



Works Approval

Environmental Protection Act 1986, Part V

Works Approval Holder: Robe River Mining Co. Pty. Ltd.

Works Approval Number: W5435/2013/1

Registered office: Level 27, Central Park
152-158 St Georges Terrace
PERTH WA 6000

ACN: 008 694 246

Premises address: Cape Lambert Power Station
Land Administration Act 1997 (WA)
Crown Lease GE M-638683 within co-ordinates: E514691.84 N7716858.72;
E514562.89 N7716615.61; E514527.31 N7716546.90; E514526.61 N7716497.41;
E514545.46 N7716474.67; E514565.13 N7716496.76; E514574.90 N7716469.16;
E514634.55 N7716489.21; E514798.38 N7716544.30; E514808.63 N7716531.48;
E514833.09 N7716503.02; E514846.80 N7716484.96; E514858.97 N7716455.14;
E514862.84 N7716442.05; E514834.42 N7716403.82; E514821.52 N7716384.84;
E514790.81 N7716357.52; E514748.08 N7716328.06; E514695.86 N7716300.80;
E514663.55 N7716299.36; E514638.03 N7716290.74; E514670.22 N7716199.77;
E514672.27 N7716194.00; E514681.98 N7716192.72; E514956.26 N7716457.09;
E515080.09 N7716492.55; E515149.22 N7716457.93; E515203.82 N7716430.57;
E515493.46 N7716311.67; E515783.11 N7716192.76; E515784.67 N7716398.64;
E515846.40 N7716394.34; E515847.56 N7716510.20; E515785.53 N7716511.69;
E515786.36 N7716620.65; E515451.10 N7716635.84; E515115.83 N7716651.04;
E515115.23 N7716892.43; E514883.23 N7717021.84; E514720.02 N7716841.80
WICKHAM WA 6720 as depicted in Schedule 1

Issue date: Thursday, 12 December 2013

Commencement date: Monday, 16 December 2013

Expiry date: Friday, 15 June 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	Approved premises production or design capacity
52	Electric power generation: premises (other than premises within category 53 or an emergency or standby power generating plant) on which electrical power is generated using a fuel	20 megawatts or more in aggregate (using natural gas) 10 megawatts or more in aggregate (using a fuel other than natural gas)	90 MWe



Conditions

This Works Approval is subject to the conditions set out in the attached pages.

Date signed: 21 January 2016

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Alana Kidd

Manager Licensing – Resource Industries

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*;

'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;

'CLPS' means the Cape Lambert Power Station;

'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;

'MWe' means power output (electricity generated) in megawatts;

'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;

'Works Approval' means this Works Approval numbered W5435/2013/1 and issued under the Act; and

'Works Approval Holder' means the person or organisation named as the Works Approval Holder on page 1 of the Works Approval.

1.1.3 Any reference to an Australian or other standard in the Works Approval means the relevant parts of the standard in force from time to time during the term of this Works Approval.

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 guideline 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.



Table 1.2.1: Construction Requirements¹

Document	Parts	Date of Document
Works Approval Application Form	All	12 February 2013
Rio Tinto Works Approval Application Power System Upgrade – Cape Lambert Power Station: Construction and Commissioning, Application Identification Number (AIN): yew5zx	All	12 February 2013
Email correspondence 'RE: Cape Lambert Power Station works approval questions', received from Kate Philp (RTIO)	All	19 April 2013
Email correspondence 'RE: Cape Lambert Power Station additional questions for works approval application', received from Kate Philp (RTIO)	All	5 July 2013
Email correspondence 'RE: Cape Lambert Power Station for comment', received from Kate Philp (RTIO)	All	13 September 2013
Email correspondence 'RE: Cape Lambert Power Station Works Approval Request', received from Kate Philp (RTIO)	All	11 December 2013
Rio Tinto W5435/2013/1 – Cape Lambert Power Station Re: Works Approval Amendment Application	All	5 November 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 commission the CLPS, for a period not exceeding 10 months.

2 Emissions

2.1.1 The Works Approval Holder shall ensure that where waste is emitted to air from the emission points in Table 2.1.1 and identified on the map of emission points in Schedule 1 it is done so in accordance with the conditions of this Works Approval.

