



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

# NOISE MANAGEMENT PLAN

<b>Edition</b>	<b>Rev.</b>	<b>Comments</b>	<b>Author</b>	<b>Authorised By</b>	<b>Date</b>
1	0	Initial document	Spectrum Acoustics	Chris Burgess	February 2006
	1	Amendments to monitoring locations and requirements	Trevor Thompson	Danny Young	November 2008
2	0	2010 Modification review	Jill Scealy	Danny Young	March 2011
	1	PA 11_0047 review	Lachy Johnson	Jill Johnson	June 2014
3	1	PA 11_0047 review	Lachy Johnson	Jill Johnson	September 2014
	2	PA 11_0047 review	Lachy Johnson	Jill Johnson	December 2014



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

**FOREWORD**

In accordance with Schedule 2, Condition 19 of Project Approval PA 11\_0047, Tarrawonga Coal Pty Ltd (TCPL) may submit any strategy, plan or program required by the Project Approval on a progressive basis, with the approval of the Director-General. Until they are replaced by an equivalent strategy, plan or program approved under the consent, TCPL will continue to implement the existing strategies, plans and programs that apply to any development on site in accordance with Schedule 2, Condition 20 of PA 11\_0047.

This Noise Management Plan will be submitted on a progressive basis.

TCM have been in consultation with the nearby Boggabri Coal Mine and Maules Creek Project in relation to developing a Leard Forest Mining Precinct Noise Management Strategy incorporating cumulative noise impacts and management, as required under the conditions of PA 11\_0047 for the Tarrawonga Coal Mine. The Strategy has been submitted to the Department of Planning and Environment (DP&E) for approval. Once approved, the Strategy will be appended to this Plan.



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

**Contents**

FOREWORD ..... 2

ACRONYMS USED THROUGHOUT THIS DOCUMENT ..... 5

1 INTRODUCTION ..... 6

2 NOISE IMPACT ASSESSMENT CRITERIA..... 10

    2.1 Noise Criteria ..... 10

    2.2 Noise Acquisition Criteria ..... 10

    2.3 Cumulative Noise Criteria ..... 12

    2.4 Attenuation of Plant ..... 14

    2.5 Operating Conditions ..... 14

    2.6 Noise Management Plan..... 15

    2.7 Noise Measurement..... 16

    2.8 Notification Requirements ..... 16

    2.9 On-line Information ..... 17

3 NOISE CONTROLS AND MANAGEMENT PROCEDURES ..... 18

    3.1 General and Specific Noise Mitigation Measures ..... 19

    3.2 Cumulative Noise Mitigation Measures ..... 21

    3.3 Noise Management Risk Assessment..... 21

4 MONITORING PROGRAM ..... 22

    4.1 Monitoring Activities ..... 22

    4.2 Monitoring Locations..... 23

    4.3 Monitoring Frequency ..... 26

    4.4 Monitoring Procedures..... 26

5 MANAGEMENT OF EXCEEDANCES, COMPLAINTS AND NON-COMPLIANCE ..... 29

    5.1 Noise Compliance Criteria Exceedance ..... 29

        5.1.1 Notification Requirements ..... 29

        5.1.2 Independent Review and Land Acquisition..... 29

    5.2 Complaints..... 29

    5.3 Non- Compliance ..... 30

    5.4 Unpredicted Impact Protocol..... 31

6 RECORD KEEPING AND REPORTING REQUIREMENTS..... 32

    6.1 Record Keeping ..... 32

    6.2 Reporting Requirements ..... 32

7 DOCUMENT REVIEW AND CONTINUOUS IMPROVEMENT ..... 32



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### Tables

Table 1	Current Operating Fleet .....	8
Table 2	Noise Monitoring Summary with Roles and Responsibilities .....	26
Table 3	Unpredicted Impact Protocol.....	31

### Figures

Figure 1	Tarrawonga Coal Mine Location .....	9
Figure 2	Noise Monitoring Locations.....	25

### Appendices

Appendix 1	Consultation with EPA .....	34
Appendix 2	Indicative Sound Power Levels .....	35
Appendix 3	Noise Risk/Response Matrix .....	37



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

**ACRONYMS USED THROUGHOUT THIS DOCUMENT**

AEMR	-	Annual Environmental Management Report
AS	-	Australian Standard
CCC	-	Community Consultative Committee
DP&E	-	Department of Planning and Environment
DRE	-	Division of Resources and Energy
EA	-	Environmental Assessment
EPA	-	Environment Protection Authority
EPL	-	Environment Protection Licence
GSC	-	Gunnedah Shire Council
ML	-	Mining Lease
Mtpa	-	Million tonnes per annum
NMP	-	Noise Management Plan
NSC	-	Narrabri Shire Council
TCM	-	Tarrawonga Coal Mine
TCPL	-	Tarrawonga Coal Pty Ltd



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### 1 INTRODUCTION

The Tarrawonga Coal Mine (TCM) is located approximately 15km northeast of Boggabri, 10km north of the Canyon Coal Mine (formerly Whitehaven, in closure) and south of, and adjacent to, the Boggabri Coal Mine (Figure 1). The mine site is contained within Mining Lease (ML) 1579, ML 1693 and ML 1685 as shown in Figure 1. The mine is being developed by Tarrawonga Coal Pty Ltd (TCPL), a joint venture between Whitehaven Coal Mining Pty Ltd (70%) and Idemitsu Boggabri Coal Pty Ltd (30%), and operates under Environment Protection Licence (EPL) 12365 and Project Approval PA 11\_0047.

It is recognised that the operation of the mine has the potential to generate noise impacts on surrounding properties and residences. In order to manage the potential noise impacts, and in compliance with Condition 3(12) of PA 11\_0047, this Noise Management Plan (NMP) has been developed. Potential noise sources from the Tarrawonga Mine Project include:

- Topsoil recovery using scrapers, excavators, dozers and trucks;
- Drill and blast activities;
- Open cut mining using predominantly hydraulic excavators and haul trucks;
- Haul road maintenance using dozers and graders;
- Overburden shaping and dozer push;
- Coal loading;
- Coal transport along Tarrawonga Haul Road to Gunnedah;
- Land rehabilitation activities;
- Maintenance activities; and
- Coal exploration drilling activities.

The NMP has been prepared with reference to relevant legislation, approvals and guidelines, follows the management plan requirements specified in Condition 5(3) of PA 11\_0047 and is consistent with the following documents:

- Tarrawonga Coal Project Environmental Assessment January 2012 – specifically Section 4.6; and
- Tarrawonga Coal Project – Appendix C Noise and Blasting Impact Assessment.

As required by PA 11\_0047, the EPA has been consulted during preparation of this plan (Appendix 1).

The NMP presents the relevant conditions of the PA 11\_0047 (Section 2) and includes noise controls and management procedures (Section 3) to assist with compliance with noise criteria identified in Section 2. Section 4 presents the specific features of the noise monitoring program including monitoring locations, parameters measured and frequency of monitoring whilst Section 5 includes procedures for addressing complaints, exceedances and non-compliances.



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

The Tarrawonga Coal Mine Modification Environmental Assessment and previous Annual Environmental Management Report/Annual Reviews (AEMR/Annual Review) for the site should be referred to for baseline data. It should be acknowledged that whilst the Noise Management Plan has been developed based on the noise assessment completed for the Tarrawonga Extension Project, several properties have since been acquired by Whitehaven Coal Limited. The private receptors that remain within proximity to the Tarrawonga site, and subject to monitoring requirements are identified in Section 4.2 and Figure 2.

At the time of development of this plan, there were no private agreements in place relating to noise impacts.

Key private residences in proximity to site, with noise level predictions between 30 and 35dB(A) (based on Year 4 of operations) comprise (see Figure 2):

- “Barbers Lagoon” (Property ID 79a)
- “Braymont” (Property ID 88)
- “Bungalow” (Property ID 89)
- “Bayley Park East” (Property ID 65a and 65b)
- “Coomalgah” (Property ID 60a)
- “Brighton” (Property ID 38a)

Based on the Project Approval and subsequent remaining privately owned receivers, the properties that retain acquisition rights in relation to noise impacts are:

- Laird Property (Property ID 49) – maximum predicted noise level = >40dB(A) on more than 25% of the land.

As per EPL 12365, meteorological conditions under which noise criterion does not apply are as follows:

- Wind speeds greater than 3 meters per second at 10 metres above ground level;
- Stability category F temperature inversion conditions and wind speeds greater than 2 metres per second at 10 metres above ground level; or
- Stability category G temperature inversion conditions<sup>1</sup>.

<sup>1</sup> In accordance with PA 11\_0047 noise criterion apply under stability category G temperature inversions

However, it must be noted that noise impacts are continuously monitored via a real time noise monitor under all meteorological conditions, with measures to reduce noise impacts undertaken when required.

