



# Works Approval

## *Environmental Protection Act 1986, Part V*

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**Works Approval Holder:**      **The Griffin Coal Mining Company Pty Ltd**

**Works Approval Number:**    **W5413/2013/1**

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**Registered office:**      First Floor  
677 Murray Street  
WEST PERTH WA 6005

**ACN:**                              008 667 285

**Premises address:**      Berth 5 Containerised Coal Export Project  
Part of Lot 962 on Plan 219848 and Part of Lot 963 on Plan 220558  
VITTORIA WA 6230  
(As depicted in Schedule 1)

**Issue date:**                      Friday, 23 August 2013

**Commencement date:** Monday, 28 August 2013

**Expiry date:**                      Saturday, 25 August 2018

The following category/s from the Environmental Protection Regulations 1987 cause this Premises to be a prescribed premises for the purposes of the Environmental Protection Act 1986:

Category number	Category description	Category production or design capacity	Premises production or design capacity
58	Bulk material loading or unloading: premises on which clinker, coal, ore, ore concentrate or any other bulk granular material (other than salt) is loaded onto or unloaded from vessels by an open materials loading system.	100 tonnes or more per day	1 250 000 tonnes per annual period

### **Conditions of Works Approval**

Subject to the conditions of the works approval set out in the attached pages.

Date signed: 8 October 2015

.....  
Danielle Eyre  
Officer delegated under section 20  
of the *Environmental Protection Act 1986*



# Works Approval Conditions

## 1 General

### 1.1 Interpretation

1.1.1 In the Works Approval, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 In the Works Approval, unless the contrary intention appears:

“**Act**” means the *Environmental Protection Act 1986*;

“**AS 3580.9.3**” means the Australian Standard AS 3580.9.3 *Methods for sampling and analysis of ambient air - Determination of total suspended particulates (TSP) - High volume sampler gravimetric method*;

“**AS 3580.9.8**” means the Australian Standard AS 3580.9.8 *Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM<sub>10</sub> continuous direct mass method using tapered element oscillating microbalance analyser*;

“**CEO**” means Chief Executive Officer of the Department of Environment Regulation;

“**CEO**” for the purpose of correspondence means;  
Chief Executive Officer  
Department Administering the Environmental Protection Act 1986  
Locked Bag 33  
CLOISTERS SQUARE WA 6850  
Email: info@der.wa.gov.au;

“**Commissioning**” means the process of operation and testing that verifies the works and all relevant systems, plant, machinery and equipment have been installed and are performing in accordance with the design specification set out in the works approval application;

“**NATA**” means the National Association of Testing Authorities, Australia;

“**NATA accredited**” means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

“**PM10**” means particles with an aerodynamic diameter of less or equal to 10 µm;

“**Premises**” means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Works Approval;

“**Schedule 1**” means Schedule 1 of this Works Approval unless otherwise stated;

“**TSP**” means total suspended particles each having an equivalent aerodynamic diameter of less than 50 micrometres;

“**Works Approval**” means this Works Approval numbered W5413/2013/1 and issued under the *Environmental Protection Act 1986*;

“**Works Approval Holder**” means the person or organisation named as the Works Approval Holder on page 1 of the Works Approval; and

“**µg/m<sup>3</sup>**” means micrograms per cubic metre.



- 1.1.3 Any reference to an Australian or other standard in the Works Approval means the relevant parts of the current version of that standard.
- 1.1.4 Any reference to a guideline or code of practice in the Works Approval means the current version of the guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guidelines or code of practice made during the term of this Works Approval.

## 1.2 General conditions

- 1.2.1 The Works Approval Holder shall construct the works in accordance with the documentation detailed in Table 1.2.1:

<b>Table 1.2.1: Construction Requirements<sup>1</sup></b>		
<b>Document</b>	<b>Parts</b>	<b>Date of Document</b>
Works Approval Application Form	All	11 January 2013
Bunbury Port Authority Works Approval Application – Containerised Coal Export Project, Berth 5 Supporting Information	All, including Drawings and Appendices	11 January 2013
Email Correspondence: Bunbury Port Authority Interim Coal Works Approval - additional information 17/06/2013 4:10pm, Duncan Gordon, Bunbury Port Authority	All, including attachments	17 June 2013
Email Correspondence: Response to BPA Additional Information for Interim Coal Works Approval - Further Information Is Required 28/06/2013 3:41pm, Paul Irving, The Griffin Coal Mining Company Pty Limited	All, including attachments	28 June 2013
Email Correspondence: Outstanding action items for Works Approval - Sedimentation Basins and Drains 19/07/2013 9:58am, Paul Irving, The Griffin Coal Mining Company Pty Limited	All, including attachments	19 July 2013
Email Correspondence: Outstanding action item - Works Approval - Amended risk assessment 19/07/2013 10:00am, Paul Irving, The Griffin Coal Mining Company Pty Limited	All	19 July 2013
Email Correspondence: Works Approval 19/07/2013 3:08pm, Brant Edwards, The Griffin Coal Mining Company Pty Limited	All	19 July 2013
Letter correspondence: Application to Amend Works Approval W5413/2013/1 – Bunbury Port Containerized Coal Export Project, Brant Edwards, Griffin Coal Mining Company Pty Limited. Attached with P4 Form and explaining application to amend Works Approval W5413 with Form P4 attached transferring Works Approval to Griffin Coal Company Pty Ltd	All	4 November 2014
Letter correspondence: Noise Regulation Assessment of "Environmental Noise Assessment For Bunbury Port Containerized Coal Export Project, Brant Edwards, Griffin Coal Mining Company Pty Limited.	All	5 February 2015
Email correspondence: Containerised Coal project 13/03/2015 4:52pm, Brant Edwards, Griffin Coal Mining Company Pty Limited. Including P4 form and confirmation of bank transaction for fees.	All	13 March 2015

Note 1: Where the details and commitments of the documents listed in condition 1.2.1 are inconsistent with any other condition of this works approval, the conditions of this works approval shall prevail.



- 1.2.2 The Works Approval Holder shall install and maintain permanent markers along the land boundary of the Premises so it can be identified on the ground.
- 1.2.3 The Works Approval Holder shall commission the Containerised Coal Export Project, for 3 shipments of coal from Berth 5 at the Port of Bunbury or for a period not exceeding three months, whichever occurs first.

### **1.3 Premises operation**

- 1.3.1 The Works Approval Holder shall ensure that each container remains sealed whenever the container is above the vessel hold.

## **2 Emissions**

### **2.1 General**

- 2.1.1 The Works Approval Holder shall record and investigate the exceedance of any descriptive or numerical limit, and/or target in this section.
- 2.1.2 The Works Approval Holder shall only carry out construction works approved under this Works Approval between the hours of 7:00AM to 7:00PM Monday to Saturday (excluding Public Holidays).

## **3 Monitoring**

### **3.1 General monitoring**

- 3.1.1 The Works Approval Holder shall ensure that:
  - (a) all air monitoring is conducted in accordance with AS 3580; and
  - (b) all laboratory samples are submitted to a laboratory with current NATA accreditation for the parameters to be measured.
- 3.1.2 The Works Approval Holder shall have all monitoring equipment referred to in any condition of the Licence calibrated in accordance with the manufacturer's specifications, the requirements of the Licence and any relevant Australian standard.
- 3.1.3 The Works Approval Holder shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the Director accompanied with a report comprising details of any modifications to the methods.



### 3.2 Ambient environmental quality monitoring

3.2.1 The Works Approval Holder shall undertake the monitoring in Table 3. 2.1 according to the specifications in that table.

Table 3.2.1: Monitoring of ambient air quality					
Monitoring point reference and location	Parameter	Units <sup>1</sup>	Averaging period	Frequency	Method
AQ1 – AQ4	Particulates as PM <sub>10</sub>	µg/m <sup>3</sup>	24 hours	Continuous during the commissioning period	AS 3580.9.8
AQ2	TSP	µg/m <sup>3</sup>		For the duration of the commissioning period: Continuous during ship loading events; and every 6 <sup>th</sup> day when no shiploading occurs	AS 3580.9.3

Note 1: All units are referenced to STP dry

3.2.2 The Works Approval Holder shall ensure that the siting of ambient air monitoring equipment is in accordance with AS 3580.1.1.

### 3.3 Meteorological monitoring

3.3.1 The Works Approval Holder shall record the meteorological monitoring data specified in Table 3.3.1 during the commissioning period.

