

Wagerup Alumina Refinery Noise Amelioration Plan

Date: March 2014

Prepared by: Alcoa of Australia Ltd

1. Introduction

This Noise Amelioration Plan has been developed to meet the requirements of Clause 6 (1) and (2) of the *Environmental Protection (Wagerup Alumina Refinery Noise Emissions) Approval 2012* (the Approval) as amended¹. Clause 6 is reproduced in full below.

6. **Noise Amelioration Plan**

- (1) *Alcoa must submit to the CEO within 3 months of the start day a noise amelioration plan in respect of noise-affected land.*
- (2) *The noise amelioration plan must contain the following –*
 - (a) *An acoustic amelioration programme setting out procedures for the provision by Alcoa of noise insulation for buildings, on noise affected land that are directly associated with a noise sensitive use;*
 - (b) *A land management plan setting out the procedures for the purchase by Alcoa of noise-affected land;*
 - (c) *Any other matter that the CEO may require.*
- (3) *At any time after receiving a noise amelioration plan from Alcoa, the CEO may, by notice in writing request Alcoa to provide a revised noise amelioration plan that addresses the matters specified in the notice.*
- (4) *A revised noise amelioration plan requested under subclause (3) must be provided within 14 days of the request of within such longer period as the CEO specifies in the written notice.*

The following terms defined in the Approval are relevant to clause 6.

Noise-affected Land means land on which there are noise sensitive premises that receive, at any noise sensitive location on the premises, noise emitted from the Wagerup Alumina Refinery at a level that is likely to exceed the standard prescribed under regulation 7(1)(a) in respect of noise received at a noise sensitive location.”

Noise-sensitive location means a location on noise-sensitive premises that is within 15 meters of a building directly associated with a noise sensitive use.

Noise-sensitive premises has the meaning given in regulation 2(1).

Regulation means a regulation of the *Environmental Protection (Noise) Regulations 1997*.

2. Background

Alcoa has implemented a Land Management Plan and a Residential Acoustic Treatment Program for a number of years in the vicinity of the Wagerup Alumina Refinery. Implementation began in 2002 when Alcoa submitted an application to exceed the assigned levels in the vicinity of the Wagerup Alumina Refinery, as allowed by Regulation 17 of the *Environmental Protection (Noise) Regulations 1997* (The Regulations). Alcoa’s application

¹ Clause 6 was amended by the *Environmental Protection (Wagerup Alumina Refinery Noise Emissions) Amendment Approval 2013*, gazetted on 10 December 2013.

sought approval for noise emissions to remain at the levels achieved after noise reduction programs conducted from the mid 1990s to early 2000s. In the application Alcoa committed to:

- Ensure ongoing noise emissions were managed by a noise management strategy, involving further noise reduction where reasonable and practicable;
- Noise attenuation measures for homes of people within the noise impact area who were adversely affected by noise if requested (Residential Acoustic Treatment Program);
- A land management strategy (Land Management Plan) to facilitate relocation of adversely affected people within the noise impact area;
- A complaints management program; and
- An engineering and procurement policy to adopt a 'lowest practicable' noise emission approach for new or replacement plant and equipment.

The Residential Acoustic Treatment Program and the Land Management Plan were aimed at:

- Protecting resident's amenity.
- Fairly compensating neighbours that choose to sell to Alcoa by paying above market value for their properties.
- Providing certainty for both neighbours and Alcoa about the duration and terms of the programs.

From 2002 to the present, the Residential Acoustic Treatment Program and the Land Management Plan have been implemented by Alcoa, independent of any regulatory requirements. The development of this Noise Amelioration Plan formalises these existing programs.

Based on monitoring and modelling conducted by Alcoa, noise affected land has been found to be present within Area A, as described by the Wagerup Land Management Plan.

3. Wagerup Land Management Plan

The Wagerup Land Management Plan is a voluntary property purchase scheme initiated by Alcoa which enables people living in the immediate vicinity of the Wagerup Refinery, who feel impacted by the operations to sell their property to Alcoa.

The Wagerup Land Management Plan applies to properties located within two areas known as Area A and Area B.

Area A

The area immediately surrounding the refinery, delineated to the north and south by the refinery 35 dB(A) modelled noise contour and to the west by future expansion of the residue storage area. People residing within Area A may experience noise levels above the assigned levels allowed under the Regulations.