The operating fleet in place at Tarrawonga at the time of preparing this plan is as per Table 1. Whilst the Tarrawonga mine is approved to produce up to 3 million tonnes per annum (Mtpa), current budget plans will result in a target production rate of up to 2 Mtpa. On this



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

basis, additional equipment to that identified in the following table is not anticipated at this time. Note that this fleet list may change from time to time. Any change in fleet will be identified in the AEMR/Annual Review and/or any updates to the Noise Management Plan.

**Table 1 Current Operating Fleet**

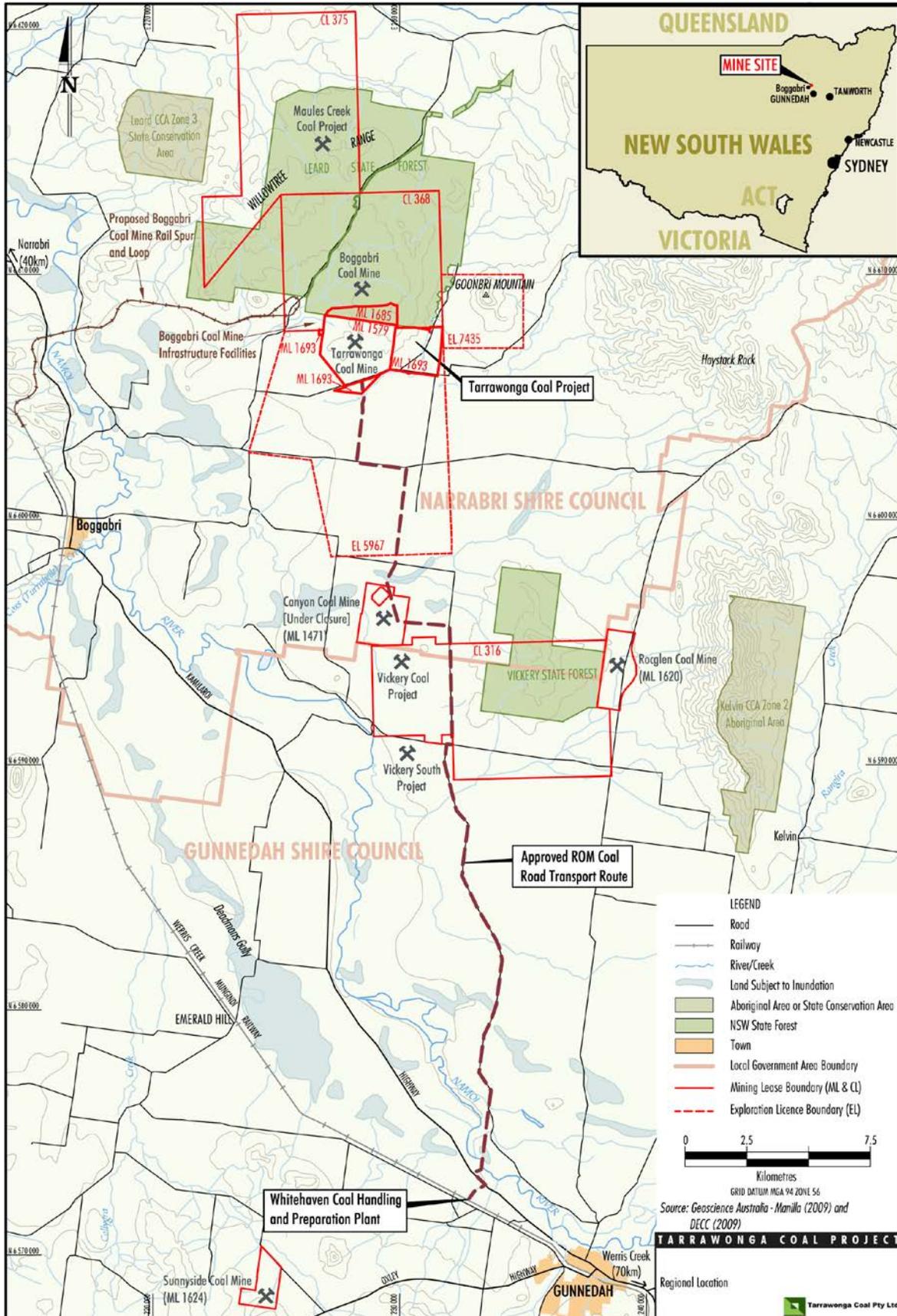
ITEM	NUMBER IN OPERATION	FUNCTION
O & K RH170 Excavator	3	Overburden excavation and loading
Hitachi EX1900 Excavator	1	Overburden / interburden / coal loading
CAT 785 Dump Trucks	11	
CAT 789 Dump Trucks	5	
Terex SKF Drill	1	Blasthole Drilling
Terex SKSW Drill	1	Blasthole Drilling
Cubex 1320 Drill	1 (p/t)	Blasthole Drilling
CAT D11R Dozer	3	Interburden / coal ripping / pushing; dump maintenance
CAT D10T Dozer	3	Interburden / coal ripping / pushing; dump maintenance
Water Cart	3	Dust Suppression
CAT 16M Grader	2	Road maintenance
Service Truck	2	Machinery servicing
Cummins Genset	2	Power for site offices, workshop and coal loader
Mobile Crusher	1	Crushing
IT38G Loader	2	Loading
Lighting Plant	15	Lighting
CAT 988H Loader	2	Coal Pad

As the current operating fleet at the Tarrawonga mine will continue to be utilised, with no additional fleet requirements at this time, there is currently no noise suppressed equipment operating at site that would require improvements with improved technology (as per Project Approval condition 9(a)). If new equipment is purchased for site, it would be sound suppressed as per the requirements of the Project Approval, which would then also trigger the requirements of condition 9(a).

It is noted that condition 11(f) and 11(g) reference noise management requirements related to the use of the rail spur line at Boggabri Coal. As access to this rail spur will not occur in the immediate future, no further consideration to this requirement is provided in this NMP. The internal annual review of the NMP and subsequent 2 yearly external review with relevant agencies will ensure compliance with this requirement once access to the rail spur has commenced.

It should be noted that road noise monitoring and management measures associated with coal haulage are addressed in the Road Noise Management Plan and are therefore not discussed in this Plan.

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**



**Figure 1 Tarrawonga Coal Mine Location**



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

**2 NOISE IMPACT ASSESSMENT CRITERIA**

**2.1 Noise Criteria**

In order to manage the potential noise impacts, and in compliance with Condition 3(12) of PA 11\_0047, this NMP has been developed.

Noise impact assessment criteria for the development were established in the Tarrawonga Coal Project EA using relevant DP&E and EPA guidelines. These criteria have been incorporated in PA 11\_0047 Condition 3(3) which states:

*Except for the land referred to in Table 1, the Proponent shall ensure that operational noise generated by the project does not exceed the criteria in Table 2 at any residence on privately owned land.*

Table 2: Noise Criteria dB(A)

Location	Day, Evening and Night LAeq (15 min)	Night LA1 (1 Min)
All privately-owned land	35	45

Notes:

- Operational noise includes noise from the mining operations and the use of private roads and rail spurs.
- Noise is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.

These noise criteria should be considered in conjunction with Conditions L4.3 to L4.5 of EPL 12365 which discuss monitoring requirements, prevailing meteorological conditions and contributing noise sources. The monitoring locations where the impact assessment criteria are assessed are specified in EPL 12365, as outlined in Section 4.2.

**2.2 Noise Acquisition Criteria**

In relation to noise acquisition, Condition 3(1) states:

*Upon receiving a written request for acquisition from an owner of the land listed in Table 1, the Applicant shall acquire the land in accordance with procedures in Conditions 8 – 9 of Schedule 4.*

Table 1: Land subject to acquisition upon request

Acquisition Basis	Property ID
Noise and Air	44, 45, 49
Noise	43, 47

- Properties 43, 44 and 45 also have acquisition rights under the approval for the Boggabri Coal mine, and/or the existing consent (DA 88-4-2005) for the Tarrawonga Mine. The Proponent may acquire these properties on an equitable basis with the owner of Boggabri mine
- For the single purpose of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the Proponent and the owners(s) cannot agree on whether non contiguous parcels of land



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

*should be included, either party may refer the matter to the Director-General for resolution. The Director-General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.*

Of the properties identified in Table 1 from the Project Approval, properties 43, 44, 45 and 47 have now been acquired by either Tarrawonga or Boggabri Coal. Preliminary discussions have been held with property 49 in relation to their rights for acquisition.

