Noise Management Protocol

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Noise Monitoring Program

for the

Werris Creek Coal Mine

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ISSUE AND AMENDMENT CONTROL HISTORY

Issue	Date	Description	Author
1	2005	NMP (Original)	Spectrum Acoustics Pty Ltd
2	February 2009	NMP (revised to reflect current operations)	WCC L.Cini

Noise Management Protocol

1 INTRODUCTION

The Werris Creek Coal Project (WCC) is located within a 679ha Mining Lease (ML 1653) approximately 4km south of Werris Creek and 11km north of Quirindi, NSW.

The mine undertakes the following activities.

- Open cut coal mining over an area of approximately 80ha.
- Programmed placement of overburden and interburden materials from the open cut to an out-of-pit overburden emplacement located to the south of operations and infill placement to the open cut void.
- On-site coal processing (size reduction and screening only).
- Operation of a rail load-out facility adjacent to a rail siding originating from near Werris Creek.
- Transportation of product coal from the on-site size reduction and screening facility to the rail load-out facility along a purpose-built rail load-out road or to domestic markets by road.
- Progressive rehabilitation of Overburden and interburden waste dumps

The following protocol records the measures which will mitigate the environmental effect of noise from the above activities on our neighbours; proposes noise monitoring programs to assess and report the levels of impact, in compliance with statutory requirements; and provides a mechanism whereby any noise complaints can be dealt with quickly and effectively.

This document has been prepared to satisfy the requirements of:

(i) Consent *Conditions Nos. 4(15)* and *4*(*16)* of DA 72-7-2004 issued by the Minister for Infrastructure and Planning; and

(ii) Environmental Protection Licence 12290 Issued by the Department of Environment and Climate Change NSW

The protocol has also been prepared with reference to relevant legislation and guidelines, and is also consistent with the Environmental Impact Assessment which was undertaken prior to the granting of consent. This protocol applies to Stage 2 operational phases of the project.

2 BACKGROUND

A comprehensive noise impact assessment process was undertaken for the project prior to the granting of development consent and has been in place since commencement of work at Werris Creek Coal in 2005. The conditions of the development consent were based on the information provided during the assessment and required the preparation of a Noise Validation Study (Consent *Condition 4(15)*) and a Noise Monitoring Program (Consent *Condition 4(16)*).

This Noise Management Protocol (NMP) has been designed to achieve and manage the Conditions of the Development Consent (DA-172-7-2004) and the requirements of the Environmental Protection Licence (12290).

This document is also consistent with the commitments made in the noise and vibration assessment within the EIS dated August 2004, prepared by Spectrum Acoustics Pty Ltd.

NOISE COMPLIANCE CRITERIA

Noise compliance criteria for the various stages and activities were established in the EIS using relevant DEC guidelines. These criteria have been incorporated in Consent *Conditions 4(7)* and *4(8)* as reproduced below. Additionally, Consent *Condition 4(9)* identifies criteria which, if exceeded, may trigger a land acquisition.

Noise Criteria

7. The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria presented in **Table 7** at any residence on privately-owned land.

Day (Construction Stage) $L_{Aeq(15\ minute)}$	***Day (Operational Stage)*** $L_{Aeq(15\ minute)}$	***Evening*** $L_{Aeq(15\ minute)}$	***Night*** $L_{Aeq(15\ minute)}$	***Night*** $L_{A1(1\ minute)}$
40	*35*	*35*	*35*	*45*

Table 7: Noise Impact Assessment Criteria dB(A)

Note:

(a) Noise from the development is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary,

(b) To determine compliance with the $LA_{eq(15\ minute)}$ noise limits in the above table, where it can be demonstrated that direct measurement of noise from the development is impractical, the DEC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.

(c) Noise from the development is to be measured at 1 metre from the dwelling façade to determine compliance with the $L_{A1(1\ minute)}$ noise limits in the above table.

(d) The noise emission limits identified in the above table apply under meteorological conditions of:

i wind speeds of up to 3 m/s at 10 metres above ground level; or

ii Temperature inversion conditions of up to 3ºC/100m, and wind speeds of up to 2 m/s at 10 metres above ground level.

(e) "Construction Stage" applies Monday to Saturday, excluding public holidays, until 6 months after the commencement of operations, or the completion of the 15 metre high acoustic bund, whichever occurs first.

