

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT REGULATION

Environmental Protection Act 1986

AMENDED WORKS APPROVAL

WORKS APPROVAL NUMBER: W4661/2010/1

FILE NUMBER: 2010/004167

WORKS APPROVAL HOLDER:

Alcoa of Australia Limited
181-205 Davy Street
BOORAGOON WA 6154

ACN: 004 879 298

NAME AND LOCATION OF PREMISES:

Pinjarra Refinery, as the area bounded by the land outlined in the following table:

Description	Lot	Plan/Diagram	Locality
Water Corporation Wastewater Treatment Plant	19	44739	Oakley
Paddock West of RDA	Part of Lot 109	60089	Pinjarra
RDA and Refinery	Part of Lot 151	10914	Oakley
Area West of RDA	221	302638	Pinjarra
Southwest Corner of RDA	222	302638	Oakley
RDA and Refinery	Part of Lot 251	35963	Oakley
Pinjarra Cogeneration Plant	Lot 252	35963	Oakley

Environmental Protection Regulations 1987

CLASSIFICATION(S) OF PREMISES:

Category 46 – Bauxite refining
Category 64 – Class II or III putrescible landfill site
Category 52 – Electric power generation
Category 67 – Fuel burning

COMMENCEMENT DATE OF WORKS APPROVAL: Monday, 28 June 2010

EXPIRY DATE OF WORKS APPROVAL: Monday 27 June 2016

CONDITIONS OF WORKS APPROVAL:

As described and attached:

DEFINITION(S)

GENERAL CONDITION(S) 2

ATTACHMENT(S) 1

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

Date of Issue: Friday, 25 June 2010

Date of Amendment: Thursday, 25 June 2015

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT REGULATION

Environmental Protection Act 1986

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FILE NUMBER: 2010/004167

CONDITIONS OF WORKS APPROVAL

DEFINITIONS

In these conditions of Works Approval, unless inconsistent with the text or subject matter:

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

“CEO” for the purpose of correspondence means-

Manager - Licensing (Process Industries)
Department of Environment Regulation
Locked Bag 33 Cloisters Square
PERTH WA 6850
Telephone: (08) 9333 7510
Facsimile: (08) 9333 7550
Email: industry.regulation@der.wa.gov.au;

“Phase 1” means works associated with the conversion of Residue Storage Area 1 North including construction of the embankments, subliner drainage, synthetic liner, underdrainage, wick drains, dust control sprinklers and monitoring bores so that Residue Storage Area 1 North is ready to receive residue mud for drying;

“Phase 1 Commissioning” means the application of residue mud to Residue Storage Area 1 North for the purposes of residue drying for ongoing operations;

“Phase 2” means works associated with the conversion of Residue Storage Area 1 South including construction of the embankments, subliner drainage, synthetic liner, underdrainage, wick drains, dust control sprinklers and deliquoring bores so that Residue Storage Area 1 South is ready to receive residue mud for drying; and

“Phase 2 Commissioning” means the application of residue mud to Residue Storage Area 1 South for the purposes of residue drying for ongoing operations.

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GENERAL CONDITIONS

GENERAL CONSTRUCTION AND OPERATIONAL DESCRIPTION

- 1 The works approval holder shall construct the works in accordance with:
- (i) The works approval application form dated 12 March 2010, titled "Pinjarra Alumina Refinery-Residue Storage Area 1 Conversion (to a Residue Drying Area) Project"; and
 - (ii) Appendix A of the works approval application: "Pinjarra Alumina Refinery-Residue Storage Area 1 Conversion (to a Residue Drying Area) Project. Table of Commitments", dated 12 March 2010.

Where the details and commitments of the documents listed in condition G1 above are inconsistent with any other condition of this Works Approval, the latter shall prevail.

SUBMISSION OF COMPLIANCE DOCUMENT

- 2(a) The works approval holder shall submit Compliance Documents to the CEO following the completion of the construction of the works and prior to commissioning of Phase 1 and Phase 2.
- 2(b) The works approval holder shall ensure that the compliance documents certify that the works were constructed in accordance with condition 1(i) and 1(ii) of this works approval.
- 2(c) The works approval holder shall ensure that the compliance document is signed by the works approval holder or authorised officer of Alcoa of Australia Limited, with the printed name and position of that person within the Company, and preferably will contain the company seal.

