



**Licence Number** L6217/1983/15

**Licence Holder** Alcoa of Australia Limited

**ACN** 004 879 298

**File Number:** 2012/007237-7

**Premises**

Wagerup Alumina Refinery  
Willowdale Road  
Waroona  
WA 6215

Lot 700 on Plan 59305  
Certificate of Title Volume 2708 Folio 955

Lot 205 on Plan 34250  
Certificate of Title Volume 2540 Folio 866

**Date of Amendment** 26 July 2019

## Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act), as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

## Manager, Process Industries Regulatory Services

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

## Definitions and interpretation

### Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
ANCOLD	Australian National Committee on Large Dams
Category	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Delegated Officer	an officer under section 20 of the EP Act
DMIRS	Department of Mines, Industry Regulation and Safety
DMP	Department of Mines and Petroleum (predecessor to DMIRS)
DWER	Department of Water and Environmental Regulation
ICOLD	International Commission On Large Dams
Risk Event	As defined in <i>Guidance Statement: Risk Assessment</i>
ROWS	Run Off Water Storage
RSA	Residue Storage Area
Spillway	A structure to provide the controlled discharge from a dam or Residue Storage Area
Wet Winter	means rainfall from 1 May to 30 September in each calendar year that is greater than or equal to 880mm as measured by the on-site meteorological weather station referred to in Licence L6217/1983/15.

## Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence 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.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Risk Assessment (February 2017);*
- *Guidance Statement: Setting Conditions (October 2015); and*
- *Guidance Statement: Decision Making (November 2016).*

## Amendment description

This amendment was initiated by an amendment application to install a spillway on the Runoff Water Storage (ROWS) pond. This Amendment Notice is limited to the installation and operation of a spillway on the ROWS pond. No changes to the aspects of the original licence relating to Categories 46 (bauxite refinery), 52 (electrical power generation), 64 (Class II or III putrescible landfill site) or 67 (fuel burning) have been requested by the Licence Holder.

## Consultation

The Application was advertised on the Department's website for public comments. The Delegated Officer also directly notified the Community Alliance for Positive Solutions Inc. (CAPS) community group and referred the application to the Department of Jobs, Tourism, Science and Innovation (JTSI), Department of Mines, Industry Regulation and Safety (DMIRS) and the Shire of Murray.

### 1. CAPS

The Delegated Officer's assessment has taken into consideration points raised by CAPS in its 26 April 2019 submission on the application. The summarised key issues or concerns raised in the submission related to:

- lack of consideration in the Application to potential impacts of contaminants on aquifer water quality, soil structure and beneficial use
- water quality:
  - has not been adequately considered; and
  - difficulty evaluating likelihood and nature of vegetation impacts in a flood event cannot be judged with any confidence without water quality understanding; and
- climate change means a 1:100-year precipitation event is becoming more common under climate change.

### 2. DMIRS

In correspondence dated 17 May 2019, DMIRS provided advice which has been taken into consideration by the Delegated Officer. The summary points raised relate to:

- the applicant needs to provide final designs for the proposed spillway;
- requirements for backfilled material compaction levels;
- the functional life span of the spillway;
- decommissioning or closure design details;
- additional certaining around the quality of water discharged via the spillway that must not have an adverse impact on the receiving environment; and
- consideration of the overall RSA infrastructure in relation to the surrounding surface water catchment areas should be reviewed for closure purposes.

## Amendment history

Table 2 provides the amendment history for L6217/1983/15.

**Table 2: Licence amendments**

Instrument	Issued	Amendment
L6217/1983/15	29/04/2016	Licence expiry date extended to 12 October 2035
L6217/1983/15	26/07/2019	Amendment Notice 1 – this amendment

## Location and receptors

In undertaking its risk assessment, DWER identified potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event, there must be an emission, a pathway and a receptor that could be adversely effected by an exposure to that emission. Where there is no actual or likely pathway for an emission from a source to a receptor, or an emission is regulated through other mechanisms such as Part IV of the EP Act, the emission will be screened out and not be risk assessed further.