Rail Noise Impact Assessment Criteria

8. The Applicant shall ensure that the noise generated by shunting operations associated with the development does not exceed the noise impact assessment criteria presented in **Table 8**.

Day/Evening/Night $L_{Aeq(24\ hour)}$	***Day/Evening/Night*** $L_{A(max)}$	***Property***
55	*80*	*Any residence on privately-owned land.*

Table 8: Rail Shunting Noise Criteria dB(A)

Note: Shunting operations directly related to coal loading activities are subject to noise impact criteria in Table 7.

Land Acquisition Criteria

9. If the noise generated by the development exceeds the criteria in **Table 9**, the Applicant shall, upon receiving a written request from the landowner, initiate an independent review in accordance with the procedures in Consent *Conditions 5(4)* to 5(*9)* and, if required, acquire the land in accordance with the procedures in Consent *Conditions 5(10)* to *5(12)*.

Day/Evening/Night $L_{Aeq(15\ minute)}$	***Property***
40	*Affected residences on privately-owned land.*

Table 9: Land Acquisition Criteria dB(A)

Note: The provisions of this condition do not apply during the Construction Stage of the mine.

In the event that the independent review/acquisition process is triggered by demonstrated and unmitigated noise levels above the criteria in Consent *Condition 4(9)*, this process will be conducted in accordance with (Consent *Conditions 5(4)* to *5(12*) of the development consent.

Operating Conditions

10 The Applicant shall ensure that all reversing alarms fitted to vehicles on the site shall be of a mid-high frequency broadband type as described in the EIS.

Monitoring

16. Before carrying out any development, the Applicant shall prepare a noise monitoring program for the development in consultation with the DEC, and to the satisfaction of the Director-General, which includes a noise monitoring protocol for evaluating compliance with the criteria in Consent *Conditions 4(7), 4(8)* and *4(9)*.

A Noise Monitoring Program is included under section 6 of this document, which takes into account monitoring of noise on the rail spur (Consent *Condition 4(8)*).

3 MANAGEMENT SAFEGUARDS AND AMELIORATIVE ACTIONS

Werris Creek Coal submitted formal advise to the Department of Planning (DoP) requesting a move to begin work under Stage 2 operations on site. Werris Creek Coal received approval from the DoP on the 9th January 2006 to commence work under Stage 2 operations and this is still the current status.

The following actions and/or strategies have been implemented to minimise the potential for noise impacts at residential receivers during the Stage 2 operating phase.

Stage 2 Operations

The requirement for Stage 2 operating hours have been formalised in Consent *Condition 4(15)*.

15. Stage 2 operating hours are defined as:
    (a) 7:00am to midnight Monday;
    (b) midnight to 4:00am; and 7:00am to midnight Tuesday to Friday;
    (c) midnight to 4:00am; and 7:00am to 2:00pm Saturday;
    (d) on-site processing of coal is permitted between the additional hours of 2:00pm to 10:00pm Saturday;
    (e) overburden removal and emplacement is permitted at any time Monday to Saturday; and
    (f) operation of the coal load-out facility and maintenance activities is permitted at any time Monday to Sunday.

    These hours may be varied, with the approval of the DECC, if the Director-General is satisfied that the amenity of residents in the locality will not be adversely affected.

Other mitigation measures to be adopted to control operational noise are set out as follows.

Mobile mining equipment to be used during the operational phases must have certification that noise levels do not exceed the Sound Power Levels listed in **Table 1**. Equipment not listed in **Table 1** must have a maximum dynamic Sound Power Level of 116 dB(A) as measured generally in accordance with ISO 6395:1988 "Acoustics - Measurement of exterior noise emitted by earth-moving machinery - Dynamic test conditions" or as otherwise advised by the acoustic consultant.

TABLE 1 MOBILE MINING EQUIPMENT MAXIMUM SOUND POWER LEVELS dB(A)	
ITEM	**MAXIMUM SOUND POWER LEVEL**
Dozer	116 dB(A)$L_{eq,(15\text{-}minute)}$
Haul truck (on flat, loaded)	118 dB(A)L_{max}
Haul truck (uphill, loaded)	121 dB(A)L_{max}
Haul truck (downhill, empty)	124 dB(A)L_{max}
Front-end loader	115 dB(A)$L_{eq(15\text{-}minute)}$
Excavator (with trucks)	117 dB(A)$L_{eq(15\text{-}minute)}$
Drill*	123 dB(A)$L_{eq(15\text{-}minute)}$

* The drill may be measured in accordance with AS 2012, excluding measurement points 5 and 6.