Table 2.1.1: Emission points to air

Emission point reference	Emission Point	Emission point height (m)	Source, including any abatement
CLG1	Gas turbine generator No.1	18 m	Two LM6000PF gas turbines each producing a nominal 45 MWe with Dry Low Emissions burners for oxides of nitrogen suppression
CLG2	Gas turbine generator No.2	18 m	

3 Improvements

3.1.1 The Works Approval Holder shall complete the improvements in Table 3.1.1 by the date of completion in Table 3.1.1.



Table 3.1.1: Improvement programme		
Improvement reference	Improvement	Date of completion
IR1	<p>The Works Approval Holder shall, prior to commencing commissioning of the CLPS, submit a commissioning plan to the CEO. The commissioning plan shall include details relating to:</p> <ul style="list-style-type: none">(a) the commissioning stages and expected timescales for commissioning;(b) expected emissions and discharges during commissioning and the environmental implications of the emissions;(c) how emissions and discharges will be managed during commissioning;(d) the monitoring that will be undertaken during the commissioning period;(e) how accidents or malfunctions will be managed;(f) start up and shut down procedures; and(g) reporting proposals including accidents, malfunctions and reporting against the commissioning plan. <p>Commissioning shall be carried out in accordance with the commissioning plan.</p>	1 month prior to the commencement of commissioning
IR2	<p>The Works Approval Holder shall undertake a noise assessment of the Premises during commissioning. A report on the noise assessment shall be prepared in accordance with Part 3 of the <i>Environmental Protection (Noise) Regulations 1997</i> (Noise Regulations). The report shall be submitted to the CEO and shall include:</p> <ul style="list-style-type: none">(a) methods used for monitoring and modelling of noise;(b) an assessment of whether noise emissions from the Premises comply with the assigned noise level in the Noise Regulations; and(c) where they are not met, proposed measures to reduce noise emissions to assigned levels together with timescales for implementing the proposed measures.	1 month prior to the completion of commissioning

4 Information

4.1 Reporting

- 4.1.1 The Works Approval Holder shall submit a compliance document to the CEO, following the construction of the works and prior to commissioning of the same.
- 4.1.2 The compliance document shall:
 - (a) certify that the works were constructed in accordance with the conditions of the Works Approval; and
 - (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.
- 4.1.3 The Works Approval Holder shall submit a commissioning report for the CLPS to the CEO 1 month prior to the completion of commissioning.
- 4.1.4 The Works Approval Holder shall ensure the report includes:
 - (a) a summary of the environmental performance of the CLPS as installed, against the design specification set out in the Works Approval application;
 - (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.

4.2 Notification

- 4.2.1 The Works Approval Holder shall ensure that the parameters listed in Table 4.2.1 are notified to the CEO and are in accordance with the notification requirements of the table.