Table 3.3.1: Meteorological monitoring			
Monitoring station	Parameter	Units	Averaging period
Bureau of Meteorology Weather Station 009965	Wind speed	m/s	1 hour
	Wind direction	Degrees	
	Wind direction standard deviation		
	Air temperature	°C	
	Differential air temperature		
	Relative humidity	%	
	Rainfall	mm	
Bunbury Port Authority's Estuary Drive Weather Station	Wind speed	m/s	
	Wind direction	Degrees	
	Wind direction standard deviation		
Bunbury Port Authority's Beacon 3 Weather Station	Air temperature	°C	
	Differential air temperature		
	Relative humidity	%	
	Rainfall	mm	

### 3.4 Noise monitoring

3.4.1 The Works Approval Holder shall, during the commissioning period, conduct noise verification measurements at three reference points. The three reference points shall be selected at the discretion of the acoustic consultant and should, where practicable, be locations where the measured noise emissions are representative of noise levels at noise-sensitive receivers.

3.4.2 The Works Approval Holder shall, during the commissioning period, conduct verification measurements at the closest noise-sensitive receiver to establish whether tonality is present in the noise emissions from the Premises.



- 3.4.3 The Works Approval Holder shall measure the sound power levels of the equipment specified in Table 3.4.1 and compare results with the overall sound power level limits in that table.

Table 3.4.1: Equipment sound power level limits	
Equipment	Overall Sound Power Level limits dB(A)
Reach stackers	103.7
B-Double Volvo FH16 Truck	104.0
Trucks travelling at 25 kph	99.8
Trucks idling	92.5
Harbour crane	103.6
Forklift	95.2

## 4 Improvements

- 4.1.1 The Works Approval Holder shall complete the improvements in Table 4.1.1 by the date specified.

Table 4.1.1: Improvement program		
Improvement reference	Improvement	Date of completion
IR1	<p>The Works Approval Holder shall, prior to commencing commissioning of the Containerised Coal Export Project, submit a commissioning plan for approval by the Director. The commissioning plan shall include details relating to:</p> <ul style="list-style-type: none"><li>(a) the commissioning stages and expected timescales for commissioning;</li><li>(b) expected emissions and discharges during commissioning and the environmental implications of the emissions;</li><li>(c) how emissions and discharges will be managed during commissioning;</li><li>(d) the monitoring that will be undertaken during the commissioning period;</li><li>(e) how accidents or malfunctions will be managed;</li><li>(f) start up and shut down procedures; and</li><li>(g) reporting proposals including accidents, malfunctions and reporting against the commissioning plan.</li></ul> <p>Commissioning shall be carried out in accordance with the commissioning plan as approved.</p>	At least 1 month prior to commencing commissioning
IR2	<p>The Works Approval Holder shall undertake a noise assessment of the Premises during commissioning. The assessment shall include an updated noise model based on measured sound power levels during commissioning. A report on the noise assessment shall be prepared in accordance with Part 3 of the Environmental Protection (Noise) Regulations 1997 (Noise Regulations). The report shall be submitted to the Director for approval and shall include, but not be limited to:</p> <ul style="list-style-type: none"><li>(a) methods and equipment used for monitoring and modelling of noise;</li><li>(b) details of the engineering noise controls implemented to reduce the sound power levels of equipment where relevant;</li><li>(c) an assessment of whether noise emissions from the Premises comply with the assigned noise levels;</li><li>(d) where required, proposed measures to reduce noise</li></ul>	Within 1 month of the completion of commissioning



	emissions to comply with cumulative noise levels, including timescales for implementing the proposed measures.	
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## 5 Information

### 5.1 Reporting

5.1.1 The Works Approval Holder shall submit a compliance document to the Director, following the construction of the works and prior to commissioning of the same.

5.1.2 The compliance document shall:

- (a) certify that the works were constructed in accordance with the conditions of the works approval;
- (b) be signed by a person authorised to represent the Works Approval Holder and contain the printed name and position of that person within the company.

5.1.3 The Works Approval Holder shall submit a commissioning report for the Containerised Coal Export Project, to the Director for approval within 1 month of the completion of commissioning. The report shall include:

- (a) a summary of the environmental performance of the Containerised Coal Export Project as installed, against the design specification set out in the works approval application, including all monitoring data; and
- (b) a review of performance against the works approval conditions; and
- (c) where they have not been met, measures proposed to meet the design specification and/or works approval conditions, together with timescales for implementing the proposed measures.

### 5.2 Notification

5.2.1 The Works Approval Holder shall ensure that the parameters listed in Table 5.2.1 are notified to the Director at the Contact Address and in accordance with the notification requirements of the table.

