

Triennial Audit Compliance Report 2020

**Ministerial Statement 728
(As Amended by Ministerial Statement 1069)**

**Wagerup Alumina Refinery
Production to a maximum capacity of 4.7Mtpa and associated
bauxite mining**

March 2021

Title page

TITLE : **WAGERUP ALUMINA REFINERY MINISTERIAL STATEMENT 728 (AS AMENDED BY STATEMENT 1069) AUDIT COMPLIANCE REPORT 2020**

DATE : March 2021

AUTHOR : Jaye Sampson, Wagerup Alumina Refinery Environment Manager

KEY WORDS : Wagerup Alumina Refinery, Department of Water and Environmental Regulation (DWER), Office of Environmental Protection Authority, Annual Compliance Report, Ministerial Statement 728, Alcoa of Australia Limited

ABSTRACT : This Triennial Audit Compliance Report summarises environmental performance for the 2018 to 2020 reporting period against the requirements of Ministerial Statement 728 (as amended by Ministerial Statement 1069) granted for the Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7Mtpa and Associated Bauxite Mining.

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Part A – General

1 Introduction

This report is submitted to the Department of Water and Environmental Regulation (DWER), Department of Jobs, Tourism, Science and Innovation (JTSI) and the Shire of Waroona in accordance with the conditions of, *the Alumina Refinery (Wagerup) Agreement and Acts Amendment Act 1978* and Ministerial Statement 728 (MS728) as amended by Ministerial Statement 1069 (MS1069). This Annual Audit Compliance Report is submitted to meet Condition 5 of MS728, as amended by MS1069 for Wagerup Alumina Refinery and associated Bauxite mining. It covers the period from 1 January 2020 to 31 December 2020.

During the reporting period 1 January 2018 to 31 December 2020, Wagerup Refinery operated under *Environmental Protection Act 1986* Part V Licence L6217/1983/15, last amended 10 November 2020 (Licence). A report detailing analysis of environmental monitoring conducted in accordance to the Licence is submitted separately to DWER for the 2020 calendar year reporting period by 1 April 2021.

Willowdale Mine supplies bauxite to Wagerup refinery to facilitate alumina production. Mining operations complied with the Mining Management Program as approved by the Minister for State Development. A report detailing the performance of the mine and research initiatives will be submitted to JTSI by 1 June 2021.

Further information is available from:

Jaye Sampson

Environmental Manager

Alcoa Wagerup Alumina Refinery

(08) 9733 8119

Jaye.Sampson@alcoa.com

2 Proposal Setting

Wagerup Refinery and associated bauxite residue storage facilities are located 120 km south of Perth, 2 km north of Yarloop and 7.5 km south of Waroona (**Figure 2-1**). Wagerup is located close to the foot of the Darling Scarp and is separated from the Residue Storage Areas (RSAs) by the South West Highway and the Perth-Bunbury rail line (**Figure 2-2**). Bauxite is supplied to Wagerup by overland conveyor from Alcoa’s Willowdale Bauxite Mine located 15 km to the east. Alumina produced at Wagerup is transported by rail to the Alcoa shipping terminal at Bunbury.

The refinery and residue operations are contained within freehold land owned by Alcoa. Land use on adjacent properties is primarily agricultural.

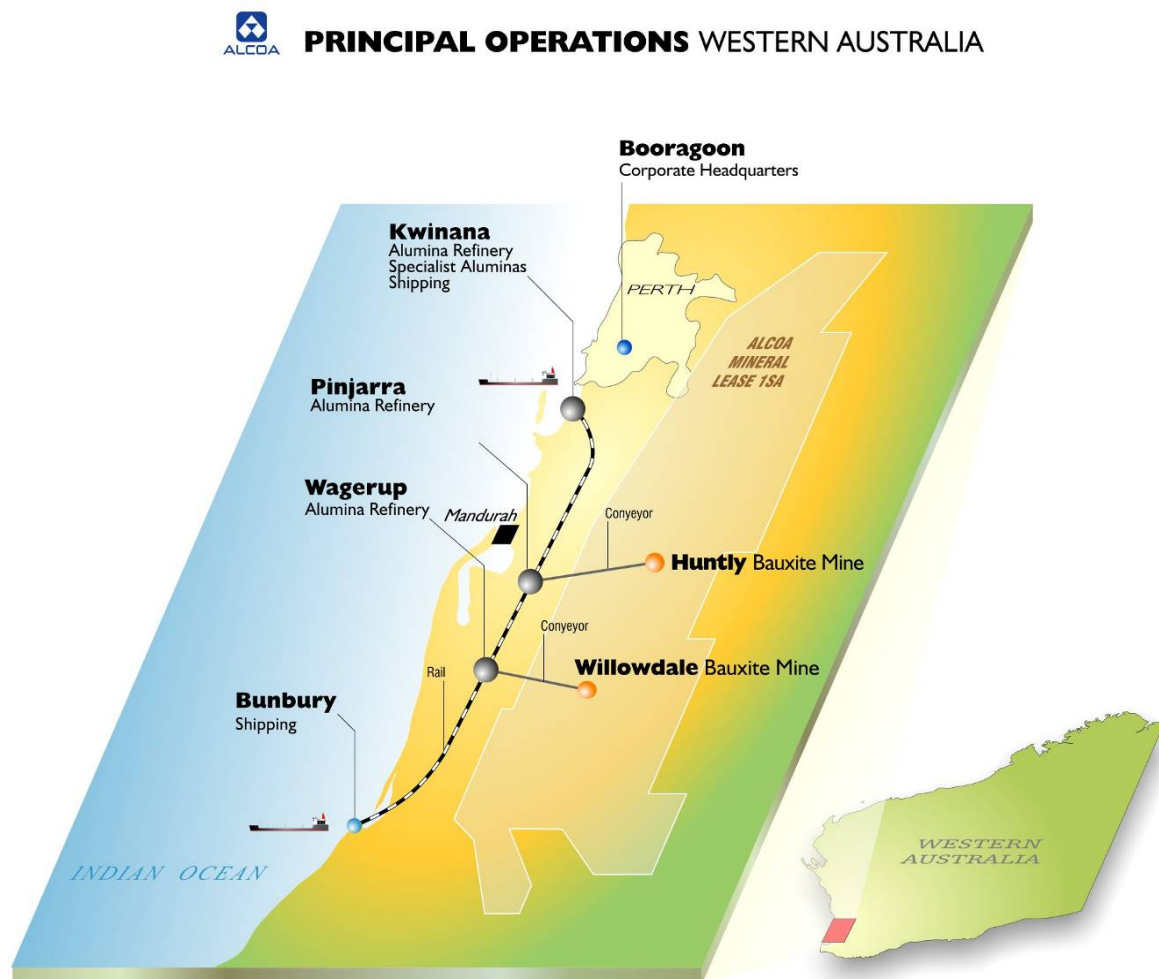


Figure 2-1 Location of Alcoa Operations in Western Australia

2.1 Process overview

Wagerup produces alumina from bauxite using the Bayer Process. The process involves four main steps: digestion; clarification; precipitation; and calcination. In addition, two other important activities occur on site, being: generation of power and steam; and residue management.

Digestion	Bauxite is milled to sand size particles and hot concentrated caustic soda solution is added making a bauxite slurry. The hot caustic dissolves the available alumina within the bauxite.
Clarification	Sand and clay (red mud) are settled out leaving an alumina rich 'green' liquor. The settled out sand and mud are washed and then pumped out to the residue storage area (RSA).
Precipitation	The hot 'green' liquor is cooled from approximately 100°C to 60-75°C causing alumina hydrate to crystallise. The liquor and hydrate are separated. The hydrate crystals are sized, and crystals of a suitable size are removed. Undersized hydrate crystals are returned to the process as seed crystals.
Calcination	Sized hydrate is washed and dried, then heated to 1000°C to drive off chemically bonded water leaving aluminium oxide (alumina).
Residue	For each tonne of alumina produced from Wagerup, approximately 2.5 tonnes of residue mud and sand are produced. The mud density is increased at the residue area through thickening prior to its final disposal in the RSAs. The sand is stockpiled and subsequently used for internal construction activities at residue.
Power and Steam Generation	Power and steam requirements for Wagerup are met by an onsite power station consisting of three boilers and a heat recovery steam generator (HRSG). The primary fuel supply for the power station is natural gas, with diesel available as a back-up fuel supply.

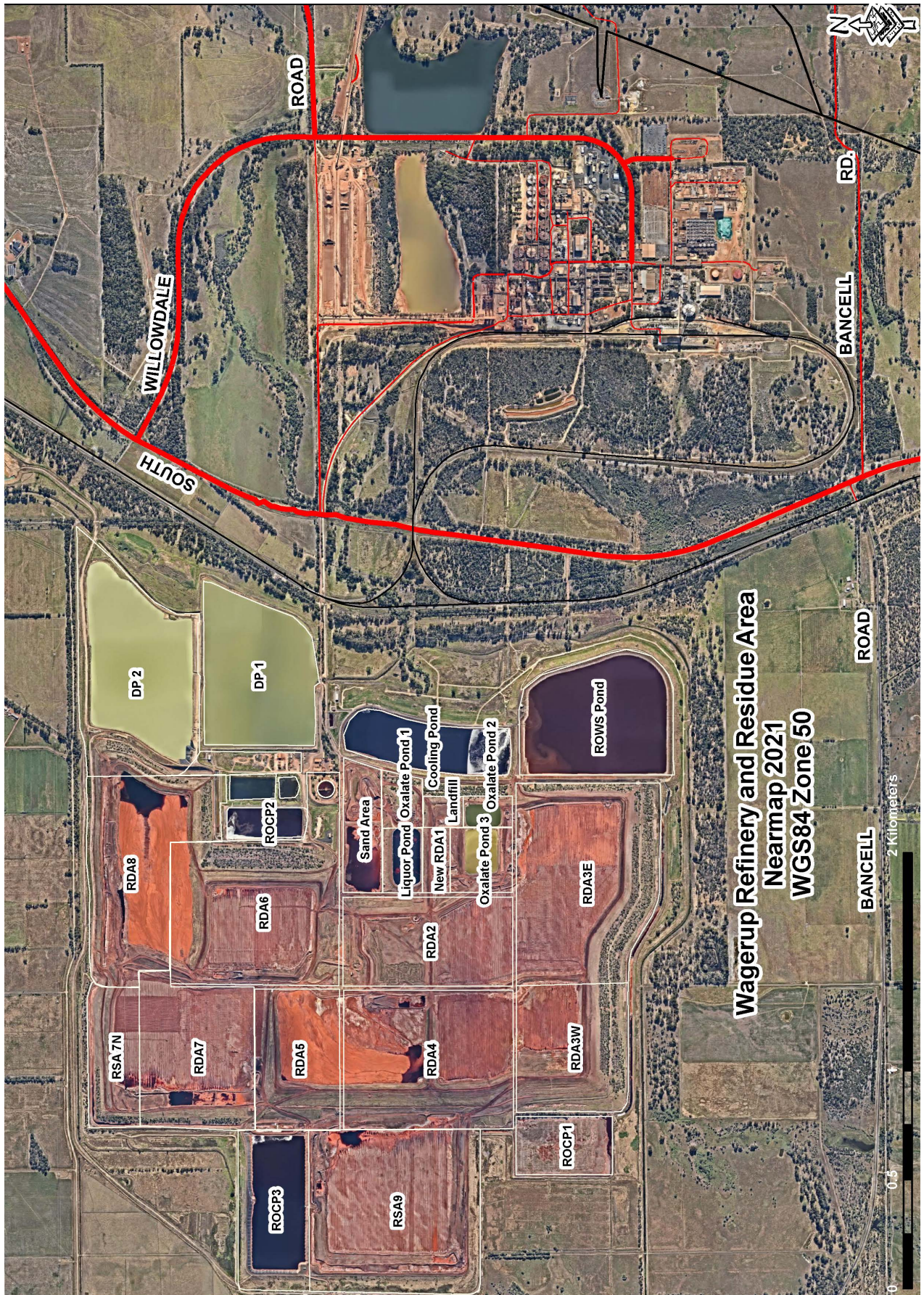


Figure 2-2 Current Aerial View of Wagerup Refinery and Residue Storage Area

3 Current Status

In May 2005, Alcoa submitted its Environmental Review and Management Programme to the Environmental Protection Authority (EPA), seeking approval to increase production from 3.3Mtpa to 4.7Mtpa. In September 2006, MS728 was released detailing the conditions of approval for expansion of Wagerup Refinery. The conditions of MS728 superseded Ministerial Statements 564, 390 and 95.

MS728, as amended by MS1069, relates to the ongoing operation of the Wagerup Refinery and a project to expand refinery production to 4.7Mtpa. The expansion project (Wagerup 3) has been suspended and accordingly, many of the Conditions within MS728 were not applicable during the period covered by this Annual Audit Compliance Report. The status of the current proposal, in accordance to Schedule 1 of MS728 (as amended) is provided in **Appendix A**.

3.1 History of amendments to Statement 728

In 2011, Alcoa sought an extension of the Environmental Approval for the Wagerup Unit Three Project MS728 due to being unable to substantially commence the project within the approval timeframe.