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 3: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises
Seven private residences	1.6 to 4 km
Yarloop town site	4.5 km south
Hamel town site	4.5 km north

Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 4: Environmental receptors and distance from activity boundary**

Environmental receptors	Distance from proposed spillway
Environmental Protection (Peel Harvey) Inlet – Harvey Estuary) Policy 1992	Premises within policy area
Peel Harvey Estuary	20 km
Yarlup Brook Drain	0.1 km
Samson South Diversion Drain	4.5 km
Harvey River Main Drain	7.5 km
<i>Banksia</i> -dominated Woodlands of the Swan Coastal Plain IBRA Region (P3)	4 km
South-western Brush-tailed Phascogale or Wambenger ( <i>Phascogale tapoatafa</i> subsp. <i>Wambenger</i> )	3 km

## Risk Assessment – Discharges to Water and Land Buffer up to 100 metres

DWER has undertaken its risk assessment following the guidance in ‘*Guidance Statement: Risk Assessment (February 2017)*’. This guidance provides a risk rating for determining Risk Events and risk criteria to determine the likelihood and consequence of the Risk Event. The rating of the Risk Event will determine the acceptability and treatment of the Risk Event.

### Identification and general characterisation of the emission

Water generated from day to day operations discharged at the activated ROWS pond spillway causing an adverse impact on nearby waterways and buffering land up to 100 metres. Process water and contaminated stormwater may be released from the ROWS pond to the Yarlup Brook Drain by activating the spillway in a Wet Winter or above Wet Winter weather events.

Process water and contaminated stormwater that is discharged directly to waterways can contaminate surface water and buffering land up to 100 metres. The potential contaminants are elevated pH, EC, alkalinity and trace metals. The frequency and volume of water being released is expected to be low as the RSAs and ROWs pond system is designed to Australian National Committee on Large Dams (ANCOLD) and International Commission On Large Dams (ICOLD) guidelines to contain run-off and stormwater from a 1:100 wet year.

### Description of potential adverse impact from the emission

Elevated pH, EC, alkalinity and trace metals can reduce water quality in waterways closest to the activated spillway. The impact is expected to be localised due to the low volumes and frequency of water being released via the activated spillway. If in the event the spillway is activated, released water will be greatly diluted by saturated soils and flowing drains, managing the local agricultural area – which would be inundated with rainwater.

## Risk assessment Table

Identification of the key potential emission, pathways and receptors and confirmation of potential impacts are set out in Table 5 below.

**Table 5: Risk assessment for proposed amendments during operation**

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Sources/ Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Activation of spillway above a Wet Winter event	Process water and contaminated storm water	<p><i>Fauna in Yarlung Brook Drain, approximately 0.1 km from spillway</i></p> <p><i>Threatened and Priority Fauna in South Samson Diversion Drain, approximately 4.5 km from spillway</i></p> <p><i>Threatened and Priority Fauna in Harvey River Main Drain, 7.5 km from spillway</i></p> <p><i>Peel Harvey Estuary approximately 20km North west of the premises</i></p>	<p><i>Direct drainage into surface water system</i></p>	<p><i>Contamination of surface water with elevated levels of pH, electrical conductivity, alkalinity and trace metals. Reduced water quality possibly leading to small scale fish kills</i></p>	Minor	Rare	Low	<p><i>Threatened and Priority Fauna not reported as recorded in Yarlung Brook Drain or section of South Samson Diversion Drain west of the ROWS pond and spillway.</i></p> <p><i>Elevated levels of pH, electrical conductivity, alkalinity and trace metals will be diluted by large volume of rainwater before entering the Harvey River Main Drain and ultimately the Peel Harvey Estuary.</i></p>
		<p><i>Threatened, Priority and Rare Flora</i></p> <p><i>Threatened Ecological Communities and Priority Ecological Communities</i></p> <p><i>Rare and Priority Fauna</i></p>	<p><i>Surface water discharging overland from surface water system, 100m each side of waterway for length of Yarlung Brook Drain</i></p>	<p><i>Contamination of land with elevated levels of pH, electrical conductivity, alkalinity and trace metals</i></p>	Minor	Rare	Low	<p><i>The Land is classified as contaminated.</i></p> <p><i>Nearest areas containing sensitive flora and fauna are 3km from the spillway.</i></p>

