DARGUES
GOLD MINE

Noise Management Plan

for the

Dargues Gold Mine

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Noise Management Plan

for the

Dargues Gold Mine

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Document Title	Noise Management Plan				
Document Number	DGM – 040508 - NMP				
Document Owner	HSEC Superintendent				
Revision	**Company**	**Date**	**Originator**	**Reviewed**	**Approved**
Original	Spectrum Acoustics		Neil Pennington		
Revision 1	Spectrum Acoustics	09/11/2011	Neil Pennington	Mitchell Bland	AJ Saverimutto
Revision 2	R.W. Corkery	15/02/2013		DoPI	Mitchell Bland
Revision 3	Unity Mining	16/12/2013		James Dornan	Scott Jones
Revision 4	Diversified Minerals	23/01/2017	James Dornan	Mitchell Bland	DPE
Revision 5	Diversified Minerals	24/07/2017	James Dornan	Len Sharp	DPE
Revision 6	R.W. Corkery	22/08/2019	Jack Flanagan	James Dornan	
Next Review Due	Within 3 months of: • the submission of an annual review under Condition 5(3); • the submission of an incident report under Condition 5(6); • the submission of an audit report under Condition 5(8); and • any modification to the conditions of MP10_0054.				

CONTENTS

Page

FIGURES

TABLES

1. INTRODUCTION

This Noise Management Plan was originally prepared by Spectrum Acoustics in 2011 on behalf of Big Island Mining Pty Ltd (the Company) for the Dargues Gold Mine (the Project). This version of the plan is Revision 6 and has been prepared by R W Corkery & Co Pty Limited and reviewed by the Company.

The Project Site is located approximately 60km southeast of Canberra, 13km south of Braidwood and immediately north of the village of Majors Creek. The Project consists of an underground gold mine, a run-of-mine (ROM) pad, temporary waste rock emplacement, processing plant, tailings storage facility and associated infrastructure and ancillary activities.

This document has been prepared in satisfaction of *Condition 3(5)* of Modified Project Approval (MP) 10_0054 MOD4 and describes the following.

- The consultation undertaken during preparation of this document.
- The legal and other requirements associated with management of noise emissions from the Project Site.
- The objectives and key performance outcomes for this plan and the Project.
- Surrounding residences and potential noise sources and impacts.
- Noise management measures that would be implemented during construction and operation of the Project.
- Noise-related monitoring that will be undertaken.
- Evaluation of compliance with noise criteria.
- Complaints handling and response procedures that will be implemented.
- Corrective and preventative actions that will be implemented should exceedance of the relevant criteria be identified.
- Incident reporting procedures.
- Publication of monitoring information.
- Roles and responsibility.
- Competence training and awareness.
- Document review.

The Project is fully described in the following documents and no further background information is provided in this document.

- *Environmental Assessment* dated September 2010 and associated documentation prepared to support the application for Project approval.
- *Mining Operations Plan* dated April 2017.
- *Environmental Assessment – Modification 1* dated April 2012.

- *Response to Government Agency and Public Submissions for the Dargues Reef Gold Project - Modification 1* dated June 2012.
- *Environmental Assessment – Modification 2* dated July 2013.
- *Response to Government Agency and Public Submissions for the Dargues Reef Gold Project - Modification 2* dated September 2013.
- *Environmental Assessment – Modification 3* dated August 2016.
- *Response to Government Agency and Public Submissions for the Dargues Gold Mine - Modification 3* dated November 2015.
- *Statement of Environmental Effects for the Dargues Gold Mine – Modification 4* dated November 2018.
- *Response to Submissions for the Dargues Gold Mine – Modification 4* dated January 2019.

In addition, a range of management plans have been prepared to guide operations within the Project Site. These include the following.

- *Aboriginal Heritage Management Plan*
- *Air Quality and Greenhouse Gas Management Plan*
- *Biodiversity Management Plan*
- *Blast Management Plan*
- *Bushfire Management Plan*
- *Water Management Plan*
- *Traffic Management Plan*
- *Waste Management Plan*

2. CONSULTATION

The following consultation was undertaken during preparation of this document.

- An email requesting requirements for the original versions of the *Noise Management Plan* was provided to the Department of Planning and Infrastructure, Office of Environment and Heritage, and Palerang Shire Council on 8 September 2011. No responses were received by 11 October 2011.
- A draft copy of this document was provided to Office of Environment and Heritage and Palerang Shire Council for review and comment on 17 October 2011. A response was received from both agencies on 24 October and 8 November 2011 respectively.
- A copy of Revision 3 of this document was provided to the Department of Planning and Environment on 15 October 2015.

- A draft copy of this document was provided to the EPA and Queanbeyan – Palerang Regional Council on 22 September 2016. No responses had been received by 7 November 2016 when this plan was submitted to the Department of Planning and Environment.
- A draft copy of Revision 5 of this document was provided to the DPE on 24 July 2017 for review following completion of an independent audit of the Project's approval conditions. As the changes to the Plan were minor and did not significantly alter the operation of the Plan, consultation with other regulatory agencies was not undertaken.
- An email requesting advice and requirements for Revision 6 of this document was provided to the NSW Environment Protection Authority and Queanbeyan-Palerang Council on 8 August 2019. No response was received.
- A draft copy of revision 6 of this document was provided to the Environmental Protection Authority (EPA) on 22 August 2019 for review and comment. Additionally, a draft copy of this document was provided to the Community Consultative Committee (CCC) for review and comment. No response was received from either the EPA or CCC by 2 December 2019.