In May 2012, Alcoa received MS897 amending condition 4 of MS728 with a timeline extension to September 2016 to implement the proposal. An amendment was submitted in November 2015 seeking a change to condition 4 allowing a further 5 years of the approval. Two Interim Implementation conditions were issued in September 2016 and August 2017, allowing a one year timeline extension while an assessment was conducted into the change.

In December 2017, Alcoa received MS1069, providing a timeline extension to September 2022 to implement that portion of the revised proposal being the third production unit, as well as amendments to conditions in Part B of MS728 to clarify that they relate to that portion of the revised proposal being the third production unit.

During the assessment that resulted in MS728, Alcoa considered a single stage expansion for the refinery to 4.7 Mtpa. The proposal, commonly known as Wagerup 3, consisted of modifications to the existing refinery and installation of new equipment including a third production unit. Ongoing market conditions have not facilitated this approach to production growth and Alcoa is now evaluating the potential to increase refinery production in smaller increments.

In 2018, Alcoa commenced discussions with the EPA regarding this revised approach to refinery growth, to amend existing conditions under MS728 to reflect incremental production increases, initially up to 3.3Mtpa. Alcoa subsequently requested the initiation of an inquiry by the EPA into changing the conditions of MS728 to reflect incremental production increases, while maintaining the intent of the original conditions.

In October 2018, the Minister for Environment wrote to the EPA requesting that an inquiry be initiated into changing the Ministerial Conditions for the refinery. In September 2019, Alcoa submitted a formal application for Section 46 Review of Conditions to the EPA. The assessment was finalised and a new Ministerial Statement 1157 (MS1157) was issued on 7 January 2021. The conditions within MS1157 will be the subject of subsequent annual reports.

3.2 Compliance

During the reporting period, Alcoa has complied with all of its Conditions. See **Appendix B - Audit Table** for more information.

Part B – Research and Management Program

4 Monitoring Program

Alcoa undertakes a comprehensive environmental monitoring program as part of its obligations under key environmental licensing instruments related to the Wagerup Refinery.

During the reporting period 1 January 2020 to 31 December 2020, Wagerup Refinery operated under *Environmental Protection Act 1986* Part V Licence L6217/1983/15, last amended 10 November 2020. A report detailing analysis of environmental monitoring conducted in accordance to the Licence is submitted separately to DWER for the 2020 calendar year reporting period by 1 April 2021.

Willowdale Mine operates under *Environmental Protection Act 1986* Part V Licence L6465/1989/10, last amended 5 May 2020. A report detailing analysis of environmental monitoring conducted in accordance to the Licence is submitted separately to DWER for the 2020 calendar year reporting period by 31 March 2021.

Water monitoring was also conducted in accordance to the Wagerup Refinery Surface and Groundwater Operating Strategy as required by the Licence to Take Water instruments SWL97472(6), SWL99246(5), SWL151027(4), GWL102669(3) and GWL160881(3). Data is submitted to DWER for the 2020 calendar year reporting period by 31 March 2021.

An Annual Report is submitted to JTSI by 1 June each year that includes additional monitoring data and information about the Mining Operation's environmental management and research programs.

5 Investigations and voluntary air monitoring programs

As part of the 2004 Air Quality Review at Wagerup, CSIRO made a number of recommendations aimed at improving the understanding about air quality around the Refinery and Alcoa committed to implementing these recommendations. These commitments, in the form of an 'Air Quality Action Plan', were subsequently included in the Wagerup Refinery 2006 Environmental Improvement Plan. Progress against these actions was reviewed by the Wagerup Air Quality Technical Advisory Panel (TAP).

TAP was established in 2005 and consisted of representatives from DWER (then DEC), Chemistry Centre of Western Australia (CCWA), CSIRO, Alcoa and a community member from the Wagerup Tripartite Group. The role of this group was to assist in the development of project scopes, review and advise on whether the research and analysis conducted has adequately addressed the CSIRO Air Quality Review recommendations and provide direction for future investigations.

During 2010 and 2011 progress on the outstanding CSIRO actions stalled temporarily due to the disbandment of TAP and the Wagerup Tripartite Group. In 2012, Alcoa submitted a plan to DWER on completing the outstanding recommendations and at the end of 2014, all 8 of the outstanding recommendations had been presented to the CSIRO Resolution Committee.

DWER also requested that Alcoa Wagerup present a plan to conduct Odour and Volatile Organic Compounds (VOC) monitoring and modelling which accurately reflects current operations particularly targeting VOC emissions. Alcoa provided DWER with a VOC and Odour Monitoring and Modelling plan for approval in December 2012. Alcoa commenced actions from the plan in 2013 and in Q4 2015 Alcoa provided DWER with an updated emissions inventory and associated air quality model for the 2014 refinery configuration as part of the action plan commitments. Outcomes of the plan were presented to the Community Consultative Network (CCN) and published on Alcoa website in 2016.

Discussions continued with DWER on emission inventory improvements and Alcoa progressed with air quality modelling reviews in 2016 and into 2017. A trial of CALPUFF/WRF models to evaluate TAPM versus WRF meteorological prediction was completed, determining the continued use of TAPM to drive meteorological files for air quality modelling. Further work on the model progressed as part of the technical studies undertaken for MS728 air quality model validation, resulting in consultants proposing the final model selection of the CALMET/CALPUFF model suite.

Further emission inventory improvements continued in 2018 and 2019 and the '2018 Wagerup Refinery Emission Inventory' was submitted to EPA/DWER as part of the Section 46 application to review conditions of MS728. This is to define the current 'base emission rates' as current state rather than that defined in 2005 as part of the Environmental Review and Management Program.

An air quality modelling study for Wagerup Refinery was completed in 2020 using the CALMET/CALPUFF model suite. Output from this study was used to update the Tier 1 Health Risk Assessment for the Refinery.

As part of the Section 46 application to review conditions of MS728, Alcoa committed to an Emission Inventory Improvement Program, with 3-month, 12-month and 24-month sampling components. Sampling for the 3-month and 12-month programs has been completed, and the 24-month program is planned for 2021. Results of the monitoring programs will be used to update the site's emission inventory.

6 Noise management

6.1 Overview

Noise management is a key focus area at Wagerup. The program to reduce noise emissions from Wagerup began in 1995 when a source noise reduction program was developed in consultation with DWER (then DEC). Since this time, substantial noise reduction measures have been implemented.

Despite the success of the reduction programs, monitoring and modelling showed that Wagerup, like many other existing industrial sites in close proximity to residential areas, periodically exceeded the allowable noise levels. A noise management strategy aimed at achieving compliance with the Noise Regulations by reducing noise emissions onsite, applying for a variation to the allowable limits, and a property acquisition program was introduced.

Noise monitoring data has shown that the sound power level of Wagerup is relatively consistent over time. The level of noise emissions from Wagerup at any given location varies from time to time and is dependent on location and weather conditions. Due to the difficulty in quantifying the actual contribution of refinery noise at noise sensitive locations, computer modelling is used.

In July 2020 Wood Engineering Consultants (formerly SVT) conducted noise level monitoring using the '20 Location' abbreviated survey method. The purpose of the survey is to monitor noise levels within the refinery, along with relevant production and operational data, with the objective to observe any changes in overall noise emissions levels. The sound power levels observed during the 2020 survey are within the historical range of previous surveys as shown in **Figure 6-1**.

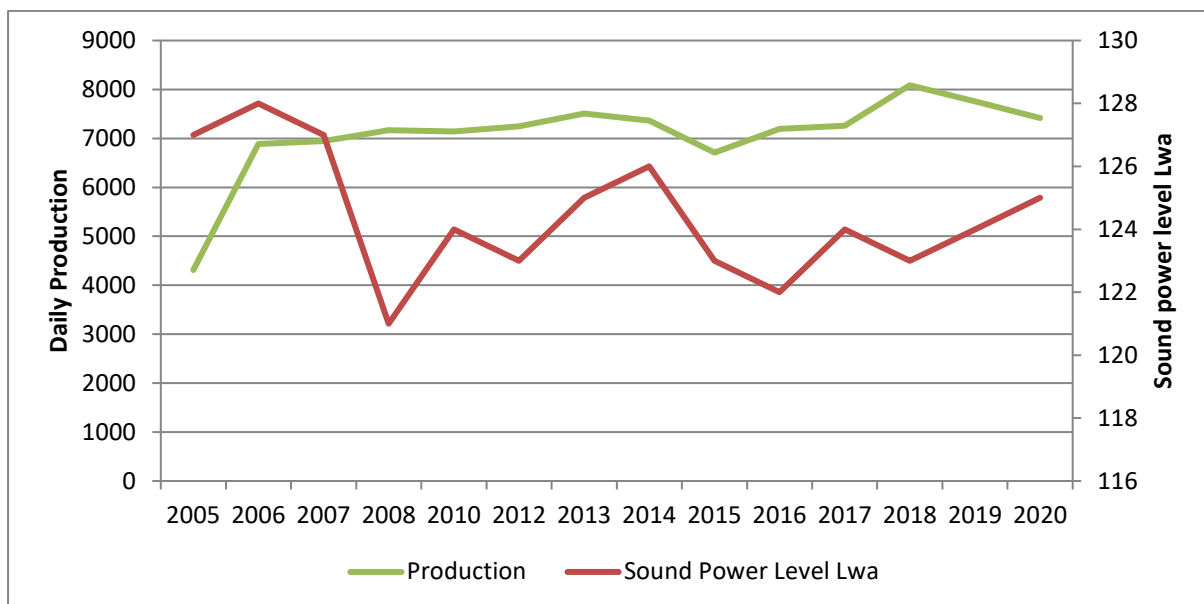


Figure 6-1 Summary of Wagerup sound power levels 20 location abbreviated method from 2005 to 2020

6.2 Noise variation

Despite noise reductions achieved to date, it is not technically feasible for Wagerup to comply with the noise levels specified in Regulation 8 of the *Environmental Protection (Noise) Regulations 1997* at

all times. The only manner by which Alcoa can practicably reach full compliance is through a variation under Regulation 17 or through further acquisition of property; or a combination of the two.

As a result, a variation to the Noise Regulations was sought in 2001. Alcoa submitted its final report to DWER for consideration in June 2008 and continued to work with DWER to progress this application throughout 2011. In June 2012, the *Environmental Protection (Wagerup Alumina Refinery Noise Emissions) Approval* was granted by the Minister; however, a number of appeals were received. The appeals investigation was finalised by the Minister in December 2013, and a variation to the Noise Regulations was granted with the release of the *Environmental Protection (Wagerup Alumina Refinery Noise Emissions) Amendment Approval 2013* (The Approval).

The Approval included conditions requiring noise monitoring, data reporting and a requirement to show 'best endeavours' in purchasing noise affected properties in the area (Area A). Alcoa was compliant with the conditions of the Approval.

During 2020 Alcoa continued to measure noise at the continuous monitors located in accordance with the requirements of the Approval to the North and South of the Refinery. Alcoa agreed to voluntarily report data collected from these monitors in this report. Alcoa commissioned Wood Engineering Consultants to review the data collected during 2020 and compare it to data collected in 2002-2003 (base year) and 2014 - 2019. Wood filtered the 2020 data set to reject measurements affected by wind or rain generated noise and to include only data recorded under down wind conditions, i.e. when the refinery is most likely the dominant contributor to noise received at the monitoring locations. This is the same methodology used to filter data for the previous reports submitted under the Approval.

Comparison focused on the L_{A95} noise level parameter to minimise the likelihood of spurious, short-term noise events affecting the measured data. The analysis shows that noise levels measured during 2020 are generally similar to levels measured in previous years as shown in **Figure 6-2** and **Figure 6-3**. Median noise levels at Location 2, south of the Refinery, were lower than 2019 during autumn and winter, but marginally higher than previous years in December. As the noise level is not consistently higher for 2020, this variation is not considered to be significant. The overall results suggest that Alcoa has successfully maintained the Refinery noise emission at the levels achieved following acoustic reduction programs conducted in the late 1990's and early 2000's.