## Decision

The Licence Holder proposes to construct a spillway on the existing ROWS pond to control discharge from the ROWS pond in the event of a Wet Winter. The use of a spillway to manage water flow on 'no spill' designed dam facilities in relation to extreme weather events is recommended in the ANCOLD and ICOLD guidelines. These guidelines are considered best practice management for all dams. Controlled discharge reduces the risk of embankment wall failure and a major uncontrolled loss of containment.

Due to the minor nature of the construction works, the construction of the spillway is managed by licence conditions instead of a works approval.

DWER has commenced a detailed risk review of the licence to align the licence with the DWER's risk-based regulatory framework. The full risk-based review will incorporate these amendments into the revised licence.

The amendments to the licence by this amendment notice have been determined by inserting conditions to Licence L6217/1983/15 as set out below.

The Delegated Officer has taken into account the Minister for Environment's 20 February 2018 determination of appeals on October 2015 amendments to Licence L6217/1983/15 (Appeal Number 143 of 2015). **The Minister allowed the appeal to the extent that DWER was requested to amend condition W2 through the licence review process (currently under way) to ensure that no contaminated water is released to the environment from the premises, consistent with commitment contained in the Licence Holder's Long Term Residue Management Strategy (LTRMS).** This amendment to the licence relates to a ROWS spillway discharge after a Wet Winter and in the Delegated Officer's view, is consistent with LTRMS commitments.

The Minister's request to amend existing condition W2 will be considered through the separate review process.

The amended conditions take into consideration advice provided by DMIRS as outlined in the 'consultation' section above. The Delegated Officer has also considered comments from CAPS and noted that the RSA and the proposed spillway have been designed to ANCOLD and ICOLD guidelines. Impacts from a spillway discharge have been assessed with reference to ANCOLD guidelines and within the Departments risk-based Regulatory Framework.

## Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 18 June 2019 and provided comments on 27 June 2019. The Licence Holder's comments and the Delegated Officer's responses are summarised in Table 6.

In relation to condition W6, the Delegated Officer met with Alcoa on 12 July 2019 to discuss the proposed time period of 15 November in each calendar year, beyond which the spillway could not be activated. The Licence Holder provided supplementary information on 19 July 2019 relating to Wet Winter water surge scenarios with continued rainfall in November and requested a revised date of 15 December in each calendar year. The Delegated Officer reviewed the information and did not object to the revised date.

**Table 6: Summary of Licence Holder comments and Delegated Officer responses**

Summarised Licence Holder comment	Delegated Officer response
<p>W6: Allow activation of the spillway after a 'Wet Winter', not just during.</p> <p>While DWER have proposed an alternate wording with an additional time period (15 November in each calendar year beyond which the spillway can't be activated). This still presents a high risk in the event of a Wet Winter or greater.</p>	<p>The Delegated Officer agreed to alter the condition to the extent that the spillways is not to be activated unless "<i>other than as a result of a Wet Winter.</i>"</p> <p>Upon consideration of additional information provided by the Licence Holder on 19 July 2019, the date beyond which the spillway cannot be activated was changed to 15 December.</p>
<p>AW1: The required timeframe for submitting final drawings be changed to 31 December 2019.</p>	<p>The Delegated Officer accepted the change.</p>
<p>AW2: The required timeframe for the audit report be changed to 60 days to allow for development by the appropriate engineer.</p> <p>Reference to 'condition 2' appears to be in error.</p>	<p>The Delegated Officer accepted the changes. The timeframe was altered to 60 days and the reference to condition 2 was corrected to AW1.</p>
<p>AW3: Reference to 'schedule 2' appears to be in error.</p>	<p>Corrected to Schedule 1.</p>
<p>Table numbers are inconsistent with the existing licence.</p>	<p>Table numbers corrected.</p>