**Table 5.2.1: Notification requirements**

Condition or table (if relevant)	Parameter	Notification requirement	Format or form
1.2.4	Commencement of commissioning	7 days prior to start	None specified
	Completion of commissioning	7 days after completion	





## Schedule 1: Maps

### Premises map

The Premises is shown in the map below. The yellow line depicts the Premises boundary.







## Map of monitoring locations

The locations of the dust monitoring points defined in Table 3.2.1 are shown below.





# Decision Document

## *Environmental Protection Act 1986, Part V*

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**Proponent:** The Griffin Coal Mining Company Pty Ltd

**Works Approval:** W5413/2013/1

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**Registered office:** First Floor  
677 Murray Street  
WEST PERTH WA 6005

**ACN:** 008 667 285

**Premises address:** Berth 5 Containerised Coal Export Project  
Part of Lot 962 on Plan 219848; and Part of Lot 963 on Plan 220558  
VITTORIA WA 6230

**Issue date:** Friday, 23 August 2013

**Commencement date:** Monday, 26 August 2013

**Amendment date:** Monday, 1 October 2015

**Expiry date:** Saturday, 25 August 2018

### Decision

Based on the assessment detailed in this document, the Department of Environment Regulation (DER) has decided to issue a works approval. DER considers that in reaching this decision, it has taken into account all relevant considerations and legal requirements and that the Works Approval and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision document prepared by:

Neville Welsh  
Senior Licensing Officer

Decision Document Authorised By:

Danielle Eyre  
Delegated Officer



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## 1 Purpose of this Document

This decision document explains how DER has assessed and determined the application for a works approval or licence, and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

## 2 Administrative Summary

Administrative Details		
Application Type	Works Approval <input type="checkbox"/> New Licence <input type="checkbox"/> Licence Amendment <input type="checkbox"/> Works Approval Amendment <input checked="" type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category Number(s) 58	Design Capacity 1 250 000 tonnes per annual period
Application Verified	Date: n/a	
Application Fee Paid	Date: n/a	
Works Approval has been complied with	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Compliance Certificate received	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome		
Is the proposal a Major Resource Project?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Referral Decision No: Managed under Part V <input checked="" type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial Statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	



of the <i>Environmental Protection Act 1986</i> ?	Department of Water consulted Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Is the Premises within an Environmental Protection Policy (EPP) Area	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

### 3 Executive summary of proposal

The Port of Bunbury (the Port) is located approximately 180 km south of Perth on the south west coast of Western Australia. The Port consists of a three kilometre dredged channel leading to a dredged Inner Harbour basin. The Port consists of Berths 3-8 which are used for export of commodities including ilmenite, rutile, zircon, coal, woodchips, alumina, logs, caustic soda, spodumene, silica sand, iron concentrate and copper sulfide concentrate. This proposal is for containerised coal export from Berth 5 of the Port. The legal occupier of Berth 5 is the Southern Port Authority (SPA) who was originally the nominated works approval holder for this proposal.

Griffin Coal Mining Company Pty Ltd (Griffin Coal) is the coal exporter for the Containerised Coal Export project and will construct and operate infrastructure at Berth 5 to enable the export of 1.25 million tonnes per annum (Mtpa) of coal. The nearest sensitive receptor is a housing development located approximately 430 m southwest of Berth 5. Coal from Griffin Coal's mine in Collie will be transported via haulage trucks to be stored at a facility outside the premises in Picton. This coal storage facility at Picton is not subject to this Works Approval but is subject to the general provisions of the *Environmental Protection Act 1986* and local government planning consents. Coal product stored at the Picton facility will be loaded into sealed rotating frame containers and transported to the port by truck and either unloaded directly to the ship, or placed onto a storage area where they will be stacked up to four containers high awaiting loading onto the next available ship.

Loading of ships will be undertaken using two 100 tonne container shore lift cranes. Griffin Coal expects to load one Panamax or equivalent vessel with capacity of 45 000 tonnes for export every 10 to 11 days. Each ship will take approximately 72 hours continuously (day and night) to load. To load coal into the vessel each container will be lifted into the hold of the vessel by the cranes where the container lid will be removed. The containers will then be rotated 180 degrees to discharge the coal into the ship's hold. Rotation of the container is undertaken using a QUBE rotor box device. The container lid will be returned into position prior to the empty container being removed from the ship's hold and the container will then be returned to the storage area or to Picton to collect more coal product.