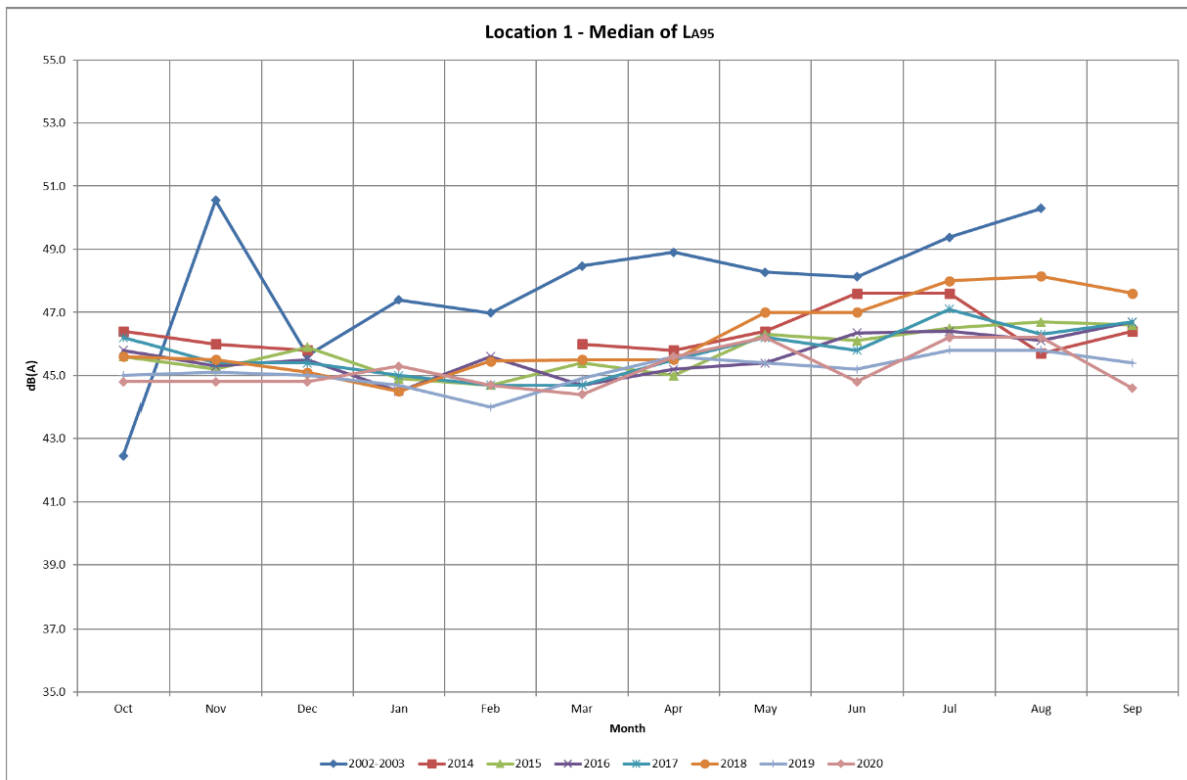


Figure 6-2 Comparison of noise levels measured at Location 1 (North Monitor) for base period (2002 – 2003) and 2014 – 2020

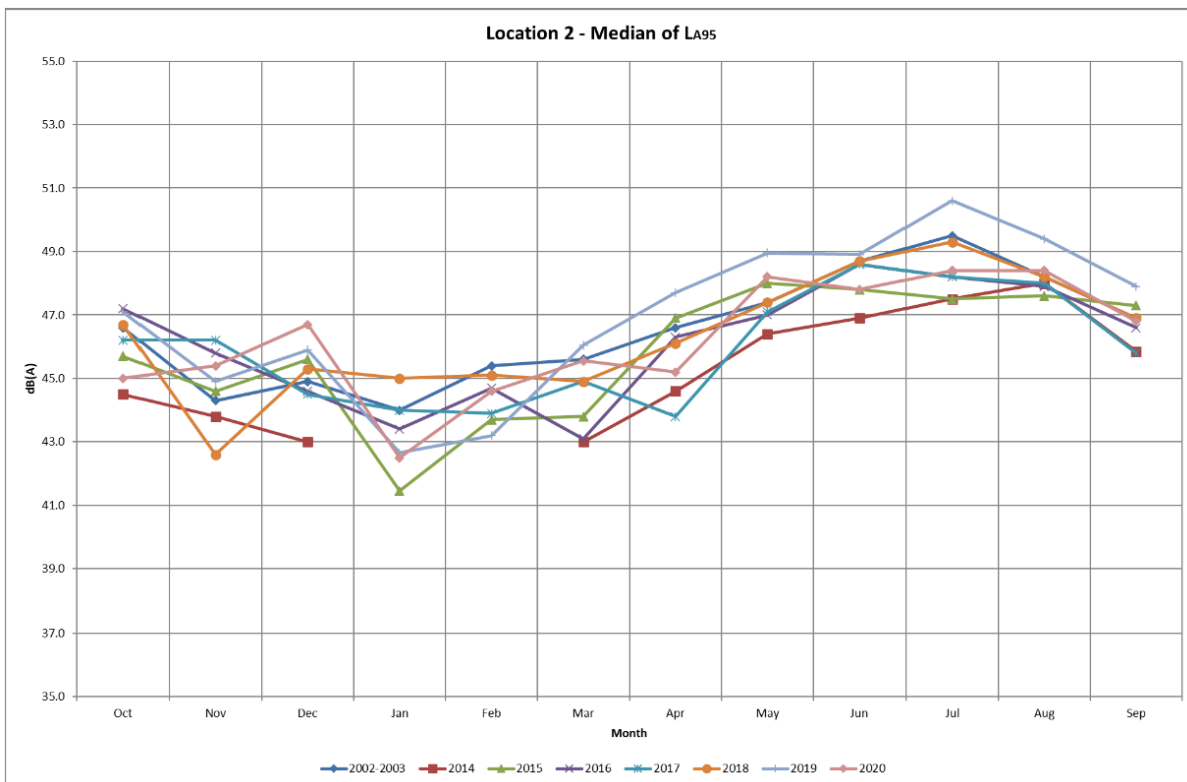


Figure 6-3 Comparison of noise levels measured at Location 2 (South Monitor) for base period (2002 – 2003) and 2014 – 2020

6.2.1 Variation extension application

The Approval had a two-year timeframe from 10 December 2013 to 10 December 2015. A ten-year extension to the Approval was available if Alcoa applied for the extension within the first 18 months of the Approval. Alcoa submitted an application to extend the Approval on 28 April 2015, so the Approval continues to operate until the Minister grants, or refuses to grant, the further approval.

In May 2016, DWER advised that the assessment of Wagerup's Regulation 17 extension application was dependent on the program of work Alcoa was implementing to re-build the Wagerup acoustic model, review the refinery contribution to noise levels at the Hamel town site and evaluate the reasonableness and practicability of further noise controls.

Alcoa commissioned SVT Engineering Consultants (SVT) to update the Wagerup model, identify key equipment items contributing to noise levels received at Hamel and review commercially available acoustic reduction technology that might be applied to Wagerup to achieve 3 and 4 dB(A) reductions at Hamel.

Alcoa used the noise mitigation scenarios developed by SVT to develop a cost estimate and conduct a practicability review to identify any implications for plant operability, plant maintainability and Occupational Health and Safety (OHS) of the refinery workforce.

At the time, this work led Alcoa to the view that further noise reduction at Wagerup was not reasonable or practicable. A report documenting the program of work completed in 2016 was submitted to DWER in October 2016. DWER has advised that this information will be reviewed as part of the variation extension application.

Alcoa commissioned a peer review of the acoustic modelling and source ranking conducted by SVT and this was submitted to DWER in February 2017.

In August 2017 DWER advised that following receipt of the updated Wagerup model the department would commence assessment of the Regulation 17 and issued an invoice for this assessment. This invoice payment was completed in August 2017 and the assessment commenced. DWER undertook consultation on the Noise Approval over the period December 2017 to January 2018. Alcoa is awaiting the outcome of the assessment and the Minister's determination.

7 Bauxite residue management

7.1 Long term residue management strategy (LTRMS)

7.1.1 Purpose of the LTRMS

The LTRMS document is designed to inform local and state governments and the wider community of Alcoa's long-term management strategies and commitments for a sustainable future in residue management. In particular, it outlines the current short term (5 year) and midterm (25 year) management strategies for residue at Wagerup, including issues such as:

- where future residue infrastructure will be located,
- the proposed height requirements for the residue areas, and
- how environmental risks associated with residue storage will be managed.

The LTRMS also addresses closure of the residue storage area, future land use options for the residue area after closure, and current research into residue management, reuse and revegetation. It is not intended to duplicate documents or processes already in place to address current operational management issues.

The report is designed to enable stakeholders to review both the longer term strategy and those projects on the immediate planning horizon. The LTRMS is anticipated to address the key information requirements of the planning and approval mechanisms for the five to seven-year period to which it relates, so that endorsement of this document by the Residue Planning and Liaison Group (RPLG) and the Ministers for State Development and Environment ensures streamlined approvals processes. Similarly, endorsement of the 25-year and life-of-mine planning footprints is designed to provide a basis for approval applications required for the longer term.

7.1.2 Review history

In 1992 as per MS95, condition 3 and proponent commitment 8 the Residue Planning Liaison Group (RPLG) was formed. The role of the RPLG was to facilitate the planning activity and to review and endorse the plans developed by Alcoa for submission to the Minister for State Development and the Minister for the Environment. The RPLG currently has membership from the Department of Jobs, Tourism, Science and Innovation (Chair and Coordination) (JTSI), Department of Water and Environmental Regulation (DWER), Department of Mines, Industry Regulation and Safety (DMIRS), Department of Planning, Lands and Heritage (DPLH), Water Corporation, Department of Agriculture and Food (DAFWA), Peel Development Commission and Shire of Waroona.

The Wagerup Refinery Long Term Residue Management Strategy (LTRMS) was developed in 1995 as a single document to meet the requirements of MS390 (now superseded), condition 3 and proponent commitment 11 (Superseded MS95). The strategy was approved by the Minister for the Environment in 1997.

Five yearly reviews of the LTRMS including RPLG consultation have been ongoing. In 2000 the first 5-year review was completed and endorsed by the RPLG and included some significant improvements to the strategy. Changes included:

- the addition of the Waroona Shire Council on the RPLG;
- the strategy's planning horizon was recommended to be reduced to 25 years, and
- the LTRMS was proposed to include more detailed facilities planning information for the 5-year review period to which it relates, to allow projects on the immediate planning horizon to be reviewed as part of the long-term strategy. This structure also aims to reduce duplication in the approvals processes by providing information necessary to support the planning and approval mechanisms for the 5-year period.

In the 2005 review, Alcoa addressed the Environment Review and Management Plan for the 4.7Mtpa expansion proposal to consult on footprint and stack height options for the expanded refinery. However due to expansion timeframes being unavailable, development of footprint options over the current 25-year planning period was difficult. To provide key stakeholders with further input on footprint options when the timing of the expansion is more certain, it was proposed to review the LTRMS again prior to commencement of construction of the expansion.

In 2006 MS390 was superseded by MS728, and conditions 13 and 16 replaced the previous requirements.

The revised plan was endorsed by the RPLG and submitted to the Minister for State Development in 2007 and published in 2008.

During 2012, the LTRMS was reviewed in consultation with a Stakeholder Reference Group to obtain advice and feedback on strategy options. The Stakeholder Reference Group included members from local community, local government and regulatory authorities.

The 2012 LTRMS review addressed residue infrastructure requirements for the life of the mine (2045) as well as the 25-year footprint requirements and the 5-7-year development plan. Key changes in environmental management and performance since the 2005 review were also presented; however, the focus on routine operational environmental issues was reduced in recognition of the development of the Environmental Improvement Plan (EIP) process. The EIP process, implemented in 2006, is designed to address environmental improvement opportunities for the refinery and residue area.

The 2012 LTRMS was submitted to the RPLG in December 2012. Following incorporation of the RPLG feedback the document was then submitted to the Minister for State Development in March 2013. It was endorsed by the Minister in June 2013.

During 2017, the process to review the LTRMS was commenced, starting with consultation with a Stakeholder Reference Group utilising a similar process to the 2012 review. The 2017 consultation process and subsequent document review introduced the potential future introduction of Residue Filtration at Wagerup Refinery, including new infrastructure requirements and likely impacts on future residue area development. Residue Filtration has been implemented at both the Kwinana Refinery and the Pinjarra Refinery. Feasibility studies and development of a project timeline for the potential introduction of residue filtration at Wagerup are yet to be completed. The 2017 LTRMS is available on the Alcoa website (<https://www.alcoa.com/australia/en/pdf/2017-wagerup-refinery-ltrms.pdf>)

7.2 Residue area development

There were no additional residue storage areas constructed in 2020.

7.3 Residue rehabilitation

Rehabilitation primarily occurs on the final outer residue sand embankments of the RSAs. Rehabilitation of these areas is progressive with the primary goal of establishing a sustainable ecosystem based on native plant species. Rehabilitation is designed to fulfil three major objectives:

- Improving the visual amenity of the external embankments;
- Preventing the generation of dust; and
- Enhancing the conservation value of the area.

Residue Embankment Rehabilitation areas were planted on RSA3, 4 and 7 in 2020 with native seedling tubestock. The effectiveness of the tubestock will be assessed in 2021 and further rehabilitation planned for 2022 if required.

7.4 Residue research

A brief summary of the applicable environmental research completed is provided below.

7.4.1 Residue re-use alternatives

A number of opportunities for residue re-use continue to be investigated as part of Alcoa's research and development program based at Kwinana. Alcoa's primary focus is currently on commercialisation of Red Sand™.

Reuse of Red Mud

Alkaloam® is the fine-grained residue often referred to as 'red mud'. Significant work has been done to show the benefits of adding this material to sandy soils (common in coastal regions of WA) to elevate the pH of acidic soils and retain phosphorous, reducing overall fertiliser use and protecting sensitive waterways. The technical, social and economic aspects of Alkaloam have already been comprehensively assessed and reported in the past. No additional research into using Alkaloam as a soil amendment is planned.

