of McClintocks Lane and Bogan Road

The noise criteria in Table 9 do not apply to the residences located in the vicinity of the works. NPM will implement all reasonable and feasible measures to minimise construction noise impacts on the residences in the vicinity of these works.

### Road Noise

Whilst no specific limits have been set in the Project Approval 11-0060 for traffic noise NPM in consultation with the nearest affected neighbour have agreed to monitor road traffic noise at their residence in accordance with the NSW Road Noise Policy. This has been addressed in the EA Noise impact statement and the Secretary's Environmental Assessment report Section 75J July 2014. The criteria that road noise will be assessed under are from Table 3 NSW Road Noise Policy (DECC2011).

#### 5.4.2 Environmental Protection Licence (EPL)

There are no noise limits set in Environmental Protection Licence (EPL) No. 4784 which are applicable for NPM. *Condition O2.1 Maintenance of plant and equipment* does state:

- **O2.1.** All plant and equipment installed at the premises or used in connection with the licensed activity:
  - a) must be maintained in a proper and efficient condition
  - b) must be operated in a proper and efficient manner

#### 5.5 Non-compliance and Exemptions

In accordance with Section 11.1.3 of the INP a development is deemed to be in non-compliance with a noise consent or licence condition if the monitored noise level is more than 2 dB above the statutory noise limit specified in the consent or licence. This may occur for two reasons:

- the noise from NPM is excessive, in which case NPM will not be complying with its consent or licence condition
- the noise was increased by extreme, nonstandard weather effects—in which case the NPM is not considered to be in noncompliance with its consent or licence condition

If there is an exceedance of the noise criteria as set out in Northparkes Mine Extension Project, Project Approval 11\_0060 and shown in Table 9, a repeat reading within an hour at the same location will be undertaken. If the results continue to exceed noise criteria then NPM will notify the Secretary of the incident as soon as practicable. Within 7 days of the date of the incident, NPM is to provide the Secretary with a detailed report on the incident as per Northparkes Mine Extension Project, Project Approval 11\_0060 Schedule 6 Condition 7.

In this latter case, further monitoring at a later date is required to determine compliance under "normal" meteorological conditions.

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## 6. CONTROL MEASURES

Control measures for the management of noise during construction, operation and decommissioning are essential in minimising noise impacts. The three main m used to identify reasonable and feasible noise control/mitigation measures are:

- Controlling noise at the source - There are three approaches to controlling noise generated by the source: source elimination; Best Management Practice (BMP) and Best Available Technology Economically Achievable (BATEA).
- Controlling the transmission of noise - There are two approaches: the use of barriers and land-use controls which attenuate noise by increasing the distance between source and receiver.
- Controlling noise at the receiver - There are two approaches: negotiating an agreement with the landholder or acoustic treatment of dwellings to control noise.

Noise control measures at NPM are designed to comply with the Project Approval 11\_0060 and the requirements of the NSW Industrial Noise Policy. In order to minimise the potential for any non-compliances with relevant noise criteria, the following measures will be adopted:

### 6.1 Operational

Operational control measures include:

- NPM has a private agreement in place with the owners of "Avondale" for the property to remain unoccupied over mine life
- major works scheduled undergo a risk assessment prior to commencing work
- environmental inductions and training to ensure workforce awareness
- purchase of equipment that meets relevant noise emission standards
- maintaining plant and machinery in good working order
- maintaining haul roads in good condition
- operating equipment in a manner that will minimise noise emissions
- avoiding the unnecessary clustering of earth moving equipment
- regular contact with local residents
- modifications to surface ventilation fans
- scheduling of work with attention paid to adverse weather conditions, particularly at night, and modifications made to the work program where necessary
- implementation of best management practice to minimise the construction, operational and road noise of the operations
- pro-active management of equipment for operations, including positioning of exposed equipment to lower elevations during noise enhancing meteorological conditions and review of design options to incorporate passive noise attenuation measures into the construction process, such as provision for equipment use at lower elevations during winter evening and night periods
- incorporation of active noise attenuation measures such as bunding and shielding around equipment during winter night time operations
- a noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions and approvals

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- minimising the noise impacts of the operations during unfavorable meteorological conditions when the noise limits in Section 5.4 do not apply
- a program of regular noise monitoring of site operations to determine whether the operations are complying with the criteria set out in Northparkes Mine Extension Project, Project Approval 11\_0060. This monitoring will be undertaken as attended and real-time noise monitoring at surrounding receivers over the life of the mine
- additional targeted noise monitoring during construction periods for TSFs, whilst campaign open cut mining operations occur during winter night time operations. This targeted monitoring program will include the use of real time monitoring and be undertaken to identify situations when meteorological conditions have the potential to exacerbate noise impact on neighboring receivers. Appropriate noise mitigation measures will be implemented as required

### 6.1.1 Adverse Weather

Noise impacts from NPM are particularly dependent on meteorological conditions, with modelling showing exceedances only occurring during conditions which exacerbate noise impacts. Worst case predicted impacts will occur during concurrent open cut mining and TSF construction and not under the Project's future mine life when the site will operate as an underground mine and a copper processing facility. Where TSF construction and open cut mining are occurring concurrently, then NPM will undertake additional targeted noise monitoring during winter time operations.