All feedback from the above agencies was taken into consideration when preparing and finalising this document.

Community consultation was also undertaken through informal and formal consultation processes. A Community Information Line (1800 732 002) was established in May 2010 to provide residents with an avenue for consultation. A range of feedback in relation to noise associated with the approved exploration operations was received from residents surrounding the Project Site. That feedback indicated that some residents within the Majors Creek community regard noise management as a critical issue for the Project. That feedback has been taken into account during the preparation of this plan.

3. LEGAL AND OTHER REQUIREMENTS

The Project received Project Approval (PA) 10_0054 on 2 September 2011 pursuant to the *Environmental Planning and Assessment Act 1979* (EP&A Act). Following two appeals to the Land and Environment Court, the Court subsequently granted Project Approval on 7 February 2012. Modification 1 for the use of paste fill at the Project Site was subsequently approved by the Director-General of the Department of Planning and Infrastructure on 12 July 2012 (MP10_0054). Modification 2 to regularise changes to the layout of the project was subsequently approved on 24 October 2013. Modification 3 for an extension of the mine life and increase in the resource extracted was subsequently approved on 10 August 2016. Modification 4 for the relocation of the approved heavy vehicle crossing of Spring Creek and the reinstatement of the previously approved access track from the Site Access Road to the Tailings Storage Facility was subsequently approved on 23 May 2019.

The Project Approval stipulates the required criteria that the construction and operational activities of the Project must comply with and sets out the core requirements of this Management Plan. Relevant conditions associated with MP10_0054 MOD4 are reproduced in **Table 3.1** below.

Table 3.1 Relevant Conditions – MP10_0054

NOISE

3(1) **Noise Criteria**

The Proponent shall ensure that the noise generated by the project does not exceed the following criteria at any residence on privately-owned land or on more than 25% of any privately-owned land.

Location	*Day* $L_{Aeq(15min)}$	*Evening* $L_{Aeq(15min)}$	*Night*	
			$L_{Aeq(15min)}$	$L_{A1(1min)}$
All privately owned land	35	35	35	45

Note: Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.
However, these criteria do not apply if the Proponent has a written agreement with the relevant landowner to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

3(2) **Traffic Noise Criteria**

The Proponent shall take all reasonable and feasible measures to ensure that the traffic noise generated by the project does not exceed the following traffic noise criteria.

Road	*Day* $L_{Aeq(15min)}$	*Evening* $L_{Aeq(1hour)}$
Majors Creek Road, Araluen Road, Captains Flat Road, Coghill Street and Wallace Street	55	50

Note: Traffic noise generated by the project is to be measured in accordance with the relevant procedures in the NSW Road Noise Policy.

3(3) **Operating Hours**

The Proponent shall comply with the following operating hours.

Activity	*operating Hours*
Vegetation clearing, topsoil stripping, construction of the box cut and rehabilitation	Day
Remainder of construction activities	Day / evening / night
Mining, paste filling, maintenance and processing operations	Day / evening / night
Crushing operations (including operation of front end loader)	7am-7pm, 7 days per week
Transportation	Day / evening

Note:
- Crushing operations may be undertaken outside of these hours on a maximum of 20 days per year.
- Condition 41 includes additional restrictions on transportation times.
- Conditions 6 and 7 include restrictions on blasting times (considered in the BMP).

NOISE	
3(4)	**Operating Conditions** The Proponent shall: • Implement best practice noise management, including all reasonable and feasible noise mitigation measures to minimise the operational and road traffic noise generated by the project; • Investigate ways to minimise the noise generated by the project, including any reversing alarms on machinery or vehicles; • Minimise noise impacts during temperature inversions; and • Report on these investigations and the implementation and effectiveness of these measures in the Annual Review, to the satisfaction of the Secretary.
3(5)	**Noise Management Plan** 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 EPA and Council, and submitted to the Secretary for approval prior to the commencement of construction; (b) describe the noise mitigation measures that would be implemented to ensure compliance conditions of 1-4 of this schedule; and (c) include a noise monitoring program that: • uses a combination of unattended and attended monitoring to evaluate the performance of the project; and • includes a protocol for determining exceedances of the relevant conditions of this approval.

Other relevant requirements include an Environmental Protection Licence issued under Protection of the Environment Operations Act 1997 (PoEO Act). The PoEO Act is the principal piece of legislation governing noise emissions in NSW.

Table 3.2 presents the requirements for this plan and where each is addressed in this document.