Alcoa also has active projects with external groups (Sao Paulo University, International Aluminium Institute (IAI), École Polytechnique Fédérale de Lausanne, Curtin University, etc) investigating the technical feasibility of using red mud in cement production. The primary focus will be on producing actual cement-based products using formulations that the team have tested/proven to date, evaluating performance, durability and leaching characteristics. Success in this field of research could potentially open large scale reuse opportunities for Red Mud.

An IAI-funded initiative to develop a Roadmap covering the potential use of bauxite residue in Portland Cement clinker production and Supplementary Cementitious Materials has been completed and is now available to the public. This Roadmap includes input from the alumina industry, the cement industry and academics, and provides the relevant information and support to address concerns, prejudices, technical and legislative barriers. In addition to the roadmap, an Excel-based tool has been developed for both alumina producers and cement producers to calculate the potential benefits of using bauxite residue in cement.

An exciting development resulting from the IAI Bauxite Residue in Cement working group is the successful application for European Union funding of €8.8M to investigate and develop technologies, required by both the Bauxite Residue producer and the cement producer, to make the large-scale use of Bauxite Residue as an Supplementary Cementitious Material in cement manufacture a reality. The project is made up of a consortium of 21 partners, led by cement giant LafargeHolcim, and including IAI Member companies along with various research and development and processing companies. The project kicked off in November 2020 and will run for 4 years.

Reuse of Red Sand™

Alcoa's residue sand is currently used for the construction of residue storage areas, with excess being stored within the residue storage areas. Alcoa has developed a process to wash and carbonate the sand so that it can be considered for use as a building and construction material. The resulting product is known as Red Sand™.

It is proposed that Red Sand™ be used in a number of applications that have been trialled and proven to perform equal to or better than virgin sand materials. These include top dressing of turf for recreational uses, road construction, and industrial land development. Red Sand™ is well structured and has improved phosphate retention properties compared to local sands. Red Sand™ has also been assessed as a growth medium for turf production, as a top dressing soil for golf courses, as a bunker sand for golf courses, for concrete production and as a general fill material for land reclamation.

The technology to produce Red Sand™ has been demonstrated through a pilot plant operated at Alcoa's Wagerup refinery with the sand produced from this plant used by the Department of Main Roads in a road construction trial on Greenlands Road (Pinjarra, Western Australia), and by Fairbridge Village (Pinjarra, Western Australia) to top-dress its main oval. The pilot plant has also been operated at Alcoa's Kwinana refinery with the sand produced being used to top-dress the Alcoa Social Club oval, a series of trials with various golf clubs, and an industrial land development trial in conjunction with Landcorp.

A range of health and risk assessments have been conducted on Red Sand™ to ensure its safe utilisation. These include:

1. An independent radiological assessment that has resulted in approval by the Radiological Council of Australia for the use of Red Sand in road construction and top dressing.
2. An independent health risk assessment that has been reviewed by the Department of Health, resulting in their endorsement of Red Sand™ for top dressing, road construction, and industrial land development.
3. An independent technical assessment, conducted by the Energy Research Centre of the Netherlands (ECN), has been undertaken to assess Red Sand™ against the Dutch Building Material Decree, a well-established set of criteria that are well referenced and used widely. The review did not identify any issues with the use of Red Sand in construction works within their framework.
4. An independent peer review of the Red Sand project has been conducted by KMH Environmental. The peer review process was commissioned to identify any potential risk associated with use of Red Sand, review these risks against the technical assessments and specialist investigations already conducted on Red Sand, and identify any technical gaps and recommendations for further work. The review concluded that Alcoa has taken an expansive approach to evaluating and assessing the Red Sand material. No significant gaps were identified in the review.

One of the major hurdles for the use and commercialisation of Red Sand™ has been the lack of a clear regulatory approval process within Western Australia. In December 2014, the then Department of Environment Regulation (now DWER) had developed a Waste Derived Material (WDM) assessment framework to help facilitate future by-product development and use. Alcoa has conducted the necessary risk assessment required as part of the guidelines resulting in the development a set of material specifications based on soil and water quality limits endorsed by the DWER. Alcoa prepared an application for Red Sand™, which also required review by an independent DWER accredited contaminated sites auditor prior to submission, as per the WDM guideline. The auditor report was supportive of Red Sand being used for the proposed applications (Road construction, industrial land

development, and top dressing recreational ovals). The final submission was made in early June 2016. Unfortunately, DWER have since removed the WDM administrative framework and responded to our application in July 2017 specifying that they would not make a formal determination on our application.

In October 2018 DWER released a factsheet entitled 'Assessing whether material is a waste' to provide guidance on determining whether material is 'waste' within the meaning of the EP Act and WARR Act. Alcoa have completed a review of this factsheet and do not consider Red Sand™ to be a waste. A Project team has reformed in 2020 to complete a business case and market assessment to progress commercial options for Red Sand™.

Alcoa has also led the implementation of leaching test methods developed in the European Union by the ECN into Western Australia, which has now been endorsed by DWER. Under a joint project with the Minerals Research Institute of Western Australia (MRIWA), the Chemistry Centre of WA and other industry sponsors, these leaching methods are currently being developed, applied and validated in Western Australia.

8 Community engagement

8.1 Overview

Throughout the reporting period Alcoa continued to engage with immediate neighbours, government representatives and community groups to discuss and encourage feedback on key aspects related to Wagerup operations and environmental performance.

Community meetings, local media articles and one-on-one discussions were utilised to provide information and seek community input on key aspects. Wagerup maintained a 24-hour/7-day free-call complaints response service throughout 2020. Community partnerships provide additional opportunities for interaction with the community to address and answer questions as they occurred.

8.2 Key stakeholders

Wagerup's key community stakeholders and community engagement forums are outlined below.

8.2.1 Neighbours

Residents living in towns between Waroona and Harvey are considered key stakeholders based on their proximity to Wagerup.

8.2.2 Wagerup Community Consultative Network

The Wagerup Community Consultative Network (CCN) was formed in June 2000. The CCN is an open forum with any interested party welcome to attend. The group has generally met monthly but shifted during 2010 to a bi-monthly program. It is comprised primarily of representatives from Waroona and Yarloop, the Shires of Waroona and Harvey and Alcoa Wagerup management.

Most meetings include a guest speaker who is available to respond to enquiries about topics relevant to the group. Community members are encouraged to raise matters with the CCN by writing or emailing to the Wagerup CCN Chairperson (an elected community member from the group) or by contacting one of the members directly.

CCN meeting minutes and locations (which rotate between Yarloop, Waroona and Wagerup Refinery) are published in the local paper to ensure broad community access to the information discussed. Due to Covid-19 restrictions the planned meeting for April was not held.

8.2.3 Local Government

Wagerup Refinery is situated in the Shire of Waroona, however Alcoa also has significant landholdings in the Shires of Harvey and Bunbury. Neighbours of the Refinery reside in both Waroona & Harvey Shires.

Regular contact was maintained with both Shires during 2020 through Council briefings and one-on-one discussions with Shire officers including Chief Executive Officers, Shire Planners, Shire Environmental Health Officers and Shire Community Services Officers. Topics ranged from property management, refinery operations, residue management through to community support.

8.2.4 State Government Representatives and Committees

Throughout the year the State Members for the South West region and the Federal Member for Forrest, were kept informed of the status of key issues via informal briefings and written communications.

In addition to the efforts of the Wagerup Community Relations Manager, the Pinjarra Refinery and Western Australian Operations Corporate Affairs provided briefings to the Federal member for Canning and State Member for Murray-Wellington and held morning forums with Local and State Government leadership of the Peel region.

Contact with opposition members of State Parliament has also been maintained through discussions and invitations to events hosted by Wagerup Refinery and personal meetings. Two topics that were highlighted to elected representatives in 2020 were the Part IV Approval for the Huntly Mine-Pinjarra Refinery operations (not directly related to Wagerup operations) and the S46 Variation for Wagerup Refinery.

8.2.5 Government Agencies and Departments

Regular communications were maintained through 2020 with DWER, Department of Health, South West Development Commission and DMIRS. Correspondence included responses to requests for information and reporting against operating licence conditions and statutory requirements.

8.2.6 Education Sector

Alcoa maintained its links with local schools during the year with schools continuing to receive both financial and in-kind support via sponsorship and education programs.

While Wagerup refinery continued to sponsor children's education programs for the primary school sector these were curtailed or modified during 2020 to comply with Covid-19 restrictions. All partnerships such as those with Youth Focus, Scitech, Earbus Foundation (focused on indigenous hearing in children) and Sculpture by the Sea were in some cases very limited due to incursion and excursion policies that were understandably put in place by the Education Department. Alcoa is in discussions with these organisations and intends to continue its support for the program as Covid restrictions are removed.

8.3 Community partnerships

Building robust and sustainable communities is the foundation of Alcoa's community partnership program. Consequently, Alcoa seeks out partnerships that help it to:

- support social innovation and enterprise;
- value social capital;
- build social infrastructure; and
- facilitate social inclusion.

All partnership applications are reviewed in relation to four focus areas:

- Environment and Conservation;
- Leadership and Innovation;
- Health and Safety; and
- Building Capacity.

In relation to 'Environment and Conservation', Alcoa as a world leader in environmental sustainability has taken a global leadership position on addressing climate change inside its operations, across the industry and within its communities.

Partnerships in this area:

- Increase the number of individuals participating in environmental sustainability programs
- Address specific environmental concerns as they relate to Alcoa operations
- Seek out solutions to environmental challenges through policy and research

In what is the longest running corporate/not-for-profit environmental partnership in Australia, Alcoa continued to provide funding and in-kind support to Greening Australia for their work in the Peel-Harvey Catchment area. This is supported at two levels by both Alcoa of Australia and the Alcoa Foundation.

Each of the Wagerup Sustainability Fund accounts held by the respective Shires of Waroona and Harvey now hold more than \$1.9 million in capital reserves. Contributions to these Funds are based upon the annual production of Wagerup which saw more than \$460,000 divided between each account in 2020.

Both the Harvey & Waroona Alcoa Sustainability Funds held distribution rounds in 2020. Projects in the Shire of Waroona receiving support included the Preston Beach Golf Club, Lake Clifton Residents Association, Waroona Men's Shed and the Waroona Lions Club. In the Shire of Harvey, the fund helped support the Harvey Golf Club, Harvey Bulls Football Club, Harvey Drug Action Group and the Brunswick Bowling Club.

A key function of the Sustainability Funds has been the capacity for it to assist with the initial commitment to kick off 'community contribution' funding for local projects that are sort by State and Federal Government funding programs before they will co fund. This is having the effect of leveraging the value of the funds held by the Sustainability Fund. Conservative evaluation puts the total value of projects supported by the two sustainability funds at nearing \$12 million to date.

Due to Covid-19 Wagerup's community engagement through volunteer activities was restricted. It was resumed in Q4 with several initiatives undertaken. Although volunteering was reduced the Alcoa Foundation's ACTION program was maintained. Beneficiaries were eligible to claim a \$3,000 ACTION grant from Alcoa regardless of if the event proceeded. In 2020 this resulted in \$30,000 being provided to community groups where Wagerup employees volunteer their time.

Alcoa also continued its corporate support for Youth Focus throughout 2020. This organisation delivers services to local schools and the community of the Peel-Harvey region in relation to depression and suicide among teenagers. Their programs provide support to individuals and educate students and schools in how to read the initial signs of depression, provide help and seek professional assistance.