WESTERN AUSTRALIA

DEPARTMENT OF ENVIRONMENT REGULATION

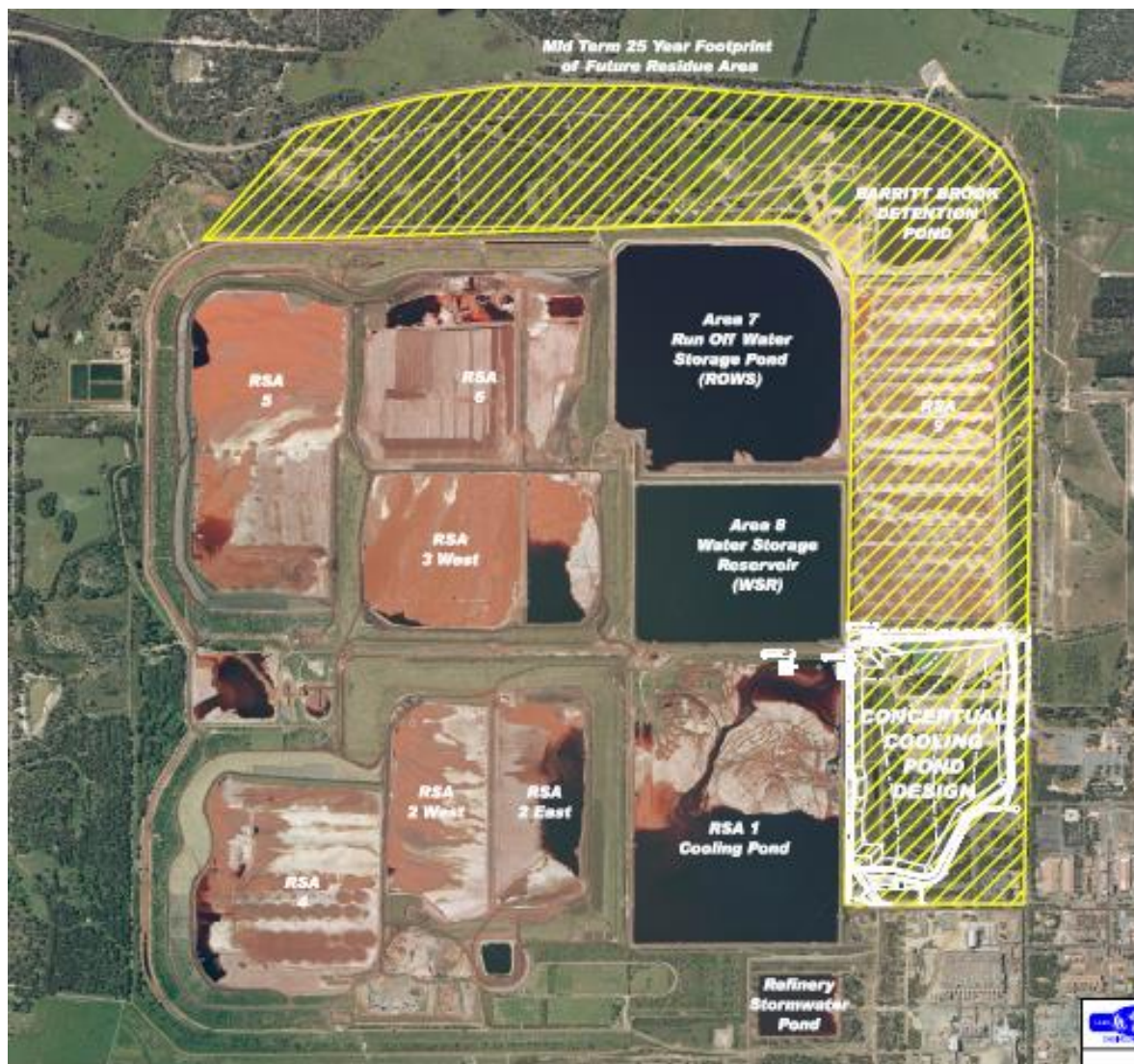
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WORKS APPROVAL NUMBER: W4661/2010/1

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ATTACHMENT 1

The location of Residue Storage Area 1 within the premises.