Apart from acquisition rights, the properties listed in Table 1 also retain additional noise mitigation rights as per Condition 3(2) which states:

*Upon receiving a written request from the owner of any residence on the land listed in Table 1, the proponent shall implement additional noise and/or air quality mitigation measures (such as double glazing, insulation, air filters, a first flush roof water drainage system and/or air conditioning) at the residence in consultation with the owner. These measures must be reasonable and feasible and directed towards reducing the noise and/or air quality impacts of the project on the residence.*

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

Under the terms of the approval, the rights to acquisition do not just relate to those properties listed under Table 1. Condition 3(4) relevantly states:

*If the owner(s) of a privately owned residence, that is not listed in Table 1, have reason to believe that operational noise from the project is causing the criteria in Table 2 to be exceeded at the residence, the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director General. If the Director General considers that a noise impact assessment is warranted, then the Proponent shall commission the assessment.*

*If the noise assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances of the criteria in Table 2, the owner(s) can make a written request to the proponent for one of the following:*

- (a) mitigation (such as double glazing, insulation and air-conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the proponent and owner(s) cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director General for resolution; or*
- (b) acquisition of the residence and land in accordance with the procedures in conditions 8 and 9 of Schedule 4.*

*Upon receiving a written request from the owner(s), the proponent must undertake whichever option has been requested by the owner(s).*



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

*However this condition does not apply if the proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the proponent has advised the Department in writing of the terms of this agreement.*

**Notes:**

- 1. For the purposes of this condition a privately owned residence is defined as a residence not owned by a mining company that: is regularly occupied; or is an existing residence that is not regularly occupied but for which a valid development consent exists; or is a proposed residence for which a development application has been lodged with the relevant authority prior to the date of this approval.*
- 2. For the purposes of acquisition under this condition, parcels of land that are in close proximity and operated as a single agricultural enterprise should be included as part of the land to be acquired. Where the proponent and owner(s) cannot agree on whether non-contiguous parcels of land should be included, either party may refer the matter to the Director General for resolution. The Director General's decision as to the lands to be included for acquisition under the procedures in conditions 8 and 9 of Schedule 4 shall be final.*
- 3. The noise assessment must be undertaken by a suitably qualified, experienced and independent person, whose appointment has been approved by the Director General and include either:*
  - a. sufficient monitoring at the affected residence to allow for assessment of impacts under a range of meteorological conditions (including adverse conditions) likely to be experienced at the residence; or*
  - b. sufficient monitoring to allow reliable prediction of the likely impacts under the range of meteorological conditions (including adverse conditions) likely to be experienced at the residence.*
- 4. Monitoring should be conducted in accordance with the requirements of the NSW Industrial Noise Policy.*
- 5. Where predictions of likely impacts is to be used, either in substitution for, or in conjunction with direct measurement of noise impacts at the residence, it must be based on sufficient monitoring data to provide a reliable estimate of the impacts (including under adverse meteorological conditions) and be derived using standard noise modelling techniques accepted by the EPA.*
- 6. The proponent shall ensure that the requested noise impact assessment is submitted to the Director General within 3 months of the Director General's decision that the assessment was warranted. The proponent shall also provide a copy of the assessment to the owner(s) of the residence at the same time it is submitted to the Director General.*

Acquisition criteria also applies to vacant land, where it is identified that noise levels from the project is exceeding 40dB on a systemic basis. Condition 3(5) relevantly states:

*If the owner(s) of land containing a privately owned residence, which is not listed in Table 1, have reason to believe that operational noise from the project is causing noise levels to exceed 40dB(A)LAeq15min over more than 25% of that land, the owner(s) can request an independent noise impact assessment for the land. The request shall be made in writing to the Director General. If the Director General considers that a noise impact assessment is warranted, then the proponent shall the commission the assessment.*

*If the noise impact assessment determines that the noise generated by the project causes sustained exceedances, or is likely to cause sustained exceedances of the 40dB(A) criteria the owner(s) can make a written request to the proponent for acquisition of the residence and land in accordance with the procedures in conditions 8 and 9 of Schedule 4.*

*However, this condition does not apply if the proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.*

*Note: The notes to condition 4 of this Schedule also apply to this condition.*

### **2.3 Cumulative Noise Criteria**

In relation to cumulative noise, Condition 3(6) states:



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

*Except for the land listed in Table 1, the Proponent shall ensure that the operational noise generated by the project combined with the noise generated by the other mines does not exceed the criteria in Table 3 at any residence on privately-owned land.*

*Table 3: Cumulative noise criteria dB (A)  $L_{Aeq(period)}$*

<b>Land</b>	<b>Day, Evening and Night <math>L_{Aeq}</math> (15 min)</b>
All privately owned land	40

- Cumulative noise is to be measured in accordance with the relevant requirements, and exemption (including certain meteorological conditions (also see condition 13)), of the NSW Industrial Noise Policy*
- Operational noises includes noise from the mining operations and the use of private roads and rail spurs*

Where it is demonstrated that cumulative noise is exceeding this criteria, cumulative noise acquisition requirements will apply in accordance with Condition 3(7) which states:

*If the owner(s) of a privately owned residence, which is not listed in Table 1, reasonably believes that the noise limits in Table 3 are being exceeded at the residence and that the exceedance is caused by operational noise from the project and one or more other mines (including use of private roads or rail spurs), the owner(s) can request an independent noise impact assessment for the residence. The request shall be made in writing to the Director General. If the Director General considers that a noise impact assessment is warranted, then the proponent shall commission the assessment.*

*Where the noise impact assessment determines that the cumulative noise generated by the project combined with the noise from the other mine(s) causes, or is likely to cause sustained exceedances of the criteria in Table 3, then the owner(s) can make a written request to the proponent for one of the following:*

- mitigation (such as double glazing, insulation and air-conditioning) at the residence in consultation with the owner(s). These measures must be reasonable and feasible and directed towards reducing the noise impacts of the project on the residence. If within 3 months of receiving this request from the owner(s), the proponent and the owner(s) cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Director General for resolution; or*
- acquisition of the residence and land in accordance with the procedures in Conditions 8 and 9 of Schedule 4.*

*Upon receiving a written request from the owner(s), the proponent must undertake whichever option has been requested by the owner(s).*

*However, this condition does not apply if the Proponent has an agreement with the owner(s) of the relevant residence to generate higher noise levels, and the proponent has advised the Department in writing of the terms of this agreement.*

*The proponent may seek to recover an equitable share of the costs incurred from other mines contributing to the cumulative impact. Unless otherwise agreed between the mines, the proportional contributions should be based on expert analysis of the monitoring results to assess relative contribution to the impact. In the event of a dispute between the mines, the proponent, or one of the contributing mines may submit the matter to the Director General for resolution. The Director General's decision shall be final.*



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

Notes:

1. The notes to condition 4 apply to this condition.
2. The noise impact assessment shall include assessment of the relative contribution of the mines to the impact at the residence.

### 2.4 Attenuation of Plant

Under the terms of the Project Approval Condition 3(9), it is a requirement that new heavy equipment purchased post the date of the approval are to be commissioned as noise attenuated units. This is prescribed in Condition 3(9) as follows:

*The proponent shall:*

*(a) ensure that:*

- *all trucks, dozers, drills and excavators purchased for use on the site after the date of this approval are commissioned as noise suppressed (or attenuated) units;*
- *all equipment and noise control measures deliver sound power levels that are equal to or less than the sound power levels identified in the EA, and correspond to best practice or the application of best available economically achievable technology;*
- *improvements are made to existing noise suppression equipment as improved technology becomes available where reasonable and feasible; and*

*(b) monitor and report on the implementation of these requirements annually on its website.*

It is also a requirement that equipment be regularly tested and monitored to ensure the noise performance of operating equipment is maintained within specification. The requirements for this are identified in Condition 3(10) as follows:

*The proponent shall:*

*(a) conduct an annual testing program of the plant on the site;*

*(b) restore the effectiveness of any attenuation if it is found to be defective; and*

*(c) report on the results of any testing and/or attenuation work within the annual review.*

### 2.5 Operating Conditions

Under the terms of the approval, the site is required to operate in a manner that minimises potential for noise impacts at privately owned receivers. The mechanisms to be utilised to achieve this requirement is defined in Condition 3(11) as follows:

*The proponent shall:*

*(a) implement best management practice to minimise all operational, low frequency, road and rail traffic noise levels associated with the project;*

*(b) operate a comprehensive on-site 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 of this approval;*

*(c) maintain the effectiveness of noise suppression equipment on plant at all times and ensure defective plant is not operationally used until fully repaired;*



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

- (d) ensure that noise attenuated plant is deployed preferentially in locations near to sensitive receivers;
- (e) minimise the noise impacts of the project during meteorological conditions under which the noise limits in this approval do not apply (see condition 13);
- (f) ensure that project related trains on the Boggabri spur line only use locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL (No. 3142);
- (g) use its best endeavours to ensure that project related rolling stock supplied by service providers on the Boggabri rail spur line is designed, constructed and maintained to minimise noise; and
- (h) co-ordinate the noise management on site with the noise management at other mines within the Leard Forest Mining Precinct to minimise the cumulative impacts of these mines, to the satisfaction of the Director General.