Appendix A

Current status of proposal

Table 1: MS728 Schedule 1, Key Proposal Characteristics – current status

Element	Units	Column One Current Refinery (As at 2005)	Column Two Authorised Extent 4.7Mtpa Expansion	Column Three Current Status
Physical Elements				
Refinery footprint	Hectares	183	183	183
Production				
Alumina Production	Mtpa	Approximately 2.4	Approximately 4.7	2.9 <i>Environmental Protection Act 1986 Part V Licence L6217/1983/15 amendment granted in 2020</i>
Raw Materials				
Bauxite mining rate	Mtpa	9	16	10.73
Caustic Soda (dry)	Tpa	141,000	282,000	188,100
Lime	Tpa	110,000	200,000	137,130
Water	MLpa	4,800	9,600	6,095
Residue Disposal				
Bauxite residue	Mtpa	4.8	9.6	5.61
Main Equipment Components				
Milling		<ul style="list-style-type: none"> • 3 SAG Mills 	<ul style="list-style-type: none"> • Increased milling capacity 	No change from column one
Ore Stockpiles		<ul style="list-style-type: none"> • Stockpile reclaimer and conveyor • 2 stockpiles plus one emergency 	<ul style="list-style-type: none"> • New reclaimer and conveyors • New dust suppression and cleaning system for conveyor 	No change from column one
Slurry Storage		<ul style="list-style-type: none"> • 4 slurry tanks 	<ul style="list-style-type: none"> • New slurry tanks 	No change from column one
Digestion		<ul style="list-style-type: none"> • Digester banks and flash vessels • Vapour Condenser 	<ul style="list-style-type: none"> • Increased digestion capacity • New and upgraded pumps 	No change from column one
Evaporation		<ul style="list-style-type: none"> • Evaporation units • Heat interchange units 	<ul style="list-style-type: none"> • New evaporation units • New heat interchanger 	No change from column one
Lime		<ul style="list-style-type: none"> • 1 lime silo 	<ul style="list-style-type: none"> • Upgrade lime storage and associated equipment 	No change from column one
Clarification		<ul style="list-style-type: none"> • Sand removal units • Washers, thickeners • Filter tanks and presses 	<ul style="list-style-type: none"> • New filter presses • New and upgraded washer facilities • New cyclone system 	No change from column one
Residue Disposal Area (RDA)	ha	<ul style="list-style-type: none"> • Approx. 180 hectares required for drying and storing residue 	<ul style="list-style-type: none"> • Dry stacking area not to exceed 275 hectare drying area • New sand separation 	<ul style="list-style-type: none"> • Dry stacking area 196.35ha • Sand lake wet sand area 4.54ha • Oxalate pond 6.59ha

		Column One	Column Two	Column Three
Element	Units	Current Refinery (As at 2005)	Authorised Extent 4.7Mtpa Expansion	Current Status
			<ul style="list-style-type: none"> Sand Lake wet sand area not to be increased by more than 50% No wet stacking area Oxalate pond not to increase by more than 1 hectare Upgrade RDA sprinkler system 	<ul style="list-style-type: none"> RDA sprinkler system upgrade completed in 2019
Precipitation		<ul style="list-style-type: none"> Precipitation and seed filters Thickeners and liquor tanks Cooling towers and cyclone clusters 	<ul style="list-style-type: none"> New precipitators and seed filters New thickeners and liquor tanks Additional cooling capacity New cyclone clusters 	<ul style="list-style-type: none"> No change from column one
Oxalate removal		<ul style="list-style-type: none"> Decommissioned oxalate kiln 	<ul style="list-style-type: none"> Oxalate kilns with regenerative thermal oxidiser (RTO) 	<p>Oxalate kiln recommissioned in 2013 under Part V <i>Environmental Protection Act 1986</i> Works Approval W4587/2009/1.</p> <ul style="list-style-type: none"> Oxalate Bioremoval Facility commissioned in 2020 under Part V <i>Environmental Protection Act 1986</i> Works Approval W6104/2017/1
Liquor Burning		<ul style="list-style-type: none"> Liquor Burning 	<ul style="list-style-type: none"> Install an RTO 	RTO Installed 2006
Calciners		<ul style="list-style-type: none"> 4 calciner units 100 metre multiflue for calciners 1, 2 and 3 	<ul style="list-style-type: none"> 2 new calciners with multiflue No. 4 calciner connection to multiflue 	No change from column one
Alumina Storage		<ul style="list-style-type: none"> 2 alumina storage bins and alumina conveyors 	<ul style="list-style-type: none"> Additional alumina storage Upgrade or additional conveyor 	No change from column one
Powerhouse (optional) ¹		<ul style="list-style-type: none"> Turbo alternators and boilers Gas turbine with steam generator 	<ul style="list-style-type: none"> 2 new 270 tph boilers 2 new turbo alternators 	No change from column one
Port Facilities		<ul style="list-style-type: none"> Alumina storage and handling facilities 	<ul style="list-style-type: none"> Upgraded alumina handling facilities 	No change from column one
Water Supply		<ul style="list-style-type: none"> Licensed surface water sources 	<ul style="list-style-type: none"> Increased surface water supply 	No change from column one
Abbreviations:			tph: tonnes per hour	
Mtpa: million tonnes per annum			Mlpa: million litres per annum	
tpa: tonnes per annum			MW: megawatts	
Note: 1: An option for 2 new 270tph boilers providing electricity and steam for the Refinery. This option will cease if the Wagerup Cogeneration Plant, referred to in EPA Bulletin 1215, Appendix 5 is implemented.				

Appendix B

2020 Audit Table



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Note:

- Phases that apply in this table = Pre-Construction, Construction, Operation, Decommissioning, Overall (several phases).
- This audit table is a summary and timetable of conditions and commitments applying to this project. Refer to the Minister's Statement for full detail/precise wording of individual elements.
- Code prefixes: M = Minister's condition, P = Proponent's commitment.
- Acronyms list: CEO = Chief Executive Officer of OEPA; DEC = Department of Environment Regulation; DPAW = Department of Parks and Wildlife; DIA = Department of Indigenous Affairs; DMP = Department of Mining and Petroleum; DMIRS = Department of Mines Industry Regulation and Safety ; DWER = Department of Water and Environmental Regulation; EPA = Environmental Protection Authority; DoH = Department of Health; DoW = Department of Water, Minister for Env = Minister for the Environment; OEPA = Office of the Environmental Protection Authority.
- Compliance Status: C = Compliant, CLD = Completed, NA = Not Audited, NC = Non – compliant, NR = Not Required at this stage. Please note the terms VR = Verification Required and IP = In Process are only for OEPA use.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
728:M1.1	Implementation	The proponent shall implement the proposal as documented and described in schedule 1 of this statement and previous Assessment Bulletins, subject to the conditions and procedures of this Implementation Statement.	As per any designs, specifications of schedule 1 of Statement 728 and EPA report as well as, plans or other technical material submitted with the Works Approval Application.	Annual Compliance Report (CR)	Overall		C	Proposal not implemented as project is currently under suspension.
728:M2.1	Proponent Environmental Management Commitments	The proponent shall fulfil the environmental management commitments contained in schedule 2 of this statement.	Refer to comments provided for schedule 2 (1) to (13)	CR	Overall		C	Refer to comments provided for Schedule 2 (1) to (13) labelled 728:P1 to 728:P13 below.
728:M3.1	Proponent Nomination and Contact Details	The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person as the proponent for the proposal.	Letter to the Minister for Environment outlining any changes to the proponent.	CR	Overall		C	No change to proponent during the reporting period.
728:M3.2	Proponent Nomination and Contact Details	If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent under section 3 (6a) and provide the name and address of the person who will assume responsibility for the proposal, together with a letter from that person which states that the proposal will be carried out in accordance with the conditions and procedures of this statement, and documentation on the capability of that person to implement the proposal and fulfill the conditions and procedures.	Letter to the Minister for Environment providing details of new proponent and confirming they will fulfill all obligations of approval.	Letter to Minister for Environment requesting change to proponent.	Overall		C	No change to proponent during the reporting period.
728:M3.3	Proponent Nomination and Contact Details	The nominated proponent shall notify the Department of Environment and Conservation of any change of the name and address of the proponent within 30 days of such change.	Letter to DWER outlining any changes to the proponent within 30 days.	Letter to DWER notifying change of name and address.	Overall	Within 30 days of such change.	C	No change to proponent during the reporting period.
728:M4.1 (As Inserted)	Time limit of approval to commence	The proponent shall not commence implementation of that portion of the revised proposal being the third production unit after 27	Letter to DWER providing evidence that proposal has substantially	Letter including photographic evidence sent to DWER to confirm that project has	Construction	By 27 September 2022.	NR	Proposal has not been commenced.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
by MS1069)		September 2022, and any commencement prior to this date must be substantial.	commenced by 27 Sept 2022.	substantially commenced.				
728:M4.2 (As Inserted by MS1069)	Time limit of approval to commence	Any commencement of implementation of that portion of the revised proposal being the third production unit on or before 27 September 2022 must be demonstrated as substantial by providing the Chief Executive Officer* with written evidence, on or before 27 September 2022.	Letter to DWER providing evidence that the proposal has substantially commenced by 27 September 2022.	Letter including photographic evidence sent to DWER to confirm that project has substantially commenced.	Construction	By 27 September 2022.	NR	Proposal has not been commenced.
728:M5.1	Compliance Reporting	<p>The proponent shall submit annually an audit compliance report, for the previous twelve-month period.</p> <p>The audit compliance report shall:</p> <ol style="list-style-type: none"> be endorsed by the proponent's Managing Director or a person, approved in writing by the Department of Environment and Conservation, delegated to sign on the proponent's Managing Director's behalf; include a statement as to whether the proponent has complied with the conditions, procedures, commitments and actions within the Environmental Management Plans; identify all non-compliance and describe the related corrective and preventative actions taken; review the effectiveness of all corrective and preventative actions taken; provide verifiable evidence of compliance with all the conditions, procedures and commitments; describe the state of implementation of the proposal; and <p>be prepared in accordance with an audit program and in a format acceptable to the Department of Environment and Conservation.</p>	Submit an Audit Compliance Report to DWER annually.	CR	Overall		C	The most recent Audit Compliance Report was submitted in March 2020 for the period January 2019 to December 2019.
728:M5.2	Compliance Reporting	The proponent shall make the audit compliance report publicly available in a manner approved by the Department of Environment and Conservation.	Make the audit compliance report publicly available through publication on the Alcoa website.	CR	Overall		C	The 2019 Audit Compliance Report was published to the Alcoa website.
728:M6.1	Performance Review	<p>The proponent shall submit a Performance Review Report to the Environmental Protection Authority every five years after commissioning of the revised proposal, which addresses:</p> <ol style="list-style-type: none"> the major environmental issues associated with implementing the project, the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives; 	Submit a report to EPA every 5 years after commissioning.	Performance Preview Report (PPR) submitted every five years after the commissioning of the revised proposal.	Overall		NR	Condition not triggered during reporting period.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		2. the level of progress in the achievement of sound environmental performance, including industry benchmarking and the use of best available technology where practicable; 3. significant improvements gained in environmental management, including the use of external peer reviews; 4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; the proposed environmental objectives of the next five years, including improvements in technology and management processes.						
728:M7.1	Decommissioning Plan	Within two years following the date of this Statement, the proponent shall prepare a Preliminary Decommissioning Plan for approval by the Department of Environment and Conservation, which describes the framework to ensure that the site is left in an environmentally acceptable condition, and provides: <ol style="list-style-type: none"> the rationale for the siting and design of plant and infrastructure as relevant to environmental protection; a conceptual description of the final landform at closure; a plan for a care and maintenance phase; and initial plans for the management of noxious materials.	Submit Preliminary Decommissioning Plan to DEC for approval by 14 September 2008.	Preliminary Decommissioning plan submitted.	Operation		CLD	Preliminary Decommissioning Plan was submitted to DEC (now DWER) on 12 September 2008.
728:M7.2	Decommissioning Plan	At least six months prior to the anticipated date of closure, or at a time agreed by the Environmental Protection Authority, the proponent shall submit a Final Decommissioning Plan designed to ensure that the site is left in an environmentally acceptable condition prepared on advice of the Environmental Protection Authority, for approval of the Department of Environment and Conservation.	Submit a Final Decommissioning Plan at least six months prior to the anticipated date of closure, or at a time agreed by the EPA. Prepare the plan in liaison with the EPA for approval by DWER.	Final Decommissioning plan submitted.	Operation	6 months prior to anticipated closure.	NR	Condition not triggered during reporting period.
728:M7.3	Decommissioning Plan	The proponent shall implement the Final Decommissioning Plan required by condition 7-2 until such time as the Minister for the Environment determines, on advice of the Department of Environment and Conservation, that the proponent's decommissioning responsibilities are complete.	Implement the actions detailed in the final decommissioning plan until Minister for Environment determines, on advice of DWER that the proponents decommissioning	CR	Decommissioning	6 months prior to anticipated closure.	NR	Condition not triggered during reporting period.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			responsibilities are complete.					
728:M7.4	Decommissioning Plan	The proponent shall make the Final Decommissioning Plan required by condition 7-2 publicly available in a manner approved by the Department of Environment and Conservation.	Publication of the final decommissioning plan.	CR	Operation	6 months prior to anticipated closure.	NR	Condition not triggered during reporting period.
728:M8.1 (As Amended by 1069)	Best Practice Pollution Control Measures to be Applied	Prior to submitting a Works Approval application (under Part V of the Environmental Protection Act 1986) for works included in that portion of the revised proposal being the third production unit, as documented and described in Schedule 1, the proponent shall prepare and submit a Detailed Design Report that details the best practice pollution control measures employed to minimise emissions from the Refinery, to the requirements of the Minister for the Environment, on the advice of the Environmental Protection Authority.	Submit a Detailed Design Report (DDR) to the Minister for Environment.	Detailed Design Report Submitted.	Pre-construction		NR	Condition not triggered during reporting period.
728:M8.2	Best Practice Pollution Control Measures to be Applied	The Detailed Design Report shall address how the design emission targets in condition 8-1 will be met during stable operations. The Detailed Design Report shall also address how best practice will be applied to minimising emissions during unstable operating conditions such as during shut-down, start-up, and equipment failure.	DDR to outline how design emission targets will be met during stable operations and how best practice will be applied to minimise emissions during unstable operating conditions such as start-up, shut-down and equipment failure.	Detailed Design Report Submitted.	Pre-construction		NR	Condition not triggered during reporting period.
728:M8.3	Best Practice Pollution Control Measures to be Applied	In the case where best practice pollution control measures do not achieve the individual reductions in base emission rates in condition 8-1, the Detailed Design Report shall provide alternative measures to achieve equivalent overall reductions.	DDR to outline alternative measures to achieve equivalent overall reductions should best practice pollution measures not achieve the individual reductions in 728:M8.1.	Detailed Design Report Submitted.	Pre-construction		NR	Condition not triggered during reporting period.
728:M8.4	Best Practice Pollution Control Measures to be Applied	The Detailed Design Report referred to in condition 8-1 shall be subject to independent peer review (refer to Procedure 1).	DDR to be reviewed by IDRT (refer to procedure 1).	Independent Peer review of Detailed Design report conducted.	Pre-construction		NR	Condition not triggered during reporting period.
728:M8.5	Best Practice Pollution Control Measures to be Applied	Notwithstanding the requirements of conditions 8-1, 8-2, 8-3 and 8-4, the proponent may implement individual works of this proposal, as described in schedule 1 of this statement, subject to the requirements of a Works Approval and Licence under Part V of the Environmental Protection Act 1986, on the proviso that the individual works: <ul style="list-style-type: none"> (i) have effect in reducing or offsetting emissions from the existing refinery, where possible; and 	Submit a Works Approval Application if individual works of the proposal need to be implemented.	Works Approval Application submitted for individual works where appropriate.	Overall		C	Part V Approval L6217/1983/15 allowing alumina production to 2.9Mtpa.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		do not significantly increase the production capacity of the refinery.						
728:M9.1 (As Amended by 1069)	Air Dispersion Model Validation	Prior to submitting a Works Approval application (under Part V of the Environmental Protection Act 1986) for works included in that portion of the revised proposal being the third production unit, as documented and described in Schedule 1, the proponent shall carry out data acquisition and investigations for the purpose of validation of air dispersion model predictions of ground level concentrations in the Environmental Review and Management Program (May 2005) and associated documents, to the requirements of the Minister for the Environment, on advice of the Environmental Protection Authority.	Undertake and report to the Minister for Environment all data acquisition and investigations outlined in 9-1 (1 to 6).	Provision of: 12 months of meteorological data from escarpment met station 12 months of vertical profile temperature & wind velocity measurements 12 months of meteorological data from up to 2 additional stations located on the coastal plain Investigation into building wake dispersion scheme Investigation into validity of modeled plume rise behaviour. 12 months of base case emission rate data for Liquor burner, calciner, 25A tank vent, 35A tank vent, 35J tank vent and cooling tower sources. Revised emission rates from detailed design report to be documented.	Pre-construction		NR	Condition not triggered during reporting period.
728:M9.2	Air Dispersion Model Validation	The proponent shall make use of the results of the data acquisition and investigations, referred to in condition 9-1, to: 1. validate the performance of the dispersion model; and 2. provide detail on whether ground level concentrations achieve the predictions presented in the Environmental Review and Management Program (May 2005) and associated documents, both in the near field and the far field, up to ten kilometers from the multiflue stacks. This work shall be carried out to the requirements of the Minister for Environment on advice from the Department of Environment and Conservation.	Validate the air dispersion model through incorporation of data obtained through M9.1 Provide detail on whether ground level concentrations reasonably achieve the predictions presented in the Environmental Review and Management Program (May 2005) and associated documents, both in the near field and the far field, up to ten kilometers from the multiflue stacks.	Modelling report	Pre-construction		NR	Condition not triggered during reporting period.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
728:M9.3	Air Dispersion Model Validation	In the case that the validation of the dispersion modelling, referred to in condition 9-2, does not reasonably demonstrate that ground level concentrations similar to that predicted in the Environmental Review and Management Program (May 2005) and associated documents will be achieved, the proponent shall make revisions to the detailed engineering design and repeat the air dispersion modelling until reasonable achievement is demonstrated.	Review the detailed engineering design and repeat modelling until reasonable achievement with Ground Level Concentrations (GLCs) predicted in ERMP (2005) is demonstrated.	Modelling report	Pre-construction		NR	Condition not triggered during reporting period.
728:M9.4	Air Dispersion Model Validation	Notwithstanding the requirements of conditions 9-1, 9-2 and 9-3, the proponent may implement individual works of this proposal, as described in schedule 1 of this statement, subject to the requirements of a Works Approval and Licence under Part V of the Environmental Protection Act 1986, on the proviso that the individual works: <ul style="list-style-type: none"> (i) have effect in reducing or offsetting emissions from the existing refinery, where possible; and do not significantly increase the production capacity of the refinery.	Submit a Works Approval Application for implementation of individual works that shows that the individual works. <ol style="list-style-type: none"> 1. have effect in reducing or offsetting emissions for the existing refinery, where possible; 2. do not significantly increase the production capacity of the refinery. 	Technical information to be submitted with the Works Approval Application if individual works are implemented.	Construction		C	Part V Approval L6217/1983/15 allowing alumina production to 2.9Mtpa with associated VOC and odour emission reductions
728:M10.1 (As Amended by 1069)	Operational Performance Verification	Prior to submitting a Works Approval application (under Part V of the Environmental Protection Act 1986) for works included in that portion of the revised proposal being the third production unit, as documented and described in Schedule 1, the proponent shall prepare and submit a revised Air Quality Management Plan to the satisfaction of, the Minister for the Environment on advice from the Environmental Protection Authority.	Prepare and submit a revised Air Quality Management Plan that includes. <ol style="list-style-type: none"> 1. an Emissions and Ambient Air Quality Monitoring Programme for performance verification monitoring, that addresses Point Source Emissions (for the key emission sources, refer to Condition 9-1), Diffuse Source Emissions and Ambient Air Quality, including where 	Air Quality Management Plan available.	Pre-construction	Prior to submitting a works approval.	NR	Condition not triggered during reporting period.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			<p>practicable and appropriate, continuous monitoring;</p> <p>2. management procedures with the objective of achieving the design emission targets referred to in Condition 8-1 under stable operating conditions and minimising emissions during unstable operating conditions such as during start up, shut down and equipment failure as referred to in Condition 8-2; and</p> <p>3. a program for independent audit and review of the results of monitoring undertaken in accordance with the Air Quality Management Plan.</p>					
728:M10.2	Operational Performance Verification	The Air Quality Management Plan referred to in condition 10-1 shall be subject to independent peer review (refer to Procedure 1).	Air Quality Management Plan to be reviewed by the IDRT (Refer to Procedure 1).	Provide Air quality Management Plan to IDRT for review.	Pre-construction		NR	Condition not triggered during reporting period.
728:M10.3	Operational Performance Verification	The proponent shall implement the Air Quality Management Plan referred to in condition 10-1 throughout the commissioning and operational phase of the expanded Refinery to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.	Implement the Air Quality Management Plan as approved in M10.1.	CR, Implement the Air Quality Management Plan.	Operation		NR	Condition not triggered during reporting period.
728:M10.4	Operational Performance Verification	The proponent shall make the Air Quality Management Plan referred to in condition 10-1 publicly available to the requirements of the	Air Quality Management Plan is made publicly available on the	CR, Air Quality Management Plan published on the Alcoa website and copies	Pre-construction		NR	Condition not triggered during reporting period.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		Minister for the Environment on advice front the Environmental Protection Authority.	Alcoa website and copies provided on request.	made available upon request.				
728:M10.5	Operational Performance Verification	In the case that the performance monitoring referred to in condition 10-1 indicates that the design emission targets referred to in conditions 8-1 and 8-2 and the management procedures referred to in condition 10-1 are not being reasonably achieved, the proponent shall make revision to the operational procedures and/or engineering design to ensure compliance with the design emission targets.	If performance monitoring indicates that the design emission targets referred to in Conditions 8-1 and 8-2 and the management procedures referred to in Condition 10-1 are not being reasonably achieved review performance monitoring to see if design emission target are reasonably achieved. If not, revise operational and/or engineering design.	CR	Operation		NR	Condition not triggered during reporting period.
728:M10.6	Operational Performance Verification	The proponent shall regularly review and, where appropriate, employ adaptive management practices to facilitate continuous improvement in key source emissions management at the refinery in line with current best practice management. Note: It is expected that the outcomes of condition 10-6 will be implemented through Part V of the Environmental Protection Act 1986.	Review management practices for key emission source to determine if in line with best practice management.	Where appropriate, table of continuous improvement activities to be included in the Triennial Environmental Review.	Operation		NR	Condition not triggered during reporting period.
728:M10.7	Operational Performance Verification	Notwithstanding the requirements of conditions 10-1, 10-2, 10-3, 10-4, 10-5 and 10-6 the proponent may implement individual works of this proposal, as described in schedule 1 of this statement; subject to the requirements of a Works Approval and Licence under Part V of the Environmental Protection Act 1986, on the proviso that the individual works: (i) have effect in reducing or offsetting emissions from the existing refinery, where possible; and do not significantly increase the production capacity of the refinery.	Submit a Works Approval Application if individual works of the proposal need to be implemented that shows that the individual works. 1. have effect in reducing or offsetting emissions for the existing refinery, where possible; 2. do not significantly increase the production capacity of the refinery.	Technical information to be submitted with the Works Approval Application if individual works are implemented.	Overall		C	Part V Approval L6217/1983/15 allowing alumina production to 2.9Mtpa.
728:M11.1	Noise	Prior to submitting a Works Approval application (under Part V of the <i>Environmental Protection Act</i>	Prepare and submit a revised Noise	Revised Noise Management Plan.	Pre-construction		NR	Condition not triggered during reporting period.