Table 3.2 Project Approval Requirements

Requirement	Section
Condition 3(5)	
Noise Management Plan	
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 OEPA and Council, and submitted to the Secretary for approval prior to the commencement of construction;	2
(b) describe the noise mitigation measures that would be implemented to ensure compliance conditions of 1-4 of this schedule; and	7
(a) include a noise monitoring program that: • uses a combination of unattended and attended monitoring to evaluate the performance of the project; and • includes a protocol for determining exceedances of the relevant conditions of this approval.	8 and 9

Requirement	Section
Condition 5(2)	
Management Plan Requirements	
The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include: (a) detailed baseline data;	NA[1]
(b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria;	3 Table 1
• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Table 1
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	7
(d) a program to monitor and report on the: • impacts and environmental performance of the project; • effectiveness of any management measures (see c above);	8 to 13
(e) a contingency plan to manage any unpredicted impacts and their consequences;	11
(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	11 and 13
(g) a protocol for managing and reporting any: • incidents**;** • complaints; • non-compliances with statutory requirements; and • exceedances of the impact assessment criteria and/or performance criteria; and	12 10 9 to 11 9 to 12
(h) a protocol for periodic review of the plan.	16
Note: The Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	
Note 1: Detailed baseline noise data are not required because the default Industrial Noise Policy background of 30dB(A) has been assumed during the noise assessment.	

4. OBJECTIVES AND OUTCOMES

Table 4.1 presents the objectives and key performance outcomes for this *Noise Management Plan* and the Project.

Table 4.1 Objectives and Key Performance Outcomes

OBJECTIVES	KEY PERFORMANCE OUTCOMES
Noise	
To ensure compliance with all relevant Project Approval and Environmental Protection Licence criteria and reasonable community expectations.	Compliance with all relevant criteria and reasonable community expectations, as determined in consultation with the relevant government agencies.
To implement appropriate noise management and mitigation measures during all stages of the Project.	All identified noise management and mitigation measures implemented.
To implement an appropriate attended and unattended noise monitoring program to establish compliance or otherwise with relevant criteria during all stages of the Project.	All identified monitoring undertaken in accordance with the relevant procedures and at the relevant intervals
To implement an appropriate complaints handling and response protocol.	Complaints (if any) handled and responded to in an appropriate manner.
To implement appropriate corrective and preventative actions, if required.	Corrective and preventative actions implemented, if required
To implement an appropriate incident reporting program, if required.	Incidents (if any) reported in an appropriate manner.

5. SURROUNDING RESIDENCES

Figure 1 and **Table 8.1** display the location of residences surrounding the Project Site and the attended and unattended noise monitoring locations.

6. POTENTIAL NOISE SOURCES AND IMPACTS

6.1 POTENTIAL NOISE SOURCES

The sound power levels of acoustically significant plant and equipment utilised in predictive noise modelling presented in the RWC (2010) are provided in **Table 6.1.**

Table 6.1 Acoustically Significant Plant and Equipment

Noise Source	Sound Power Level (dB(A))	
Site establishment noise sources	$L_{Aeq(15min)}$	
Building fabrication at surface facilities	106	
Lighting plant[1]	82	
Generator set	98	
Crane	104	
Front end loader (FEL)	112	
Dozer (D9)	114	
Excavator	114	
Topsoil scraper	114	
Haul truck	115	
Drill	113	
Operational noise sources	$L_{Aeq(15min)}$	L_{Amax}
Front end loader (CAT 950H)	107	114
Crushing plant[2]	109	112
Breaker (used 5 minutes per hour)	101	113
Ventilation fan[3]	94	--
Haul truck[4]	102	116
Flotation cell	105	105
Ball mill (rubber lined)	105	108
Water pump	98	98
Semi-trailer[4]	98	103
Note 1: With conveyor belt noise barrier, as measured on site March 2010. Note 2: Enclosed in shed (unattenuated sound power level is 122dB(A) as measured at a similar operation). Note 3: Located at least 10m below ground level. Note 4: Time-based correction as the trucks would only briefly be at the surface in a given 15 minute period.		
Source: Spectrum Acoustics (2010) - Table A1 of Appendix 1		

In addition, noise would be generated by Project-related heavy vehicles travelling between the Project Site and Braidwood on the approved Road Transportation Route.

