

# Alcoa Wagerup Refinery

## Annual Audit Compliance Report - 2016

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### Introduction

This Annual Audit Compliance Report (AACR) is submitted to meet Condition 5 of Ministerial Statement 728 for Wagerup Refinery. It covers the period from 1 January 2016 to 31 December 2016.

In May 2005 Alcoa submitted its Environmental Review and Management Programme to the EPA, seeking approval to increase production from 3.3 Mtpa to 4.7 Mtpa. In September 2006 Ministerial Statement 728 was released detailing the conditions of approval for expansion of Wagerup Refinery. The conditions of Statement 728 supersede statements 564, 390 and 95.

### Current Status

Ministerial Statement 728 relates to the ongoing operation of the Wagerup Refinery and a project to expand refinery production to 4.7 Mtpa. The expansion project (Wagerup 3) has been suspended and accordingly, many of the Conditions within Statement 728 were not applicable during the period covered by this AACR.

In March 2011, Alcoa sought an extension of the Environmental Approval for the Wagerup Unit Three Project due to being unable to substantially commence the project within the approvals timeframe. In May 2012, Alcoa received an amendment to condition 4 of Ministerial Statement 728. This amendment (Statement 897) provides a timeline extension to September 2016 to implement the proposal. An amendment was submitted in November 2015 seeking a further amendment to condition 4 allowing a further 5 years of the approval. An interim implementation condition was received for twelve (12) months effective from 27 September 2016 replacing condition 4 while the Environmental Protection Authority continue to assess the 5 year time extension. Alcoa is currently awaiting a response from the Environmental Protection Authority.

### Compliance

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

### Environmental Monitoring and Research

Please refer to the Wagerup Refinery 2016 Annual Environmental Report for detailed analysis of environmental monitoring conducted during the reporting period and for a summary of research undertaken. This report is submitted to the Department of Environment Regulation (DER) annually prior to 1 April.

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

#### Dust Suppression Alternatives

After testing over 20 red sand dust suppressants in the wind tunnel-based dust suppression method developed in collaboration with Western Australia School of Mines (WASM), Kalgoorlie, the top three performing products were identified for further evaluation. Comprehensive field trials were carried out on the short-listed products.

Implementation of the best-performing dust suppressant is still progressing at Wagerup refinery to reduce the use of bitumen emulsion on all sand/coarse fraction residue areas. Efforts are primarily being focused on fine tuning operational routines to ensure the integrity of the dust suppression is maintained using the new product.

A range of dust suppressant chemistries have been investigated for use on red mud and further laboratory studies have been carried out to assess dust suppressant performance on a range of mud surfaces. The best performing product has been trialled on filtered mud cake at a sister refinery in Kwinana. Trial outcomes and recommendations have been communicated to Alcoa stakeholders. The key aims of this work are to reduce water used for dust suppression and also to achieve more consistent and reliable dust suppression on red mud surfaces.

#### 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™.

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### *Alkaloam®*

Further opportunities for re-use of Alkaloam have been put on hold until Red Sand has been formally approved by DER for re-use following assessment under the Waste Derived Materials framework. In the interim, an extensive leaching assessment on Alkaloam is underway at the Chemistry Centre of Western Australia as a pre-requisite for submitting an application to the DER to have the material assessed as a Waste Derived Material for re-use.

### *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 which has been trialed 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.

Various health and risk assessments have been conducted on Red Sand™ to ensure its safe utilization. These include:

1. Radiological assessment which has resulted in approval by the Radiological Council of Australia for road construction and top dressing.
2. A health risk assessment which 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 Department of Environment Regulation (DER) released guidelines for the use of waste derived materials (WDM). These guidelines provide a pathway for the removal of the waste classification of WDM's to facilitate their reuse. 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 DER. The application for Red Sand™ was submitted to a DER recognised auditor prior to submission to the DER in June 2016. A response from the DER regarding the application is anticipated in early Q1 2017.

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Alcoa has also led the implementation into Western Australia of leaching test methods developed in the European Union by the ECN, which has now been endorsed by the DER and referenced in their WDM guidelines as a part of their risk assessment process. 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 WA.

#### **Stakeholder Consultation**

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 Alcoa's 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 and dedicated resources to respond to complaints throughout 2016.

#### *Neighbours*

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

#### *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 generally meets bi-monthly and is comprised primarily of representatives from Waroona and Yarloop, the Shire of Waroona and Harvey as well as other interested stakeholders and Alcoa Wagerup management.

Most meetings include a guest speaker who is available to respond to enquiries about topics relevant to the group. Reporting commitments made through the Environmental Improvement Plan (EIP) or Long Term Residue Management Strategy (LTRMS) are presented to the CCN. Community members are also encouraged to raise matters with the CCN by writing 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 and Waroona) are published in the local paper to ensure broad community access to the information discussed. All interested members of the community are invited to attend CCN meetings.