Area B

Incorporates the townships of Yarloop and Hamel. No environmental factors influenced Area B boundaries. Although Area B lies outside the modelled 35 dB(A) contour, refinery noise is still audible.

A key feature of the Land Management Plan is that it is voluntary. It enables current residents to make their own decision to stay or go. There is no requirement to sell property to Alcoa.

Under the Land Management Plan Alcoa purchases properties in Area A at 35% above unaffected market value and Alcoa contributes \$7000 towards relocation costs. The option to sell to Alcoa is available for the life of the Wagerup Refinery. Alcoa does not on-sell these properties.

Properties within Area B are purchased at unaffected market value. These properties are re-sold to help maintain property values and support the viability of the townships. Alcoa only buys individual properties once.

Information available to residents about the Land Management Plan is provided in Appendix A.

The Land Management Plan does not extend to properties outside of Areas A and B as these properties do not experience noise levels from the Wagerup Alumina Refinery above the assigned levels allowed under the Regulations.

3.1. Procedures Related to Implementation of Land Management Plan

It is Alcoa's intention to continue to implement the Land Management Plan in the manner that it has been implemented since 2002. All Area A neighbours are aware of the program and have advised Alcoa of their intentions². The basic process that will continue to be used during the period of the Approval is outlined below.

- Alcoa's Land Administrator(s) co-ordinate all aspects of the Land Management Plan.
- The Land Administrator maintains contact with Alcoa neighbours by letter, e-mail, telephone or face-to face meetings. Contact can be initiated by both the Land Administrator and/or the neighbour.

The method of contact and the frequency of any Alcoa initiated contact varies from neighbour to neighbour. This is primarily dependent on the wishes of each neighbour i.e. their feedback during the previous contact. In some cases, contact may be circumstantial, for example if the land administrator meets a neighbour while in the area.

For those willing to participate in discussions, frank and open communication is undertaken with the landholder, which includes consideration of the individual neighbour's issues and requests, while maintaining consistency to the Land Management Plan.

Where the landholder has made it clear they do not wish to participate in discussions, then Alcoa will respect this decision.

² It is unlikely that Alcoa will purchase all remaining private properties during the period of the Approval as some neighbours have indicated that they do not wish to sell to Alcoa during their life-time.

For most neighbours, brief records of contact are maintained by the Land Administrator to ensure that Alcoa has current information about their wishes and to ensure that periodic contact is maintained at a frequency that meets the neighbours expectations. These are informal notes that aim to record key discussion points and the date of contact.

One neighbour has requested that Alcoa does not keep any record of conversations with them. For this neighbour the only records of contact are property valuation reports and letters sent by Alcoa.

Periodically (roughly every two years) Alcoa will write to all remaining Area A neighbours reminding them of the Land Management Plan and Alcoa's wish to purchase their property. The latest letter was sent to neighbours in February 2014.

- If a neighbour indicates that they wish to sell their property, the Land Administrator will organise one independent valuation of the property and the landowner will organise another independent valuation of their property. Alcoa pays for both valuations. The valuation is based on:
 - Unaffected market value using the Harvey Waroona index.
 - 35% premium on market value.
 - Building Replacement value (optional at the request of the land owner).

Deriving valuations in this manner results in a premium price being offered to the neighbour. Alcoa is willing to consider lease back arrangements on a case-by-case basis' if requested by the neighbour.

The Alcoa Land Administrator is available to help the landowner initiate the valuation process and identify property features that could be highlighted to valuers if requested by the neighbour.

- Both valuation reports are provided to the land owner and Alcoa for review. Alcoa keeps a record of all property valuations, even those that don't proceed to a sale.
- Depending on the outcome of the valuation, the land owner can choose to:
 - End the process indefinitely.
 - End the process and request another valuation at another time. Alcoa will pay for two valuations then the land owner will need to pay for their own valuations.
 - Review the valuations to bring them within a margin of 10% if the variance is greater than 10%.
 - Enter into a formal contract of sale (formal real estate offer and acceptance process).

A key feature of the process is that it is the neighbour that decides how they wish to proceed. Alcoa will not coerce a neighbour to enter into a sale unwillingly, nor will it entice neighbours to sell by making offers that are inconsistent with the Land Management Plan.