#### 2.6 Noise Management Plan

The requirements pertaining to noise as specified in the Project Approval are to be managed in accordance with a Noise Management Plan for the site (this document). The Noise Management Plan outlines the methods by which the site manages noise impacts and the response measures taken to address noise concerns. It also identifies the monitoring methods, including the use of real time monitors, attended noise monitoring and the measures to be implemented at site in response to noise outcomes. The Noise Management Plan also includes consideration to cumulative noise impacts, but is managed in accordance with the Leard Forest Precinct Noise Management Plan, to be appended to this document once approved. The conditional requirements for the Noise Management Plan are outlined in Condition 3(12) and as identified below:

*The proponent shall prepare and implement a Noise Management Plan for the project to the satisfaction of the Director General. This plan must:*

- (a) *be prepared in consultation with the EPA, and be submitted to the Director-General for approval by the end of May 2013;*
- (b) *describe the measures that would be implemented to ensure:*
  - *best practice management is being employed;*
  - *the noise impacts of the project are minimised during meteorological conditions under which the noise limits in this approval do not apply;*
  - *compliance with the relevant conditions of this approval.*
- (c) *describe the proposed noise management system in detail;*
- (d) *include a risk/response matrix to codify operational responses to varying levels of risk resulting from weather conditions and specific mining activities;*
- (e) *include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from noise monitoring;*
- (f) *include a monitoring program that:*
  - *uses attended monitoring to evaluate the performance of the project, including a minimum of four days attended monitoring per quarter at locations agreed to by the Director General, or more regularly where required;*
  - *uses real time monitoring to support the proactive and reactive noise management system on site;*
  - *included monitoring of inversion strength at an appropriate sampling rate to determine compliance with noise limits;*
  - *evaluates and reports on the effectiveness of the noise management system on site;*



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

- provides for the annual validation of the noise model for the project (including the 10<sup>th</sup> percentile methodology); and
- (g) includes a Leard Forest Mining Precinct Noise Management Strategy, that has been prepared in consultation with other coal mines in the precinct, to minimise the cumulative noise impacts of all mines within the precinct, and includes;
- a description of the measures that would be implemented to ensure that the noise management of the mines is properly coordinated to ensure compliance with the relevant noise criteria;
  - a suitable monitoring network for the precinct;
  - protocols for data sharing; and
  - procedures for identifying and apportioning the source/s and contribution/s to cumulative noise impacts for the operating mines and other sources, using the noise and meteorological monitoring network and appropriate investigative tools.
- Note: the Leard Forest Mining Precinct Noise Management Strategy can be developed in stages and will need to be subject to ongoing review dependent upon the determination and commencement of other mining projects in the area.*

### 2.7 Noise Measurement

The Project Approval also prescribes the inversion class to be applied to noise measurements in accordance with the Industrial Noise Policy. The inversion class to be applied is Class G as per Condition 3(13) which states:

*Where conditions in this approval refer to measurement of noise within the context of the Industrial Noise Policy the inversion class to be applied to the project is Class G.*

*However, the proponent may undertake an investigation to determine whether a proposal for change in the classification could be considered for approval by the Director General. Any such investigation must be conducted in consultation with the EPA and be conducted by a suitably qualified person whose appointment has been endorsed by the EPA and approved by the Director General. The report and recommendation must be submitted to the EPA for endorsement prior to submission to the Director General. If the Director General is satisfied that the recommendation is reasonable, then the Director General may amend the inversion class applying to the project under this approval.*

### 2.8 Notification Requirements

The Project Approval includes specific notification requirements relating to noise impacts and surrounding receivers. In particular Condition 4(1) states:

*Within 3 months of the date of the approval the proponent shall:*

- (a) *notify in writing the owners of:*
- *the land listed in Table 1 of Schedule 3 that they have the right to require the proponent to acquire their land in accordance with the procedures in conditions 8 and 9 below at any stage during the project;*
  - *any residence on the land listed in Table 1 of Schedule 3 that they have the right to request the proponent to ask for additional noise and/or air quality mitigation measures to be installed at their residence at any stage during the project; and*
  - *any privately owned land within 2 kilometres of the approved open cut mining pit that they are entitled to ask for a property inspection, to establish the baseline*



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

- condition of any buildings or structures on their land, or to have a previous property inspection report updated;*
- (b) notify the tenants of mine owned land of their rights under this approval; and*
- (c) (not applicable to noise).*

Condition 4(2) states:

*Prior to entering into any tenancy agreement for any land owned by the proponent that is predicted to experience exceedances of the recommended dust and/or noise criteria, or for any of the land listed in Table 1 that is subsequently purchased by the proponent, the proponent shall:*

- (a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time);*
- (b) advise the prospective tenants of the rights they would have under this approval; and*
- (c) request the prospective tenants consult their medical practitioner to discuss the air quality monitoring data and predictions and health impacts arising from this information, to the satisfaction of the Director General.*

Condition 4(3) states:

*As soon as practicable after obtaining monitoring results showing:*

- (a) an exceedance of the relevant criteria in Schedule 3, the proponent shall notify the affected landowner in writing of the exceedance, and provide regular monitoring results to the landowner until the project is complying with the relevant criteria again; and*
- (b) (condition not noise related)*

## **2.9 On-line Information**

The availability of monitoring data, including real time data is critical to the effective operation of this management plan. The responses to this data reflect the operation's capacity to adapt to noise enhancing conditions. As part of the Project Approval, it is a requirement that monitoring information relevant to noise impacts is published on the Whitehaven Coal website in accordance with the following requirement of Condition 5(13).

*The proponent shall, within 3 months of the date of this approval:*

- (a) make the following information for the project publicly available on its website, on a daily basis and in a clearly understandable form:*
- daily weather forecasts for the coming week;*
  - proposed operational responses to these weather forecasts;*
  - real time noise and air quality monitoring data (subject to any necessary caveats); and*
- (b) make provision on its website for the provision of online and/or email comments by members of the community regarding this information, to the satisfaction of the Director General.*



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### 3 NOISE CONTROLS AND MANAGEMENT PROCEDURES

Under the terms of the Project Approval, there is no defined noise management zone or noise affectation zone. Those properties that were predicted to exceed the noise criteria have been granted acquisition rights under the Project Approval, and can enforce these rights at any time. As a consequence of this, the Noise Management Plan seeks to prioritise noise mitigation/management measures where noise impacts are predicted to and/or, are identified through monitoring, approach the noise criteria at those privately owned properties that do not have acquisition rights. Whilst the properties with acquisition rights will not be subject to the 35dB(A) criteria, the approach of seeking to minimise impacts on those privately owned properties that do not retain acquisition rights will also, inadvertently reduce impacts on those closest receivers with acquisition rights as listed in Table 1 of the Project Approval. On this basis, noise impacts will be managed to ensure the predicted noise levels from the Tarrawonga Extension EA are not exceeded.

Management measures to be implemented to manage noise impacts on surrounding residents will include:

- Noise monitoring on-site and within the community;
- Prompt response to any community issues of concern or complaints;
- Refinement of on-site noise mitigation measures and mine operating procedures, where it is identified through monitoring that prevailing weather conditions are impacting on capacity to comply with noise criteria;
- Discussions with relevant landowners to assess concerns;
- Implementation of private noise agreements, where acceptable to the impacted landholder, with the terms of the agreement provided to the DP&E and EPA;
- Implementation of feasible and reasonable acoustical mitigation at receivers (which may include window glazing, insulation and/or air conditioning), where an independent noise impact assessment conducted under the terms of the Project Approval identifies systemic exceedances of the noise criteria, and the landowner requests such measures; and
- Acquisition of the property where an independent noise impact assessment conducted under the terms of the Project Approval identifies systemic exceedances of the noise criteria, and the landowner requests acquisition. Acquisition would be undertaken in accordance with the terms of the Project Approval.

A continuous noise monitor has been installed on the Matong-Coomalgah boundary to assist with noise management and enable real-time noise controls to be implemented. The real – time monitor will be retained at the Matong-Coomalgah Boundary to form part of the real – time monitoring network for the Boggabri Tarrawonga Maules Creek (BTM) Complex. Should the necessity arise for the provision of a mobile real time noise monitor in response to sustained noise related complaints this matter will be considered with appropriate action taken to address these concerns. The mobile real time noise monitor would be trailer



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

mounted and could be located at appropriate positions depending upon prevailing conditions at the time. Preference will be given to locating the mobile real time noise monitor at or near locations most likely to be impacted by noise from the operation that are not subject to acquisition rights in the Project Approval.

