Kooragang Coal Terminal

Construction Noise Management Plan

120Mtpa Capacity Project

March 2008

Umwelt
Environmental Consultants

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Construction Noise Management Plan
120 Mtpa Capacity Project

Prepared by

Umwelt (Australia) Pty Limited

on behalf of

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1.0 Introduction

Port Waratah Coal Services Limited (PWCS) owns and operates the Carrington and Kooragang Coal Terminals in the Port of Newcastle in New South Wales (NSW). These terminals receive, assemble and load Hunter Valley coal onto ships for export to customers around the world.

Kooragang Coal Terminal (KCT) operations are located on Kooragang Island on the lower reaches of the Hunter River approximately 2 kilometres north of Newcastle (refer to **Figure 1.1**). As shown on **Figure 1.1**, the nearest urban areas are Fern Bay located approximately 1.7 kilometres to the east; the suburb of Stockton (North), located approximately 1.5 kilometres to the south-east of the site; and Mayfield located 1.7 kilometres to the south-west. The former BHP steelworks and current OneSteel operations are located to the south and south-west, across the South Arm of the Hunter River.

PWCS was granted Project Approval from the Minister for Planning on 13 April 2007 for the increase in throughput capacity of KCT from 77 Million tonnes per annum (Mtpa) to a nominal 120Mtpa (Project Approval). The works associated with the approved increase to the throughput capacity will be undertaken as part of the 120Mtpa Capacity Project (the Project).

Condition 7.3(b) of the Project Approval requires the preparation and implementation of a Construction Noise Management Plan (CNMP) for construction activities associated with the Project. This condition is outlined in **Table 1.1** and includes an indication of where the specific requirements have been addressed in this plan.

Table 1.1 – Condition 7.3(b) of KCT Project Approval

Condition Number	Condition Detail	Section of Plan
7.3	As part of the Construction Environmental Management Plan for the project required under condition 7.2 of this approval, the Proponent shall prepare and implement the following:	
	b) a **Construction Noise Management Plan** to detail how construction noise and vibration impacts would be minimised and managed, including, but not necessarily limited to:	Whole of Plan
	i) details of construction activities and a schedule for construction works;	Section 1.1
	ii) identification of construction activities that have the potential to generate noise and/or vibration impacts on surrounding land uses, particularly residential areas;	Section 1.1.1
	iii) a detailed description of what actions and measures would be implemented to ensure that these works would comply with the relevant noise and vibration criteria/guidelines;	Section 4.0
	iv) procedures for notifying residents of construction activities that are likely to effect their noise and vibration amenity, as well as procedures for dealing with and responding to noise complaints and enquiries; and	Section 1.1.1

Legend

Kooragang Coal Terminal

FIGURE 1.1

Location of Kooragang Coal Terminal

Table 1.1 – Condition 7.3(b) of KCT Project Approval (cont)

Condition Number	Condition Detail	Section of Plan
	v) a description of how the effectiveness of these actions and measures would be monitored during the proposed works, clearly indicating how often this monitoring would be conducted, how the results of this monitoring would be recorded; and, if any non-compliance is detected.	Section 5.0

This CNMP has been prepared for PWCS by Umwelt (Australia) Pty Limited (Umwelt), with input from Heggies Pty Ltd on the specific noise monitoring requirements for construction activities associated with the Project.

1.1 Construction Activities

PWCS has identified ways to increase its throughput capacity by optimising operational activities and associated upgrading of plant and equipment using demonstrated technology. This will be achieved essentially by operational efficiencies and the implementation of a range of conveyor and drive changes both for approved plant and equipment yet to be constructed and retrofitting of existing plant and equipment with upgraded components. All of these capacity improvement initiatives are located internally within the major approved coal terminal facilities.