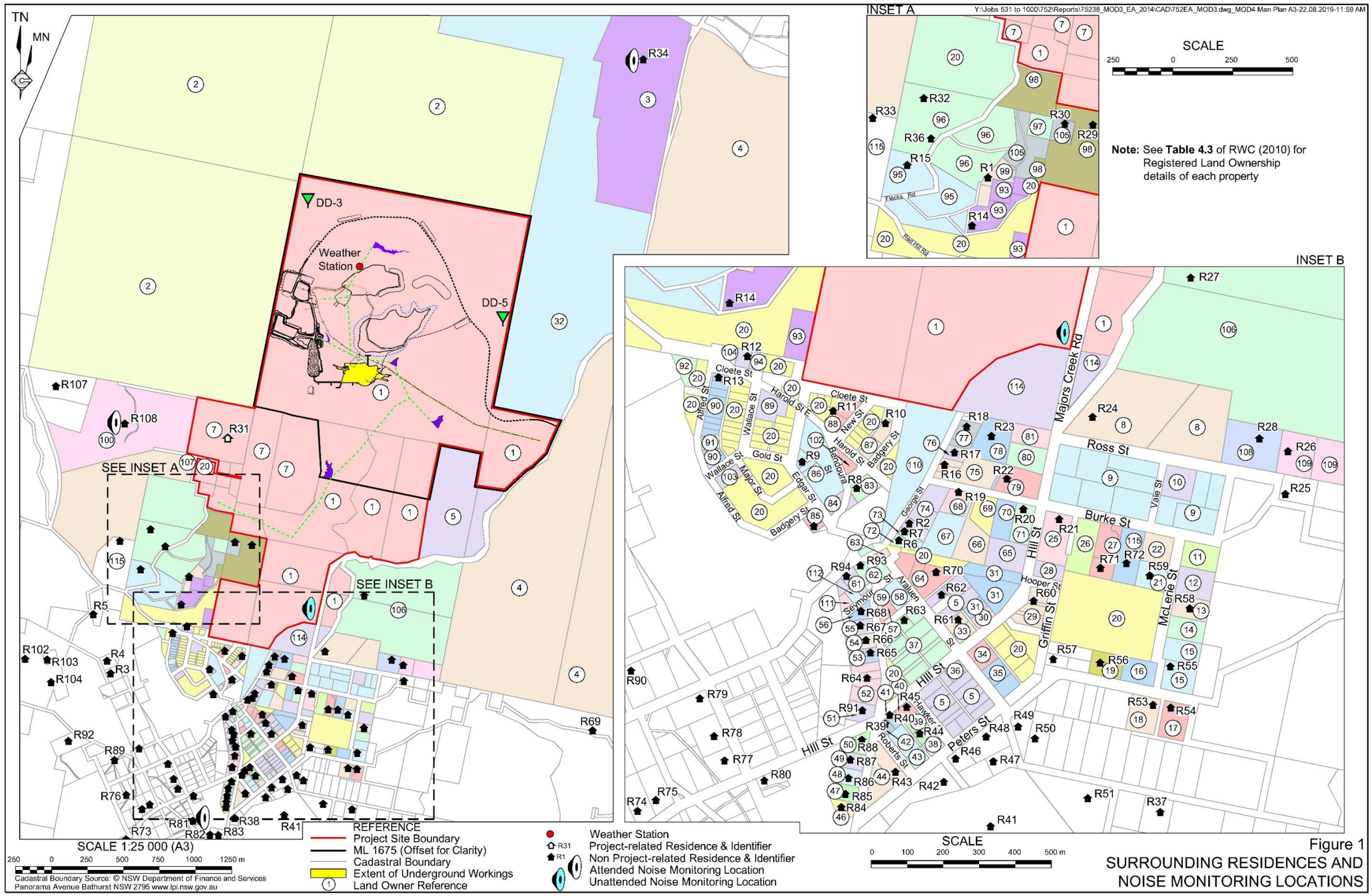

Figure 1 Location of Residences Surrounding the Project Site

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6.2 POTENTIAL NOISE IMPACTS

The results of the noise modelling and assessment are presented in Section 4.2.5 RWC (2010). In summary, the noise assessment concluded that Project-related noise levels would comply with the nominated site establishment, operational, sleep disturbance and road traffic noise criteria at all residences under calm conditions and temperature inversions.

7. NOISE MANAGEMENT MEASURES

7.1 INTRODUCTION

Condition 3(5)(b) of MP10_0054 MOD4 requires that this document describe the noise mitigation measures that will be implemented to ensure compliance with Condition 3(1) to 3(4) (**Table 1**). This section has been prepared in part satisfaction of that requirement.

7.2 OPERATING HOURS AND CONDITIONS

The Company will ensure that the operating hours and conditions identified in *Conditions 3(3)* and *3(4)* of MP10_0054 MOD4 are strictly complied with. For completeness, the approved operating hours are provided below in **Table 7.1**.

Table 7.1 Operating Hours

Activity	Operating Hours
Vegetation clearing, topsoil stripping, construction of the box cut and rehabilitation	Day
Remainder of construction operations	Day / evening / night
Mining, paste filling, maintenance and processing operations	Day / evening / night
Crushing operations (including operation of front-end-loader)	7am-7pm, 7 days per week
Transportation	Day / evening

7.3 ENGINEERING NOISE CONTROLS

Spectrum Acoustics (2010) identified that targeted noise attenuation measures would need to be applied to several major noise sources in order for the noise criteria to be achieved. The Company has accepted these recommendations and the following engineering noise controls will be implemented.

- Primary and Secondary Crusher - contain within a building engineered to achieve a minimum 12dB noise reduction (nominally Rw + Ctr = 15).
- Grinding Circuit - rubber line the grinding circuit.

- Ventilation fan - placed at least 10m below ground level rather than at the surface.
- ROM pad - construct a 5m high bund along the southern and western edge of the ROM pad.
- Reversing Alarms - investigate and implement alternative reversing alarm options, including frequency modulated alarms, proximity alarms and visual alarms. Such alternative alarms will only be implemented if the Company is satisfied that the safety-related risks of the alternative alarm is acceptable.

7.4 PROCEDURAL NOISE CONTROLS

The following best practice noise management measures will be implemented.

- Mobile plant will be fitted with high efficiency mufflers, where available. These will be maintained to manufacturer's specifications.
- Regular and effective maintenance of all equipment including vehicles moving on and off the Project Site. Prompt attention will be given to repair of loose or rattling parts and broken equipment. All maintenance work will be carried out by qualified persons.
- All Project-related personnel, including contractors and their employees, will be made aware of their obligations and responsibilities with regard to minimising noise emissions. Contractors will familiarise themselves with methods of controlling noisy machines and alternative construction procedures as identified in AS2436-1981 *Guide to Noise Control on Construction, Maintenance and Demolition Sites*.