- Alcoa keeps records of all neighbour decisions following a valuation, even those that don't proceed to a sale or are not written as formal offers.

- Alcoa has financial provisions in place to purchase properties at any time that a neighbour chooses to sell.
- Alcoa will not operate outside of the existing land management plan. Since this has been the basis of previous property purchases it is not considered fair to change the process.

For the remaining privately owned Area A properties, all valuations (historical and current) will be available for review by the independent auditor under clause 10(2)(b) of the Approval.

3.2. Use of Best Endeavours

During the period of the Approval, Alcoa aims to use best endeavours to implement the Land Management Plan within the existing land management plan framework. For the purpose of this Noise Amelioration Plan, best endeavours would be demonstrated by Alcoa's ongoing commitment to:

- purchase eligible properties in a manner that is consistent with the Land Management Plan framework.
- respect individual wishes of the neighbour (where this has clearly been communicated to Alcoa) by not pressuring them to participate in discussions or forcing them to sell property to Alcoa.

Use of best endeavours does not guarantee that Alcoa will acquire all remaining properties during the 2 year period of the Approval (or a longer timeframe), since the Land Management Plan is a voluntary program. Best endeavours needs to be viewed in light of the landholder's willingness to participate in discussions with Alcoa on the sale of their landholdings and ultimately their willingness to sell property to Alcoa under the terms of the Land Management Plan.

Alcoa is committed and willing to buy the remaining privately owned properties within Area A, but will not operate outside of the existing Land Management Plan since this is not considered fair to those that have already sold property to Alcoa, and will erode the certainty that the program aimed to achieve since implementation began in 2002.

4. Residential Acoustic Treatment Program

The Residential Acoustic Treatment Program is available to residents in Area A who do not wish to relocate under the Land Management Plan. The aim of the program is to reduce noise intrusion into a residence by conducting targeted modifications to the building. Again the program is voluntary.

If residents choose to investigate acoustic treatment options for their home, Alcoa organises to have their home assessed by an independent acoustic architect to identify the most effective building treatments to minimise noise intrusion. Following the assessment the resident may choose to proceed with modifications or not.

All assessment and modifications are conducted at Alcoa's cost, but are co-ordinated by a third party building contractor.

The decision to sell a property to Alcoa under the Land Management Plan is not affected if a resident chooses to have their home acoustically treated.

The program is available to private residents within Area A for the life of the Wagerup Refinery.

Information available to residents about the Residential Acoustic Treatment Program is provided in Appendix B.

5. Refinery Noise Emission Management Program

It is Alcoa's intention to ensure that the level of noise emitted from the Wagerup Refinery complies with regulation 7(1)(a) of the Regulations at all noise sensitive premises outside of Area A. Alcoa has implemented a noise management strategy with this as the primary aim.

If during the period of the Approval, there is a belief that residences outside of Area A receive noise from the refinery above the assigned levels allowed under the Regulations, Alcoa will conduct acoustic monitoring and/or acoustic modelling to determine if the noise levels are attributable to the Refinery.

If it is reasonably concluded that the noise levels are attributable to the Refinery, Alcoa will develop and implement a works program aimed at bringing noise levels back to the levels allowed under the Approval. Program development and implementation will be conducted in consultation with staff from the noise branch of the Department of Environment Regulation. Alcoa does not intend to modify the existing Land Management Plan or the Residential Acoustic Program during the works implementation period.

Appendix A

Wagerup Land Management Plan Information Sheet

Land management

Alcoa Wagerup Refinery

Alcoa implemented a land management strategy in 2001/02 which enabled people living in the immediate vicinity of the Wagerup refinery, who felt impacted by the operations, to sell their property to Alcoa. The strategy comprises of two areas shown on the adjacent image.

Area A - immediately surrounding the refinery; and Area B - the townships of Hamel and Yarloop.

The land management strategy is implemented by Alcoa and has no formal status in planning schemes or legislation. The characteristics of Area A and B are outlined here.

Area A

- Area A was delineated on to the north and south based on the 35dB(A) noise contour.
- It allows for future expansion of Alcoa's bauxite residue storage area to the west (the actual footprint of the refinery will stay the same, even if production is increased in the future).
- Alcoa does not on-sell properties purchased in Area A.
- Some Area A properties (northern Yarloop townsite) are rented out by Alcoa; sometimes to the previous owners.
- Properties in Area A are purchased at a premium of 35 percent above unaffected market value plus Alcoa contributes \$7000 towards residential relocation costs.