- Site equipment will be selected so as to have the lowest level of sound emission and will be maintained in good order.

- The contractor will pay due attention to adverse weather conditions (particularly source to receiver winds) and make modifications to the work programme where necessary.

- Workers will undergo environmental training on noise control and awareness for all personnel and sub-contractors.

- All complaints will be registered and responded to in accordance with the complaints procedures in the EMS.

- Monitoring of emitted noise levels will be undertaken during mining operations to verify compliance with noise criteria and to assess the need for additional noise attenuation measures.

4 MANAGEMENT OF COMMUNITY CONSULTATION

Community Consultation

Throughout the planning and operational stages of the mine, Werris Creek Coal has highly valued the community consultation process and will continue to address any concerns raised by the local community in a timely and efficient manner.

Werris Creek Coal has a well established Community Consultation Committee (CCC) comprised of local community members, representatives from Liverpool Plains Shire Council and Whitehaven Coal. The Committee meets quarterly to discuss a range of mine related topics and it is a forum for committee members to discuss issues raised within the wider local community.

Notification of Landowners

The following notification conditions (parts relating to noise only) are included in Schedule 5 of the consent and will be followed by WCC.

1. If the … noise model predictions in the documents [EIS] identify that the … noise generated by the development [is] likely to be greater than the … noise impact assessment criteria …, then the Applicant shall notify the relevant landowners and/or existing or future tenants (including tenants of mine-owned properties) accordingly before it carries out any development.

2. If the results of the … noise monitoring … identify that the … noise generated by the development is greater than any of the … noise criteria …, except where this is predicted in the EIS, then the Applicant shall notify the Director-General and the affected landowners and/or existing or future tenants (including tenants of mine-owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the … noise criteria ... .

Complaints Handling and Monitoring

The Manager responsible for Environmental issues at WCC (or delegated person in their absence) is responsible for:

- maintaining the system for recording complaints with respect to mining activities on the dedicated and publicly advertised telephone line;
- ensuring that all complaints are entered into a database;
- 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;

- providing a report of complaints received with respect to the construction and operation of the mine, every 12 months, to all relevant Government Departments and the CCC through the AEMR; and
- ensure that a summary of the complaints report is included in the AEMR.

The WCC complaints record includes the following details for noise complaints.

- 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 noise that led to the complaint, including the time of the noise and its duration.
- The action taken by WCC in relation to the complaint, including any follow-up contact with the complainant.
- If no action was taken by WCC, the reason why no action was taken.

If any complainant does not consider the response from WCC to adequately address their concerns, the Independent Review procedure detailed in Consent *Conditions 5(4)* to *5(9)* of the development consent will be adopted.

Contingency Measures When Noise Complaints are Received

If noise levels of a plant or machinery item exceed the levels outlined in **Table 1**, or if noise levels at any residence exceed the levels outlined in Consent *Condition 4(7)*, the noise producing plant or machine shall be measured by an independent acoustic consultant. Sound attenuation measures will be installed to plant and equipment where necessary to ensure that noise emissions comply with the relevant noise levels outlined in **Table 1**. Alternatively the equipment would be stood down or removed from the site.

Best Practice Methodology

There are no specific noise mitigation measures in the EIS that require engineering design. The NMP incorporates best practice techniques of identifying potential noise related impacts, avoiding certain adverse times, weather conditions and field verification of predicted noise levels early in the life of the project. The NMP also includes a community liaison programme, complaints register, response methods and regular monitoring which are all best practice procedures in the mining industry.

5 MONITORING AND REPORTING

Periodic monitoring of noise levels is required under Consent *Condition 4(16)* as follows.

16. Before carrying out any development, the Applicant shall prepare a Noise Monitoring Program for the development in consultation with the DECC, and to the satisfaction of the Director-General, which includes a noise monitoring protocol for evaluating compliance with the criteria in Consent *Conditions 4(7), 4(8),* and *4(9)*.

Noise Compliance Monitoring

Noise compliance monitoring during the Stage 2 operational phase of the project will continue to be undertaken by a specialist acoustical consultant through *monthly* attended noise monitoring. WCC's specialist acoustical consultant will undertake all attended noise monitoring at the locations specified below in **Table 2** and will also include monitoring of the rail load-out facility where required.