7.5 SOUND POWER LEVELS

Equipment used within the Project Site will typically be required to achieve the sound power levels identified in **Table 6.1**.

7.6 STATEMENT OF COMMITMENTS

In accordance with the Statement of Commitments prepared by the Proponent and included as Appendix 5 of MP10_0054 MOD4, the Company will implement the noise-related management and mitigation measures presented in **Table 7.2**.

Table 7.2 Noise-related Commitments

<table>
<tr><th colspan="3">4 NOISE AND BLASTING</th></tr>
<tr><td rowspan="4">Noise generated by operational activities does not exceed EPA nominated criteria nor significantly impacts on neighbouring landowners and/or residents.</td><td>Site Establishment Noise Controls</td><td rowspan="2">Continuous during site establishment operations.</td></tr>
<tr><td>4.2 Maintain the on-site road network to limit body noise from empty trucks travelling on internal roads.</td></tr>
<tr><td>4.3 Maintain an open dialogue with the surrounding community and neighbours to ensure any concerns over noise or vibration are addressed.</td><td rowspan="3">Prior to and continuous during mining operations.</td></tr>
<tr><td>Operational Noise Controls
4.4 Place and operate the crusher within an enclosure engineered to achieve a noise reduction of at least 12dB.
4.5 Ensure that the grinding circuit is rubber lined.
4.6 Place and operate the ventilation fan at least 10m below ground level rather than at the surface. The interim ventilation fan would be placed within the deepest section of the box cut until the final fan is commissioned. The interim fan may be retained as a backup ventilation system in the event of failure of the final fan.</td></tr>
<tr><td>4.9a Ensure that Frequency Modulated Reversing Alarms are fitted to all mobile equipment that require such alarms.</td><td>Continuous during the life of the Project</td></tr>
<tr><td>All activities are undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents.</td><td>4.11 Ensure, where practicable, that all Project employees and contractors enter and exit the Project Site in a courteous manner and without causing undue traffic noise.</td><td>Continuous during transportation operations.</td></tr>
<tr><td rowspan="3">All activities are undertaken in such a manner as to reduce the noise level generated and minimise impacts on surrounding landholders and/or residents.</td><td>Other Noise and Vibration Controls
4.14 Ensure that equipment with lower sound power levels is used in preference to more noisy equipment.</td><td rowspan="3">Continuous during mining operations.</td></tr>
<tr><td>4.15 Maintain an open dialogue with the surrounding community and neighbours to ensure any concerns over noise or vibration are addressed.</td></tr>
<tr><td>4.16 Ensure that the noise generated by the project does not exceed the criteria below on more than 25% of land within the Majors Creek State Conservation Area.
<table>
<tr><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 (1 min)</th></tr>
<tr><td>35</td><td>35</td><td>35</td><td>45</td></tr>
</table>
Note: Noise generated by the project is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy</td></tr>
</table>

8. NOISE-RELATED MONITORING

8.1 INTRODUCTION

Condition 3(5)(c) of MP10_0054 MOD4 requires that this plan include a noise monitoring program that uses a combination of attended and unattended monitoring to evaluate the performance of the Project and include a protocol for determining exceedances of the relevant conditions of the approval. This sub-section has been prepared in part satisfaction of that requirement.

8.2 ATTENDED MONITORING

8.2.1 Purpose

The purpose of the attended noise monitoring will be to determine compliance with the criteria identified in Condition 3(1) of MP10_0054 MOD4 and to verify the results of the unattended noise monitoring.

8.2.2 Noise Monitoring Locations

Table 8.1 and **Figure 1** present the proposed attended noise monitoring locations. The Company has consulted with the owners of each of the identified residences and received approval for the monitoring to be undertaken. Should circumstances require, the monitoring locations may be amended.

In addition, noise monitoring at additional locations may be undertaken if required. This may include, for example, in response to a noise-related complaint.

Table 8.1 Attended Noise Monitoring Locations

Monitoring Location	Resident Identifier	Land Ownership	Northing	Easting
NM-1	R29	Private Landowner	35.555235,	149.737671
NM-2	R108	Dargues Gold Mine Pty Ltd	35.548927	149.729799
NM-3	R20	Private Landowner	35.561236,	149.743653
NM-4	Unattended	Dargues Gold Mine Pty Ltd	35.561236	149.743653
NM-5	R27	Private Landowner	35.559346	149.747184
NM-6	R34	Private Landowner	35.527268	149.770834

8.2.3 Methodology

Attended noise monitoring will be undertaken by an independent, suitably qualified acoustic consultant initially quarterly as a minimum, commencing during the initial stages of construction operations. The Company may undertake more frequent attended noise monitoring during the initial stages of the Project to ensure that the proposed noise-related management and mitigation measures are operating as anticipated.

Attended noise monitoring will be undertaken over a 24-hour period to cover the day, evening and night time periods. All attended noise monitoring will be conducted in accordance with the requirements of the following documents, as amended.

- Noise Policy for Industry (2017) (replaces the NSW Industrial Noise Policy).
- AS 1055:2018 *Acoustics – Description and Measurement of Environmental* Noise (replaces AS 1055.1-1997 *Acoustics – Description and Measurement of Environmental Noise – General Procedures*).