#### **3.1 General and Specific Noise Mitigation Measures**

A number of general noise management measures will continue to be undertaken, including:

- Mining operations are permitted to be undertaken 24 hours 7 days per week. Actual operating hours may vary from time to time depending on production requirements. At all times, operational activities will give appropriate consideration to prevailing conditions to minimise potential for noise levels to exceed the relevant criteria. This will be managed by the use of predictive forecasts in mine planning and the use of real time noise monitoring to enable reactive management to noise levels which may include relocation of equipment in pit to avoid impacts as well as stand down of equipment where noise limits associated with mining activities cannot be met.
- Tarrawonga maintains a real time weather monitoring system which provides relevant meteorological conditions that may impact on noise propagation. The weather station monitors all parameters consistent with EPL requirements, including sigma theta. In addition to the Tarrawonga weather station, site can access temperature data from the Boggabri Coal communications tower (sensor at 50m), which provides additional relevant detail for site in terms of inversion impacts.
- Contractors, including all personnel and sub-contractors, will undergo environmental training on noise control and awareness via the generic induction process. Any contractor or subcontractor whose work is likely to create loud noise will be given more detailed guidance on the site's noise criteria and noise management requirements.
- The Sound Power Levels of mobile mining equipment will be tested annually in accordance with International Standards Organisation (ISO) 6395:1988 "Acoustics – Measurement of exterior noise emitted by earth-moving machinery – Dynamic test conditions". Equipment will be required to have noise levels that do not exceed the Sound Power Levels listed in Table 6-2 of the Noise Impact Assessment (see Appendix 2) from the Tarrawonga Extension Project EA. Any equipment found defective or not meeting the required sound power level will not be permitted to operate on site.
- Any new trucks, dozers, drills or excavators purchased for the Tarrawonga operation will be acquired as sound suppressed equipment.
- Site equipment selection will require equipment to achieve sound power levels specified in Table 6-2 of the Noise Impact Assessment for the Tarrawonga Extension Project EA, and equipment will be maintained in good order.



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

- Personnel and contractors will be required to pay due attention to adverse weather conditions and make modifications to the work program where necessary.
- All complaints will be managed as outlined in Section 5.2.
- Monitoring of emitted noise levels will be undertaken during mining operations to verify compliance with noise criteria and to assess the need, if any, for additional noise attenuation measures.

The modelled scenarios presented in the in the Tarrawonga Coal Project EA represented the culmination of several iterative noise modelling investigations designed to determine feasible and reasonable noise mitigation measures. Where feasible and reasonable, operations have been modified to reduce noise emissions and include:

- Installation of an earth bund on the southern side of exposed sections of the services corridor (ROM coal haul road to the Boggabri Coal Mine) is reliant on construction of infrastructure at Boggabri Coal and commercial arrangements between Boggabri Coal and Tarrawonga, and will not be constructed until these are finalised;
- A reduction in the number of mobile fleet items operating during the evening and night time periods where measured noise levels (real time monitoring) indicate likely exceedance of noise criteria. Based on the noise assessment for the Tarrawonga site and review of real time noise data, the key items of plant contributing to the potential for noise exceedance comprise dump trucks operating on the southern emplacement. The reduction in operating fleet would be based on actual noise measurement, preliminary review of site operations to determine if alternate operating locations are available, followed by stand down of equipment if necessary. Over the next 3 years, the key development area comprises the northern extension, which in effect is further removed from the Tarrawonga sensitive receivers located to the south. When operating on the southern emplacement during night time or adverse weather conditions, specific review of noise levels will be undertaken to ensure compliance is maintained; and
- Modified alignment of haul routes to reduce their exposure relative to nearby receivers. The key component of this strategy is to reduce exposure from the dump trucks hauling to the northern emplacement via a haul road located at the southern end of the emplacement area. A northern haul road is now also available, so in circumstances where noise levels approach compliance criteria, an alternate haul road is available. This northern haul road will also become more relevant as the northern extension area is developed.

The controls and management procedures will be reviewed in response to the results of noise monitoring, complaints or comments identified through TCPL's consultation effort. Any changes made will be noted as part of annual environmental reporting in the AEMR/Annual Review.



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

#### 3.2 Cumulative Noise Mitigation Measures

TCM has been in consultation with the nearby Boggabri Coal Mine and Maules Creek Project in developing a Leard Forest Mining Precinct Noise Management Strategy in order to minimise cumulative impacts of mine generated noise on the surrounding community. The Strategy has been submitted to the Department of Planning and Environment (DP&E) for approval. Once approved, the Strategy will be appended to this Plan.

Currently, TCM, Boggabri Coal and the Maules Creek Project participate in monthly meetings to discuss cumulative noise impact management measures.

The intention of the cumulative noise mitigation measures is to utilise an array of noise monitoring equipment utilised by each site to measure noise levels, with a process to apportion noise source for appropriate response. This plan will include agreed access to real time data, use of predictive forecast information to inform development of mine plans and a response protocol in the event of a triggered exceedance and/or community complaint.

As recommended in the BTM Complex Air Quality Management Strategy, a predictive forecast meteorology system is proposed based on the Weather Research & Forecasting (WRF) model and CALMET, specifically for the BTM complex, and a website will be developed to make data immediately available for sites, with half hourly forecasts up to 48 hours in advance. This system will download global meteorological data and forecasts on a daily basis and will indicate which receiver groups may be subjected to noise-enhancing meteorological conditions.

Once the meteorological system is configured and operating, the outcomes will be evaluated by a competent meteorologist or atmospheric science professional against actual meteorological measurements and the meteorological system will be validated and improved, where possible. It should be noted at the time of development of the Tarrawonga Noise Management Plan, the BTM complex strategy had not yet been approved, and consequently, the specific detail of the predictive forecast system may yet be subject to change. Under the BTM complex strategy, implementation of this system would be staged, with the predictive forecast component to be implemented post set-up of required noise monitoring equipment.

#### 3.3 Noise Management Risk Assessment

A risk/response matrix has been developed for the site to identify risk associated with weather conditions that require specific action to mitigate potential noise impacts. The intent behind the risk/response matrix is to understand the prevailing wind conditions and stability strength of temperature inversions to then implement management practices accordingly to avoid subsequent noise impacts. The risk/response matrix has been developed based on colour coding and key operational and weather conditions. The Environmental Officer will be responsible for implementation of the risk/response matrix in consultation with the Operations Manager. The risk/response matrix will be utilised for mine planning purposes (proactive measures) as well as reactive responses. Refer to Appendix 3 for further information regarding the noise impact risk matrix. Predictive meteorological forecasting will



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

be utilised to assist in mine planning to reduce noise related impacts during predicted high risk meteorological conditions.

Whilst it is understood that under certain meteorological conditions, the noise compliance criteria do not apply, it is also acknowledged under the requirements of condition 12(b) that noise impacts from the project are minimised during these adverse conditions. The implementation of the real time monitoring network ensure site responsiveness to adverse conditions, with first response always targeting reduced noise levels by modified site operations. As previously mentioned, this occurs regardless of the meteorological conditions at the time.

### 4 **MONITORING PROGRAM**

This section outlines the monitoring and reporting requirements to measure the impacts and environmental performance of the mine and the effectiveness of noise management measures.

#### 4.1 **Monitoring Activities**

Attended noise monitoring will be undertaken on a quarterly basis by an independent acoustic consultant for compliance purposes. All attended noise monitoring will be conducted in accordance with the NSW Industrial Noise Policy, AS 1055.1-1997 'Acoustics – Description and Measurement of environmental noise – General Procedures', and will expressly monitor the modification factors referred to in the NSW Industrial Noise Policy. Attended noise monitoring will be undertaken during day, evening and night time periods. It is noted that the inversion class to be applied to the project is Class G.

In order to actively manage noise emissions onsite and to adequately comply with the requirement for reactive noise control measures, TCPL will maintain a real time noise monitor equivalent to a Sentinex type, continuous noise management system; located at the Matong-Coomalgah boundary. This monitor forms part of the BTM Complex real time noise monitoring network. The real time system is not for compliance purposes but for operational management/proactive response to potential noise issues. The key features of a Sentinex type monitor are as follows:

- Real time access to monitoring information;
- Universal user interface platform (web browser);
- Customised alarm settings;
- Automatic daily reporting;
- Streaming audio to PC; and
- Continuous audio recording (.mp3).