The increase in capacity will be achieved by the following operational improvements:

1. An increase in the throughput capacity of the three receival and four stacking streams.

2. An increase in the throughput capacity of the coal reclaim system.

3. An increase in the throughput capacity of the shiploading system.

   Increased throughput capacities will be achieved by:

   - installing new low noise drives of higher power and increased speed;
   - increasing the coal profile on the belt;
   - changing to higher capacity chutes and introducing soft flow design for more efficient movement of the coal; and
   - changes to operational activities and practices.

4. Upgrade works on services including power supply and control systems.

The construction activities associated with the Project will be undertaken on a progressive basis during the normal operation of KCT. Construction activities will be undertaken in small steps (campaigns) over an extended period of time by appropriately small teams to suit equipment availability and the anticipated coal demand and will primarily consist of the following construction activities:

- Conveyor upgrades – replacement of conveyor drives and pulleys and changes to transfer chutes to increase flow rates.

- Reclaimer and Stacker upgrades.

Implementing the capacity throughput increase will not require mobilisation of a major construction workforce. The major types of equipment that will be on site during construction activities includes cranes and boom lifts, elevated work platforms, loaders, heavy vehicles (delivery of equipment), and miscellaneous vehicles utilised at KCT.

1.1.1 Potential Construction Noise and Vibration Impacts

As outlined in **Section 1.1**, construction activities associated with the Project include a range of conveyor and drive changes both for approved plant and equipment yet to be constructed and retrofitting of existing plant and equipment with upgraded components. Construction activities associated with the Project will be undertaken on a progressive basis during the operation of KCT.

The major sources of noise during construction are expected to be from outdoor construction equipment as part of the installation of upgraded equipment and from truck deliveries during each phase of construction. The construction activities are not continuous, and may vary from relatively low intensity to relative medium intensity during times of peak activity

The geographical distance from construction activities to any residential areas is such that there would be a minimal noise impact on the receivers. The noise impact assessment undertaken by Heggies Pty Ltd (Heggies 2006) and included as part of the Environmental Assessment (EA) for the Expansion to Throughput Capacity (Umwelt 2006) demonstrated that the noise levels resulting from construction are likely to be indiscernible at nearest residential receivers.

Despite the low potential for construction noise being discernable in receiver areas, should scheduled construction activities be considered to have affected receiver areas, residents will be notified through the media and invited to make contact through the community enquiry line if the effects were considered unacceptable.

As outlined in **Section 1.0**, construction activities associated with the Project include upgrades to existing plant to increase throughput capacity undertaken by small teams on a campaign basis and does not include any pile driving or drill and blasting activities. As such, there are no vibration impacts resulting from construction activities associated with the Project on surrounding receiver areas. Vibration impacts from construction activities associated with the Project will not be considered further within this CNMP.

1.1.2 Construction Hours

At times, construction activities will be undertaken on a 24 hour per day 7 day per week basis. In accordance with Condition 2.7 of the Project Approval (refer to **Section 2.1**), construction activities that would generate any audible noise at residential receivers will be restricted to between 7.00 am and 6.00 pm seven days per week, except where construction activities are undertaken in response to a direction from police or other relevant authority for safety or emergency reasons.

1.2 Management Plan Context

The CNMP has been developed as a supplementary management plan to the Kooragang Coal Terminal Construction Environmental Management Plan for the Project. The context of this CNMP in relation to KCT environmental management policy and systems is outlined in the Construction Environmental Management Plan.

1.3 Purpose and Scope

This CNMP has been prepared in accordance with Condition 7.2(b) of the Project Approval to detail how construction noise and vibration would be minimised and managed during construction activities associated with the Project. The CNMP has been prepared in accordance with the requirements of the Guideline for the Preparation of Environmental Management Plans (DIPNR 2004).

1.4 Objectives

The objectives of the CNMP include:

- To minimise and control the noise impact of construction activities on the environment.
- Ensure compliance with regulatory and PWCS requirements. This is the minimum expectation.
- Clearly define the responsibilities and actions required to respond to environmental incidents.
- Maintain the relationship that PWCS has established with the local community and regulatory organisations.