Attended monitoring will be undertaken using a Type 1 integrating sound level meter with 1/3 octave filter, and will be set to A-weighting (fast response). Attended noise monitoring will expressly seek to identify and quantify modification factors.

All acoustic instrumentation employed throughout the monitoring program will comply with the requirements of AS/NZS IEC 61672.1:2019 *Electroacoustics – Sound Level Meters Specifications* (replaces AS IEC 61672-2004, *Electroacoustics - Sound Level Meters*), as amended, and will carry current NATA or manufacturer calibration certificates. Instrument calibration will be checked before and after each survey, with the variation in calibrated levels not exceeding ±0.5dBA.

Typically measurements will be taken during the day, evening and night-time period at each monitoring location so that noise levels during the full range of operating times / activities are monitored. The maximum (L_{Amax}), average maximum (L_{A10}) and the energy equivalent (L_{Aeq}) intrusive noise level from mining operations over a 15 minute measurement period will be recorded. In addition, the operator will quantify and characterise the overall levels of ambient noise (i.e. L_{Amax}, L_{A1}, L_{A10}, L_{A50}, L_{A90}, L_{A99}, L_{Amin} and L_{Aeq}) over the 15 minute measurement interval.

Information that will be recorded during monitoring and about each location will include:

- the operator's name;
- monitoring locations;
- recording intervals (date and time);
- meteorological conditions (i.e. temperature, humidity, cloud cover, and wind speed and direction);
- statistical noise level descriptors together with notes identifying the principal noise sources;
- instrument make, model, serial number and calibration details; and
- a brief description of activities occurring within the Project Site during the monitoring period.

Any significant mine generated noise sources (i.e. haul trucks, bulldozers, front-end loaders, etc.) will be recorded, together with any extraneous noise sources. In addition, the Company will maintain copies of the relevant fixed plant and mobile equipment mining operating shift logs and mining locations for inclusion in the noise monitoring report.

In the event of an exceedance of the relevant noise criteria, the noise consultant will contact the relevant site personnel and promptly advise them of the exceedance and inform them of the location, margin of exceedance and source of noise emission. The trigger action and response plan included in **Table 8.3** would be implemented.

8.3 UNATTENDED MONITORING

8.3.1 Purpose

The purpose of the unattended or real-time noise monitoring will be as an internal noise management tool and as a trigger for formal attended noise monitoring for compliance purposes. The use of unattended noise monitoring will aid in the proactive management of noise levels generated by the Project and will allow for a process of continuous improvement in this area as a better understanding of the Project's noise emissions under specific conditions is developed.

8.3.2 Methodology

A mobile unattended noise monitor will initially be installed in the southern section of the Project Site as indicated on **Figure 1** and will be programmed to record the following when construction or mining-related operations are being undertaken within the Project Site.

- Statistical noise parameters (including LA_1, LA_{10}; LA_{90}).
- LAeq (15min) in 1/3 octaves to enable frequency analysis.
- Periodic audio files (period nominally 1 minute per 15 minute period).

If required, the noise monitor may be moved to investigate noise emissions under various meteorological conditions in different locations or in response to complaints.

The unattended noise monitor will be calibrated against the results of the attended noise monitoring and a series of noise investigation triggers will be established. Data from the unattended noise monitor will be retrieved via remote telemetry and will be compared with the identified noise investigation triggers, initially on a daily basis and following receipt of a noise-related complaint (see **Section 10**).

Upon installation of the real-time noise monitor, a noise investigation trigger level equivalent to 33dB(A) (i.e. 2dB below the operation noise criterion) will be adopted.

Should the recorded noise levels exceed the identified noise investigation trigger levels, the Company will undertake an investigation in accordance with the protocol outlined in **Section 8.4**.

8.4 TRIGGER, ACTION AND RESPONSE PLAN

The Trigger, Action and Response Plan (TARP) for the is designed to allow proactive management of environmental risks in a clear and easily understood format. **Table 8.1** lists the four Event Levels used to categorise events associated with noise monitoring at the Project Site and **Table 8.2** presents the noise monitoring TARP for the Project.

Table 8.2 Event Levels and Description

Event Level	Description
Normal	Event level is equivalent to steady state operations at the Project Site and only minor review or course of action is anticipated.
Level 1	Indicates a change from steady state operations and that review or course of action will likely be required.
Level 2	A significant departure from steady state operations that requires implementation of the planned actions, additional monitoring and further resources to be applied. Notification of Senior on site Management is mandatory.
Level 3	Immediate action is required to minimise potential impacts to the environment and human health. Notification of relevant regulatory agencies is mandatory.