Decision Document

Environmental Protection Act 1986, Part V

Proponent: Alcoa of Australia Limited

Works Approval: W4661/2010/1

Registered office: 181-205 Davy Street
BOORAGOON WA 6154

ACN: 004 879 298

Premises address: Pinjarra Refinery

Description	Lot	Plan / Diagram	Locality
Water Corporation Wastewater Treatment Plant	19	44739	Oakley
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Area west of Residue Storage Area	221	302638	Pinjarra
Southwest Corner of Residue Storage Area	222	302638	Oakley
Residue Storage Area and refinery	Part of Lot 251	35963	Oakley
Pinjarra Cogeneration Plant	Lot 252	35963	Oakley

Issue date: Friday, 25 June 2010

Commencement date: Monday, 28 June 2010

Expiry date: Monday, 27 June 2016

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: Chris Malley
A/Senior Licensing Officer

Decision Document authorised by: Ed Schuller
Senior Manager Licensing, Process Industries



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Appendix A	Error! Bookmark not defined.

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.

Works approval and licence conditions

DER has three types of conditions that may be imposed on works approvals and licences. They are as follows;

Standard conditions (SC)

DER has standard conditions that are imposed on all works approvals and licences regardless of the activities undertaken on the Premises and the information provided in the application. These are included as the following conditions on works approvals and licences:

Works approval conditions: 1.1.1-1.1.4, 1.2.1, 1.2.2, 5.1.1 and 5.1.2.

Licence conditions: 1.1.1-1.1.4, 1.2.1-1.2.4, 5.1.1-5.1.4 and 5.2.1.

For such conditions, justification within the Decision Document is not provided.

Optional standard conditions (OSC)

In the interests of regulatory consistency DER has a set of optional standard conditions that can be imposed on works approvals and licences. DER will include optional standard conditions as necessary, and are likely to constitute the majority of conditions in any licence. The inclusion of any optional standard conditions is justified in Section 4 of this document.

Non standard conditions (NSC)

Where the proposed activities require conditions outside the standard conditions suite DER will impose one or more non-standard conditions. These include both premises and sector specific conditions, and are likely to occur within few licences. Where used, justification for the application of these conditions will be included in Section 4.



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 design capacity
	46	4.2 million tonnes per year
	64	Not specified
	52	Not specified
	67	Not specified
Application verified	Date: 27/03/2015	
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 checked="" type="checkbox"/> N/A <input 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 type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input 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 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 checked="" type="checkbox"/> No <input type="checkbox"/> If Yes include details of which EPP(s) here. <i>Environmental Protection (Peel Inlet – Harvey Estuary) Policy 1999</i>		
Is the Premises subject to any EPP requirements? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, include details here, eg Site is subject to SO ₂ requirements of Kwinana EPP.		



3 Executive summary of proposal and assessment

Then Department of Environment and Conservation (DEC) granted an approval (works approval W4661/2010/1) on 25 June 2010 for Alcoa to convert residue storage area 1 (RSA1) which also functions a Cooling Pond, to a 'dry stacked' RSA at its Pinjarra Refinery. The conversion process was scheduled in two phases with the northern area (RSA1N) converted first with a splitter dyke separating it from the southern area (RSA1S) which will continue to operate as a Cooling Pond. After water has been drained from the southern area and there is sufficient consolidation, RSA1S will be converted to a RSA to complete the project. The Environmental Assessment Report (EAR) attached to the works approval granted on 25 June 2010 contains more detail on the proposal and project design.

DER received a application to amend works approval W4661/2010/1 from Alcoa on 27 March 2015 requesting DER to extend the expiry date of the works approval. Alcoa's supporting information advised that while it had completed the RSA1N conversion, it had not immediately progressed with the RSA1S conversion as originally planned due to the additional drying area provided by the construction of RSA10 under works approval W5206/2012/1. Alcoa advises that in order to ensure sufficient area for residue drying, it will require RSA1S to be converted by approximately the end of 2019. As works approval W4661/2010/1 expires on 27 June 2015, it requested an extension of the expiry date by 5 years until 27 June 2020.

DER noted that a delay in converting RSA1S will result in a delay in the installation of de-liquoring bores in the already converted and commissioned RSA1N. The installation of de-liquoring bores was one of several groundwater protection measures proposed along with a synthetic liner, underdrainage, wick drains and sub-liner drains. To delay the installation of de-liquoring bores by up to 5 years in RSA1S has the potential to change the risk assessment. Regardless of the installation of de-liquoring bores, the above controls have increased groundwater protection controls in RSA1 and DER is satisfied a one year extension of the works approval expiry (including a delay in RSA1N de-liquoring bore operation) will not exacerbate the existing groundwater impacts or increase the risks to groundwater. Alcoa has been requested to provide additional information on risks to groundwater for non-operation of deliquoring bores in RSA1N beyond one year for DER to consider further extension of the works approval.