This targeted monitoring program will include the use of real time noise monitors and be undertaken to identify situations when meteorological conditions have the potential to exacerbate noise impacts on neighbouring properties. When these situations are identified, NPM will review its onsite activities (specifically construction of eastern wall of TSF 3 and open cut mining at night) as a means to avoid the noise impacts.

Should adverse weather conditions (refer to definition in Section 5.4) exist, the following options are available to mitigate off-site, private property impacts:

- review of the elevation of earthworks or mining activities and, where possible, relocate equipment to lower elevations, until more suitable conditions return
- amend working hours of noise creating activities, if possible
- temporary cessation of work within an area or from a particularly noisy piece of equipment where possible
- construction of a temporary or long-term noise mitigation bund to shield mining operations

## 6.2 Long Term

Long-term strategies for mitigating noise levels to ensure compliance with assessment criteria will generally include:

- noise emission levels will be a consideration in awarding all contracts and purchasing new equipment
- review monitoring trends to drive improvements and maintain compliance
- maintain awareness of current noise control technology



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## 7. MONITORING

The noise monitoring program is implemented to continuously sample noise emissions at the residences on the four closest privately-owned lands. The program is designed to measure the effectiveness of control measures and ensure compliance with consent and licence conditions, relevant standards and corporate requirements.

The noise monitoring program is comprised of a combination of real-time (unattended) noise monitoring and attended noise surveys to monitor performance.

Monitoring is undertaken in accordance with the following procedures:

- Measuring and Monitoring Procedure (DOCID-3-3878)
- Environmental Monitoring and Measuring Schedule (DOCID-3-3877)
- Work Instruction Environmental Noise Monitoring (DOCID-3-3882)

Results of the monitoring program are communicated to relevant personnel and external stakeholders, where required. The monitoring results are used to:

- verify compliance with legal and other requirements
- review and verify impacts to the environment and alert personnel of the need to modify operations accordingly

A meteorological monitoring station is maintained to provide real time and periodic meteorological data for operational purposes.

Any proposed changes will be done in consultation with the Department of Planning and Environment in accordance with Northparkes Mine Extension Project, Project Approval 11\_0060.

An ongoing monitoring program provides a basis for compliance auditing and for the continuous improvement of noise objectives by identifying activities and equipment that have the potential to exceed noise standards. The locations for noise monitoring are outlined in Table 10 below.

**Table 10 Noise Monitoring Locations**

Location Name	Easting	Northing	Monitoring		
			Real Time 24/7	Attended Quarterly	Unattended Quarterly
Hubberstone	600814	6360898	Y	Y	Y
Lone Pine	594806	6352805	Y	Y	Y
Milpose	293530	6358830	Y	Y	Y
Hillview	603199	6353574	Y	Y	Y

### 7.1 Real Time Noise Monitoring

The real time noise monitoring network will be operated at the four locations shown in Figure 2. Data will be recorded continuously and reported real time via a virtual terminal connection. Each monitoring unit is calibrated quarterly prior to every attended noise monitoring campaign and is validated against attended results for  $LA_{eq(15min)}$  and  $LA_{1(1min)}$ . The monitoring results will be used to help pro-actively manage operations, so as to minimise the potential for adverse noise emissions from NPM. All noise monitoring units are designed to send SMS alarms and notify personnel when noise exceeds a set level and have the additional capacity to audio record.

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The real time noise monitoring units monitor total noise, low frequency noise and meteorological data, which included wind speed and wind direction. The unit filters the low frequency noise between 20 and 630 hertz, which is the frequency range typically impacted by mining noise. The monitoring unit includes a directional monitoring capability to determine the primary direction of the noise source. The monitoring network is calibrated and maintained by the manufacturer.

## 7.2 Proactive Management – Planning for Adverse Weather

NPM operate a meteorological monitoring station, located within area ML 1367. Fifteen minute and 24-hour average wind speed, wind direction, air temperature, relative humidity, solar radiation, and rainfall are being monitored.