Table 8.3 Noise Monitoring - Trigger Action Response Plan

Noise Monitoring - TARP					
Event Level	Trigger	Action / Planned Response	Immediate Contact	Mandatory Analysis Team	Reportable
Level 1	Monthly review of the audio data from the unattended noise monitor.	Continue monitoring program as prescribed in the *Noise Management Plan*.	None required.	HSEC Superintendent	No
Level 2	Exceedance of 33dB(A) but less than 35dB(A).	Undertake attended noise sampling where possible to confirm results. Investigate possible causes.	Mine Manager Process Plant Manager	HSEC Superintendent	No
Level 3	Exceedance of 35dB(A).	Undertake attended noise sampling where possible to confirm results. Investigate possible causes. Review activities that are being undertaken at the time of the exceedance and reduce or undertake in a different manner to reduce noise generation. Undertake further attended noise sampling.	General Manager Mine Manager Process Plant Manager Relevant Government Agencies	General Manager Mine Manager Process Plant Manager Mining Geologist HSEC Superintendent	No
Level 4	Exceedance of 35dB(A) is ongoing or exceedance of noise criteria[1].	Review activities that are being undertaken at the time of the exceedance and further reduce or undertake in a different manner to reduce noise generation. Put in place a plan to manage noise in consultation with the relevant regulatory agencies. Undertake further attended noise sampling.	Company Director General Manager Mine Manager Process Plant Manager Relevant Government Agencies	Company Director General Manager Mine Manager Process Plant Manager HSEC Superintendent Government Agencies	Yes

Note: Applicable to both attended and unattended noise monitoring.

Note 1: Exceedance of 35dB(A) and exceedance of relevant noise criteria i.e. exceedance of 35 dB LAeq(15 minute) during day, evening, or night periods or 45 dB LAeq(1 minute) during night periods, or traffic noise exceedance of 55 dB LAeq(15 minute) during day periods or 50 dB LAeq(1 hour) during night periods.

8.5 SUPPLEMENTARY NOISE SURVEY

In the event of a noise-related complaint, the Company would initially review the results of the unattended noise monitoring program (see Section 8.4) and make the results of that monitoring and/or subsequent investigation available to the complainant. In the event that this does not resolve the complaint, the Company would undertake a supplementary attended noise survey as described in **Section 10.**

In addition, the Company may, particularly during the initial stages of the Project, undertake supplementary attended noise surveys in accordance with the procedures identified in **Section 8.3**.

8.6 METEOROLOGICAL MONITORING

All attended noise measurements will be accompanied by a qualitative description of meteorological conditions, including cloud cover. In addition, quantitative measurements of climate data will be made through the use of an automated weather station which will record:

- rainfall;
- temperature at 10m;
- temperature at 2m;
- relative humidity;
- net solar radiation;
- sigma theta;
- wind direction; and
- wind speed.

8.7 TRAFFIC NOISE MONITORING

During the initial stages of the Project and annually thereafter, the Company would undertake a traffic noise monitoring program at 600 Majors Creek Road, the closest residence to Majors Creek Road between the Project Site and the intersection with Araluen Road. The owner of that residence, J Keirs, has previously requested traffic noise monitoring at the residence.

This program will be undertaken in conjunction with the attended noise monitoring program and will incorporate the following procedures.

- Noise contributions from individual light and heavy vehicles will be determined through direct measurement by the acoustic consultant.
- Automated traffic counters will be placed for 7 days in the vicinity of the residence to determine the peak 1 hour day time volume of light and heavy vehicles using Majors Creek Road.
- The Company will record the numbers of heavy and light vehicles arriving at and departing the Project Site during the same 7 day period.

- The acoustic consultant will calculate, based on the above information, the total traffic noise level at the residence and the Project-component of that noise. That information will be included in the noise monitoring report.

9. EVALUATION OF COMPLIANCE

A noise monitoring report will be prepared by the attending consultant within 7 days of each attended noise monitoring event. In the case of the traffic noise monitoring report, the report will be prepared within 7 days of receipt of the traffic count data.

That report will include an assessment of the monitoring results against the criteria identified in *Condition 3(1)* and *3(2)* of MP10_0054 MOD4. The monitoring report will be reviewed by the Environmental Supervisor and a copy included within the Annual Environmental Management Report.

In the event that the noise monitoring report identifies an exceedance of the relevant criteria, the procedures identified in Section 12 will be implemented.

10. COMPLAINTS HANDLING AND RESPONSE

The *Environmental Management System* includes a detailed complaints management procedure. This sub-section records the procedures that would be implement following receipt of a noise-related complaint.

Noise-related complaints may be received either via one of the following methods.

- Directly via the 24-hour, 7 day per week Community Information Line (1800 732 002). This number is advertised widely in the local media, on signage at the Project Site entrance and on the Project website.
- Directly via a dedicated email (DGM.Community@divminerals.com.au) address which is advertised in a similar manner to the Community Information Line.
- Directly via the Project website (www.divminerals.com.au).
- Indirectly via the relevant government agencies.

In addition, regular public meetings will be held with the community as part of the Company's standard consultation procedures. These meeting will provide a further forum at which complaints may be received.

Following receipt of any noise-related complaint, the Company would implement the following procedure.

1. The complaint will be reviewed by the Environmental Supervisor or their delegate to determine the nature, date and time of the noise source.