This system will provide real time access to noise data, and provide the capacity to set the unit to a target noise goal. Upon noise emissions reaching the identified target level, an automated SMS message will be delivered to operational personnel on site which will



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

trigger an investigation into the noise source, both through review of audio files, and on site knowledge of surface operations. Upon determination that the noise source is mine site related, active measures can be put in place to modify operations, or stand down the noise source to ensure compliance with noise criteria is maintained.

The real time continuous noise management unit will be set to trigger an SMS alert to site personnel upon recording of a continuous noise source at 33dBA (low frequency filtered) for a period of 30 minutes. Upon the issue of the alert, site personnel will access the web interface of the real time noise management unit to identify the noise source and determine if it is project related. In the event that the noise source is identified as a low frequency, mine related noise, site personnel will closely monitor noise levels to verify if noise levels remain below threshold. In the event that a second SMS alert triggers within a 2 hour timeframe, is confirmed as mine related, and is indicative of noise levels increasing or trending to the compliance limit, the Environmental Officer and Operations Manager will investigate operational measures to ensure noise levels remain below 35dB(A). These operational measures may include, but will not be limited to, standing down of specific items of equipment, and or relocating equipment to alternate areas of the site, i.e. discontinuing operations on the southern dump.

Attended monitoring will also be used to ensure calibration of the monitor and to provide specialist advice on monitoring outcomes on a quarterly basis.

In accordance with the requirements of the consent, TCM will seek validation of the tenth percentile methodology used in the noise impact assessment for the Tarrawonga Coal Project. This will be completed on an annual basis by the provision of a report from an appropriately qualified acoustical consultant, utilising the data obtained over a 12 month period from the monitoring program and providing a comparative assessment against the modelled predictions from the tenth percentile methodology. The outcomes of this review will be reported in the AEMR/Annual Review.

#### 4.2 Monitoring Locations

Figure 2 presents the attended noise monitoring locations and land ownership details as follows:

- “Matong”/“Coomalgah” boundary (eastern zone)<sup>1</sup>, “Bungalow” (southern zone), “Barber’s Lagoon” (western zone)
- Real time monitor – “Matong”/“Coomalgah” boundary<sup>2</sup>

Notes:

<sup>1</sup> An agreement to undertake attend noise monitoring at Coomalgah or Sylvania has not been reached between Tarrawonga Coal Pty Ltd and the property owner. Monitoring at the Sylvania property is currently undertaken by Boggabri Coal.

<sup>2</sup> Should the provision for mobile monitoring be enacted, as outlined in Section 3, a trailer mounted noise monitor will be utilised.

The attended noise monitoring locations have been selected taking into account the proximity of surrounding non-project related residences to mining operations.



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

The location of the continuous real time noise monitor has been established to form part of the real – time monitoring network for the Boggabri Tarrawonga Maules Creek (BTM) Complex.

The mobile real time noise monitor, if enacted, will be relocated on an as needs basis, based on prevailing weather conditions, community complaints/concerns, operations at site so as TCM has capacity to effectively measure noise levels at the most likely affected receiver.

As part of the Leard Forest Precinct Noise Management Strategy, further discussions around the noise monitoring network has been initiated with Boggabri and Maules Creek. This has been undertaken on the basis of identifying any potential monitoring measures that can address cumulative impacts and provide for streamlined monitoring and reporting for each operation.



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

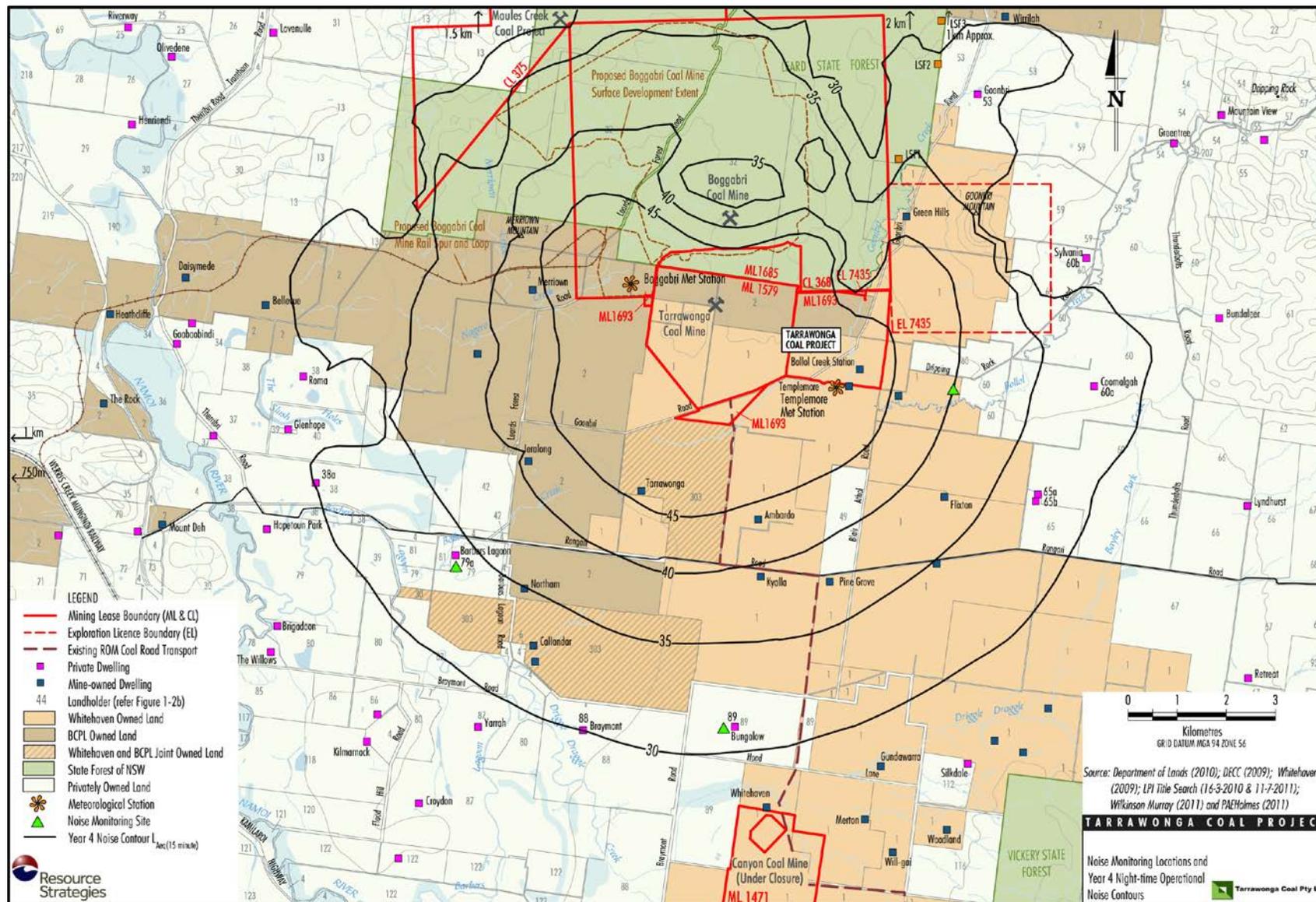


Figure 2 Noise Monitoring Locations



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

**4.3 Monitoring Frequency**

Noise monitoring frequencies are nominated in Table 2. If conditions on the day of monitoring are not suitable (ie. high winds, rain etc) then the monitoring event must be rescheduled to ensure ongoing compliance with monitoring frequency.

**Table 2 Noise Monitoring Summary with Roles and Responsibilities**

Type	Frequency	Responsibility	Comments
<b>Operational Noise Monitoring</b>			
Attended noise monitoring	Quarterly	Suitably qualified acoustical consultant, in conjunction with Environmental Officer	Noise monitoring methodology provided in Section 4.1
Real time noise monitoring	Continuous	Environmental Officer, OCE and Operations Manager	Monitored in accordance with methodology provided in Section 4.1
Mobile real-time noise monitoring	As required	Environmental Officer, OCE and Operations Manager	Monitored in accordance with methodology provided in Section 4.2
<b>Mobile Mine Equipment Sound Power Levels</b>			
Mobile mine equipment	Annually	Environmental Officer	The sound power levels are to be recorded

**4.4 Monitoring Procedures**

Attended noise surveys will be conducted as follows:

- All noise investigations will be carried out in accordance with NSW EPA's Industrial Noise Policy, 2000 (INP), Environmental Noise Control Manual (ENCM) and applicable Australian Standards;
- Noise levels will be measured in one-third octave bands using an instrument with IEC Type 1 characteristics as defined in Australian Standard AS IEC 61672.1 – 2004 "Electroacoustics – Sound Level Meters – Specifications". The instrument will have current calibration as per manufacturer's instructions and field calibration will be confirmed before and after measurements with a sound level calibrator;
- The instrument will be set to A-weighting, "fast" response and measurements of  $L_{Aeq(15 \text{ minute})}$  will be taken at the location in . Each measurement will be stored at a sampling rate of no greater than 5 seconds for further analysis;
- Attended surveys will be conducted during the approved hours of operation with at least three measurements taken during each day over four consecutive days (as required by PA 11\_0047) at each location in Figure 2, so that noise levels during the full range of operating times (day, evening and night) are monitored. Monitoring timeframes will be consistent with requirements of the EPL which requires 1.5 hours during the day, 30 minutes during the evening and 1 hour during the night period;



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

- Field notes will be taken during each measurement recording the time and duration of noise events, noise sources, instantaneous noise levels and the frequency range of identified site noise sources. Where an obvious noise exceedance is detected, the noise monitor must notify the Group Environment Manager of the exceedance and obtain relevant information as to the possible source of the exceedance (ie. malfunctioning equipment, additional activity contributing to noise levels) to ensure appropriate reporting and action on the exceedance;
- Extraneous noise sources will be filtered from the measured signal using robust methods approved by EPA and DP&E and the  $L_{Aeq(15\text{-minute})}$  level attributable to TCPL activities will be identified and compared with the relevant criteria; and
- Details regarding plant configuration, survey interval, weather conditions, extraneous noise sources, monitoring locations and times of measurement will be recorded for inclusion in the noise monitoring report.
- Frequency of monitoring will be reviewed by the BTM mines in consultation with DP&E and EPA to ensure a consistent approach across the complex.

Real-time noise monitoring will be conducted as follows:

- A real-time noise monitoring system utilising IEC Type 1 sound level meter with statistical and third-octave band capabilities will be located at the "Matong"/"Coomalgah" boundary.
- A mobile real-time noise monitoring system utilising IEC Type 1 sound level meter with statistical and third-octave band capabilities may be located at properties should the necessity to arise (as per Section 3); that will most likely to be impacted by mine noise, as assessed in noise modelling for the Extension Project, or at properties where a complaint has been made in relation to mine noise. Site selection will be based on location of operational activity most likely to impact on that receiver;
- The unit will calculate, as a minimum, 15-minute statistics comprising  $L_{A90}$ ,  $L_{Aeq}$  and  $L_{A10}$  and low-frequency filtered  $L_{Aeq}$  (nominal threshold 800Hz but able to be changed);
- Each 15-minute statistic will have an accompanying third-octave band spectrum;
- Statistical data and digital audio files (minimum duration one minute per 15 minute interval) will be continuously uploaded to the internet using an appropriate communications format;
- A computer accessible to site personnel will display statistical results in real time via an internet browser and daily charts will be stored for later reference or printing;
- Noise levels nominally at site noise criteria will be set as trigger points in the real-time system to send pre-programmed SMS messages to relevant personnel;



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

- On receipt of an SMS alert, audio files will be reviewed to determine the cause of the noise and, if necessary, the management safeguards and ameliorative actions in Section 3 and 4.1 will be initiated; and
- If the real-time noise monitor is situated at an attended monitoring location, both the attended and real-time results will be included in the attended monitoring report.



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### 5 MANAGEMENT OF EXCEEDANCES, COMPLAINTS AND NON-COMPLIANCE

#### 5.1 Noise Compliance Criteria Exceedance

If attended noise monitoring results exceed the levels outlined in Section 2, advice will be sought from an appropriate acoustic consultant to verify the source of the elevated noise and identify options to address noise related impacts. Such actions will include:

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

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

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

##### 5.1.1 Notification Requirements

Notification requirements are outlined in Section 6.

##### 5.1.2 Independent Review and Land Acquisition

If an owner of privately-owned land considers the mine to be exceeding noise compliance criteria, they may ask the Director-General in writing for an independent review of the impacts on their land. Conditions 4, 5 and 6 of Schedule 4 of PA 11\_0047 specify the independent review process.

Within 3 months of receiving a written request from a landholder with acquisition rights, TCPL shall make a binding written offer as detailed in Condition 4(8) of PA 11\_0047. Noise acquisition criteria are specified in Condition 3(4) while Condition 4(9) requires TCPL to pay all reasonable costs associated with the land acquisition process.

#### 5.2 Complaints

Whilst all endeavours will be made by TCPL to avoid adverse noise impacts on local landowners / residents, it is acknowledged that from time to time such impacts may occur. In order to ensure an appropriate and consistent level of reporting, response and follow-up



## TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

### WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

to any complaints is adopted by TCPL, the following complaints management protocol will be followed:

- A publicly advertised telephone complaints line will be in place to receive complaints during operating hours and record complaints at other times.
- Each complaint received will be recorded on a Complaints Register, which will include the following details:
  - The date and time of complaint.
  - Any personal details the complainant wishes to provide or if no such details are provided a note to that effect.
  - The nature of the incident that led to the complaint.
  - The action taken by TCPL in relation to the complaint, including any follow-up contact with the complainant.
  - If no action was taken by TCPL, the reason why no action was taken.
- The Group Environment Manager will be responsible for ensuring that an initial response is provided within 24 hours of receipt of a complaint (except in the event of complaints recorded when the mine is not operational).
- Data from the site weather station and the real time noise monitoring unit will be obtained for the time applicable to the complaint for use in determination of cause and identification of future remedial actions.
- Additional measures will be undertaken as required to address the complaint. This may include visiting the complainant, or inviting the complainant to the mine site.
- Once the identified measures are undertaken, the Group Environment Manager will sign off on the relevant complaint within the Complaints Register.
- If necessary, follow-up monitoring will take place to confirm the source of the complaint is adequately mitigated.
- A copy of the Complaints Register will be kept by TCPL and made available to the CCC and the complainant (on request). A summary of complaints received every 12 months will be provided to DP&E, GSC, NSC, EPA, DRE and the CCC through the AEMR/Annual Review.

Based on the nature of individual complaints, specific contingency measures may be implemented to the (reasonable) satisfaction of the complainant. The Group Environment Manager retains ultimate responsibility to ensure that complaints received are properly recorded and addressed appropriately.

### 5.3 Non- Compliance

With the exception of noise compliance criteria exceedances (as discussed in Section 5.1), non-compliances relating to noise would most likely relate to not achieving the required quarterly attended monitoring events. If this was to occur, appropriate advice would issue to



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

the DP&E and EPA as soon as practicable, and arrangements made to reschedule the monitoring event as soon as practically possible. Any other non-compliances of this nature will be detailed in the EPL Annual Return and/or AEMR/Annual Review, and include details as to why the non-compliance occurred.

**5.4 Unpredicted Impact Protocol**

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

**Table 3 Unpredicted Impact Protocol**

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



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### 6 RECORD KEEPING AND REPORTING REQUIREMENTS

#### 6.1 Record Keeping

Attended noise monitoring reports issued by the acoustic consultant will include details on the date and time of monitoring, location of monitoring and monitoring personnel (as required by Condition M1.3 of the EPL).

Data obtained from the real-time noise monitor will be available in real time, as well as through daily reporting from the monitoring unit to selected personnel. Key personnel for the provision of daily reports will be the Group Environment Manager, the Operations Manager for the Tarrawonga site and the Environmental Officer. In addition to daily reports, the monitor will be downloaded at regular intervals with data available on an archival basis.

Noise monitoring results, both from attended and real time monitoring, will be maintained by the Environmental Officer. The results will be reviewed to determine any mining related exceedances in order to instigate an appropriate response.

#### 6.2 Reporting Requirements

A summary of noise monitoring results will be reported internally on a monthly basis as well as on a quarterly basis to the CCC via the Environment Monitoring Report. This report will be periodically uploaded onto the company's website ([www.whitehavencoal.com.au](http://www.whitehavencoal.com.au)).

Each year, the results of the noise monitoring program will be summarised and presented in the AEMR/Annual Review together with reference to prevailing meteorological data and site activities during the measurement period(s), where relevant. Reporting will also include an analysis of the monitoring results against the exceedance criteria, previous monitoring results and predictions made in the EA. Where attenuation of plant is required, and testing of attenuation and/or sound power level tests are completed, the results of these tests will also be made available in the AEMR/Annual Review.

The extent of notification and reporting requirements depends on the severity of the issue, and whether the noise level is within modelled noise exceedance limits, but generally includes notification to DP&E and EPA and/or the affected landholder as well as discussion in CCC Environment Monitoring Reports and the AEMR/Annual Review.

Relevant real time data and operational responses incorporating meteorological data are made available to the public on the Whitehaven website in accordance Schedule 5 Condition 13 of the PA 11\_0047.

In addition to the reporting requirements listed above, noise monitoring data will be made available to the public upon request.