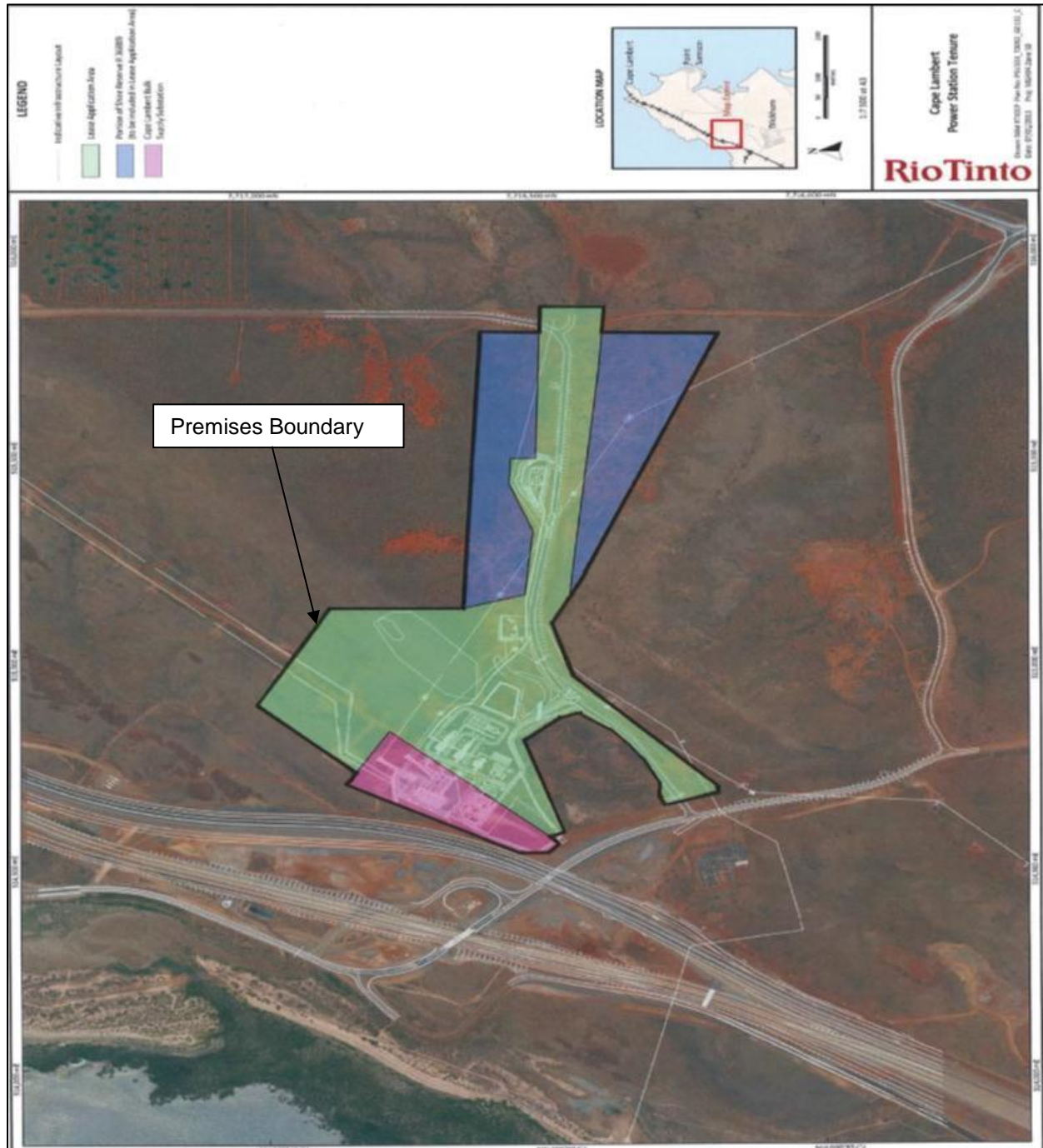
Table 4.2.1: Notification requirements			
Condition or table (if relevant)	Parameter	Notification requirement	Format or form
1.2.2	Commencement of commissioning	7 days prior to start	None specified
	Completion of commissioning	7 days after completion	