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(As Amended by 1069)		1986) for works included in that portion of the revised proposal being the third production unit, as documented and described in Schedule I, the proponent shall revise the Noise Management Plan submitted in Section 10 of the Wagerup Refinery Unit Three Expansion ERMP (May 2005) to provide detail on all reasonable and practicable measures to control noise emissions incorporated in design and construction of the expansion works, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.	Management Plan (NMP) The Plan shall include details of: <ol style="list-style-type: none"> 1. all significant noise sources, options considered for noise control, noise control measures proposed to be adopted and design target Sound Power Levels; 2. acoustic modelling of noise emission levels in the surrounding environment utilising the design target Sound Power Levels; 3. procedures for verifying that the design target Sound Power Levels have been achieved and total noise emissions from the works meet those predicted in the acoustic modelling undertaken in respect of 2; 4. procedures for approval of noise emissions during construction and commissioning under noise regulation 13; and 5. parties engaged in the design, acoustic modelling and 					



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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			noise verification.					
728:M11.2	Noise	The proponent shall make the Noise Management Plan required by condition 11-1 publicly available to the requirements of the Minister for the Environment on advice from the Environmental Protection Authority following approval of the report required by condition 11-1.	Noise Management Plan is publicly available on the Alcoa website.	CR, Revised Noise Management Plan to be published on the Alcoa website and copies made available upon request.	Pre-construction		NR	Condition not triggered during reporting period.
728:M11.3	Noise	The proponent shall implement the Noise Management Plan required under condition 11-1 to the requirements of the Minister for the Environment on advice from the Environmental Protection Authority.	Implement the actions and monitoring identified in the NMP throughout commissioning and operation of the expanded Refinery.	CR Noise Management Plan implemented.	Overall		NR	Condition not triggered during reporting period.
728:M11.4	Noise	Notwithstanding the requirements of conditions 11-1, 11-2 and 11-3, the proponent may implement individual works of this proposal, as described in schedule 1 of this statement, subject to the requirements of a Works Approval and Licence under Part V of the Environmental Protection Act 1986, on the proviso that the individual works: (i) have effect in reducing or offsetting emissions from the existing refinery, where possible; and do not significantly increase the production capacity of the refinery.	Submit a Works Approval Application if individual works of the proposal need to be implemented that shows that the individual works. 1. have effect in reducing or offsetting emissions for the existing refinery, where possible; 2. do not significantly increase the production capacity of the refinery.	Technical information to be submitted with the Works Approval Application if individual works are implemented.	Overall		C	Part V Approval L6217/1983/15 allowing alumina production to 2.9Mtpa.
728:M12.1 (As Amended by 1069)	Water Use	Prior to submitting a Works Approval application (under Part V of the Environmental Protection Act 1986) for works included in that portion of the revised proposal being the third production unit, as documented and described in Schedule 1, the proponent shall prepare a Water Use Management Plan to the requirements of the Minister for the Environment on the advice of the Environmental Protection Authority. The Water Use Management Plan shall describe the water use minimisation and re-use practices that will be employed so as to achieve the minimum practicable water use at the refinery.	Prepare and submit a Water Use Management Plan. The Water Use Management Plan shall describe the water use minimisation and re-use practices that will be employed so as to achieve the minimum practicable water use at the refinery.	Water Use Management Plan.	Pre-construction	Prior to the commencement of construction.	NR	Condition not triggered during reporting period.