2.0 Statutory Requirements

2.1 Project Approval Requirements

The Project Approval and consent requires compliance with relevant DoP noise criteria. The relevant DoP noise criteria applicable to the Project construction activities are outlined in **Section 4.2**.

The Project Approval also specifies a number of conditions that specifically apply to the management of construction noise. These conditions are outlined in **Table 2.1**, along with an indication of where each of the specific requirements is addressed by this plan.

Table 2.1 – Construction Noise Conditions Contained in the Project Approval

Condition Number	Condition Title	Condition Detail	Section of Plan
2.7	Construction Noise	The Proponent shall only undertake construction activities associated with the project that would generate an audible noise at any residential premises between 7.00 am and 6.00 pm, seven days a week. Audible noise is defined as 'noise that can be heard at the receiver'. This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons. Note: *'safety or emergency reasons' refers to emergency works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.*	Section 1.1.2

3.0 Roles and Responsibilities

Specific responsibilities under the CNMP are as follows:

PWCS General Manager

- Provide direction for environmental management in accordance with the PWCS Environmental Policy; and
- Provide for the review of the PWCS Environmental Policy.

Senior Project Manager

- Ensure that adequate resources are available to implement the requirements of the CNMP.

Engineering Manager - Expansion

- Ensure that the CNMP is relevant to current construction activities;
- Co-ordinate environmental monitoring in accordance with the CNMP;
- Develop and maintain a protocol for evaluating compliance with applicable criteria relevant to construction activities;
- Develop and maintain a protocol for assessment and response to environmental monitoring data;
- Notify regulatory authorities and affected stakeholders of any exceptions to relevant environmental criteria and/or standards and undertake necessary reporting;
- Co-ordinate investigations of any environmental impacts or enquiries and implementation of any relevant mitigation and controls;
- Co-ordinate periodic reviews of the CNMP; and
- Liaise with regulatory authorities on matters relating to approvals and consent conditions.

Specialist Advisor Environment

- Co-ordinate the ongoing operational noise monitoring program, community enquiry system and incident reporting program of KCT and notify the Engineering Manager of any noise monitoring issue and/or noise related enquiry or incident associated with construction activities;
- Assist the Engineering Manager in the investigation of any noise monitoring issue, enquiry and/or incident associated with construction activities, where required.

Construction Manager

- Develop and maintain the construction activities to comply with the approvals and consent conditions;
- Monitor construction activities and respond to exceptions to the relevant criteria ;

- Review construction activities in response to exceptions and modify construction activities as appropriate;
- Report to Engineering Manager on response to exceptions; and
- Assist the Engineering Manager with investigation of exceptions or enquiries and the implementation of any relevant mitigation and controls.

Other Employees and Contractors

All employees and contractors are required to comply with the requirements of this CNMP.

4.0 Construction Noise Management

4.1 Receiver Areas

As shown on **Figure 1.1**, the nearest urban areas are Fern Bay located approximately 1.7 kilometres to the east; the suburb of Stockton (North), located approximately 1.5 kilometres to the south-east of the site; and Mayfield located 1.7 kilometres to the south-west. The former BHP steelworks and current OneSteel operations are located to the south and south-west, across the South Arm of the Hunter River. These areas include a range of residential and industrial noise receivers as outlined further in the following sections.

4.1.1 Residential

The potentially most affected residential receivers, and key noise monitoring locations are listed in **Table 4.1.** Construction activities will be undertaken in various locations across KCT dependent on the campaign being undertaken. As such, the potential noise impacts, whilst minimal, may affect different receiver areas dependent on the nature of the particular construction campaign and location within the KCT site.

