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, 1641 and 1743.

Doc No.	Version No.	Next Review Date	Owner
PLN-0070	17	5/08/2021	Environment & Farms Superintendent

Revision Summary

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

Version No.	Revision Date	Summary of 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 Development Consent06-0026.	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 DC– changes made to comply with Development Consent 11_0060.	
9	Oct 15	Reviewed by E&H Advisor. Changes made in response to Govt. review.	
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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.	
15	Jan 20	Update to new format	
16	May 20	Annual review – (minor changes only)	Env & Farms Superintendent

Consultation Required	Hard Copy Locations
	Northparkes Website

Associated Documents to be Reviewed

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1. OVERVIEW

1.1 Background

CMOC Mining Services Pty Limited (CMOC) is the manager of the Northparkes Joint Venture, an unincorporated joint venture between CMOC Mining Limited (80%); Sumitomo Metal Mining Oceania Pty Ltd (13.3%) and SC Mineral Resources (6.7%). Northparkes is a copper-gold operation in Goonumbla, situated 27 kilometres north-west of the town of Parkes.

Construction of the ore processing plant and associated facilities began in 1993. Open cut mining commenced on the E22 and E27 ore bodies in late 1993. Development of the E26 lift 1 block cave underground mine began in 1994, with full scale production commencing in 1997.

1.2 Mining Context

Operations at Northparkes primarily comprises underground mining from multiple ore sources that feed a processing plant with a capacity of 6½ million tonnes per annum (Mtpa). The underground mine is accessed via a decline ramp from the surface for people and materials with ore transported to the surface via inclined conveyors and a hoisting shaft, with a nominal capacity of 7.2 Mtpa. Northparkes utilises low cost block and sub-level cave mining and exploits industry leading technology, such as semi-autonomous loaders and various cave monitoring systems.

The ore processing operation consists of four stages: crushing, grinding, flotation and thickening / filtering. In addition to producing concentrate, the ore processing team also manages tailings disposal. The concentrator was constructed in two modules. Each module consists of its own grinding circuit with a single flotation circuit, concentrate thickener and filter. After extracting the copper and gold bearing minerals, the tailings are combined in a single tailings thickener before being deposited in the active tailings storage facility.

Northparkes' copper concentrate is transported to a local rail siding where it is then transported by rail to Port Kembla, for shipping to overseas customers.

1.3 Noise Management Plan

The Noise Management Plan (NMP) addresses the relevant components of schedule 3 conditions 1 – 5 of the Development Consent (DC11_0060) for the Northparkes Step Change Project. These conditions are outlined in Table 1 below.

Table 1 Development Consent Conditions – Schedule 3

<table>
<tr><th>Condition</th><th>Related Section in NMP</th></tr>
<tr><td colspan="2">Noise Criteria</td></tr>
<tr><td>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.

Table 1 Noise impact assessment criteria dB(A)
<table>
<tr><th rowspan="2">Property</th><th>Day</th><th>Evening</th><th colspan="2">Night</th></tr>
<tr><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{Aeq(15min)}$</th><th>$L_{A1(1min)}$</th></tr>
<tr><td>All privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr>
</table>
Note: To interpret the land referred to in Table 1, see the applicable figures in Appendix 4.

Operational noise generated by the project is to be measured in accordance with the relevant requirements of the NSW Noise Policy for Industry.. Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria.</td><td>Section 5.4.1</td></tr>
</table>

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.	Section 5.4.1
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.	Section 6
4. The Proponent shall: a) implement best management practice to minimise the construction, operational and road noise of the project; 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; 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 d) carry out regular monitoring to determine whether the project is complying with the relevant conditions of this approval, To the satisfaction of the Secretary.	Section 6 & Section 7
5. The Proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Secretary. This plan must: a) be prepared in consultation with the EPA, and submitted to the Secretary prior to the commencement of construction; b) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval; c) describe the proposed noise management system in detail; and d) include a monitoring program that: • evaluates and reports on: – the effectiveness of the noise management system; – compliance against the noise criteria in this approval; and – compliance against the noise operating conditions; • 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 • defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents	Section 6 & Section 7 Section 7 Section 7.1

Table 2 Regulatory comments on 11 March 2016

Requirement	Section
• Evidence of consultation with the EPL 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 8.1 and Section 8.2
• The locations of real time monitors should be included (it appears from the track changes that Table 7 has been deleted).	• **Table 8**
• 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 10

2. SCOPE

This document applies to all activities undertaken by Northparkes including mining and exploration activities, processing of copper / gold ore resources, project development, maintenance activities, mine closure, logistics, associated service and support functions, bore fields, farming operations and products.