## Details of the Amendment

1. The Licence is amended by the insertion of the following schedule to the Licence as attached to this Amendment Notice:

*Schedule 1: Figures for authorised works*

2. The Licence is amended by the insertion of the definitions shown in red underlined text below:

'ANCOLD' means Australian National Committee on Large Dams;

'ICOLD' means International Commission on Large Dams;

'ROWS' means Run Off Water Storage;

'RSA' means Residue Storage Area;

'Spillway' means a structure to provide the controlled discharge from a dam or Residue Storage Area;

'Wet Winter' means rainfall from 1 May to 30 September in each calendar year that is greater than or equal to 880mm as measured by the on-site meteorological weather station referred to in Licence L6217/1983/15.

3. The Licence is amended by the insertion of the following Conditions, W5, W6 and AW1, AW2 and AW3 shown in red underlined text below:

### **SECTION 6: WATER POLLUTION CONTROL CONDITIONS**

W5 The Licence Holder must ensure that all emissions specified in Table 19 are discharged only from the corresponding discharge point and only at the corresponding discharge point location.

**Table 19: Authorised discharge points**

<u>Emission</u>	<u>Discharge point</u>	<u>Discharge point location</u>
<u>Process water and potentially contaminated stormwater</u>	<u>ROWS pond spillway</u>	<u>As shown in Schedule 1</u>

W6 The Licence Holder must ensure that the spillway listed in Table and located at the corresponding spillway location is maintained and operated in accordance with the corresponding operational requirement set out in Table 20.

**Table 20: Infrastructure and equipment requirements**

<u>Site infrastructure and equipment</u>	<u>Operational requirement</u>	<u>Infrastructure location</u>
<u>ROWS pond spillway</u>	<u>The Licence Holder must manage the ROWS pond such that it does not activate the spillway other than as a result of a Wet Winter.</u>	<u>As shown in Schedule 1</u>
<u>ROWS pond spillway</u>	<u>The spillway shall not be activated after 15 December in each calendar year.</u>	<u>As shown in Schedule 1</u>

## **SECTION 8: AUTHORISED WORKS**

AW1 The Licence Holder must construct the spillway in accordance with:

- (a) the corresponding design and construction; and
- (b) at the corresponding location; and
- (c) within the corresponding timeframe,

as set out in Table 21.

**Table 21: Design and construction requirements**

<b><u>Infrastructure</u></b>	<b><u>Design and construction requirements</u></b>	<b><u>Infrastructure location</u></b>	<b><u>Timeframe</u></b>
<u>ROWS pond spillway</u>	<u>In accordance with final designs in Figure 2 and Figure 3 in Schedule 1</u>  <u>In accordance with ANCOLD Guidelines on Tailings Dams, Planning, Design, Construction, Operation and Closure 2012</u>	<u>As shown in Schedule 1</u>	<u>Before 31 December 2019</u>

AW2 The Licence Holder must within 60 days of the spillway being constructed:

- (a) undertake an audit of their compliance with the requirements of condition AW1; and
- (b) prepare and submit to the CEO an audit report on that compliance.

AW3 The report required by condition AW2 must:

- (a) be certified by an Engineer that the spillway meets the corresponding specifications and at a location set out in Schedule 1, and has been constructed with no material defects; and
- (b) be signed by a person authorised to represent the Licence Holder and contains the printed name and position of that person within the company.

## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Alcoa 2012. Long Term Residue Management Strategy, Wagerup 2012	LTRMS	accessed at <a href="http://www.alcoa.com">www.alcoa.com</a>
2	Application for L6217 Licence Amendment for spillway installation – Received by DWER via email on 22/2/2019	Amendment Application	DWER records
3	Licence L6217/1983/15 – Alcoa Wagerup Refinery	L6217/1983/15	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
4	DER, October 2015. <i>Guidance Statement: Setting Conditions</i> . Department of Environment Regulation, Perth.	NA	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
5	DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.		
6	DER, November 2016. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.		

# Schedule 1 Figures for authorised works

Figure 1: Location of ROWS spillway



Figure 2: Spillway Design