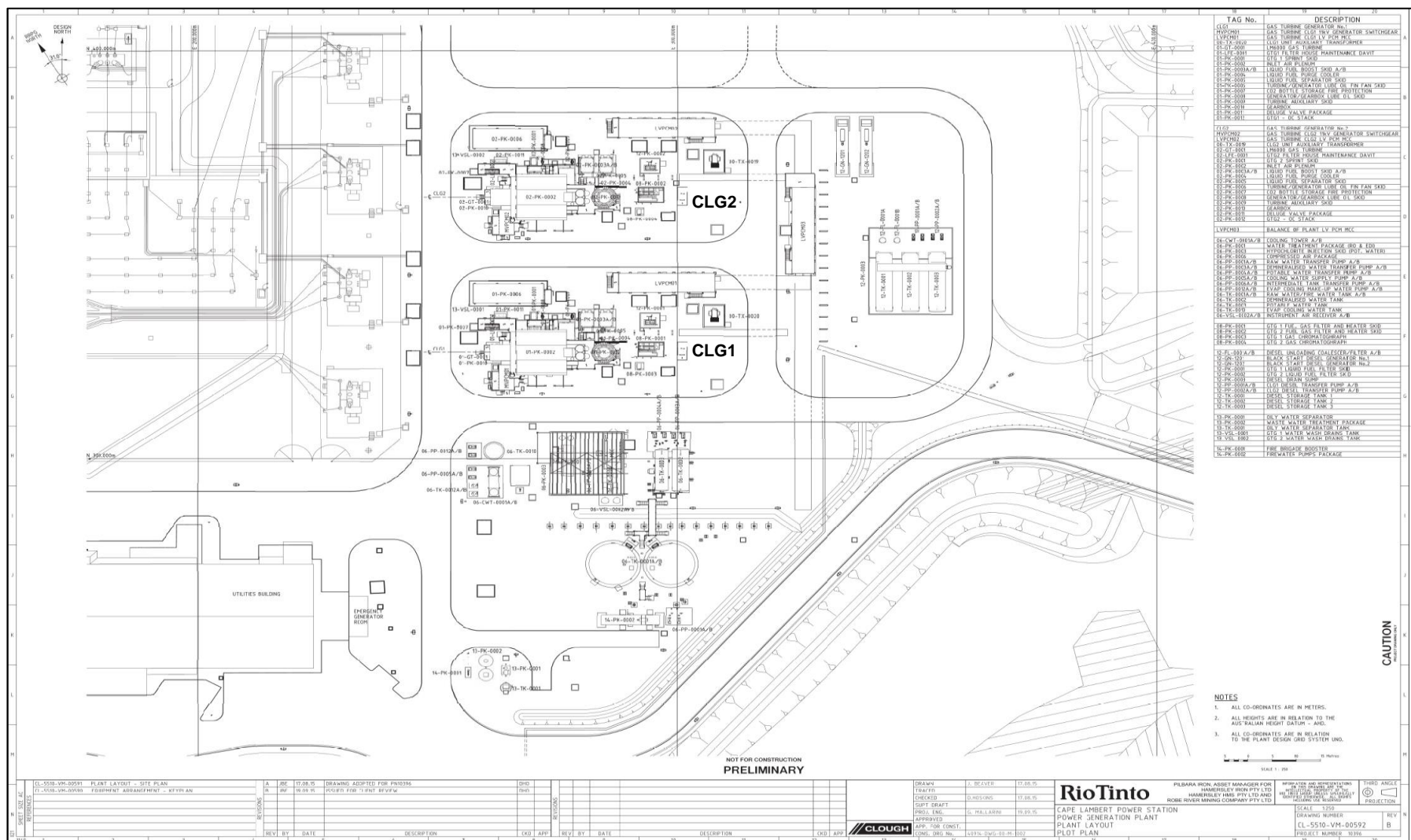
Schedule 1: Maps

Premises map

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



The locations of the emission points defined in Table 2.1.1 are shown below.





Decision Document

Environmental Protection Act 1986, Part V

Proponent: Robe River Mining Co. Pty. Ltd.

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E515115.83 N7716651.04; E515115.23 N7716892.43; E514883.23
N7717021.84; E514720.02 N7716841.80
WICKHAM WA 6720

Issue date: Thursday, 12 December 2013

Commencement date: Monday, 16 December 2013

Expiry date: Friday, 15 June 2018

Decision

Based on the assessment detailed in this document, the Department of Environment Regulation (DER), has decided to issue an amended works approval. DER considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by: Sonya Poor
Licensing Officer

Decision Document authorised by: Alana Kidd
Delegated Officer



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1 Purpose of this Document

This decision document explains how DER has assessed and determined the application 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)	Assessed capacity design
	52	90 MWe
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	N/A	
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: Not Assessed – No Advice Given.
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 of the <i>Environmental Protection Act 1986</i>)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Department of Water consulted Yes <input type="checkbox"/> No <input checked="" 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 and assessment

Robe River Mining Co. Pty. Ltd. (Robe River) is proposing to construct the Cape Lambert Power Station (CLPS) adjacent to the Cape Lambert Port premises on the existing *Land Administration Act 1997* (WA) Crown Lease GE M-638683 in the Pilbara region of Western Australia. The CLPS will be located approximately 2.2 kilometres (km) to the north of the town of Wickham and approximately 1.5 km south-west of the Cape Lambert construction camp.

The CLPS project was developed to support the expansion of the Cape Lambert Port. Following completion of the Cape Lambert Port B expansion project, Robe River has established that actual power requirements can be satisfied by the CLPS producing 90 megawatts (MW) rather than 130 MW in an open cycle configuration. The CLPS will consist of two LM6000PF gas turbine generators each producing a nominal 45 MW of electrical power (total installed capacity 90 MW at 30°C and 40% relative humidity (RH)). The units will be fitted with Dry Low Emissions (DLE) burners for oxides of nitrogen (NO_x) suppression.