### 7 DOCUMENT REVIEW AND CONTINUOUS IMPROVEMENT

This document will be reviewed internally on an annual basis following completion of the AEMR/Annual Review, and/or following a noise related incident, audit, or modification to the



**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

conditions of approval. In addition, every 2 years, the plan will be subject to review with consultation with the relevant agencies.



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### Appendix 1 Consultation with EPA

From:	Khari Turnbull [Khari.Turnbull@epa.nsw.gov.au]	Sent:	Mon 6/05/2013 4:26
To:	Danny Young		
Cc:			
Subject:	Tarrawonga Environment Management Plans		
<p>Hi Danny</p> <p>Thank you for forwarding the following Tarrawonga Environment Management Plans for our records:</p> <p>Noise Management Plan Blast Management Plan Air Quality and Greenhouse Gas Monitoring Plan</p> <p>The Environment Protection Authority (EPA) encourages the development of such plans to ensure that proponents have determined how they will meet their statutory obligations and designated environmental objectives. However, we do not approve or endorse these documents as our role is to set environmental objectives for environmental/ conservation management, not to be directly involved in the development of strategies to achieve those objectives.</p> <p>Should you have any further enquiries please do not hesitate to contact me.</p> <p>Regards</p> <p><b>Khari Turnbull</b> Regional Operations Officer- North Branch   <a href="#">NSW Environment Protection Authority</a>  </p>			



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

### Appendix 2 Indicative Sound Power Levels

Report No 09341-EA Version C

Page 30

**Table 6-2  
Indicative Equipment Sound Power Levels**

Fleet Item	Model	Location/Function	Number of Equipment	Period	Sound Power Level L <sub>Aeq</sub> (dBA)	Reference
Excavators	RH170	Waste rock removal	3	Day, evening, night	115	Spectrum Acoustics (2005)
	RH340	Coal mining	1		115	
	EX1900	Coal mining	1		114	
Haul Trucks	3300	Haul roads (waste rock)	7	Day, evening, night	116 (on grade) / 119 (on incline)	Spectrum Acoustics (2010a)
	785C	Haul roads (coal)	12		118/121	Spectrum Acoustics (2010a)
	793/830	Haul roads (waste rock)	4		118/121	Wilkinson Murray Database
Dozers	D11R	Topsoil removal	4	Day	116	Wilkinson Murray (2010)
	D11R	Waste rock removal		Day, evening, night		
	D11R	Waste rock emplacement		Day, evening, night		
	D11R	Waste rock emplacement		Day		
	D10R	Coal mining		Day, evening, night		
Loaders	988H	Mobile crusher	1	Day	117	Spectrum Acoustics (2010a)
Scrapers	637-2	Topsoil removal	4	Day	115	Spectrum Acoustics (2005)
Graders	16M	Haul roads	2	Day, evening, night	108	Wilkinson Murray (2010)
Drill	SKF	Waste rock blasting	1	Day	117	Spectrum Acoustics (2010a)
	Cubex	Waste rock blasting	1	Day	117	Spectrum Acoustics (2010a)
	DML60	Waste rock blasting	1	Day	117	Spectrum Acoustics (2010a)
Water Cart	Road	Haul roads	4	Day, evening, night	107/110	Wilkinson Murray (2010)
Water Truck	773	Topsoil removal	1	Day	108/111	Wilkinson Murray Database
Mobile Crusher	-	New Mine Facilities Area	1	Day	113	Wilkinson Murray (2010)

Equipment at Tarrawonga Coal Mine



# TARRAWONGA COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

## WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN

Report No 09341-EA Version C

**Table 6-2 (Continued)  
Indicative Equipment Sound Power Levels**

	Fleet Item	Model	Location/Function	Number of Equipment	Period	Sound Power Level L <sub>Aeq</sub> (dBA)	Reference
<b>Equipment at Boggabri Coal Mine</b>	Loaders	IT38G	Boggabri Coal Mine ROM Pad	1	Day, evening, night	117	Spectrum Acoustics (2010a)
	Dozers	D10R	Boggabri Coal Mine Product Coal Stockpile	1	Day, evening, night	116	Wilkinson Murray (2010)
	Primary Crusher	-	Boggabri Coal Mine ROM Pad	1	Day, evening, night	113	Spectrum Acoustics (2010a)
	Locomotive (idling)	-	Boggabri Coal Mine Rail Loop	3	Day, evening, night	97	Bridges Acoustics (2010)

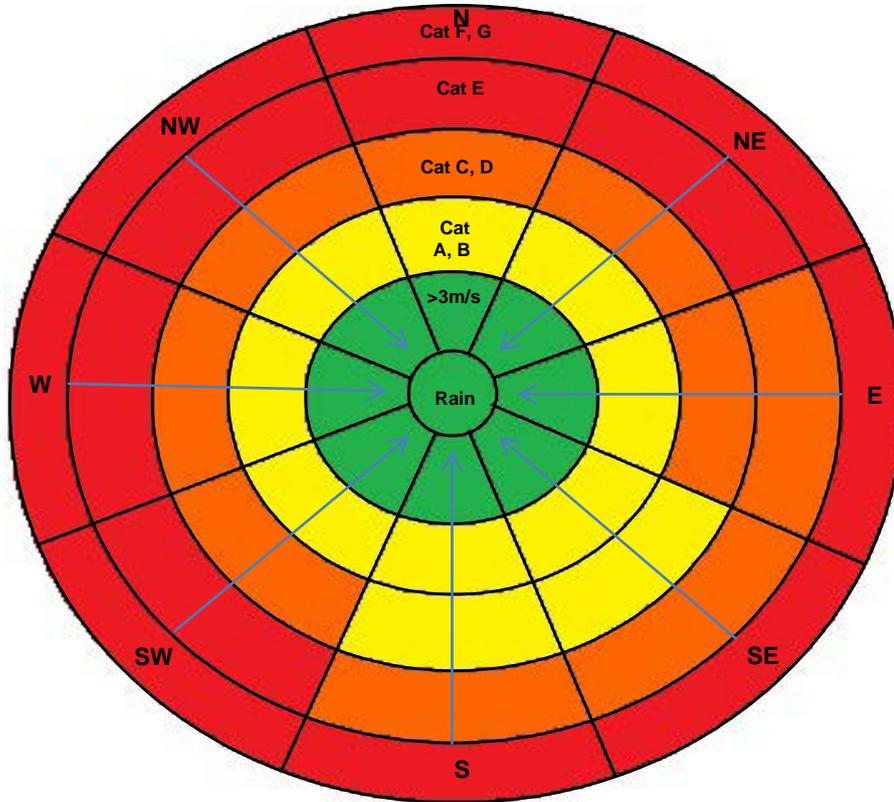


**TARRAWONGA COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

Document Owner:	Group Env. Manager
Revision Period:	2 years
Issue:	1
Last Revision Date:	29/12/2014
Date Printed:	7/01/2015

**WHC\_PLN\_TAR\_NOISE MANAGEMENT PLAN**

**Appendix 3 Noise Risk/Response Matrix**



- Non-Compliant Weather Conditions** – Continue to monitor conditions regularly. Real time monitoring of noise impacts must be maintained under non-compliant weather conditions.
- Low Risk** – Monitor conditions and real time noise monitor regularly.
- Moderate Risk** – Monitor conditions and real time noise monitor regularly. If noise alarms are received, implement noise reduction measures such as lowering speed limits and relocating equipment.
- High Risk** – If noise alarms are received, initiate measures to minimise noise impacts. Measures could include but not limited to relocating equipment contributing to noise impacts and ceasing operations until conditions improve.

Identified Noise Source	Proactive Measures (based on meteorological forecast)	Reactive Measures (based on RTN monitoring)
Southern Emplacement	<ul style="list-style-type: none"> <li>• Identify and prepare alternate dump areas</li> </ul>	<ul style="list-style-type: none"> <li>• Relocate dumping to in pit or Northern emplacement</li> </ul>
Excavators	<ul style="list-style-type: none"> <li>• Identify and prepare alternate dig areas</li> </ul>	<ul style="list-style-type: none"> <li>• Relocate and /or Reduce number of operating excavators</li> </ul>
Drills	<ul style="list-style-type: none"> <li>• Identify and prepare alternate drill areas</li> </ul>	<ul style="list-style-type: none"> <li>• Relocate and/or Park drills</li> </ul>
Dozers	<ul style="list-style-type: none"> <li>• Identify and prepare alternate doze areas</li> </ul>	<ul style="list-style-type: none"> <li>• Relocate and/or Restrict Dump dozers to 1<sup>st</sup> gear only</li> </ul>
Trucks	<ul style="list-style-type: none"> <li>• Review fleet requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce number of trucks loaded in a 15 minute period</li> </ul>