## 7.3 Attended Monitoring

Noise monitoring will be conducted quarterly by an independent noise consultant, at all four neighbouring properties. All attended noise monitoring will be undertaken in accordance with PA 11\_0060 and the NSW Industrial Noise Policy. Each location is monitored for three consecutive 15 minute periods for day, evening and night time.

The meteorological station operated at NPM will be used to monitor wind speed, direction and temperature. Except for wind speed at microphone height, the data to be used to determine meteorological conditions will be that located at NPM.

### 7.3.1 Assessing results

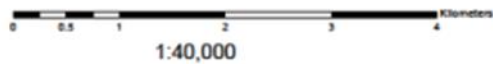
Upon completion of quarterly monitoring at each site, results gathered will be compared against noise criteria in PA 11\_0060. Where the noise consultant finds an exceedance in the criteria, the actions to be taken are listed below:

1. Notify Superintendent Environment, advising of potential exceedance of noise criteria;
2. Implement any noise mitigation strategies necessary to reduce noise to compliant levels;
3. Repeat reading within an hour at same location, if reading continues to exceed noise impact assessment criteria then event will be recorded as a noise incident, and reported through the NED reporting system. Within 7 days of the date of the incident, NPM will provide the Secretary and relevant agencies with a detailed report on the incident as per Northparkes Mine Extension Project, Project Approval 11\_0060 Schedule 6 Condition 7.
4. Where the noise level drops upon further monitoring, the site will be deemed as being compliant.



**Legend**

- Realtime Noise
- mineral sites
- NPM\_Drainage



**Monitoring Locations**  
Noise

Date Saved: 2/05/2014 1:09:02 PM  
 Coordinate System: GDA 1994 MGA Zone 55  
 Projector: Transverse Mercator  
 Datum: GDA 1994  
 false easting: 500,000.0000  
 false northing: 10,000,000.0000  
 central meridian: 147.0000  
 scale factor: 0.9996  
 latitude of origin: 0.0000  
 Units: Meter

**Figure 2 NPM Noise Monitoring Location (Real time, Attended and Unattended)**

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## 8. REPORTING AND NOTIFICATION

Noise monitoring results are reviewed by the Environment Advisor within two weeks of receiving the data and a results summary provided to the Environment Superintendent.

Noise summaries will be included in quarterly Environmental Monitoring Results Summary reports and signed off on by the Superintendent Environment and the Manager – People Safety and Environment. A summary of noise monitoring results will also be communicated through the Annual Review (AR). The AR will be made available via the Northparkes Mines website, in accordance with Condition 8 and Condition 11, Schedule 6 of the Northparkes Mine Extension Project, Project Approval 11\_0060.

Any noise that is above the noise criteria as required by the project approval; where the source of noise is from the mining activities will be deemed as a noise incident. A detailed investigation will be carried out and mitigation measures will be implemented to reduce noise impact. All exceedances and investigations will be reported to the concerned regulators within seven working days of the incident, as required by the project approval.

Incident reporting (including any exceedances and complaints) will be in accordance with Condition 7, Schedule 6 of Northparkes Mine Extension Project, Project Approval 11\_0060 and NPM internal systems.

### 8.1 Community Liaison

NPM recognises that noise generated by mining activities can impact on adjacent properties and communities.

A community relations program (via the Neighbours Meetings and Community Consultative Committee) shall be maintained to ensure two-way communication on noise management.

Prior to construction activities, NPM will contact nearby residents to outline the nature and duration of works and to provide contact details should they have any queries.

All noise complaints will be registered, investigated and responded to promptly.

### 8.2 Adaptive Management

The People, Safety and Environment Manager (or delegate) will review all environmental noise monitoring results on a regular basis to ensure compliance with all statutory, legislative and approval requirements (project approval, development consents, EPL, mining approvals), and to identify where results or trends indicate a risk of future non-compliance to the approval conditions.

NPM will assess and manage all project-related noise risks to ensure that there are no exceedances of the criteria as mentioned in Schedules 3 of the Project Approval. Should environmental monitoring show that the relevant noise criteria or threshold has been exceeded, the company will conduct an investigation into the potential sources and/or causes. The investigation will consider any plant operation or other factors that may have resulted in the exceedance. If the company is responsible for the exceedance further actions will be taken to address the matter.

A report on the exceedance will be provided to the DPI or other relevant agency (such as EPA). The report will:

- a) describe the date, time and nature of the exceedance/incident;
- b) identify the cause (or likely cause) of the exceedance/incident;
- c) describe what action has been taken to date; and
- d) describe the proposed measures to address the exceedance/incident.

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If the results of environmental monitoring identify that noise generated by the project is greater than the relevant impact assessment criteria, except where a negotiated agreement has been entered into, then NPM shall, within one week of obtaining the attended 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.