2.1 Baseline Data

A detailed Noise Impact Assessment (NIA) was undertaken as part of the Environmental Assessment Northparkes – Step Change Project (2013). The assessment was undertaken in accordance with the NSW Noise Policy for Industry. 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 TSFs 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 Northparkes mine life.

Northparkes undertakes regular background noise monitoring as a part of the noise monitoring program. Based on these monitoring results at identified sensitive receivers surrounding Northparkes 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 NSW Noise Policy for Industry. (EPL 2000). Accordingly, for the purposes of defining appropriate noise impact assessment criteria, a background noise level of 30dB(A) has been assumed.

3. PURPOSE / 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

4. RESPONSIBILITIES

General role responsibilities are outlined in the Health, Safety and Environment Responsibilities and Accountabilities Procedure (PRO-0080). Personnel carrying out work under this document must be familiar with and comply with it in full. The following persons have specific responsibility:

Specific accountabilities in relation to management of 'noise' at Northparkes are outlined in **Table 3**. Personnel carrying out work under this Management Plan must be familiar with and comply with it in full.

Table 3: Responsibilities

Role	Responsibility
all workers	– Have a duty of care to take reasonable care for their own health and safety and that they do not adversely affect the health and safety of other persons – Are responsible for identifying hazards with this document and initiating management of change to correct those deficiencies – Are to identify any hazards in the workplace and advise their leader of changes – Must implement controls, effective for managing – Are responsible for complying with all associated process, procedures and instructions that support this document
Environment team	– Maintain compliance to all components of this and its supporting documents – Engage specialists (as required) to have input into the development, implementation, maintenance and review of various aspects of this management plan – Engage specialists to provide attended noise monitoring – Maintain calibration of equipment – Maintain and co-ordinate reporting for the monitoring program – Provide advice on effective and efficient noise management controls. – Communicate noise monitoring results at relevant community forums.
Environment Superintendent	– Report against performance criteria in the Annual Review (AR). – Report complaints and outcomes of investigations in the AR. – Manage activities on site in accordance with this management plan. – Modify activities that cause excessive noise emissions.
PSE manager	– Must review this document for effectiveness and its performance against its objective/s – Ensure this document meets the requirements of the relevant legal obligations – Ensure the development and implementation processes comply with this document
Managing Director	– Must provide sufficient resources to comply with this document

5. DEFINITIONS

Table 4: Definitions

Key Word	Definition
NSW Noise Policy for Industry.	NSW Noise Policy for Industry.
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)

6. MANAGING THE HAZARDS

6.1 Potential Impacts

Potential impacts resulting from operations were modelled as part of the NIA which was undertaken as part of the Environmental Assessment Northparkes – 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 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 5 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
Neutral Calm Conditions – Day, Evening and Night					
No. Properties with predicted exceedance	0	0	1	0	0
Properties affected			Avondale1		
Maximum exceedance	-	-	3dB	-	-
Gradient Wind – Evening and Night					
No. Properties with predicted exceedance	0	0	1	0	0
Properties affected			Hubberstone1		
Maximum exceedance	-	-	2dB	-	-
F Class Stability Conditions – Winter Evening and Night					
No. Properties with predicted exceedance	0	3	3	3	3
Properties affected		Hubberstone, Avondale 1 and Adavale			
Maximum exceedance	-	3dB	7dB2, 5dB3	2dB	3dB

Note 1: The Avondale property is subject to an existing commercial agreement with Northparkes over life of the mine.
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 Northparkes over the life of the mine.
Note 3: The predicted 5dB exceedance of PSNL is at the Hubberstone property, a privately owned residence.

6.2 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 mine.

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. Northparkes' 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. Northparkes 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 Development Consent (DC11_0060). TSF construction and the associated noise impacts will be managed in accordance with this management plan. Northparkes 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, 1minute noise levels from the operation are expected to comply with the recommended sleep disturbance noise goals at all residential receivers.

6.2.1 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.

6.2.2 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 Northparkes 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 6.

Table 6 Predicted Day and Night Road Traffic Noise Levels, dB(A)

Source of Road Traffic Noise	Predicted $L_{Aeq\ 1\ hour}$		Assessment Criteria[1]
	Peak AM	Peak PM	Day/Night[2]
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 6 indicate the predicted road traffic noise levels from light and heavy vehicles travelling to or from Northparkes via McClintocks Lane do not exceed the day and night time road traffic noise criteria outlined in the NSW Road Noise Policy (DECCW 2011).

6.3 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

6.4 Noise Criteria.

6.4.1 Northparkes Development Consent 11_0060

Noise

As per Schedule 3, condition 1 of Northparkes Development Consent 11_0060, Northparkes shall ensure that the noise generated by Northparkes does not exceed the criteria in Table 7 at any residence on privately-owned land.