Area B

- Alcoa's land management strategy was extended to the townships of Yarloop and Hamel to enable people who owned property before 1 January 2002 to sell that property to Alcoa at unaffected market value. This area is known locally as Area B.
- No environmental factors influenced Area B boundaries. It was established to help ensure township viability into the future.
- Properties in Area B are resold to maintain property values and support the viability of the town sites.
- Alcoa will only purchase an Area B property once and no premium or relocation assistance is paid.
- Alcoa will purchase eligible properties after the property owners have marketed the property for sale on the open market for six months and they can demonstrate that they have been unable to sell the property.

Map of Area A and B



Legend

- Area A
- Hamel
- Yarloop

In September 2006 Alcoa agreed to use the 'Harvey Waroona Index' for valuations of property purchases in Area A and B. This means sales data from the townships of Harvey and Waroona will be considered in determining unaffected market value.

Note: The Supplementary Property Purchase Program (SPPP), established and administered by the WA government in 2006, is now closed.

For more information, please contact:

Community Relations Officer
Alcoa Wagerup Alumina Refinery
Ph: 9733 8768

Land Administrator
Ph: 9557 4087

Appendix B

Residential Acoustic Treatment Program



Australia's aluminium

July 2013

Residential Acoustic Treatment

Alcoa Wagerup Refinery

What is residential acoustic treatment?

Residential acoustic (sound) treatment is the term used for modifications made to houses to minimise noise intrusion into the building.

Alcoa will offer residential acoustic treatment to residents in area A only.

How does acoustic treatment work?

Acoustic treatment of houses is based on the principle that noise levels inside a building are less than those outside the building, especially when doors and windows are closed. Acoustic treatment of houses aims to maximise the noise reduction achieved by the building, by removing the pathways where external noise enters the building. Acoustic treatment reduces all external noise that enters the building including noise from industry, traffic and other environmental sources like wind, frogs and birds. It will reduce the overall noise levels within the house but not remove external noises totally.

What does acoustic treatment involve?

The modifications will differ from house to house, as the acoustic treatment required depends on the type of house and the specific pathways where noise enters the building. The treatment options might include one or a combination of the following:

- Installation of laminated glass windows or hermetically sealed double glazing
- Replacement of hollow doors with solid doors
- Closure of eaves
- Modification to ventilation and air conditioning systems

How is the appropriate residential acoustic treatment determined?

Specially trained acoustic architects assess the treatment needs of noise affected houses by interviewing householders about the type of noise experienced and the areas of the house that are most affected. The acoustic architect measures noise levels inside and outside the house to determine the pathways where noise enters the building.

A number of factors will influence the recommended treatment including:

- Level and type of noise
- Structure of the house e.g. brick and tile, fibro and iron
- Design of the house

Who will conduct the work?

If you would like to investigate options for acoustic treatment of your house, Alcoa will organise for an independent acoustic architect to visit your house to conduct an initial assessment. The acoustic architect will prepare a report outlining recommended treatments based on the information collected during this assessment. These recommendations will be discussed with you. Should you decide to proceed with the recommended treatment, Alcoa will contract an independent construction manager to conduct the modifications to your house.

How successful is residential acoustic treatment?

The success of the acoustic treatment depends on the house and the level and type of noise experienced. Acoustic treatments performed on houses in the vicinity of the Wagerup refinery have achieved overall noise reductions inside the house of between 3 decibels (dB) and 5 dB. Refinery noise may still be identified within the buildings, although at reduced levels.

Want to know more?

If you would like further information about residential acoustic treatment and possible options for your home please contact:

Community Relations Officer
Alcoa Wagerup Alumina Refinery
Ph: 9733 8768

Land Administrator
Ph: 9557 4087

Residential Acoustic Treatment

Alcoa Wagerup Refinery

Example of eaves closure



Noise entry pathway



Before treatment: Noise enters the house via the open eaves.

After treatment: The noise entry pathway is closed.

Example of window treatment



Before treatment: Replacement windows with 10mm laminated glass are sourced to match dimension and style of existing window.



After treatment: Final installation of 10mm laminated window.