Table 4.1 - Residential Receivers

Receiver Area	ID and Key Monitoring Locations	
Fern Bay North	FN1	Nelson Bay Road
Fern Bay West	FW1	1 Fullerton Lane
Stockton West	SW1	284 Fullerton Street
Mayfield West/Warrabrook	W1	47 Stevenson Avenue
	W2	4 Groongal Street
Mayfield	M2	45 Simpson Crescent
	M4	52 Arthur Street
Carrington/Maryville	C1	Cnr Hargrave and Young Streets

4.1.2 Industrial

The potentially most affected industrial receivers are listed in **Table 4.2**. Where a contribution can't be measured at an industrial receiver, measurements may be conducted at a representative location at a similar distance or at a closer proximity to the construction site so that the contributed noise level can be calculated.

Table 4.2 - Industrial Receivers

Receiver Area	ID and Key Monitoring Locations	
Kooragang Island	IB2	Mountain Bulk Haulage
	IB3	Kooragang Bulk Facilities
	IB6	Cargill Australia Raven St
Mayfield North	MN1	OneSteel

4.2 Construction Noise Criteria

4.2.1 Residential Receivers

The conditions of the Project Approval do not specify noise assessment criteria for the construction activities associated with the Project. As such, the relevant criteria for construction noise associated with the Project are based on the duration of the construction activities as outlined in the Environmental Noise Control Manual (ENCM) (EPA 1994).

The ECNM defines a range of construction noise criteria based on the proposed duration of construction activities at residential boundaries under neutral weather conditions as outlined below:

- For those components of the development where the construction period is less than 4 weeks - L10 level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 20 dB(A).

- For those components of the development where the construction period is greater than 4 weeks but less than 26 weeks - L10 level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 10 dB(A).

- For those components of the development where the construction period is greater than 26 weeks - L10 level measured over a period of not less than 15 minutes when the construction site is in operation must not exceed the background level by more than 5 dB(A).

As outlined in **Section 1.0**, the construction activities associated with the Project will be undertaken in small steps (construction campaigns) over an extended period of time by appropriately small teams to suit equipment availability and the anticipated coal demand. As such, in accordance with the ENCM, PWCS will adopt the construction noise criteria applicable to construction greater than 26 weeks duration for construction period of the Project.

For construction activities associated with the Project during daytime hours (7.00 am to 6.00 pm) the adopted noise criteria are outlined in **Table 4.3**. The nominated residential LA10(15minute) construction noise limits based on the Rating Background Levels (RBL's) contained in Table 9 in EA (Heggies Report 30-1417R2) are shown below in **Table 4.3**

Table 4.3 - Daytime Construction Noise Criteria Residential Receivers

Receiver Area	ID	Key Locations	Criteria LA10 15 minute (period >26 weeks)
Residential			
Stockton West	SW1	284 Fullerton Street, North Stockton	47 dBA
Fern Bay West	FW1	Fullerton Lane, Fern Bay	52 dBA
Fern Bay North	FN1	Nelson Bay Road, Fern Bay	49 dBA
Warrabrook/ Mayfield West	W1	47 Stevenson Avenue	50 dBA
	W2	4 Groongal Street	
Mayfield	M2	45 Simpson Crescent	51 dBA
	M4	52 Arthur Street	
Carrington/Maryville	C1	Cnr Hargrave and Young Streets	47 dBA

Note: Criteria developed from RBL's contained in Table 9 in EA (Heggies Report 30-1417R2)

Condition 2.7 of the Project Approval requires that any construction work conducted outside normal hours (6:00 pm to 7:00 am) are to be inaudible at closest noise receiver areas. As outlined in **Section 1.2**, construction activities will be undertaken over a 24 hour per day 7 day per week basis. In accordance with Condition 2.7 of the Project Approval (refer to **Section 2.1**), construction activities that would generate any audible noise at residential receivers will be restricted to between 7.00 am and 6.00 pm seven days per week, except where construction activities are undertaken in response to a direction from police or other relevant authority for safety or emergency reasons.

4.2.2 Industrial Receivers

The Project Approval conditions do not specify construction noise criteria for industrial premises. Similarly, the EA does not nominate construction noise limits for industrial premises.