## 9. REVIEW/CONTINUOUS IMPROVEMENT

The Environmental Noise Management Plan will be reviewed and updated annually or in the case of a significant operational change. The review will include an assessment of the effectiveness of control measures and performance against the Plan's objectives.

The objectives of a review are:

- to maintain compliance with statutory requirements
- to identify opportunities for improvement in the management plan
- incorporate community considerations

The NMP review will include:

- this Document
- Legislation, Approval, Licence changes
- community complaints and enquiries

Northparkes will review, and if necessary revise the Noise Management Plan within 3 months of:

- the submission of an annual review;
- the submission of an incident report;
- the submission of an audit report; or
- any modification to the conditions of this approval.

Where this review leads to revisions in the Noise Management Plan, then within 4 weeks of the review the revised document will be submitted to the Secretary for approval.

A copy of the current version of this Management Plan will be made available on the Northparkes website.

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## 10. RELATED DOCUMENTS

Reference	Title	Document Number
	Measuring and Monitoring Procedure	DOCID-3-3878
	Environmental Monitoring and Measuring Schedule	DOCID-3-3877
	Work Instruction Environmental Noise Monitoring	DOCID-3-3882
	Procedure Incident Management	DOCID-3-3898
Australian Standard	AS1055.1:1997 Acoustics - Description and measurement of environmental noise, Part 1: General procedures	
Australian Standard	AS1055.2:1997 Acoustics - Description and measurement of environmental noise, Part 2: Applications to specific situations	
Australian Standard	AS2012.1:1990 Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test conditions, Part 1: Determination of compliance with limits for exterior noise	
Australian Standard	AS2012.2:1990 Acoustics - Measurement of airborne noise emitted by earth-moving machinery and agricultural tractors - Stationary test conditions, Part 2: Operator's position	
Australian Standard	AS2659.2:1988 Guide to the use of sound measuring equipment - Portable sound level meters	
Approvals	Northparkes Mines Project Approval 11_0060	
Supporting Document	Challis and Associates, 1992. Final Acoustic Assessment of Northparkes Mining Project.	
Guideline	NSW Department of Environment and Climate Change, 2000. Industrial Noise Policy	
Environmental Assessment	Environmental Assessment Northparkes Mines – Step Change Project (2013)	
Environmental Assessment	Heggies Pty Ltd, 2006. Northparkes Mines – E48 Project Noise and Blasting Assessment.	
Supporting Document	Heggies Pty Ltd, 2007. Northparkes Mines Noise Monitoring Program	

## 11. DEFINITIONS

**INP:**

NSW Industrial Noise Policy

**LAeq:**

The equivalent continuous level of fluctuating sound over an extended time. The steady dB(A) level which would produce the same A-weighted sound energy over a stated time as a specified time-varying sound.

**LA1:**

The LA1 Level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the LA1 level for 99% of the time.

**NIA:**

Noise Impact Assessment

**CNMP:**

Construction Noise Management Plan

**EPL :**

Environmental Protection Licence (EPL)

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## Appendix 1 Consultation with Environment Protection Agency (EPA)

**From:** Ramakrishnappa, Bharath (NPM) [<mailto:Bharath.Ramakrishnappa@northparkes.com>]  
**Sent:** Monday, 25 August 2014 2:35 PM  
**To:** Tanswell Bradley; Gibson Michelle  
**Cc:** EPA North Far West Operations Unit Mailbox  
**Subject:** Project Approval 11\_0600 - Management Plans for Approval

Hi Brad,

Northparkes Mines (NPM) submits for your approval the Management Plans (Air, Noise and Blast) as per the requirements in the new Project Approval (11-0600). Please find the management plans in the attached. If you can review and get back with any comments by 5<sup>th</sup> September 2014 it would be appreciated. I would send the Water Management Plan in the next email as it's a large document.

I have also handed the hard copies of the Management Plans to Michelle Gibson.

If you have any questions please contact Michael Priest (Superintendent Environment & Farm) on 02 6861 3264 / [Michael.priest@northparkes.com](mailto:Michael.priest@northparkes.com) as I will away from 28 Aug to 22 September.

Regards  
Bharath

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Tue 23/09/2014 2:54 PM

Ramakrishnappa, Bharath (NPM)

RE: Project Approval 11\_0600 - Management Plans for Approval

To:  Michelle Gibson

Hi Michelle,

NPM have submitted for your approval the Management Plans (Air, Noise and Blast) on 25 August 2014 for approval. Can we get the comments/feedback for the management plans. If EPA is satisfied with the Management Plans, can we get an letter of approval from EPA for all the management plans.

Regards  
Bharath