The works approval continues to authorise works associated with the conversion of RSA1. As part of this amendment, DER has not re-assessed the acceptability or impacts of emissions and discharges from the Premises or re-visited any existing emission control levels. No changes to the conditions on the works approval have been made with the exception of administrative updates and amendment of the expiry date.



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	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	<p>Works approval W4661/2010/1 commenced on 28 June 2010 and was granted for a period five years expiring on 27 June 2015. DER received an application to amend the works approval from Alcoa on 27 March 2015 to extend its expiry date by another five years until 27 June 2020. Alcoa advised that the commencement of RSA10 constructed under works approval W5206/2012/1 has delayed the need to convert RSA1S to a dry-stacked RSA.</p> <p>DER considered Alcoa's original works approval application documentation and the then Department of Environment and Conservation (DEC) works approval Environmental Assessment Report (EAR) in reviewing the application. DER notes that while RSA1N has been converted and commissioned through phase 1, the installation of de-liquoring bores requires the commencement of phase 2 (RSA1S conversion). A delay in the conversion of RSA1S delays the installation of de-liquoring bores in RSA1N.</p> <p>The potential significance of this is that de-liquoring bores remove alkaline process water from the existing deposit below the invert level of the sub-liner drainage layer and have the ability to significantly reduce the hydraulic head on the base seal of RSA1 as well as reduce the mass amount of alkaline water within the existing deposit. DER understands that operation of the de-liquoring bores in RSA1N will only be effective after RSA1S has been drained because the water body in RSA1S is hydraulically connected to the underlying deposit in RSA1N. De-liquoring bores were one of several groundwater protection measures in the design of the RSA1 conversion in addition to synthetic liner,</p>	<p>Works approval W4661/2010/1 and associated EAR issued on 25/06/2010</p> <p>Application for works approval amendment dated 27/03 2015.</p>



DECISION TABLE				
Works Approval	Condition number W = Works Approval L= Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
			<p>underdrainage, wick drains and sub-liner drains. Delaying the installation of de-liquoring bores has the potential to change then DEC's assessment of groundwater risks. Consequently DER has decided to limit the works approval extension to one year pending a further application for works approval amendment supported by additional information addressing potential risks to groundwater. As per Alcoa's original works approval application, hydrochemical data from bores around the perimeter of RSA1 have indicated the presence of varying levels of alkaline process fluid in samples as a result of RSA1 leakage hence the additional construction controls noted above. Most recent available information (i.e. <i>Pinjarra Refinery: Review of Groundwater and Surface Water Management from July 2013 to June 2014</i>, Volume I, Rockwater, October 2014) continues to show the presence of alkaline process fluids. RSA1N has been constructed and commissioned other than the de-liquoring bores. This means that:</p> <ul style="list-style-type: none">• the synthetic liner has been installed to isolate the new deposit from the existing deposit;• underdrainage has been installed on top of the liner to collect leachate and reduce the hydrostatic pressure on the synthetic liner;• wick drains have been installed to limit seepage through the base of RSA1; and• sub-liner drains have been installed on top of the existing deposit and below the synthetic liner to remove process water that would otherwise remain in the deposit and have the potential to leak from the base of RSA1. <p>Regardless of the installation of de-liquoring bores, the above controls have increased groundwater protection controls in RSA1 and DER is satisfied a one year extension of the works approval expiry (including a delay in RSA1N de-liquoring bore operation) will not exacerbate the existing groundwater impacts or increase the risks to groundwater. Alcoa has been requested to provide additional information on risks to groundwater for non-operation of deliquoring</p>	



DECISION TABLE				
Works Approval	Condition number W = Works Approval L= Licence	OSC or NSC	Justification (including risk description & decision methodology where relevant)	Reference documents
			bores in RSA1N beyond one year for DER to consider further extension of the works approval. The licence continues to have an adequate groundwater monitoring requirements and the site is classified under the <i>Contaminates Sites Act 2003</i> as 'Possibly contaminated – investigation required.'	



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
04/06/2015	Alcoa sent a copy of draft instrument	No comments received, Alcoa returned the signed 21 day comment period waiver form.	N/A
29/06/2015	Advertising the granting of the amended works approval	N/A	N/A



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