2. The unattended noise monitoring data for the relevant period would be examined and a report prepared as identified in **Section 8.3.2**. A copy of the resulting report would be made available to the complainant, and the Environmental Supervisor or their delegate would contact the complainant to discuss and attempt to resolve the complaint. Further noise management measures and unattended noise monitoring may be undertaken if required in consultation with the complainant.
3. In the event that the procedures identified in Step 2 above resolve the issues raised, no further action would be taken. In the event that the complaint is not resolved, then a supplementary attended noise survey will be undertaken within 1 month of the conclusion of Step 2 in accordance with the procedures identified in Section 8.3. The resulting attended noise monitoring report will be provided to the complainant upon receipt.
4. Should the attended noise monitoring report indicate no exceedance of the criteria identified in MP10_0054 MOD4, the Environmental Supervisor will continue to consult with the complainant in relation to managing noise emissions within the Project Site.
5. Should the attended noise monitoring report indicate an exceedance of the criteria identified in MP10_0054 MOD4, the Environmental Supervisor will notify the relevant government agencies in accordance with the procedures identified in **Section 12** and implement the procedures identified in **Section 11**. In addition, the Environmental Supervisor will continue to consult with the complainant in relation to the complaint.
6. In the event that multiple complaints are received from the same individual(s) and the Company can demonstrate:

    - at least three attended noise surveys at the residence in question have demonstrated compliance with the criteria identified in *Conditions 3(1)* and *3(2)*; and
    - there is documented evidence of a genuine attempt by the Company to discuss the issue and seek a resolution with the complainant;

    then the Company may, in consultation with the relevant government agencies, limit responses to further complaints to Steps 1 and 2 above.

11. CORRECTIVE AND PREVENTATIVE ACTIONS

In the event that attended noise monitoring identifies an exceedance of the noise criteria identified in *Conditions 3(1)* or *3(2),* the exceedance will be investigated to determine the likely cause. The investigation will seek to determine:

- whether the exceedance of the criteria was directly related to a source associated with the Project or if environmental factors contributed to the exceedance;
- the primary cause of the incident;
- any contributing factors which led to the incident;

- whether appropriate controls were implemented to prevent the incident; and
- corrective and preventative measures that may be implemented to prevent a recurrence of the incident.

Corrective and/or preventative actions will be assigned to relevant Company personnel. Actions will be communicated internally through planning meetings and toolbox talks and outstanding actions will be monitored for their effectiveness upon completion.

A copy of the investigation report and regular updates on the status of the identified corrective and/or preventative actions will be provided to the relevant government agencies and, if required, the complainant, in accordance with the procedures identified in **Section 12**. In addition, a copy of all reports will be included in the *Annual Environmental Management Report*.

12. INCIDENT REPORTING

In the event that an initial investigation concludes that the exceedance was directly attributed to activities associated with the Project, the event will be reported to NSW Department of Planning, Industry and Environment, the NSW Environment Protection Authority and other relevant agencies within 24 hours of detecting the exceedance.

Within 7 days of detecting the exceedance, the Company will submit a written report detailing investigations as described in **Section 11**.

13. PUBLICATION OF MONITORING INFORMATION

The Company will include all attended noise monitoring reports as appendices to the *Annual Environmental Management Report*. That document, once approved by the relevant government agencies, would be published on the Project website (www.divminerals.com.au).

In addition, the Company would place a copy of all attended noise monitoring reports, as well as incident and noise exceedance investigation reports on the Project website,

14. ROLES AND RESPONSIBILITY

ROLES	RESPONSIBILITY
General Manager	Must ensure adequate resources are available to enable implementation of the Plan.
Mining Manager	Accountable for the overall environmental performance of the Dargues Reefs Operations, including the outcomes of this Plan.
HSEC Superintendent	Ensure the implementation of this Plan, including reporting of non-compliances with the criteria identified in *Conditions 3(1) and 3(2).* Ensure employees are competent through training and awareness programs.

15. COMPETENCE TRAINING AND AWARENESS

All personnel shall undergo noise management awareness training as part of the Project Site induction program. The following areas will be covered in the induction:

- Use of broadband reverse alarms.
- Use of noise screens around lighting plant, generators and other stationary, surface noise sources.
- Awareness of prevailing wind directions and their potential to increase noise emissions downwind.
- Awareness of the noise enhancing effects of temperature inversions and the times of day and meteorological conditions under which they may occur.
- Procurement of new equipment to ensure noise limits are complied with.
- Monitoring of noise emissions at the nearest privately owned residential receivers.

The HSEC Superintendent shall be responsible for ensuring the appropriate Noise Management training is included in the induction.

16. REVIEW

In accordance with Condition 5(4) of MP10_0054 MOD4, this Plan will be reviewed and, if required, revised within 3 months of:

- the submission of an annual review under Condition 5(3);
- the submission of an incident report under Condition 5(6);
- the submission of an audit report under Condition 5(8); and
- any modification to the conditions of MP10_0054.

This review will include the adequacy of strategies, plans and programs as required under the Project Approval. In addition, **Figure 1** will be amended to reflect the approval/construction of new residences surrounding the Project Site. Recommendations for appropriate measures or actions to improve the environmental performance of the Project and/or any assessment, plan or program will be incorporated into this Plan.

17. REFERENCES

RW Corkery & Co Pty Limited (RWC) (2010), *Environmental Assessment.*

RW Corkery & Co Pty Limited (RWC) (2015), *Environmental Assessment – Modification 3*

Spectrum Acoustics (Spectrum (2010). 'Noise and Blasting Assessment', Specialist Consultant Studies Compendium prepared to support the Environmental Assessment for the Dargues Reef Gold Project', September 2010.