



<b>Works Approval</b>	W4661/2010/1
<b>Works Approval Holder</b>	Alcoa of Australia Limited
<b>ACN</b>	004 879 298
<b>Registered business address</b>	181-205 Davy Street Booragoon WA 6154
<b>Date of amendment</b>	23 December 2016
<b>Prescribed Premises</b>	Category 46: Bauxite refinery Category 52: Electric power generation Category 64: Class II or III putrescible landfill site Category 67: Fuel burning
<b>Premises</b>	Pinjarra Refinery Lot 19 on Diagram 44739, Part of Lot 109 on Diagram 60089, Part of Lot 151 on Plan 10914, Lot 221 on Plan 302638, Lot 222 on Plan 302638, Part of Lot 251 on Plan 35963 and Lot 252 on Plan 35963 Southwest Hwy OAKLEY WA 6208

## Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above works approval in accordance with section 59 of the Environmental Protection Act 1986 as set out in this Amendment Notice.

Date signed: 23 December 2016

**Jonathan Bailes**

**A/Senior Manager - Industry Regulation (Process Industries)**

*an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)*

## Amendment Notice

This notice is issued under section 59 of the *Environmental Protection Act* 1986 (EP Act) to amend the works approval issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

## Amendment Description

Alcoa of Australia Limited (Works Approval Holder) holds Works Approval W4661/2010/1 for the conversion of an existing wet Residue Storage Area (RSA) known as RSA1 to a 'dry stacked' RSA. A copy of the works approval granted on 25 June 2010 is published on DER's website at [www.der.wa.gov.au](http://www.der.wa.gov.au). An Environmental Assessment Report (EAR) prepared by then Department of Environment and Conservation is attached to the works approval and contains additional information on the proposal.

The conversion of RSA1 is scheduled in two phases. Phase 1 involving the conversion of RSA1 North (RSA1N) has been completed and now operates as a dry stack RSA subject to the conditions of Licence L5271/1983/14. On 27 March 2015, the Works Approval Holder applied to extend the works approval by five years due to the commissioning of a new drying area known as RSA10 under Works Approval W5206/2012/1. The additional drying area space created by RSA10 removed the immediate need for the Phase 2 conversion of RSA1 South (RSA1S).

On 25 June 2015, DER issued an amended works approval to extend its duration by one year. In the decision document for the amended works approval (available at [www.der.wa.gov.au](http://www.der.wa.gov.au)), the Delegated Officer at the time identified a potential for changes to the assessed risk to groundwater. De-liquoring bores were one of several groundwater protection controls proposed for RSA1N and RSA1S. A delay in converting RSA1S would result in a delay in the installation of de-liquoring bores in RSA1N. The one-year duration extension provided the Works Approval Holder with additional time to prepare an application for a further extension with supporting groundwater risk assessment information. An Amendment Notice was issued on 23 June 2016 to extend this by a further six months.

An application for works approval amendment was received by DER from the Works Approval Holder on 21 September 2016 and is the subject of this Amendment Notice. The report *Assessment of Risks to Groundwater Due to Partial Project Postponement Residue Storage Area 1 Conversion Pinjarra Alumina Refinery*, Peter Clifton & Associates, May 2016 (the Groundwater Report) was included as supporting information to the application.

The Works Approval Holder highlighted alterations to its original works approval application proposal document Pinjarra Alumina Refinery Residue Storage Area 1 Conversion (to a Residue Drying Area) Project, Alcoa of Australia Limited, 12 March 2010. An updated version of this document dated 20 September 2016 was included in the works approval amendment application (the Revised Proposal).

On 10 October 2016, DER received written confirmation from the Works Approval Holder (DER reference: A1176553) that there were no changes to the Table of Commitments specified in Appendix A of the Proposal. The scope of this assessment is therefore limited to the requested duration extension to 27 December 2020 and risks to groundwater.

## RSA1 seepage receptors

Table 1 below lists the relevant environmental receptors of seepage in the vicinity of RSA1.

**Table 1: Environmental receptors of potential seepage**

Environmental receptors	Distance from the premises	Environmental Value
Groundwater	Typically less than 5 mBGL (superficial aquifer).  Superficial Aquifer: 0-15 mBGL Leederville Aquifer: 10-120 mBGL Cattamara Aquifer 3-120 mBGL.	The rate of vertical movement of groundwater to deeper strata is assumed to be low due to clayey sediments in the superficial (Guildford Clay) formation. Alkaline seepage may impact on shallow groundwater in the immediate vicinity of RSA1. The localised shallow groundwater in the vicinity of RSA1 is of low environmental value or beneficial use.

## Review of the Groundwater Report

The Delegated Officer reviewed the original assessment within the EAR for the works approval granted on 25 June 2010 and noted that *'In the case of RSA1 the requirement for additional design elements were identified during Alcoa's Environmental Risk Assessment for the conversion of RSA1. The lack of a base underdrain system in RSA1 and evidence of alkaline process water in RSA1 superficial aquifer groundwater monitoring bores required the design to include additional controls to minimise and reduce potential impacts on groundwater.'*

The Delegated Officer has reviewed the Groundwater Report in consultation with technical experts from DER's Contaminated Sites function and has determined:

- The Groundwater Report provides an appropriate description of the hydrogeological setting and adequately assesses the risks to groundwater posed by seepage from RSA1.
- The report provides a number of points of justification supporting the conclusions that the delay in the installation and commissioning of de-liquoring bores will not cause any significant change to the risks posed by seepage from RSA1 to the shallow groundwater beneath the site. The only receptor for alkaline seepage from RSA1 is shallow groundwater in the immediate vicinity of the storage areas, and this shallow groundwater does not have any beneficial use or ecological value. However, it is noted that this assessment is correct in regards to the local source-pathway-receptor analysis; however, RSA1 is a single component in a large complex of storage facilities that contribute to a broader plume of impacted groundwater.
- The short-term risk is unlikely to change. However, continued seepage from RSA1 does contribute to an increase in long-term risk that will be managed with under the provisions of the *Contaminated Sites Act 2003*.

- Periodic monitoring of bores at the perimeter of RSA1 should continue to ensure that any adverse impacts from seepage at RSA1 can be detected in a timely manner. It is likely that potential risks associated with RSA1 can be effectively managed within the context of the overall management of the broader groundwater impacts associated with the entire residue storage area and the refinery complex.

## Decision

The key risk arising from extending the works approval duration until 27 December 2020 is the risk to groundwater. In assessing this risk, the Delegated Officer considered:

- The works approval amendment application received by DER on 21 September 2016;
- The Groundwater Report; and
- The EAR attached to Works Approval W4661/2010/1 granted on 25 June 2010.

The Delegated Officer is satisfied that there will be no material change to the groundwater risk resulting from an extension of the works approval duration and the resulting delay in the installation of de-liquoring bores.

## Amendment History

Instrument	Issued	Amendment
W4661/2010/1	23/12/2016	Amendment Notice 2 Works approval duration extension from 27 December 2016 to 27 December 2020
W4661/2010/1	23/06/2016	Amendment Notice 1 Works approval duration extension from 27 June 2016 to 27 December 2016
W4661/2010/1	25/06/2015	Works approval amended Works approval duration extended from 27 June 2015 to 27 June 2016

## Works Approval Holder Consultation

The Works Approval Holder was provided with a draft Amendment Notice on 12 December 2016 for comment. The Works Approval Holder waived the 21 day consultation period on 19 December 2016.

## Amendment

1. The works approval duration has been extended from *27 December 2016* to *27 December 2020*.