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728:M12.2	Water Use	The proponent shall implement and comply with the Water Use Management Plan referred to in condition 12-1.	Implement the actions and practices identified in the Water Use Management Plan.	CR, Water management practices implemented.	Overall		NR	Condition not triggered during reporting period.
728:M12.3	Water Use	The proponent shall make the Water Use Management Plan referred to in condition 12-1 publicly available.	Water Use Management Plan publicly available on Alcoa website.	Water Use Management Plan published on the Alcoa website and copies made available upon request.	Construction		NR	Condition not triggered during reporting period.
728:M13.1	Residue Disposal Areas	Prior to the commencement of construction, the proponent shall revise the Long Term Residue Management Strategy, which addresses the potential impacts of emissions from the Residue Disposal Areas, in particular the management of emissions and protection of groundwater, in consultation with the Residue Planning Liaison Group, to the requirements of the Minister for the Environment on advice from the Environmental Protection Authority.	Review the Long Term Residue Management Strategy (LTRMS) in consultation with the Residue Planning Liaison Group (RPLG) & community stakeholders. The LTRMS shall address the potential impacts of emissions from the Residue Disposal Areas, in particular the management of emissions and protection of groundwater, in consultation with the RPLG.	Revised LTRMS.	Pre-construction	Prior to the commencement of construction.	NR	Condition not triggered during reporting period. See section 7.1 of the Annual Audit Compliance Report for further information.
728:M13.2	Residue Disposal Areas	The revised Long Term Residue Management Strategy referred to in condition 13-1 shall be subject to an independent peer review to ensure that the monitoring and management is undertaken in accordance with international best practice. Note 1: During the development of the Long Term Residue Management Strategy, the proponent must consult with community and stakeholders.	Independent review of the LTRMS to review monitoring & management against best practice.	LTRMS provided for independent peer review.	Pre-construction		NR	Condition not triggered during reporting period. See section 7.1 of the Annual Compliance Report for further information.
728:M13.3	Residue Disposal Areas	The proponent shall make the Long Term Residue Management Strategy required by condition 13-1 publicly available.	LTRMS publicly available.	CR, LTRMS is published on the Alcoa website and copies made available upon request.	Construction		NR	The current LTRMS is published on the Alcoa website. https://www.alcoa.com/australia/en/pdf/2017-wagerup-refinery-ltrms.pdf
728:M13.4	Residue Disposal Areas	The proponent shall implement the Long Term Residue Management Strategy required under condition 13-1.	Implement the actions and practices identified in the LTRMS.	CR, LTRMS implemented.	Overall		NR	Condition not triggered during reporting period. See section 7.1 of the Annual Compliance Report for further information.



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728:M14.1	Transport Related Noise	The proponent shall demonstrate participation in a detailed review (refer Note 2) of logistical aspects of the rail transport activities associated with its operations to ensure that these activities are managed in a manner which minimises impacts on residential amenity.	Participate in the Inter-agency Working group – Rail noise impacts (coordinated by DMIRS) of the logistical aspects of rail transport associated with the refinery operations. <u>NOTE</u> DMIRS is responsible for establishing the inter-agency working group within 12 months following this statement.	CR, Attendance/participation in working group.	Overall		NR	Condition not triggered during reporting period.
728:N1	Independent Design Review Team	The Department of Environment and Conservation, in consultation with the proponent, will establish an Independent Design Review Team (IDRT) including specialists in design, construction, commissioning and monitoring of large industrial plants and pollution control equipment. The IDRT shall also seek specialist input from international experts where required. The IDRT will review the engineering design details for the Wagerup Unit 3 Expansion leading to the Works Approval application to advise the Department of Environment and Conservation on whether the design meets international best practice in terms of pollution control, predicted emissions and emissions management and is reasonably likely to achieve the emissions performance levels specified in condition 8. The IDRT will also review the Air Quality Management Plan required in condition 10 to ensure that the monitoring and management is undertaken in accordance with international best practice.	Independent Design Review Team.	DWER	Overall		NR	Procedure is to be implemented when the project reaches the detailed design stage (not yet reached).
728:N2	Inter-agency Working Group Rail Noise Impacts	Within 12 months following the date of this statement, the Department of Industry and Resources, will arrange for the establishment of an inter-agency working group to further define rail noise impacts, and, identifying practicable operational measures, infrastructure improvements and residential noise amelioration measures that may be necessary to mitigate the noise impacts.	Participate in the Inter-agency Working group – Rail noise impacts (coordinated by DMIRS) of the logistical aspects of rail transport associated with the refinery operations.	CR, Attendance/participation in working group	Overall		NR	Participation in an Interagency Working Group commenced in October 2007, with the provision of information requested by the then DoIR. Further activity by the Working Group is on hold until Alcoa has finalised a position with respect to the proposed expansion at Wagerup.



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			<p><u>NOTE</u></p> <p>DMIRS is responsible for establishing the inter-agency working group within 12 months following this statement.</p>					
728:M15.1	Community Consultation Mining Plans	In the preparation of mining plans, the proponent shall consult with the affected local government authorities and report results to the Mining and Management Programme Liaison Group.	<p>Consult with affected local government when preparing mining plans and report results to the Mining and Management Programme Liaison Group (MMPLG):</p> <ul style="list-style-type: none"> - detail consultation - feedback received - and action taken 	<p>CR, Consultation summarised in annual Mining and Management Program submissions to the MMPLG.</p>	Operation		C	<p>Approved MMP (Mining and Management Program) 2020 – 2024 inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, January 2019 includes community engagement and consultation (s.4).</p> <p>MMP approval letter dated 17 April 2020 acknowledges that appropriate consultation has taken place regarding the MMP, and that the MMPLG met and discussed the MMP and is satisfied that it fulfills Alcoa’s obligations under Ministerial Statement No. 728.</p> <p>The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a summary of community consultation (s.9).</p>
728:M15.2	Community Consultation - Mining	The proponent shall consult with residents of private properties whose amenity (dust, noise, vibration, visual) or hydrology are likely to be affected by the mining operations and report the results to the Mining and Management Programme Liaison Group. In the first instance the proponent shall consult with those residents within the predicted 35 dB(A) noise contour (worst case) for the mining operations (refer Procedure 4).	<p>Consult with those residents within the predicted 35 dB(A) noise contour (worst case) for the mining operations and any refinery expansion in the first instance and report results to MMPLG.</p> <ul style="list-style-type: none"> - detail consultation - feedback received - and action taken 	<p>CR, Consultation summarised in annual Mining and Management Program submissions to the MMPLG.</p> <p>Register of Contacts.</p>	Operation		C	<p>Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations January 2019’ includes community engagement and consultation (s.4).</p> <p>MMP approval letter acknowledges that appropriate consultation has taken place regarding the MMP, and that the MMPLG met and discussed the MMP and is satisfied that it fulfils Alcoa’s obligations under Ministerial Statement No. 728.</p> <p>The 2019 AER submitted to JTSI in July 2020 under Proponent Commitment 11 includes a summary of community consultation (s.9).</p>
728:M16.1	Long-term Bauxite Residue Management – Closure Strategy Review	<p>The proponent, in consultation with the Residue Planning Liaison Group, shall periodically review and revise its “closure strategy” for the residue storage areas at Wagerup, to the requirements of the minister for the Environment on advice from the Environmental Protection Authority.</p> <p>Note 1: In reviewing and revising the “closure strategy”, the proponent must consult with community and stakeholders.</p> <p>Note 2: The proponent shall submit its revised closure strategy to the Residue Planning Liaison Group for approval and submission to the Minister for the Environment through the Minister</p>	<p>Review and revise the LTRMS with the RPLG. The LTRMS shall be submitted to the RPLG for approval and submission to the Minister for Environment through the Minister that administers the Alumina Refinery (Wagerup) Agreement Act 1978.</p>	<p>CR, Closure Strategy included in LTRMS.</p>	Operation		C	<p>The residue closure strategy is reviewed as part of the LTRMS. The LTRMS was reviewed in 2017.</p>



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		responsible for administrating the Alumina Refinery (Wagerup) Agreement and Acts 1978						
728:M16.2	Long-term Bauxite Residue Management – closure strategy implementation	The proponent shall implement the “closure strategy” required by condition 16-1 to the requirements of the Minister for the Environment, at a timing to be determined by the Minister for the Environment on advice of the Minister responsible for administrating the Alumina Refinery (Wagerup) Agreement and Acts 1978. Note: a “closure strategy” means that the bauxite residue storage areas at Wagerup shall either no longer require management at the time the proponent ceases refining operations, or if the Minister for the Environment determines that further management is necessary, the proponent shall make adequate provision for future management with no liability to the State.	Implement the actions detailed within the closure strategy.	CR, Closure Strategy implemented.	Closure		NR	Implementation of a ‘closure strategy’ for the residue storage area is not yet required as the Wagerup Refinery remain operational and storage areas in use.
728:M17.1	Social Impacts – Local Government Liaison	To reduce social disruption to the Waroona and Yarloop districts, the proponent shall maintain formal liaison and monitoring processes at appropriate times with the Shire or Waroona and the Shire of Harvey.	Formal liaison with the Shires of Waroona and Harvey where appropriate.	CR	Overall		C	During this reporting period formal local government liaison and consultation included providing local governments annual updates to the five-year mine plan, offering each local government a presentation of the plan, and inviting the Councilors and Shire staff to tour the mining operations Further information on Refinery consultation programs are provided within Section 8 of the Annual Audit Compliance report.
728:M17.2	Social Impacts – Local government Liaison Reporting Requirements	The proponent shall provide details on formal liaison and monitoring processes with the Shire or Waroona and the Shire of Harvey in its annual reporting of environmental research and operations.	Provide detail on formal liaison with Shire of Waroona & Shire of Harvey in annual report of environmental research and operations	CR	Overall		C	During this reporting period formal liaison and monitoring processes have included: <ul style="list-style-type: none"> Attendance at Council meetings when required Briefings and one-on-one discussions with Shire Officers including the Chief Executive Officers, Shire Planners and Shire Environmental Health Officers as required. Discussions with the Shire representative at the CCN meetings convened by Alcoa. A summary of communications with local Shires is provided in this report.
728:N3	Final Rehabilitation Completion Criteria:	<ol style="list-style-type: none"> The proponent and the Mining and Management Programme Liaison Group shall regularly review and revise the final rehabilitation completion criteria, using procedures 4(2) and 4(3) The review of the final rehabilitation completion criteria shall include public consultation The revised final rehabilitation completion criteria shall be made publicly available. Best practice principles shall be applied. 	Complete regular review of completion criteria according to requirements of Procedure 3.	Completion criteria reviewed.	Overall		C	Final rehabilitation completion criteria (completion criteria) are subject to review and revision on a regular basis (approximately 5-yearly). Alcoa and the MMPLG reviewed and revised the completion criteria in October 2015 to apply to rehabilitation from 2016 on (Alcoa’s Bauxite Mine Rehabilitation Program, Completion Criteria and Overview of Area Certification Process, 2015 Revision). Public consultation involved advertising the Completion Criteria in the West Australian newspaper and making the relevant documents accessible on the Department of



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								<p>State Development's web site. All comments from the public were reviewed.</p> <p>The document is publicly available on the Alcoa website (http://www.alcoa.com/australia/en/sustainability/reports-publications.asp).</p> <p>Approved MMP (s.3.8) and the 2019 AER (s.3.3) submitted to JTSI in July 2020 under Proponent Commitment 11 include completion criteria requirements and results.</p>
728:N4	Mining and Management Planning Liaison Group	<p>The Mining and Management Programme Liaison Group comprises representatives of State Government agencies whose areas of responsibility are affected by the mining operations of the proponent. This group will continue to review the mining plans of the proponent and manage issues relating to its mining operations. The group will coordinate environmental auditing of the proponent's Mining and Management Programme.</p> <p>In reviewing mining plans, the Mining and Management Planning Liaison Group shall take into account local agreement and issues that concern local property owners, including:</p> <ol style="list-style-type: none"> i. Likely noise, vibration and dust impacts on residents and property from the type of mining proposed ii. Aesthetic and conservation values of the forest affected in relation to the properties; and <p>Potential hydrological impacts on private properties</p>	Pre mining assessments are completed to identify potential risks associated with noise, dust, aesthetic and conservation values, and hydrological impacts. These assessments guide Alcoa to develop management plans where appropriate to manage the risks and minimise impacts.	CR, Included in Annual Environmental Review.	Overall		C	<p>Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, January 2019' includes Community Engagement and Consultation (s.4), Noise Management (s3.7) and Hydrology (s 3.9-3.10) for consideration by the MMPLG.</p> <p>MMP approval letter dated 17 April 2020 acknowledges that the MMPLG met and discussed the MMP and is satisfied that it fulfils Alcoa's obligations under MS728.</p>
728:P1	Separation Distance	Continue to support and implement the Land Management Strategy (January 2002) as enhanced by correspondence with individual residents in Area A and B (letters dated 24 February 2005 and 21 April 2005) or any subsequent revisions agreed in consultation with the community and relevant stakeholders	Implement the Wagerup Land Management Strategy.	CR, Land title documentation	Overall		C	The Land Management Strategy continued throughout the reporting period, with Alcoa purchasing properties belonging to those residents who chose to relocate and were eligible under the scheme. Annual land management reports are available on Alcoa's website.
728:P2	Mine Planning and Forest Management	In addition to the 10-year mining plans to be submitted to the State under Clause 5 of the Wagerup Agreement, Alcoa will also prepare and submit to the State mining and management programmes which will specify such matters as the areas which it is proposed to mine, the method of mining, and the proposed methods of rehabilitation in accordance with the procedures to be agreed between Alcoa and the State. Alcoa undertakes to consult closely with the State on the preparation of these programmes and not to implement the programmes until agreement has	Prepare and submit to the State, Mining and Management programmes which will specify areas which it is proposed to mine, the method of mining and the proposed methods of rehabilitation in accordance with the procedures to be agreed between	CR, Submission of the MMPs	Overall		C	<p>A rolling 5-year Mining and Management Program (MMP) is submitted annually for Minister for State Development approval.</p> <p>The current MMP 'Mining and Management Program, 2020-2022 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' was approved by the Minister for State Development on 17 April 2020.</p> <p>The approval letter acknowledges that the MMPLG met and discussed the MMP and is satisfied that it fulfils Alcoa's obligations under MS728.</p>



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		been reached with the State or they have been determined by arbitration.	Alcoa and the State. These programmes are in addition to the 10 year mining plans to be submitted to the State under Clause 4 of the Wagerup Agreement. Alcoa undertakes to consult closely with the State on the preparation of these programmes and not to implement the programmes until agreement has been reached with the State or they have been determined by arbitration. (Refer to Procedures 3 & 4)					A revised MMP 2021-2025 Inclusive, Huntly and Willowdale Mines, Western Australian Operations, January 2021 has been submitted for approval.
728:P3	Mine Planning and Forest Management	Alcoa will plan and manage its mining operations to minimise disturbance to biologically diverse areas fringing major rock outcrops and stream zones. Appropriate buffers will be maintained between these areas and mine pit boundaries. Stream crossings will be constructed in a manner which facilitates their removal and rehabilitation after use, unless required for ongoing forest management or other purposes agreed with the State's Mining and Management Programme Liaison Group (MMPLG).	Plan and manage mining operations to minimise disturbance to biologically diverse areas fringing major rock outcrops and stream zones by: <ul style="list-style-type: none"> Maintaining appropriate buffers between these areas and mine pit boundaries. Constructing stream crossings in a manner which facilitates their removal and rehabilitation after use, unless required for ongoing forest management or other purposes agreed with the State's MMPLG. 	CR, No clearing within 50 m of rock outcrops > 1 ha. Adhering to the DoW stream zone buffer guidelines for best practice operators. Rehabilitating all stream zone crossings using best practice techniques.	Overall		C	Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements to minimise disturbance to biologically diverse areas fringing major rock outcrops and stream zones (s.2.51 to s.2.62).



