

**WESTERN AUSTRALIA**

**DEPARTMENT OF ENVIRONMENT REGULATION**

*Environmental Protection Act 1986*

**WORKS APPROVAL NUMBER: W4430/2008/1**

**FILE NUMBER: DER2015/001449**

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**CONDITIONS OF WORKS APPROVAL**

**DEFINITIONS**

In these conditions of works approval, unless inconsistent with the text or subject matter:

“AS” means Australian Standard;

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

“CEO” for the purpose of correspondence means;

Manager Licensing ( Process Industries)

At the following address:

Department of Environment Regulation  
Locked Bag 33  
CLOISTERS SQUARE WA 6850  
Telephone: (08) 9333 7510  
Facsimile: (08) 9333 7550  
Email: industry.regulation@der.wa.gov.au;

“Phased Commissioning Report” means the Worsley Alumina Works Approval W4432/2008/1 Condition 2 and W4430/2008/1 Phased Commissioning Report – Multi Fuel Cogeneration Facility, Produced by BHP Billiton and dated March 2012;

“Premises” means the Collie Alumina Refinery located at Lease No 3116/7574, Wellington locations 5314, 5315, 5316 and 5317 on Deposited Plan 220209 Gastaldo Road, Collie;

“Power Station Stack” means the 90 metre stack through which gaseous emissions generated through the combustion of fuel in the power station boiler is emitted;

“Wet commissioning” means operation of equipment for the first time for the purposes of trialling or testing performance of the equipment, and the discharge of waste; and

“Works Approval Holder” means South32 Worsley Alumina Pty Ltd, ACN: 008 905 155.

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**GENERAL CONDITIONS**

**GENERAL CONSTRUCTION AND OPERATIONAL DESCRIPTION**

- 1(a) The works approval holder shall construct only the works in accordance with the following documentation, *Worsley Alumina Pty Ltd, Proposed Power Station – Application for Works Approval*, Strategen 2007, dated September 2007.
- 1(b) In addition to Condition 1(a), the works approval holder shall install stack monitoring ports, platforms and access ways on the Power Station Stack in accordance with AS4323.1 and AS1657 to permit stack testing for oxides of nitrogen, carbon monoxide, particulates, oxides of sulphur, volatile organic compounds and metals.

**COMMISSIONING**

- 2(a) In the event that wet commissioning and ongoing operation of any works subject to this works approval is required prior to the completion of all components of the works approval, the works approval holder shall implement the Phased Commissioning Report.
- 2(b) In the plan to commence wet commissioning noted in condition 2(a), the works approval holder shall supply the following information:
  - (i) Compliance certificate provided for each specific item and all associated equipment proposed to be commissioned and operated;
  - (ii) Anticipated date that wet commissioning shall commence;
  - (iii) Anticipated duration of wet commissioning phase, including proposed aggregate throughputs;
  - (iv) Description of the proposed activities indicating whether commissioning is dependent on other elements of the works approval in terms of meeting anticipated environmental performance;
  - (v) How emissions will conform against works approval conditions, operating licence and Ministerial Statement 719; and
  - (vi) Independent verification program to be undertaken for performance evaluation.
- 3 The works approval holder shall undertake commissioning of mixed fuels in accordance with the following documentation, *Worsley Alumina, Works Approval Application: Commissioning of Multi-Fuel Cogeneration Plant using Coal/Biomass Fuel Mixture*, dated August 2015.

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**SUBMISSION OF COMPLIANCE DOCUMENT**

- 4(a) The works approval holder shall submit a compliance document to the CEO following the completion of the construction of the works and prior to the commissioning of the same.
- 4(b) The works approval holder shall ensure that the compliance documents certify that the works were constructed in accordance with condition 1 as shown on the Works Approval.
- 4(c) The works approval holder shall ensure that the compliance document is signed by an authorised officer of South32 Worsley Alumina Pty Ltd, with the printed name and position of that person within the Company, and will contain the corporate seal.

.....  
Jonathan Bailes  
Officer delegated under Section 20  
of the *Environmental Protection Act 1986*

Date of Issue: Thursday, 14 August 2008  
Date of Amendment: Thursday, 13 August 2015

