



Section 73A
Environmental Protection Act 1986.

PREVENTION NOTICE

Reference No: 202304

Persons to whom this Prevention Notice is issued:

Alcoa of Australia Ltd ACN 004 879 298

181-205 Davy Street

BOORAGOON WA 6154

Premises to which this notice relates (the Premises):

The Premises, the subject of this section 73A *Environmental Protection Act 1986* (WA) Prevention Notice (**Notice**), is situated on:

Willowdale Mine - Waroona Willowdale Rd (via Wagerup Refinery Access Rd) WAROONA WA 6215 located in Mining Lease AML 70/01 and including the Arundel, Orion and Larego Mining Areas (the **Premises**).

Reasons for which this Notice is issued:

This Notice is given because I reasonably suspect on the following grounds that a condition of pollution is likely to arise:

- a) Per-and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals which are persistent and bio-accumulate in the environment. PFAS is highly soluble and highly mobile and has the potential to cause significant and long-term impacts to the environment including aquatic ecosystems and potentially human health.
- b) On 23 February 2023 *Inspectors* from the Department of Water and Environmental Regulation (DWER) conducted an inspection of the Premises and observed multiple dams, sumps and ponds, both lined and unlined, across the Arundel and Orion Mining Areas containing large volumes of water.
- c) On 20 March 2023 *Inspectors* from DWER conducted an inspection of the Premises obtaining liquid and soil samples.
- d) Analysis results of samples obtained from Arundel Receiving Dam 1 and Orion Sump 3 during the 20 March 2023 inspection identified PFOS levels of 0.0004 µg/L which is nearly double the limit of 0.00023µg/L for PFOS under the ANZG for Fresh and Marine Water Quality under a 99% species protection exposure scenario for areas of high conservation value, as stated within the PFAS NEMP.
- e) During both DWER site inspections, employees of Alcoa of Australia Ltd (Alcoa) have stated that there is an urgency to dispose of PFAS containing wastewater to eliminate

the risk of emission to the environment due to water storage overflow as a result of impending winter rainfall.

- f) In 23 March 2022, Alcoa submitted a Works approval application W6721/2022/1 (which was withdrawn on 20 April 2023), for infrastructure to treat PFAS impacted water within the Premises for discharge. Supporting information provided by Alcoa as part of this application states:
 - i. The Willowdale Mine has recorded PFAS affected surface water which is above the limits of the PFAS National Environmental Management Plan (NEMP) for water at the Orion and Arundel Mine sites.
 - ii. The affected water is collected via drainage systems and collection sumps throughout the mining operations and contained within multiple water storage points at the Orion and Arundel Mine sites.
 - iii. Process Inputs include Orion - PFAS affected water (currently inside public drinking water supply area) 54 ML/Year and Arundel - PFAS affected water – currently within McKnoes Brook catchment 165 ML/Year.
- g) The Sampson Brook catchment is a significant human health receptor and there are various ecological receptors, with adjacent infrastructure containing large volumes of PFAS impacted wastewater. These include aquatic and riparian fauna recorded in the Sampson Brook Catchment area and an adjacent conservation park.
- h) I consider the risk of transferring PFAS containing wastewater by any means across the Sampson Brook catchment or dam wall to represent an unacceptable risk to human health, the environment and environmental values.
- i) I consider that water storage infrastructure (both lined and unlined) throughout the Premises will not have sufficient capacity to hold the expected volume of PFAS containing wastewater and additional water deposited as a result of winter rainfall, meaning that an emission to the environment is likely to occur, and that this emission is likely to result in a condition of pollution and cause a direct or indirect alteration of the environment to its detriment or degradation or the degradation of an environmental value.

I am satisfied that:

Alcoa of Australia Ltd is the company who has constructed and operate water storage infrastructure across the premises and are the appropriate person/s to give this Notice to.

Requirements of this Notice:

Terms used in this Notice have the meaning defined in Appendix 1 to this Notice.

In accordance with section 73A(2)(b) of the Act, this Notice is subject to the following requirements upon the person to whom the Notice is given to prevent the condition of pollution from arising.