Robe River has applied to amend the works approval as the CLPS will now be constructed in an open cycle gas turbine (OCGT) configuration rather than the original configuration of combined cycle gas turbine (CCGT). The key change from CCGT to OCGT is the removal of the steam turbine, once through steam generators (OTSGs), air-cooled condenser (ACC) and the boiler system. The gas turbine air intake inlet cooling has also been configured from chilled units to evaporative cooling. Table 1 summarises the updated key characteristics of the CLPS.

The supporting infrastructure required to operate the CLPS includes:

- process water treatment plant (WTP);
- evaporation ponds;
- stormwater sedimentation pond; and
- fuel (diesel) storage facility consisting of 3 x 110 cubic metre (m³) horizontal double-skinned tanks with interstitial leak detection.

The following changes have been made to the works approval during this amendment:

- Expiry date has been extended from the 15 December 2016 until 15 June 2018;
- Design capacity for category 52 has been changed from 130 MW to 90 MW (with the removal of the steam turbine);
- Category 73 has been removed;
- Updated to reflect Departmental reform as published on DERs website under “*Administrative changes implemented within the Department of Environment Regulation*” www.der.wa.gov.au;
- Updated in line with the latest template (version 2.9);
- Definitions have been added and removed;
- Inclusion of the P4 application in Table 1.2.1;
- Removal of previous conditions 1.2.2 and 1.2.3;
- Inclusion of condition 2.1.1 for the emission points to air; and
- Inclusion of map of emission points in Schedule 1.



Where conditions have been amended in the existing works approval or changes made to the original decision document these have been justified in Section 4.

Table 1: Updated key project characteristics

Element / Component	Characteristics
Nominal plant configuration	2 x 45 MW gas turbine generators in open cycle configuration
Nominal power output*	peak load: 90 MW at 30° Celsius (C) and 40% RH on natural gas with SPRINT water injection
Efficiency	approximately 40% (net, Lower Heating Value (LHV) basis at 30° C and 40% RH, on natural gas)
Expected capacity factor	base load capacity with 95% availability
Predicted project lifetime	approximately 25 years
Approximate peak gas demand	2 x 10.2 TJ/day peak instantaneous flow
Approximate peak water demand	16 cubic metres (m ³)/h for approximately 33% per annum
Approximate expected water demand	5 m ³ /h for approximately 67% per annum
Fuel Facility	
Diesel storage	3 x 110 kL above-ground double skinned horizontal tanks
Service Corridors	
Approximate length of water pipeline	approximately 1.2 km from the Water Corporation meter station
Length of gas pipeline	approximately 320 m from the gas delivery station
Gas pipeline corridor footprint	approximately 6 m easement within the power station plant area



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
General Conditions	W1.2.1 - W1.2.2.	<p>Construction and Commissioning</p> <p>During this amendment previous condition W1.2.2 has been removed. The storage of environmentally hazardous materials is adequately regulated by the <i>Dangerous Goods Safety Act 2004</i> and associated Regulations.</p> <p>Robe River are required to submit a commissioning plan (the plan) for the CLPS in accordance with condition W3.1.1 for IR1. Previous condition W1.2.3 has been removed as it duplicates condition W3.1.1 for IR1, which states that commissioning shall be carried out in accordance with the plan.</p> <p>Operation</p> <p>General surface run-off will be managed in accordance with the Department of Water's (DoW) Water Quality Protection Note (WQPN) 52: <i>Stormwater management at industrial sites</i>. Normal overland stormwater flows from around the site will continue around the site and stormwater run-off from the pad will flow into drains that will discharge into the sedimentation pond.</p> <p>Robe River have committed to the following:</p> <ul style="list-style-type: none">• relevant Australian legislation and standards, in particular Australian Standards 1940 and the code of practice for the Storage and handling of dangerous goods will be complied with by all contractors and personnel; and• a spill management plan will be implemented, detailing clean-up and reporting procedures.	<p>Works Approval application supporting documentation.</p> <p><i>Environmental Protection (Unauthorised Discharges) Regulations 2004.</i></p> <p>Department of Mines and Petroleum code of practice for the storage and handling of dangerous goods.</p> <p>Australian Standard 1940-2004 The Storage and Handling of Flammable and Combustible Liquids.</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p><u>Risk Assessment</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Unlikely <i>Risk Rating:</i> Low</p> <p><u>Regulatory Controls</u> The <i>Environmental Protection Act 1986</i> and <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> are sufficient to regulate stormwater management. Also refer to Appendix A under 'sedimentation ponds'. The storage of environmentally hazardous materials is adequately regulated by the <i>Dangerous Goods Safety Act 2004</i> and associated Regulations.</p> <p>No general conditions are required on the licence for which this facility will operate under.</p> <p><u>Residual Risk</u> <i>Consequence:</i> Insignificant <i>Likelihood:</i> Rare <i>Risk Rating:</i> Low</p>	
Premises operation	N/A. Licence conditions.	<p>Construction No premises operation conditions are required on the works approval.</p> <p>Operation DER's assessment and decision making are detailed in Appendix A.</p>	Works Approval application supporting documentation and amendment application.
Point source emissions to air including monitoring	W2.1.1.	<p>Construction and Commissioning Robe River has committed to implementing a stack emission monitoring program for particulate matter (PM₁₀), NO_x, carbon monoxide (CO) and sulfur dioxide (SO₂) to evaluate compliance with manufacturer's specifications and relevant regulatory standards.</p>	Works Approval application supporting documentation and amendment application.