Table 7 Noise Impact Assessment Criteria dB(A)

Property	Day	Evening	Night	
	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{Aeq(15\ min)}$	$L_{A1(1\ min)}$
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 Noise Policy for Industry.

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.

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

Road Noise
Whilst no specific limits have been set in the Development Consent 11-0060 for traffic noise. Northparkes 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).

6.4.2 Environmental Protection Licence (EPL)

There are no noise limits set in Environmental Protection Licence (EPL) No. 4784 which are applicable for Northparkes. *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

6.5 Non-compliance and Exemptions

In accordance with Section 11.1.3 of the NSW Noise Policy for Industry 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 Northparkes is excessive, in which case Northparkes will not be complying with its consent or licence condition

- the noise was increased by extreme, nonstandard weather effects—in which case, Northparkes 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 Development Consent 11_0060 and shown in Table 7, a repeat reading within an hour at the same location will be undertaken. If the results continue to exceed noise criteria then Northparkes will notify the Secretary of the incident as soon as practicable. Within 7 days of the date of the incident, Northparkes is to provide the Secretary with a detailed report on the incident as per Northparkes Development Consent 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.

7. CONTROL MEASURES

Control measures for the management of noise during construction, operation and decommissioning are essential in minimising noise impacts. The three main measures 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 Northparkes are designed to comply with the Development Consent 11_0060 and the requirements of the NSW Noise Policy for Industry. In order to minimise the potential for any non-compliances with relevant noise criteria, the following measures in the following sections will be adopted.

7.1 Operational Measures

Operational control measures include:

- Northparkes 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
- minimising the noise impacts of the operations during unfavourable meteorological conditions when the noise limits in Section 6.4 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 Extension Project, Development Consent 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 neighbouring receivers. Appropriate noise mitigation measures will be implemented as required.

7.1.1 Adverse Weather

Noise impacts from Northparkes 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 Northparkes 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, Northparkes will review its onsite activities (specifically construction of new TSFs and open cut mining at night) as a means to avoid the noise impacts.

Should adverse weather conditions (refer to definition in Section 6.4) 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.

7.2 Long Term Measures

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

8. 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 (PRO-0150)
- Measuring and Monitoring Schedule (REG-0008)
- Work Instruction Attended Environmental Noise Monitoring (WKI-0181)

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, Industry and Environment in accordance with Development Consent 11_0060 as modified.

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 8 below.

Table 8 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

8.1 Real Time Noise Monitoring

The real time noise monitoring network will be operated at the four locations shown in Figure 1. Data will be recorded continuously and reported real time. 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 Northparkes. 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.

8.2 Proactive Management – Planning for Adverse Weather

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

8.3 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 DC11_0060 and the NSW Noise Policy for Industry. Each location is monitored for three consecutive 15 minute periods for day, evening and night time.

The meteorological station operated at Northparkes 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 Northparkes.

8.3.1 Assessing results

Upon completion of quarterly monitoring at each site, results gathered will be compared against noise criteria in DC11_0060. Where the noise consultant finds an exceedance in the criteria, the actions to be taken are listed below:

1. Notify Environment & Farms Superintendent, 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 RMSS reporting system. Within 7 days of the date of the incident, Northparkes will provide the Secretary and relevant agencies with a detailed report on the incident as per Northparkes Extension Project, Development Consent 11_0060 Schedule 6 Condition 7.

4. Where the noise level drops upon further monitoring, the site will be deemed as being compliant.

Figure 1 Northparkes Noise Monitoring Location (Real time and Attended)

9. REPORTING AND NOTIFICATION

Noise monitoring results are reviewed by the Environment Team within two weeks of receiving the data.

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

9.1 Community Liaison

Northparkes 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, Northparkes 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.

9.2 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.

Northparkes 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.

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 Northparkes 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.

10. 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 NMP 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 NMP, then within four 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.

11. RELATED DOCUMENTS

Reference	Title	Document Number
	Measuring and Monitoring Procedure	PRO-0150
	Environmental Monitoring and Measuring Schedule	REG-0008
	Environmental Attended Noise Monitoring Work Instruction	WKI-0181
	Procedure Incident Management	PRO-0148
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 Development Consent 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 – Step Change Project (2013)	
Environmental Assessment	Heggies Pty Ltd, 2006. Northparkes – E48 Project Noise and Blasting Assessment.	
Supporting Document	Heggies Pty Ltd, 2007. Northparkes Noise Monitoring Program	

12. DEFINITIONS

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)

13. APPENDIX 1 – APPROVED MANAGEMENT PLAN

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 Aproval 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 5th 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 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 Aproval 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