Other infrastructure to be established at the premises includes minor road modifications to connect to the container storage areas, establishment of hardstand areas at the container storage areas, establishment of a refuelling facility and a stormwater control system.

Griffin Coal proposes to commission the containerised coal export project under the works approval by trialling three shipments to identify the best management measures to reduce emissions and discharges during operations. Key emissions and discharges were assessed under the original Works Approval and remain unchanged. Upon completion of the construction works and acceptance of the compliance document, an amendment will be made to the Southern Port Authority licence to authorise the activities proposed under this Works Approval.

This amendment is to transfer the Works Approval from SPA to Griffin Coal, remove the construction of the rail unloading area, maintain the construction of the container storage facility and to reassess the noise emissions with the proposal being changed from rail to road transport. DER considers the conditions of the existing Works Approval are sufficient to adequately address emissions during construction except for Noise emissions, which have been reassessed and are detailed in the Decision Table and Appendix 1. This assessment is therefore a partial decision document dealing with noise emissions.





## 4 Decision Table

All applications are assessed under the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987*, DEC's *Policy Statement - Limits and targets for prescribed premises* (2006) and the risk matrix attached to this decision document in Appendix A. Where other references have been used in making the decision they are detailed in the decision table.

DECISION TABLE			
Works Approval / Licence Section	Condition Number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference Documents
Noise	W2.1.2 W3.4.1 to W3.4.3 & Table 3.4.1, & IR 2. L3.8	<b>Construction, Commissioning and Operation</b> Details of DER's assessment and decision making in relation to noise emissions and monitoring during construction, commissioning and operation are included in Appendix 1 – Emission Risk Assessment Noise Emissions.	Application supporting documentation  <i>Environmental Protection (Noise) Regulations 1997</i>
Licence Duration	N/A	This works approval has been extended to expire on 25 August 2018, therefore allowing 3 years to complete the works consistent with when the initial works approval that was issued in August 2013.	



## 5 Advertisement and Consultation Table

Date	Event	Comments received/Notes	How comments were taken into consideration
26/8/2013	W5413/2013/1 commences	Three parties were concerned about health impacts of fugitive coal dust upon their local community and DER's administrative procedures.	Correspondence to parties explaining the DER procedures plus explanation of DER's risk assessment and decision to apply monitoring requirements as conditions of works approval.
19/09/2015	Proponent sent a copy of draft instrument	Proposed administrative changes to postal address and registered business address, confirmation of limits in table 3.4.1 and changed the map in schedule 1 depicting the dust monitoring locations as referenced in table 3.3.1.	Administrative changes accepted, limits in table 3.4.1 confirmed and schedule 1 map changed to reflect dust monitoring locations as referenced in table 3.3.1.



## 6 Risk Assessment

*Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management*

**Table 1: Emissions Risk Matrix**

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High



## Appendix 1

### **Emission Risk Assessment – Construction Noise emissions**

#### **Emission Description**

*Emission:* Emissions from heavy machinery, vehicle movements across the Premises, and general infrastructure construction such as land clearing, access road construction, top-soil stripping, earth works, drainage construction can generate nuisance noise.

*Impact:* Noise emissions can cause nuisance and a reduced quality of life and health for human populations, particularly when the source is located near sensitive receptors. Frequency, intensity, duration, meteorological conditions and distance to receptor are all factors which may affect the impact of noise emissions on sensitive receptors.

The nearest sensitive receptor is a housing development located approximately 430 m southwest of Berth 5. Predicted noise emissions from modelling completed by the applicant indicate the potential for exceedance at sensitive receptors during night time operations. However predicted noise levels during construction are 50 – 100% of the assigned levels under the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations) during normal daytime operations (7:00AM – 7:00PM), and only exceed day-time assigned levels at some receptors under worst case meteorological conditions.

*Controls:* To manage and control noise emissions during construction works, the proponent has committed to only undertake construction activities during the daylight hours of 7am to 6pm Monday to Saturday. Vehicles and construction equipment will be inspected and maintained so that mufflers and noise enclosures (where fitted) are in working order. Also, the applicant has an objective to undertake construction of the coal facility at least 5dB below the sound power level of the Environmental Protection (Noise) Regulation 1997 to ensure compliance. Construction work will also be carried out in accordance with noise practices set out in section 6 of AS2436; and, any equipment used for the construction is the quietest reasonably available.