Although noise monitoring will continue to be monitored on a *monthly* basis, WCC will seek approval through the appropriate departments to move to *quarterly* monitoring upon establishment of continued noise compliance at all receivers over a 6 month period.

WCC will also commit to the installation of a real time noise monitor or the establishment of a new agreement with the residents of the Cintra property in the event of repeated (>3) noise exceedances attributable to mining related activity being recorded during attended monitoring events at the property.

Monitoring will be conducted at or near the residential locations presented in **Figure 1** and listed below in **Table 2**.

TABLE 2
NOISE MONITORING SITES[1]

RECEIVER LOCATION (AS PER FIGURE 1)	NAME
"Almawille"	P.A. & T.M. Hird
"Glenara"	W.H. & S.I. Ryan
"Marengo"	N. Davies
"Tonsley Park"	L & V Patterson
"Cintra"	E.R. Windsor, P.R & A.H Windsor
"Fletcher"	B.A Fletcher

Attended noise surveys will be conducted as follows.

1. All noise investigations will be carried out in accordance with the NSW DECC's Industrial Noise Policy, 2000 (INP), Environmental Noise Control Manual (ENCM) and applicable Australian Standards.

2. Noise levels will be measured in one-third octave bands using an instrument with IEC Type 1 characteristics as defined in AS 1259-1990 "Sound Level Meters". 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.

3. The instrument will be set to A-weighting, "fast" response and measurements of $L_{Aeq(15\ minute)}$ will be taken at each location in **Table 2**. Each measurement will be stored at a sampling rate of no greater than 5 seconds for further analysis.

4. Attended surveys will be conducted within a 24-hour period with at least 3 measurements taken at each location in **Table 2**, so that measurements will be obtained for each of the day, evening and night time periods of operations.

5. Field notes will be taken during each measurement recording the time and duration of noise events, noise sources, instantaneous noise levels and frequency range of identified site noise sources.

6. Extraneous noise sources will be filtered from the measured signal using Bruel & Kjaer Evaluator Software and the $L_{Aeq(15\text{-}minute)}$ level attributable to WCC activities will be identified and compared with the relevant criterion.

7. 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.

8. Meteorological data will be obtained from the onsite weather station to help identify sources of noise and for use in comparing data against the EPL and Consent Criteria in relation to strength of temperature inversion and wind speeds.

9. The specialist acoustical consultant will provide data collected in a report for WCC.

The Environmental Officer (or delegated person) will review and compile the results of all monthly noise monitoring reports. This person will also be responsible for providing notification to all relevant parties of any exceedances to the EPL and Consent Criteria. Results will continue to be included in the Annual Environmental Management Report (AEMR) for presentation to the relevant departments and the local community.

Rail Noise Monitoring

Due to the erratic frequency of train movements at WCC it is proposed that rather than conducting noise monitoring at specific intervals, train noise will be measured by WCC's specialist acoustical consultants as the opportunity arises. The main issues associated with train noise are:

- maximum noise levels as trains enter the spur line and pass by residence(s);

- maximum noise levels from shunting as received at the nearest residence, those being Cintra and Tonsley Park; and
- maximum noise levels from coal loading operations (i.e., filling empty wagons)

Measurement of the train noise sources will be conducted as previously listed (above) in points 1 through to 9 under Noise Compliance Monitoring.

Noise monitoring of train shunting operations will be conducted on a as needs basis to determine compliance with the criteria. These surveys will coincide with attended surveys of monthly monitoring for noise compliance on site. It is recognised that at least two surveys of train noise will be undertaken for the AEMR period each year. If this figure has not been achieved through normal scheduled monitoring, then a specific set of monitoring on the train load-out will be arranged. If, after two consecutive train noise surveys, it is found that noise compliance is achieved then no further train noise surveys will be necessary during the AEMR period, unless there is a series of noise complaints received relating to loading of trains, or a specific request received from a neighbour or Department. If noise criterion exceedances are measured, then a rail noise mitigation strategy will be formulated, presented to the relevant parties for approval and, once approved, will be implemented.

Following implementation of the rail noise mitigation strategy, additional train noise compliance survey will be conducted. This procedure will be followed until compliance of train noise criteria is achieved or other agreements are reached.