Requirements

1. The persons to whom this Notice is given must not operate, or cause, or allow to be operated, the constructed PFAS pipeline at the Premises.
2. PFAS containing wastewater contained within the Orion Mining Area of the Premises is not to be transferred or transported by any means across or within the Sampson Brook catchment or Priority 1 Public Drinking Water Source Protection Area unless:

- 2.1. PFAS containing wastewater is being transferred or transported within the Orion Mining Area to comply with a condition of this Notice, or
 - 2.2. PFAS containing wastewater is being transported off the Premises by a Licenced waste carrier within appropriately sealed tankers and in a direct route via Nanga Brook Road to the Licenced liquid waste disposal premises to comply with a condition of this Notice, or
 - 2.3. PFAS containing wastewater has been sampled and tested in accordance with *Table 1 - Sampling and testing requirements*, and
 - 2.3.1. Results of analysis indicate that the wastewater contains PFAS levels above that stipulated by the *PFAS NEMP - ANZG Guidelines for Fresh and Marine Water Quality (99% species protection)* as stated in *Table 2 – PFAS limits*, and
 - 2.3.2. An *Inspector* has been provided with a copy of analysis results.
 - 2.4. An *Inspector* has been notified of all proposed transfers or transportation of PFAS containing wastewater in accordance with condition 2.1, 2.2 or 2.3 by email to compliance@dwer.wa.gov.au 48 hours prior to the transportation or transfer, unless otherwise authorised by an *Inspector*, and this notification must include:
 - 2.4.1. The time and date that PFAS containing wastewater is to be transported or transferred, and
 - 2.4.2. the quantity (litres) of all PFAS containing wastewater to be transported or transferred, and
 - 2.4.3. the purpose and method of this action, and
 - 2.4.4. details of the original location and destination of PFAS containing wastewater.
3. PFAS containing wastewater contained within the Arundel Mining Area of the Premises is not to be transferred or transported by any means across or within the Samson Brook catchment or Priority 1 Public Drinking Water Source Protection Area unless:
- 3.1. PFAS containing wastewater is being transferred or transported within the Arundel Mining Area to comply with a condition of this Notice, or
 - 3.2. PFAS containing wastewater is being transported off the Premises in a direct route via the Wagerup-Willowdale Road to comply with a condition of this Notice, or
 - 3.3. PFAS containing wastewater has been sampled and tested in accordance with *Table 1 - Sampling and testing requirements*, and
 - 3.3.1. Results of analysis indicate that the wastewater contains PFAS levels above that stipulated by the *PFAS NEMP - ANZG Guidelines for Fresh and Marine Water Quality (99% species protection)* as stated in *Table 2 – PFAS limits*, and
 - 3.3.2. An *Inspector* has been provided with a copy of analysis results.
 - 3.4. An *Inspector* has been notified of all proposed transfers or transportation of PFAS containing water in accordance with condition 3.1, 3.2 or 3.3 by email to

compliance@dwer.wa.gov.au 48 hours prior to the transportation or transfer, unless otherwise authorised by an *Inspector*, and this notification must include:

- 3.4.1. The time and date that PFAS containing wastewater is to be transported or transferred, and
- 3.4.2. the quantity (litres) of all PFAS containing wastewater to be transported or transferred, and
- 3.4.3. the purpose and method of this action, and
- 3.4.4. details of the original location and destination of PFAS containing wastewater.

Table 1 – PFAS Sampling and testing requirements

Location	Parameter	Units	Averaging period	Method
2 samples of liquid from the water storage infrastructure	Perfluorooctane sulfonate (PFOS)	µg/L	Spot sample	Chemical analysis by a NATA-accredited laboratory using an appropriate standard method in accordance with guidance provided in the PFAS NEMP
	Perfluorooctanoic acid (PFOA)			
	Perfluorohexane sulfonate (PFHxS)			

Table 2 – PFAS limits

Location	Parameter	Units	Averaging period	Limit
2 samples of liquid from the water storage infrastructure	PFOS	µg/L	Spot sample	0.00023
	PFOA			19
	PFHxS			0.07

4. Within 30 days of date upon which this Notice is issued, ensure that PFAS containing wastewater above the *PFAS NEMP* - ANZG Guidelines for Fresh and Marine Water Quality (99% species protection) as stated in *Table 2 – PFAS limits*, is contained within water storage infrastructure suitable of preventing discharge into the environment by:

- 4.1. transferring all PFAS containing wastewater within the Orion Mining Area stored within unlined dams, sumps, ponds or any other unlined water storage infrastructure into the lined Orion Sump 3 using transfer equipment suitable for preventing discharge into the environment, and