#### **Risk Assessment**

*Consequence:* Moderate.

*Likelihood:* Possible.

*Risk Rating:* Moderate.

#### **Regulatory Controls**

Regulation 13 of the *Environmental Protection (Noise) Regulations 1997* provides that construction work on a construction site, carried out between the hours of 7:00 AM and 7:00 PM on any day which is not a Sunday or public holiday, need not comply with the prescribed standards, providing the work is carried out in accordance with AS 2436 and the equipment used is the quietest reasonably available.

In the absence of a DER-endorsed Construction Noise Management Plan and to avoid confusion, condition 2.1.2 has been included on the Works Approval to ensure construction works are only carried out between Monday to Saturday during the hours of 7am to 7pm.

During construction activities, DER's CEO may request the Works Approval holder prepare a 'construction noise management plan' at any time should the amenity noise become intrusive upon the community.

#### **Residual Risk**

*Consequence:* Moderate.

*Likelihood:* Possible.

*Risk Rating:* Moderate.





### **Emissions Risk Assessment - Commissioning and Operation Noise emissions**

#### **Emission Description**

*Emission:* Noise from ship loading, trucking operations, harbour cranes, forklifts and reach stackers, electric pumps, fans and other fixed plant, could cause nuisance noise emissions affecting local sensitive residences.

*Impact:* Excessive noise emissions can cause amenity nuisance and reduce quality of life and health for neighbouring populations, particularly when the source is located near sensitive receptors. Noise can affect the psychological status of human populations in terms of emotional stress, anger and physical symptoms. Frequency, intensity, duration, meteorological conditions and distance to receptor are all factors which may affect the impact of noise emissions upon sensitive receptors.

The nearest sensitive receptor is a housing development located approximately 430m southwest of Berth 5. Predicted noise emissions modelling indicates the potential for exceedance of noise at sensitive receptors during night time operations during unfavourable wind conditions.

Noise levels during operations would comply with the *Environmental Protection (Noise) Regulations 1997* (the Regulations) in the daytime, but marginally (0.8 dB) exceed the assigned noise during worst case evening and may exceed the night time assigned levels by up to 3.3 dB at the closest noise sensitive premise during worst case weather conditions.

*Controls:* To manage noise emissions during commissioning, the proponent has committed to meet the requirements of the initial conditions of works approval being;

- Verification of noise levels by conducting noise measurements at three noise sensitive locations using a qualified acoustics consultant,
- Conduct verification measurements at the closest noise sensitive receivers to establish if tonality is present in the noise emissions,
- Conduct sound power level checks of the equipment used to handle rotor box containers being the reach stacker, B-double trucks at speed and when idling, harbour crane and forklifts during lifting operations as well as idle.

Once this information is gathered the works approval holder will undertake a noise reassessment and prepare a report in accordance with Part 3 of the Environmental Protection (Noise) Regulation 1997.

#### **Risk Assessment**

*Consequence:* Moderate.

*Likelihood:* Possible.

*Risk Rating:* Moderate.

#### **Regulatory Controls**

A review and noise modelling reassessment was undertaken by the applicant once the project changed from rail transport to haulage trucks into the port facility. The reassessment methodology and chosen parameters including three operational scenarios were assessed by DER and found to be reliable.

The Works Approval holder has a legislative requirement to comply with the assigned noise levels at all times as set in the Noise Regulations when commissioning and operating the facility.

Works Approval condition 3.4.1 – 3.4.3, plus table 3.4.1 reflects the controls and commitments proposed by the works approval holder following the review of the noise modelling. As well, improvement condition IR2 requires that the data gathered during the ship loading commissioning must be reassessed against the model predictions and reported to DER confirming the noise emissions during commission and potentially during operations.

The noise monitoring program and subsequent report will guide and inform further licence conditions requirements. Likely licence conditions (L3.8) will require the addition of noise limits for evening and night time ship loading operations, noise monitoring location/s, and licence conditions reflecting the noise monitoring program identified by the report submitted in compliance to condition IR2.



#### Residual Risk

*Consequence:* Moderate.

*Likelihood:* Possible.

*Risk Rating:* Moderate.