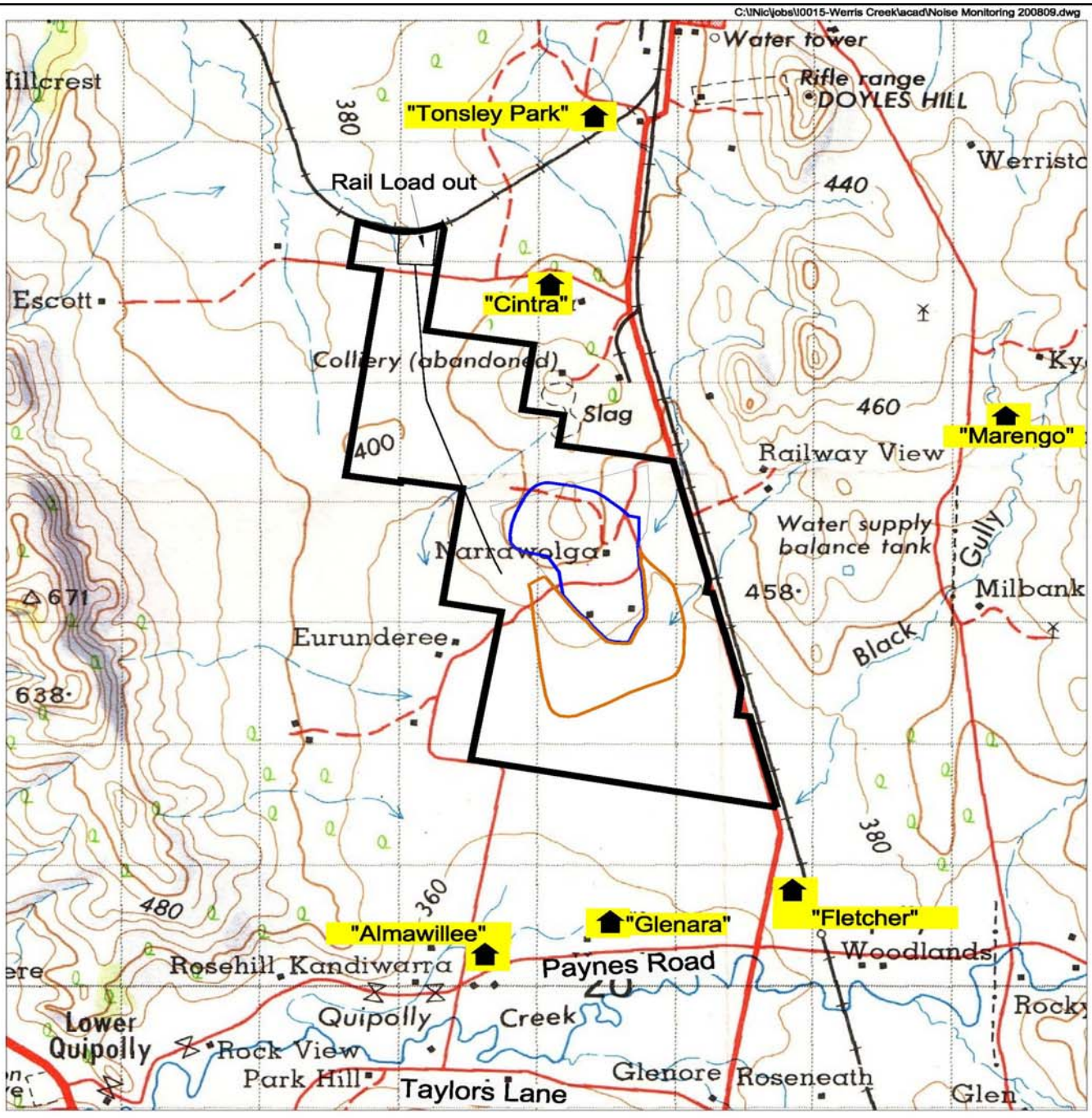

Figure 1
ASSESSMENT LOCATIONS - NOISE

6 RESPONSIBILITIES AND ACCOUNTABILITIES

The Werris Creek Coal site will be managed by the Mine Manager, who will have overall responsibility for ensuring contractors, employees and service providers comply with all laws, regulations, licences, approvals and conditions of consent.

All persons undertaking any form of work on site will be required to attend a site-specific induction training course, at which they will be instructed in the environmental rules, procedures and processes applicable whilst they are on the site.