It is therefore recommended that noise limits be determined generally in accordance with the procedure applying to residential land uses (ie the LA10(15minute) criteria are based on permissible margins of exceedance of the background LA90(15minute) noise levels, dependent on the relative durations of noise exposures experienced at the industrial receiver), plus an additional allowance of 10 dBA, given the less sensitive nature of industrial premises.

The noise level objectives are outdoor criteria and apply for the place of potential impact (i.e. not necessarily at the boundary of the industrial premises). In the absence of existing industrial premise LA90(15minute) background noise levels the LA10(15minute) construction noise emission should not exceed 65 dBA at the place of potential impact.

4.3 Construction Noise Management Activities and Controls

PWCS is committed to the management of potential noise impacts on receiver areas as a result of construction activities associated with the Project. As such, all construction activities will be undertaken to comply with the relevant construction noise criteria outlined in **Section 4.2**. The specific activities and controls that will be implemented to ensure construction activities are maintained within the relevant criteria include:

- Ensure that all equipment used on site is well maintained to achieve optimum noise performance.
- Prevent modifications that could potentially increase the noise emitted from exhaust systems of equipment utilised on site.
- Be aware of climatic conditions such as temperature inversions or unusual wind directions, which may enhance off site noise propagation for short periods.
- Ensure that horns or other signalling devices fitted to construction vehicles to provide a danger warning, and are not able to audible off site.
- Adjust work hours to suit the activity and the prevailing background levels and weather conditions.

5.0 Monitoring and Review

5.1 Construction Noise Monitoring

5.1.1 General Requirements

The noise measurement procedures employed throughout the monitoring program shall be guided by the requirements of AS 1055.1-1997, 'Acoustics - Description and Measurement of Environmental Noise, Part 1 General Procedures' and the Environment Protection Authority's (EPA's) Environmental Noise Control Manual.

5.1.2 Operator-Attended Noise Surveys

Operator-attended noise measurements will be conducted to quantify the contributed level of noise emissions from construction operations as well as the overall level of ambient noise.

The operator shall quantify and characterise the LA10 noise level contributions from construction operations over a 15 minute measurement period. In addition, the operator shall quantify and characterise the overall levels of ambient noise (i.e. LAmax, LA1, LA10, LA50, LA90, and LAeq) over the 15 minute measurement interval.

In some instances, it may be difficult to measure the LA10 construction noise over a full 15 minute period in the presence of other noise sources. In such instances, the LA10(15minute) noise levels may be measured at a point between the source and receiver, and calculated back to the receiver.

5.1.3 Key Monitoring Locations and Monitoring Intervals

5.1.3.1 Daytime Construction (7:00 am to 6:00 pm)

Operator - attended noise measurements shall be conducted during daytime construction campaigns (for each type of construction activity) at selected KCT industrial boundary locations (or other noise-sensitive locations) relevant to the construction operations at the time of monitoring, to determine if construction noise is audible.

In the event that construction noise is not audible at the selected KCT industrial boundary monitoring locations, it will be determined that construction noise from that type of activity would also be inaudible at the residential receiver areas and therefore in compliance with the construction noise criteria. It is envisaged that once compliance has been determined for a particular type of activity, that no subsequent monitoring of that activity would be required.

In the event that construction noise is audible and can be quantified at the selected KCT industrial boundary monitoring locations, then additional noise monitoring will be conducted at relevant key monitoring locations within the potentially most affected receiver areas. The selection of the key monitoring locations will be relevant to the construction operations at the time of monitoring, in order to quantify noise emissions and estimate the LA10 noise contribution from the construction. The operator shall quantify and characterise the maximum (LAmax), LA10, and background (LA90) noise levels from ambient noise sources and construction operations over a 15 minute measurement period.