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
	Licence conditions.	<p>Condition W2.1.1 has been added to the works approval for the emission points to air for the two gas turbine generators.</p> <p>Condition W3.1.1 for IR1 of the works approval requires Robe River to submit the plan for the CLPS to DER 1 month prior to the commencement of commissioning. The plan will include the monitoring requirements of the CLPS during commissioning.</p> <p>No conditions relating to the monitoring of point source emissions to air during commissioning are required to be added to the works approval.</p> <p>Operation Details of DER's assessment and decision making are included in Appendix B.</p>	General provisions of the <i>Environmental Protection Act 1986</i> .
Emissions to land including monitoring	N/A.	<p>The original proposal stated that a 5 m³/day WWTP was to be installed to treat wastewater from the toilets and basins onsite and that the treated effluent was to be discharged to an irrigation spray field of approximately 0.185 hectares (ha).</p> <p>Robe River notified DER on 20 April 2015, that due to tight space restrictions at the CLPS site and an overestimation of the number of people at the premises, Robe River now proposes to construct a 4 m³/day WWTP and to discharge the treated effluent into one of the two evaporation ponds onsite.</p> <p><u>Regulatory controls</u> No conditions relating to emissions to land and the monitoring of these emissions will be included on the licence for which the facility will operate under for the WWTP. A condition may be incorporated onto the licence for the stormwater discharge point (refer to the sedimentation pond in Appendix A) and a discharge limit for total recoverable hydrocarbons (TRH) to ensure</p>	<p>Rio Tinto W5435/2013/1 – Cape Lambert Power Station Re: Works Approval Amendment Application, 5 November 2015.</p> <p>Rio Tinto W5435/2013/1 – Cape Lambert Power Station Re: Wastewater Treatment Plant Discharge to Evaporation Pond, 20 April 2015.</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		that TRH of greater than 15 mg/L is not discharged off premises.	
Noise	N/A.	Construction Noise emissions generated during the construction of the CLPS will be managed by the project's Construction Environmental Management Plan (CEMP). Condition W3.1.1 for IR2, requires Robe River to undertake a noise assessment of the premises during commissioning. Operation Details of DER's assessment and decision making are included in Appendix C.	General provisions of the <i>Environmental Protection Act 1986</i> . <i>Environmental Protection (Noise) Regulations 1997</i> . Works Approval application supporting documentation and amendment application.
Works Approval Duration	N/A.	The current expiry date for the works approval is 15 December 2016. During this amendment the expiry date has been changed to 15 June 2018. This is due to delays in construction caused by the insolvency of the previous contractor. Robe River will require a licence to operate the CLPS post commissioning.	N/A.