# WESTERN AUSTRALIA

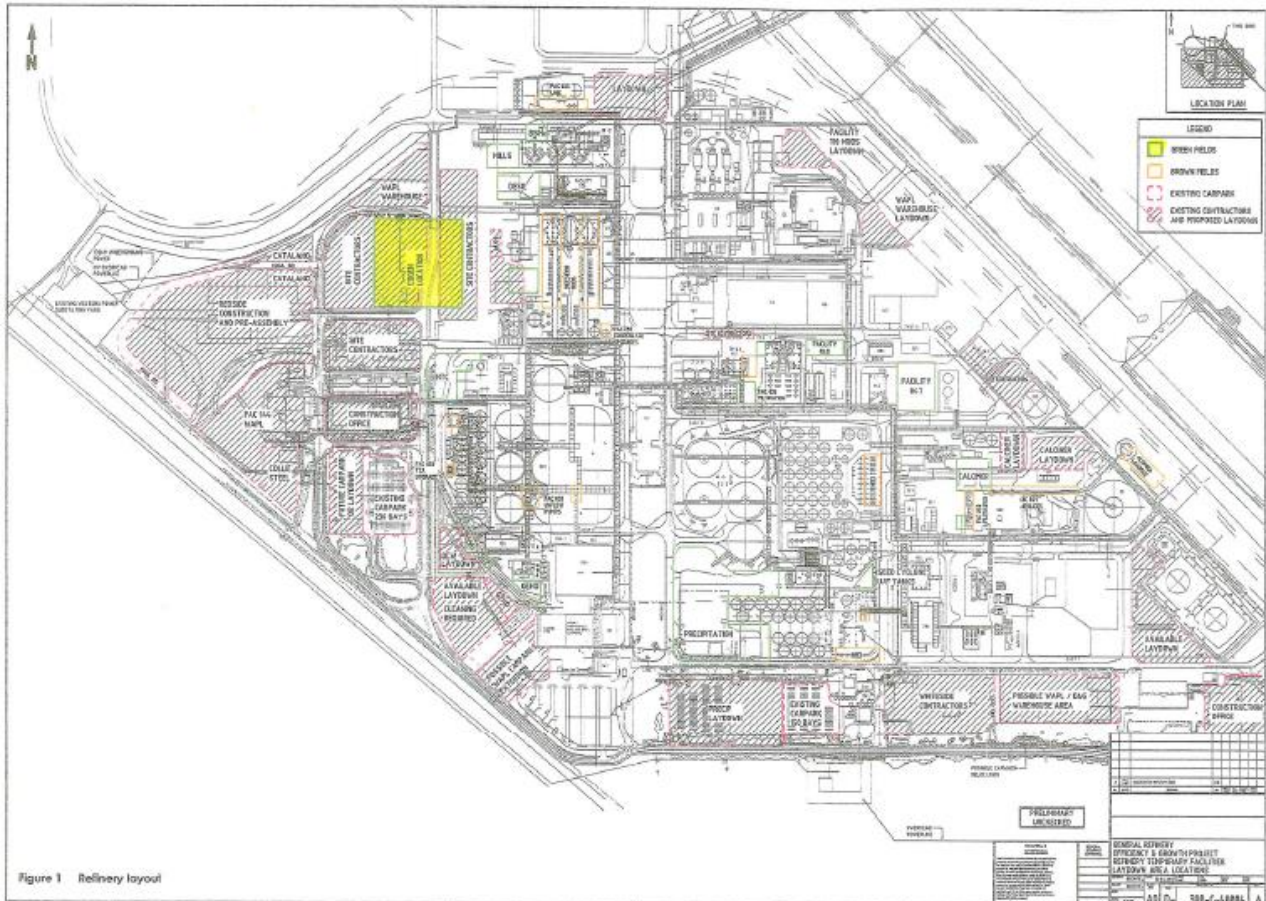
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**Attachment 1 – Collie Alumina Refinery Plan showing location of New Power Station within the existing Refinery footprint.**





## ***Environmental Protection Act 1986, Part V***

**Works Approval: W4430/2008/1**

**Expiry date:** Sunday, 14 February 2016

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 and legal requirements and that the Works Approval and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document authorised by: Jonathan Bailes  
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 checked="" type="checkbox"/> New Licence <input type="checkbox"/> Licence amendment <input type="checkbox"/> Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	52	260 MW
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 type="checkbox"/> Assessed under Part IV <input checked="" type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Ministerial statement No: 751 EPA Report No: Bulletin 1260
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

The Worsley Alumina Refinery is located on Forest Lease No 3116/7574 Gastaldo Road (Wellington locations 5314, 5315, 5316 and 5317 on Deposited Plan 220209) on the undulating Darling Plateau approximately 15km northwest of Collie. It is within the Augustus (minor) and Brunswick River (major) water catchments and the Collie (minor) and Bunbury (major) Airsheds.

Groundwater in the vicinity of the Collie Refinery is at 10-15m depth and localised due to clayey shallow bedrock and is considered marginal in quantity with salinity variable between 1000 to 3000 milligrams per litre. No major abstraction of groundwater occurs in or near the refinery. The site is surrounded by State forest with some broad scale farming properties, including isolated farmhouses. The majority of land within a 5km radius of the refinery is State Forest. The nearest farmhouse or residence is approximately 7km from the refinery boundary (8km from the refinery centroid).

The Worsley Alumina Refinery produces calcined alumina using the Bayer process from crushed bauxite. The process involves grinding, digestion, precipitation and calcination to produce the calcined alumina.

Environmental approval under Part IV of the *Environmental Protection Act 1986* was granted to increase production to 4.4Mtpa of alumina under Ministerial Statement 751 (24 September 2007). This required the construction of a new Multi Fuel Cogeneration (MFC) power plant to cater for the increased electrical power and steam requirements of this expansion. Works Approval W4430/2008/1 was issued for the construction of MFC Boiler 5 and associated infrastructure for the increase to 4.4Mtpa.

During commissioning, numerous issues were identified preventing completion of the works, including issues with the refractory lining which lead to Boiler 5 being offline for a period of approximately 21 months while this was refurbished. In early August 2015, after further changes were made to the refractory lining near the inlet valve, the Works Approval holder has reported 100% feed rates into the Boiler 5 for the first time. Preliminary stack testing results from the use of 100% coal feed in Boiler 5 indicate compliance with all emission target levels.

This Works Approval expiry date is amended for a twelve month period to allow the commissioning works to be completed and to allow stable operating conditions to be established. Commissioning works will include the use and testing of mixed fuels within the MFC plant, comprised of 30% woodchip biomass and 70% coal. No other changes to the Works Approval have been made.





## 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	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
Works Approval Duration	N/A	N/A	Due to the issues surrounding Boiler 5 and the subsequent commissioning, DER has determined that the Works Approval expiry will be extended for twelve months until 14 August 2016. The boiler has been constructed however the site is yet to establish and undertaken emissions testing at stable operating conditions with 100% production feed rates using single and mixed fuels.	

## 5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
10/08/2015	Proponent sent a copy of draft instrument	Minor editorial changes proposed. Other proposed change included request to remove restriction of concurrent commissioning of works under this works approval and W4432/2008/1.	Editorial changes made. The condition restricting concurrent commissioning is also removed.



## 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