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728:P4	Mine Planning and Forest Management	Alcoa will continue its programme of biological surveys and support of activities contributing to the conservation of rare, endangered and priority species existing within the vicinity of its mining operations.	Continue the programme of biological surveys and support of activities contributing to the conservation of rare, endangered and priority species existing within the vicinity of its mining operations, including implementation of the Threatened Fauna Species Management Plan.	CR, Pre-mining flora and fauna surveys will be conducted in all new crusher regions to identify rare and endangered, especially protected or priority species. Management techniques contained within management plans will be continuously reviewed and improved to minimise impact on identified species.	Overall		C	<p>Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements for biological surveys and conservation activities (s.2.51). The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes confirmation that pre-mining flora and fauna surveys have been completed for active mining areas and a review of the fauna conservation research programme.</p> <p>A Threatened Fauna Species Management Plan guides an ongoing program of supporting activities including evaluation of cockatoo habitat conservation measures and black cockatoo ecological research. Alcoa also supports the Western Shield program under the Forest Enhancement agreement.</p>
728:P5	Water Resources	Bauxite mining will not take place in the eastern, lower rainfall portion of Alcoa's lease, until research shows that mining operations can be conducted without significantly increasing the salinity of water resources with exception of the Trial Mining Project in the intermediate rainfall zone which commenced in 2005 to test modelling prediction and mining and rehabilitation methods developed from the 25 years of research to date. This trial was approved by the Mining and Management Programme Liaison Group. Results from the trial mining and continuing hydrology research and modelling will form the basis for future approval by the Mining and Management Programme Liaison Group of Alcoa's plans for mining in the intermediate rainfall zone. These plans will be presented in Alcoa's annual Mining and Management Programme submission at an appropriate date.	Bauxite mining will not take place in the eastern, lower rainfall portion of Alcoa's lease without approval by the MMPLG. Results from the trial mining and continuing hydrology research and modelling will form the basis for future approval by the MMPLG of Alcoa's plans for mining in the intermediate rainfall zone. These plans will be presented in Alcoa's annual Mining and Management Programme submission at an appropriate date.	CR, MMP submissions will contain applications for clearing in the intermediate rainfall zone. Areas in the intermediate rainfall zone will not be cleared until they are on an approved MMP.	Overall		C	<p>Access to bauxite resources is granted through annual submission of the MMP to the MMPLG and approval by the Minister.</p> <p>Approved MMP 2002-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements for mining in the intermediate rainfall zone and the Trial Mining Project (s.3.9).</p> <p>The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a review of Alcoa's catchment hydrology and salinity research programme, which includes the Trial Mining Project.</p>
728:P6	Mine Rehabilitation	Alcoa will monitor the success of all its rehabilitated mined areas in consultation with the Department of Environment and Conservation.	Monitor the success of all rehabilitated Mining areas in consultation with the DBCA.	CR, Completion criteria reports for rehabilitated areas are submitted to DBCA annually for audit.	Overall		C	<p>Rehabilitated areas in the establishment and early development stages are monitored against Completion Criteria and reported to DBCA in the annual Rehabilitation Completion Criteria Report. The approved MMP (s.3.8) and 2019 AER (s.3.3) submitted to JTSI under Proponent Commitment 11 include completion criteria requirements and results.</p>
728:P7	Forest Conservation	Alcoa will forego the bauxite resources in the jarrah forest conservation areas agreed in consultation with the State's Reserve Review Committee and specified in the Alumina Refinery	Alcoa will not mine the bauxite resources in the jarrah forest	CR, No clearing for mining will be undertaken in conservation reserves.	Operation		C	<p>Alcoa did not mine forest conservation areas specified in the Alumina Refinery Agreement Act, No 99 of 1986 in 2019.</p>



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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		Agreement Amendment Act, No 99 of 1986, for as long as their conservation values remain. Mining adjacent to the conservation areas will utilise site-specific environmental management procedures agreed in consultation with the MMPLG. These will include particular consideration of dieback management and mine rehabilitation requirements.	conservation areas agreed in consultation with the State's Reserves Review Committee and specified in the Alumina Refinery Agreement Amendment Act, No 99 of 1986, for as long as their conservation values remain.					Access to bauxite resources is granted through annual submission of the MMP to the MMPLG and approval by the Minister. Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements for environmental management, including dieback management (s.3.2) and mine rehabilitation (s.3.8). 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a summary of environmental management results.
728:P8	Forest Conservation	Alcoa will defer mining indefinitely the bauxite resources in the facilities section of the recreation zone of the Lane Poole Reserve as defined in Figure 10 of the 1994 Consultative Environmental Review. Ore extraction in the remaining areas of the recreation zone will exclude steep slopes of the Murray River valley and will be undertaken in accordance with site-specific environmental management procedures agreed with the State's MMPLG after consultation with Department of Environment and Conservation and the Lane Poole Reserve Advisory Committee.	Alcoa will not mine the bauxite resources in the facilities section of the recreation zone of the Lane Poole Reserve as defined in Figure 10 of the 1994 Consultative Environmental Review. Ore extraction in the remaining areas of the recreation zone will exclude the steep slopes of the Murray River valley and will be undertaken in accordance with site-specific environmental management procedures agreed with the State's MMPLG after consultation with DBCA and the Lane Poole Reserve Advisory Committee.	CR, No mining in the facilities section of the recreation zone of Lane Poole Reserve. No mining outside the defined mining limit for the Orion crusher region that excluded the steep Murray River valleys. The proposal to mine in the recreation area of Lane Poole Reserve will be assessed by the CAR Informal Reserve Evaluation Committee first as agreed by the Chairman of the EPA.	Operation		C	Access to bauxite resources is granted via annual submission of the MMP to the MMPLG and approval by the Minister for State Development, in consultation with the Minister for Environment. Submission of the Draft Alcoa 2021-2025 MMP has been completed and is currently under consideration by the Minister for State Development. Approved MMP 2002-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements for mining in Reserves (s.3.5). Approved MMP requires Environmental Impact Assessment (EIA) for planned disturbance in Reserves and assessment by the CAR Informal Reserves Evaluation Committee (CARIREC), a process agreed by the MMPLG and the Environmental Protection Authority (EPA) as required under the Regional Forest Agreement. The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a summary of submissions made to CARIREC (s3.2.1 to s3.2.3).
728:P9	Dieback Management	Alcoa will implement a comprehensive dieback management programme designed specifically for its mine operations in the jarrah forest. This will include the rehabilitation of dieback-affected areas adjacent to its mine operating areas, in accordance with procedures agreed with State agencies, and irrespective of the cause of introduction of the disease.	Implement a dieback management programme designed specifically for the mine operations in the jarrah forest. This will include the rehabilitation of dieback-affected areas adjacent to	CR, Implement Alcoa's best practice dieback management system while continuing to identify areas for improvement. Dieback Forest Rehabilitation (DFR) will be undertaken in areas identified by the Associated Works and	Overall		C	The ongoing dieback management program established under the Alcoa/DBCA Working Arrangements was implemented during the reporting period. Approved MMP (s.3.2) and 2019 AER submitted to JTSI under Proponent Commitment 11 include dieback management requirements and results. No dieback-affected areas adjacent to Alcoa's mining operations were rehabilitated under the Dieback Forest Rehabilitation (DFR) program in 2020.



AUDIT TABLE

PROPOSAL: Wagerup Alumina Refinery – Production to a Maximum Capacity of 4.7 Million Tonnes per Annum and Associated Bauxite Mining
STATEMENT: 728 (As Amended by Statement 1069)

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			mine operating areas, in accordance with procedures agreed with State agencies, and irrespective of the cause of introduction of the disease.	DFR steering committee that contains DBCA and Alcoa representatives.				
728:P10	Environmental Research	Alcoa is committed to an ongoing research programme into all aspects of its operation that have the potential to adversely affect the environment, and into those environmental characteristics that could be adversely affected by its operations.	Implement an ongoing research programme into all aspects of the operation that have the potential to adversely affect the environment, and into those environmental characteristics that could be adversely affected by its operations.	CR, Included in Annual Environmental Review.	Operation		C	The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a review of the research programs for mine rehabilitation, fauna conservation, dieback management and catchment hydrology and salinity during the reporting period. Research project activities continued through 2020. This included dieback eradication using fallowing, studies on variability in Eucalyptus establishment, seed germination, black cockatoos, and catchment hydrology modelling.
728:P11	Environmental Research	Alcoa will submit a brief review of its research and management programme to the Department of Industry and Resources on an annual basis. Copies will be made available to relevant State agencies and the Shire of Waroona. A more detailed review will be prepared on a triennial basis.	Submit a brief review of research and management programme to JTSI on an annual basis. Copies will be made available to relevant State agencies and the Shire of Waroona. A more detailed review will be prepared on a triennial basis.	CR, Included in Annual Environmental Review.	Operation		C	Environmental performance and research reports are submitted annually to JTSI. Each three years a triennial report is submitted. The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a review of the research project activities continued through 2020. This included dieback eradication using fallowing, studies on variability in Eucalyptus establishment, seed germination, black cockatoos, and catchment hydrology modelling. The AER is made available to other State agencies and the Shire of Waroona.
728:P12	Noise Monitoring	Noise monitoring undertaken for assessment purposes will be undertaken by a recognised acoustical consultant, in consultation with the Department of Environment and Conservation. Ongoing monitoring will be undertaken by Alcoa personnel, or consultants, appropriately trained in the measurement of environmental noise.	Noise monitoring undertaken for assessment purposes will be undertaken by a recognised acoustic consultant, in consultation with DWER. Ongoing monitoring will be undertaken by Alcoa personnel, or consultants, appropriately trained in the measurement	CR, Included in Annual Environmental Review.	Operation		C	The ongoing noise management program was implemented during the reporting period. The program was developed in consultation with recognized acoustical consultants and includes noise monitoring undertaken by appropriately trained people. Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements for noise monitoring (s.3.7). The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes noise monitoring overview and results (s.7). The 2020 Refinery AER submitted to DWER in March includes ongoing noise monitoring results conducted by



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Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
			of environmental noise.					appropriately trained personnel and acoustic consultants. The Wagerup Refinery is subject to a regulation 17 noise variation, Environmental Protection (Wagerup Alumina Refinery Noise Emissions) Approval 2012, as amended, with monitoring results included in the Annual Report.
728:P13	Noise Monitoring	Noise levels will be monitored periodically at designated reference points and reported in the Review of Environmental Research and Operations submitted annually to the Department of Industry and Resources and distributed to relevant state and local government agencies.	Noise levels will be monitored periodically at designated reference points and reported in the Review of Environmental Research and Operations submitted annually to the Department of State Development and distributed to relevant state and local government agencies.	CR, Included in Annual Environmental Review.	Operation		C	The ongoing noise management program was implemented during the reporting period. The program includes periodic noise monitoring at a designated reference point. Approved MMP 2020-2024 Inclusive, Huntly and Willowdale Mines, Western Australian Mining Operations, December 2019' includes requirements for noise monitoring (s.3.7). The 2019 AER submitted to JTSI in June 2020 under Proponent Commitment 11 includes a summary of noise monitoring results (s.7). Noise monitoring results for the refinery are reported in the MS728 AACR submitted prior to 1 April each year and distributed to DWER, JTSI and relevant shires.