5.1.3.2 Out of Hours Construction (6:00 pm to 7:00 am)

Evening and night time construction noise will be monitored at selected key monitoring locations in the potentially affected residential receiver areas (or other noise-sensitive locations) relevant to the construction operations at the time of monitoring, in order to quantify the audibility of construction related noise in accordance with Condition 2.7 of the Project Approval.

5.1.4 Noise Monitoring Equipment

All acoustic instrumentation employed throughout the monitoring program will be designed to comply with the requirements of AS 1259.2-1990 'Sound Level Meters' and carry current NATA or manufacturer calibration certificates. The instrumentation will be operated and maintained by suitably qualified or trained personnel.

All instrumentation will be programmed to record continuously statistical noise level indices in 15 minute intervals including the LAmax, LA1, LA10, LA50, LA90 and LAeq.

Instrument calibration shall be conducted before and after each measurement survey, with the variation in calibrated levels not to exceed ±0.5 dB.

All noise measurement results will be accompanied by both qualitative descriptions (including cloud cover) and quantitative measurements of the prevailing local weather conditions throughout the survey period.

5.1.5 Reporting Requirements

All routine monitoring results will be documented and forwarded to the Engineering Manager on a monthly basis during construction campaigns. In the event of an exception to the construction noise criteria the Engineering Manager will be immediately informed of the location and the level of exception then the monitoring results of the exception will be documented and forwarded to the Engineering Manager within 7 days.

5.1.6 Corrective Action

In the event of an exception to the appropriate construction noise criteria the Engineering Manager will be immediately informed of the location, the level of exception and the source of emission (where possible). The Engineering Manager will then investigate the source of the noise and either modify the construction activity to reduce the noise or stop the activity.

In addition, **Table 5.1** summarises the potential noise issues that may arise during construction and the appropriate corrective action to be taken.

Table 5.1 - Corrective Actions

Problem	Corrective Action
Potential for an exception of construction noise criteria based on observations and/or interpretation of monitoring data.	Investigation of exceptions, undertaking mitigating measures where applicable. Report potential exception to Senior Project Management. Where noise monitoring at the boundary of KCT site indicates that construction noise may be audible, additional targeted monitoring will be undertaken at the closest residential receiver area.
Exception to relevant construction noise criteria.	Investigation of exception, undertaking mitigating measures where applicable. Report exceedance to regulatory agencies, senior management and notify impacted residents as required.

Table 5.1 - Corrective Actions (cont)

Problem	Corrective Action
Community enquiry.	Investigation of enquiry, implementing mitigating measures where applicable and provide feedback to enquirer in accordance with enquiries protocol. Report enquiry to senior management as appropriate. Provide feedback to construction personnel, where relevant.

5.1.7 Nearfield Noise Measurement Requirements

In addition to identifying the source(s) of excessive noise emission level, any potentially excessive item(s) of plant and equipment will be measured, assessed and mitigated where appropriate.

5.1.8 Community Noise Related Enquiries

PWCS have in place a 24 hour Community Enquiry line for the operational plant and this will be available throughout the construction activities associated with the Project. The community enquiry processes in place at KCT are consistent with the requirements of the project approval.

Enquiries will be documented and transmitted to the PWCS Specialist Advisor Environment immediately, in accordance with the compliance tracking program. Where the initial investigation of the noise related enquiry indicates a potential issue associated with construction activities, the Specialist Advisor Environment will notify the Engineering Manager.

The PWCS community enquiry line phone number is 02 49072280. If outside of normal work hours the caller is given the option to contact the shift supervisor of the operating plant or leave a message which will be responded to on the next working day.

5.2 Review

The CNMP is to be reviewed at least every year or as otherwise directed by the Director-General of DoP. The review process is to reflect changes in environmental legislation and guidelines and changes in technology or operational procedures.

In accordance with the Project Approval PWCS will commission an Independent Environmental Audit to the satisfaction of DoP on an annual basis. The Audit will include an assessment of the effectiveness of the implementation of the CNMP. Where necessary following the audit, the CNMP will be updated and action taken to improve performance and management practices.

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