#### Noise Background

An environmental noise assessment was undertaken initially for the Project and was reassessed in October 2014. The results of the assessment suggest that noise emissions from the Containerised Coal Export Project can comply with assigned noise levels in the *Environmental Protection (Noise) Regulations 1997* (Regulations) when considered in isolation. However, noise emissions from the Project have the potential to contribute to cumulative exceedance of the assigned noise levels under certain operating conditions and must therefore be at least 5dB below the assigned noise levels to ensure the Project does not significantly contribute to an exceedance of assigned noise levels. Through the noise assessment it has been determined that there is an 8% risk that activities at the Containerised Coal Export Project could cause noise emissions within 3.3 dB of the night time assigned noise levels and therefore significantly contribute to any exceedance which might occur at the nearest residential development due to cumulative noise emissions. Predicted noise emissions, the frequency of operations at the Project and prevailing wind conditions were considered when determining this level of risk. It is considered to be an upper estimate of risk as it does not account for the frequency of simultaneous night-time operation of other port users that would be deemed as significant contributors.

The closest noise sensitive receptors which could be impacted by the Containerised Coal Export Project is at receptor R3 located approximately 430 m from Berth 5 (Figure 1). This area consists of multiple residential dwellings. DER has assigned a receptor proximity and pathway consequence as “moderate” for the Containerised Coal Export Project due to the receptors’ close proximity to the project.



**Figure 1. Location of Berth 5 in relation to sensitive receptors**



Griffin Coal propose to operate B-Double haulage trucks, reach stackers and forklifts every day at the container unloading and stockpile areas while two harbour cranes, B-Double haulage trucks and forklifts will be operated during ship loading operations. Ship loading periods will occur approximately every 11 days over a 72 hour timeframe (day and night), which under light winds from the east and northeast, having minimal impact during the day and evening operations has potential to approach or exceed noise emission limits at night time. Griffin have to comply with noise levels 5dB below the *Environmental Protection (Noise) Regulations 1997* in order to achieve compliance. To minimise noise impacts Griffin Coal propose to:

- Locate strategically placed container stockpiles to improve noise attenuation;
- Install sound attenuation to harbour cranes, forklifts, trucks and reach stackers; and,
- Implement speed limits for trucks whilst in the port precinct.

A 3.5m high screen wall has also recently been constructed along a 950m section of the north western boundary of the premises which will assist with noise attenuation.

DER has reassessed and reviewed the Noise Assessment Report for Berth 5 dated 24 October 2014 and confirmed that the risk of noise limit exceedance will be insignificant at receptors R1, R2, R4, R5 and R6 and there is a low risk of noise limit exceedance at receptors R3. Table 1 shows predicted worst case noise levels under differing operating scenarios at the Containerised Coal Export Project. All predicted noise levels are within the  $L_{A10}$  assigned noise levels under the *Environmental Protection (Noise) Regulations 1997*. The project noise limits for selected noise sensitive receptors is detailed in Table 2. Scenarios where the predicted worst case noise levels are within 5dB of the  $L_{A10}$  assigned noise levels, and therefore could significantly contribute to a noise exceedance, are highlighted in Table 1.

**Table 1. Predicted worst-case noise levels in dB(A)**

Noise Sensitive Receivers	Scenario 1	Scenario 2		Scenario 3
	Day/Evening	Day/Evening	Night	Day/Evening
R1	29.3	26.0	26.4	30.1
R2	32.8	29.6	29.8	34.2
R3	39.9	40.2	<b>40.3</b>	<b>42.8</b>
R4	28.2	29.5	29.7	31.8
R5	24.5	25.3	26.4	26.5
R6	15.5	19.3	19.9	20.6

*Scenario 1 – stockpiling activities only using with 1 Double B truck at Stockpile, 1 reach stacker at stockpile and 1 Double B truck driving on port road.*

*Scenario 2 – shiploading activities include use of plus 1 forklift at Stockpile, 2 forklifts at Berth 5, 3 Double B trucks (idle at Berth 5, idle at stockpile plus driving between Berth 5 and stockpile), 2 harbour cranes at Berth 5.*

*Scenario 3 – represents simultaneous operation of ship loading and stockpiling scenarios.*

**Table 2. Project Noise Limits for Selected Noise Sensitive Receptors**

Time of Day	Project Noise Limit – $L_{A10}$ dB(A)*				
	Locations R1, R2, R4 & R5	Location R3	Location R6	Commercial Premises	Industrial Premises
0700 to 1900 hours Monday to Sunday	40	47	42	60	65
0900 to 1900 hours Sunday and public holidays	35	42	37	60	65
1900 to 2200 hours all days	35	42	37	60	65
2200 hours on any day to 0700 hours on Monday to Saturday and 0900 hours Sunday and public holidays	30	37	32	60	65

\*  $L_{A10}$  dB(A) means the assigned noise level which is not to be exceeded for more than 10% of the time.