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
14/01/2016	Proponent sent a copy of draft instrument	<p>A signed waiver form was received on the 20/01/2016. Robe River have stated that they now have permanent tenure (LGE M638683) over the premises.</p> <p>The 90 MW capacity, it means that the turbines can produce a maximum of 90 MW (90 MJ/second) at any given time. Over a year the power station would produce a certain (much larger) number of MWh. It's requested 'per annual period' be removed.</p>	<p>The premises address for the decision document and works approval was updated to <i>Land Administration Act 1997</i> (WA) Crown Lease GE M-638683.</p> <p>"per annual period" was removed from the approved premises production or design capacity for category 52.</p>



6 Risk Assessment

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

Table 6: 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 A

Premises operation

Fuel storage facility

Robe River intends to construct a 6.6 km long diesel pipeline between Cape Lambert Port and the 10 kilometre point (KP) fuel facility adjacent to the rail line. This pipeline will be routed past the CLPS and it is proposed that an offtake line be installed to deliver diesel to the CLPS when needed. Due to this, the fuel storage required at the CLPS has decreased from 3,300 m³ to 330 m³. This reduces the design capacity of category 73 below the trigger level of 1,000 m³ under the *Environmental Protection Regulations 1997*. Category 73 has been removed from the works approval. The CLPS will still be able to operate on either natural gas or diesel. Diesel is intended as a back-up fuel for situations where natural gas is not available. The CLPS will draw diesel fuel from the fuel storage facility to be located adjacent to the OCGTs.

Evaporation ponds

The evaporation ponds remain unchanged with the amendment to the OCGT configuration. The evaporation ponds for the CLPS will have a depth of 0.6 metres (m) (including a 0.25 m freeboard), lined with a high-density polyethylene (HDPE) liner with a coefficient permeability of less than 2×10^{-10} metres per second (m/s) and sized to 110% of the intended storage capacity. The evaporation ponds will store wastewater from the reverse osmosis (RO) unit, demineralisation plant cooling tower blowdown and discharge from the oily water separator (OWS) and will contain an emergency overflow weir.

A WTP will be constructed comprising a RO and demineralisation plant. The removal of the steam turbine and associated infrastructure will reduce the volume of water required from the WTP, however the OCGT configuration will require evaporative cooling, which will increase the water usage demand. Overall, it is expected that the volume of wastewater from the WTP and blowdown from the evaporative cooling package and the cooling tower will be 16,900 m³ per annum with an average total dissolved solids (TDS) concentration of approximately 3,500 parts per million (ppm) per annum. All waste process water will be directed to the evaporation ponds.

Treated effluent from the 4 m³ per day (m³/day) wastewater treatment plant (WWTP) will now be disposed of into one of the two evaporation ponds (refer to emissions to land and monitoring). A water balance model has confirmed that the evaporation pond will have sufficient capacity to hold the additional inflow of treated WWTP effluent, while maintaining a freeboard of 0.25 m. This proposal was referred to the Department of Health who indicated that they have no concerns with this proposed disposal method.

Sedimentation pond

The sedimentation pond will be designed to cater for a 1 in 10 year average recurrent interval (ARI) storm event of six hour duration and the inflow water will be surface run-off from rainfall and will contain some sediment. The sedimentation pond will store stormwater and will be designed to discharge stormwater as part of normal operation via a spillway to allow discharge of excess stormwater into existing culverts installed under the Boat Beach Road rail bridge. Rock or rip-rap will be installed at the spillway and overflow weirs to reduce flow velocity and erosion impacts and infrastructure will be regularly inspected and maintained. The change of the CLPS to OCGT configuration will not require additional stormwater discharge points other than the one previously assessed.

Regulatory Controls

Containment infrastructure requirements for the evaporation ponds and sedimentation pond including a freeboard condition will be added to the licence for which this facility will operate under.



Appendix B

Point source emissions to air including monitoring

There will be no change in the NO_x and CO emissions data due to the change from CCGT to OCGT.

DER refers to the NSW Protection of the Environment Operations (Clean Air) Regulations 2010 (Clean Air Regs) standards for stack emissions concentrations. The Clean Air Regs limits for the CLPS are shown in Table 2.