- 4.2. transferring all PFAS containing wastewater within the Arundel Mining Area stored within unlined dams, sumps, ponds or any other unlined water storage infrastructure into the lined Arundel Dam 1 or Arundel Dam 2 using transfer equipment suitable for preventing discharge into the environment.
5. Within 30 days of date upon which this Notice is issued , achieve and maintain a freeboard of 50% within Orion Sump 3, and 30% within Arundel Dam 1, Arundel Dam 2 and 30% freeboard in any other water storage infrastructure within the Premises that holds PFAS containing wastewater above the *PFAS NEMP - ANZG Guidelines for Fresh and Marine Water Quality (99% species protection)* as stated in *Table 2 – PFAS limits* by:
 - 5.1. Transporting or transferring PFAS containing wastewater in accordance with Requirements 2 and 3 of this Notice, and
 - 5.2. All PFAS containing wastewater that is removed from the Premises in accordance with this Notice must be disposed of at a facility that is authorised to accept the liquid waste, and
 - 5.3. Within 48 hours of PFAS containing wastewater being removed from the Premises, notify an *Inspector* of this disposal by email to compliance@dwer.wa.gov.au. This notification must include,
 - 5.3.1. the time and date of removal,
 - 5.3.2. the name of the company taking the waste, and
 - 5.3.3. a copy of the associated Certificate of Disposal.
6. The timeframes stipulated in this notice may be amended by an Inspector or Authorised Person in writing on application with reasonable justification.

Duration

This Notice subsists until it is cancelled by written notice from an *Inspector*.



Paul Newell FRACI CCHEM

Inspector and Authorised Person
under section 87(1) and 88 of the
Environmental Protection Act 1986

5 May 2023

Important Information:

A PERSON WHO IS BOUND BY THIS PREVENTION NOTICE AND WHO DOES NOT COMPLY WITH THIS NOTICE COMMITS AN OFFENCE UNDER THE *ENVIRONMENTAL PROTECTION ACT 1986*.

Note that under section 118 of the Act that each person who is a director or who is concerned in the management of the body corporate may be taken to have also committed the same offence.

Section 103 of the Act provides that:

- a person who is aggrieved by a requirement contained in this Notice may within 21 days of being given this notice lodge with the Minister for Environment an appeal in writing setting out the grounds of that appeal; and
- any other person who disagrees with a requirement contained in this Notice may within 21 days of the making of that requirement lodge with the Minister for Environment an appeal in writing setting out the grounds of that appeal.

PENDING THE DETERMINATION OF AN APPEAL REFERRED TO ABOVE, THE RELEVANT REQUIREMENTS CONTAINED IN THIS NOTICE CONTINUE TO HAVE EFFECT.

Appendix 1: Definitions

In this Notice, unless the contrary intention appears –

‘Act’ means the *Environmental Protection Act 1986* (WA).

‘AS/NZS 5667.6’ means the Australian Standard AS/NZS 5667.6 Water Quality – Sampling – Guidance on sampling of rivers and streams

‘Authorised person’ means a person or member of a class of persons appointed under section 87(1) of the *Environmental Protection Act 1986*

‘ANZG’ means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (which replace the former ANZECC guidelines)

‘Days’ means all days including weekends.

‘Department’ means Department of Water and Environmental Regulation.

‘Freeboard’ means the vertical distance from the liquid surface to the lowest elevation at which the liquid would flow the dam wall, spillway or otherwise discharge from the dam.

‘Inspector’ means a person appointed to be an inspector under section 88 of the *Environmental Protection Act 1986*

‘Inspector’ for the purposes of correspondence means;

Senior Manager – Environmental Compliance
Department of Water and Environmental Regulation
Locked Bag 10
JOONDALUP DC WA 6919
Telephone: (08) 6364 7000
Fax: (08) 6364 7001
Email: compliance@dwer.wa.gov.au

‘NATA’ means National Association of Testing Authorities

‘PFAS’ means perfluoroalkyl and polyfluoroalkyl substances

‘PFAS containing wastewater’ means any wastewater which contains levels of PFAS above those stipulated in the *PFAS NEMP - ANZG Guidelines for Fresh and Marine Water Quality* (99% species protection) as shown in *Table 2 – PFAS limits* on page 4 of this Notice.

‘PFAS NEMP’ means the PFAS National Environmental Management Plan Version 2.0, dated January 2020, published by the National Chemicals Working Group of the Heads of EPAs Australia and New Zealand.

‘PFAS Pipeline’ means the PFAS wastewater pipeline constructed between the Orion Mining Areas and Arundel Mining Areas crossing the Sampson Dam catchment, dam and Public Drinking Water Source Protection Area or Buffer.

'Premises' refers to the Premises to which this Notice applies, as specified at the front of this Notice.