The Noise Assessment concluded that full compliance can be achieved for scenario 1, compliance during the day and evening for scenario 2, compliance for scenario 3 during Monday to Saturday; and that under certain wind conditions exceedance occurred at R3. The Noise assessment did not include any adjustments for intrusive characteristics such as impulsiveness, modulation or tonality as it was determined that operating machinery may have some degree of tonality but this may not be evident at receivers. This assessment however is not supported by confirmation monitoring therefore it is DER's assessment that the risk of non-compliance with assigned noise levels could potentially increase if coal exporting activities at the Containerised Coal Export are found to be tonal. Verification monitoring will be required during commissioning activities to confirm whether tonality is present in noise emissions. These requirements are described in the Emissions Monitoring section below.

In addition to uncertainty relating to tonality, there is uncertainty regarding the Noise Assessment's assumptions on the effectiveness of noise attenuation measures used on operating equipment. The proposal assumes that sound power levels of trucks, forklifts and reach stackers will be reduced by 3.5 dB and by 5 dB for harbour cranes. However, without evidence to justify these assumptions, and the uncertainties surrounding tonality impacts, actual noise emissions could be higher than those predicted in the noise assessment. DER has therefore conditioned the works approval to require verification monitoring during commissioning activities to confirm the sound power levels of operating equipment.

### **Limits**

Limits have not been included on the works approval in relation to noise emissions as real noise impacts remain unknown. However, Griffin will be required under the Regulations to comply with the assigned noise levels which are outlined in Table 2 above.

Verification of predicted noise emissions will be undertaken during commissioning and based on the results of the verification DER will consider whether limits, targets or additional descriptive conditions are required on the licence to ensure assigned levels are met.

### **Emissions Monitoring**

Considering there are uncertainties relating to the predicted noise emissions for the Containerised Coal Export Project, and there is a risk of non-compliance with assigned noise levels, DER will require Griffin to conduct further noise monitoring and analysis of the results during the commissioning period and report the results. Griffin will be required to undertake verification monitoring of noise emissions during the commissioning period. Condition 3.4.1 has been included on the works approval requiring verification monitoring of noise emissions during commissioning at a minimum of three locations selected by the acoustic consultant which are representative of noise levels at noise-sensitive receivers. Monitoring to identify whether tonality is evident at the closest sensitive receptor has also been included as condition 3.4.2.

Compliance with assigned noise levels is driven by significantly attenuating sound power levels of major items of equipment. Assumptions of the level of achievable attenuation were factored into noise modelling predictions. Verification of estimated equipment sounds power levels is therefore required to ensure levels do not affect the Project's ability to comply with assigned noise levels. Condition 3.4.3 has been included requiring measurement of sound power levels and comparison with targets which have been based on levels used for noise modelling. Data collected in accordance with condition 3.4 will be used to verify predicted noise emissions for the project.

Condition 3.3.1 has been included on the works approval requiring Griffin to record meteorological monitoring data from three nearby meteorological monitoring stations throughout the commissioning period to ascertain the impact of different climatic effects on noise. In order to verify the accuracy of predicted noise emissions and confirm actual noise emissions from the premises Condition 4.1.1 IR2 has been included in the works approval requiring Griffin to undertake a noise assessment of the premises during commissioning which includes an updated noise model based on measured sound





power levels, and submit a report on the assessment which includes, but is not limited to, the following information:

- methods and equipment used for monitoring and modelling of noise;
- details of the engineering noise controls implemented to reduce the sound power levels of equipment where relevant
- an assessment of whether noise emissions from the Premises comply with the assigned noise levels; and
- Proposed measures to reduce noise emissions to assigned levels where the noise assessment identifies exceedance of assigned noise levels, including timescales for implementing the proposed measures.

Following submission of the noise assessment and monitoring results, DER will be able to more accurately assess the impacts of the Containerised Coal Export Project on nearby Bunbury residents. Depending on noise monitoring outcomes, DER may require Griffin to assess additional noise control measures to ensure the noise emissions from the Containerised Coal Export Project comply with the Regulations, and not significantly impact sensitive receptors.