Table 2: Stack emissions limits for electricity generation

Pollutant	Activity	Group limits are applicable to	Limits
Nitrogen dioxide (NO ₂) or nitric oxide (NO) or both, as NO ₂ equivalent	Any turbine operating on gas, being a turbine used in connection with an electricity generating system with a capacity of 30 MW or more	Group 5 ^(a) or 6 ^(b)	70 mg/m ^{3(c)}
	Any turbine operating on a fuel other than gas, being a turbine used in connection with an electricity generating system with a capacity of 30 MW or more	Group 6 ^(b)	90 mg/m ^{3(c)}
<p>^(a) A plant belongs to Group 5 it commenced to be carried on, or to operate, on or after 1 August 1997 etc. (Government of NSW, 2010)</p> <p>^(b) A plant belongs to Group 6 it commenced to be carried on, or to operate, on or after 1 September 2005 etc. (Government of NSW, 2010)</p> <p>^(c) Reference conditions dry, 273 K, 101.3 kPa, 15% O₂</p>			

The particulate emissions rate for the operation of the OCGTs on diesel is slightly higher than the previous figure provided (1.5 grams per second (g/s) to 2 g/s). This is due to the revised emissions performance guarantees that have been received from the gas turbine supplier. Table 3 shows the revised emissions data on the fuel options for the CLPS.

Table 3: Relevant revised emissions data on fuel options

Option	NO _x (as NO ₂) concentration ref 15% O ₂ (mg/Nm ³)	NO _x concentration ref 15% O ₂ (ppmvd)	CO concentration ref 15% O ₂ (ppmvd)	Particulates emission rate (g/s)	SO _x (as SO ₂) emission rate (g/s)	NO _x % of NSW POEO guideline
OCGT – natural gas	51	25	25 ¹	1	0	73%
OCGT – diesel	174	85	-	2	-	193%

Note 1: The specified level of 25 ppm volume dry (ppmvd) for CO is based on temperatures <35°C, for temperatures >32°C CO will be 38 ppmvd.

The NO_x emission rate when operating on gas for OCGT is 73% of the Clean Air Regs guideline and the NO_x emission rate when operating on diesel for OCGT is 193% of the Clean Air Regs guideline. Diesel will be used for commissioning the diesel supply systems in the power station and for testing the power station's operation on diesel. In operation, diesel fuel will only be used as a back-up fuel supply (used in emergencies when natural gas is unavailable).

The ambient air quality assessment in the original works approval remains unchanged.

Regulatory Controls

Conditions relating to point source emission to air and the monitoring of these emissions will be added to the licence for which this facility will operate under. Robe River will be required during operation of the CLPS to undertake six-monthly monitoring of NO_x and CO.



Appendix C

Noise

Table 4 shows the assigned noise levels as per the *Environmental Protection (Noise) Regulations 1997* (Noise Regulations) as measured at a noise sensitive receiver.

An assessment of the potential noise impact of the CLPS on Wickham (2.2 km from the CLPS) and the Wickham Industrial Area (1.2 km from the CLPS) was undertaken by SVT Engineering Consultants for the CCGT configuration and this has been updated for the OCGT configuration. Some noise sources were removed due to the removal of the steam turbine and associated infrastructure, however the predicted noise level at Wickham remained unchanged due to the dominance of the stack exit sound levels. The predicted noise levels at the two receivers are summarised in Table 5. As noise from the CLPS is expected to be continuous, the statistical measure with the lowest assigned level (night time LA_{10}) is the most stringent condition with which noise emissions from the CLPS must comply.

Table 4: Noise Regulations – assigned noise levels

Type of Premises	Time of Day	Assigned Noise Level dB(A)		
		LA_{10}	LA_1	LA_{Max}
Noise sensitive premises at locations within 15 m of a building directly associated with a noise sensitive use	0700-1900 – Monday to Saturday	45 + IF*	55 + IF	65 + IF
	0900-1900 – Sunday and Public Holidays	40 + IF	50 + IF	65 + IF
	1900-2200 – all days	40 + IF	50 + IF	55 + IF
	2200-0700 – Monday to Saturday 2200-0900 – Sunday and Public Holidays	35 + IF	45 + IF	55 + IF
Noise sensitive premises at locations > 15 m from a building directly associated with a noise sensitive use	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial/utility premises	All hours	65	80	90

Table 5: Predicted noise levels for noise sensitive receivers

Receiver Location	Predicted Night-time Noise Level LA_{10} dB(A)	Assigned Levels	Percentage of Noise Regulations
Wickham Industrial Area	29.6	65.0	45.5%
Wickham – Frizell Rd	34.9	35.0	99.7%

Regulatory Controls

If operational noise levels exceed the 35 dB criteria, Robe River may be required to implement an Environmental Improvement Plan to address this.