#### *Local Government*

Wagerup Refinery is situated in the Shire of Waroona, however Alcoa also has significant landholdings in the Shire of Harvey. Neighbours of the refinery reside in both shires.

Regular contact was maintained with both shires during 2016 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.

Informal discussions were also ongoing between Alcoa and shire representatives.



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## AUDIT TABLE

### Proposal Implementation Monitoring Section

**PROJECT: Wagerup Alumina Refinery-Production to a maximum capacity of 4.7 million tonnes per annum and associated bauxite mining**

**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; A = Audit specification; N = Procedure.
- Any elements with status = "Audited by proponent only" are legally binding but are not required to be addressed specifically in compliance reports, if complied with.
- Acronyms list:- Minister for the Environment - Min for Env; Chief Executive Officer - CEO; Department of Environment Regulation (DER) – Evaluation Division - Part IV; Pollution Prevention Division - Part V; Waste Management Division - WMD; Department of Conservation and Land Management - CALM; Department of Minerals and Energy - DME; Environmental Protection Authority - EPA; Health Department of WA - HDWA; Water and Rivers Commission - WRC; Bush Fires Board – BFB; Department of Parks and Wildlife – DPaW; Comprehensive, Adequate and Representative Reserve – CAR Reserve; Comprehensive, Adequate and Representative Informal Reserves Evaluation Committee – CARIREC.

Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status
728:G									
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)	Min for Env		Overall		Proposal not implemented as project is currently under suspension.
728:M2.1	Proponent Environmental Management Commitments	The proponent shall fulfill the environmental management commitments contained in schedule 2 of this statement.	Refer to comments provided for schedule 2 (1) to (13)	CR	Min for Env		Overall		Refer to comments provided for schedule 2 (1) to (13)
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 Min for Env outlining any changes to the proponent.	CR	Min for Env		Overall		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 Min for Env requesting change to proponent	Min for Env		Overall		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 DEC outlining any changes to the proponent within 30 days,	Letter to DER notifying change of name and address	Min for Env		Overall	Within 30 days of such change	No change to the proponent during the reporting period.
728:M4.1	Time limit of approval to commence	The proponent shall provide evidence to the Department of Environment and Conservation that the revised proposal has been substantially commenced within five years following the date of this statement or the approval granted in this statement shall lapse and be void,	Letter to DEC providing evidence that proposal has substantially commenced by 14 Sept 2011.	Letter including photographic evidence sent to DER to confirm that project has substantially commenced	Min for Env		Construction	Within five years following the date of this statement	Condition amended by MS 897 in May 2012.
728:M4.2	Time limit of approval to commence	The proponent shall make an application for any extension of approval for the substantial commencement of the proposal to the Minister for the Environment within four years and six months following the date of this statement which shall demonstrate that: 1. the environmental factors of the proposal reported in Bulletin 1215 have not changed significantly; 2. new, significant, environmental factors have not arisen; and 3. All relevant government authorities and stakeholders have been consulted.	Letter to the Minister for Environment to apply for an extension, that demonstrates: <ul style="list-style-type: none"><li>the environmental factors reported in bulletin 1215 have not changed significantly</li><li>no new <i>significant</i> environmental factors have arisen</li><li>All relevant government authorities and stakeholders have been consulted.</li></ul>	Letter to Min for Env requesting an extension to the approval for substantial commencement.	Min for Env		Construction	Within four years and six months following the date of this statement	Condition amended by MS 897 in May 2012.



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897:M4-1	Time Limit of Authorization	The authorization to implement the proposal provided for in this statement shall lapse and be void after 14 September 2016 if the proposal to which this statement relates is not substantially commenced.	Letter to DER providing evidence that proposal has substantially commenced by 14 September 2016	Letter including photographic evidence sent to DER to confirm that project has substantially commenced	Min for Env		Construction	Within five years following the date of this statement	Condition replaced by interim implementation condition 27 September 2016
897:M4-2	Time Limit of Authorization	The proponent shall provide the CEO with written evidence, on or before 14 September 2016, which demonstrates that the proposal has substantially commenced.	Letter to DER providing evidence that proposal has substantially commenced by 14 September 2016	Letter including photographic evidence sent to DER to confirm that project has substantially commenced	Min for Env		Construction	Within five years following the date of this statement	Condition replaced by interim implementation condition 27 September 2016
Interim Implementation condition 4-1	Time Limit of Authorization	The proponent shall not commence implementation of the proposal after expiration of twelve (12) months from the date of this Notice, and any commencement, within this twelve (12) month period, must be substantial.	Letter to DER providing evidence that proposal has substantially commenced by 27 September 2017	Letter including photographic evidence sent to DER to confirm that project has substantially commenced	Min for Env		Construction	Within twelve (12) months following the date of this statement	Proposal has not been commenced
Interim Implementation condition 4-2	Time Limit of Authorization	Any commencement of implementation of the proposal, within twelve (12) months from the date of this Notice, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of twelve (12) months from this Notice.	Letter to DER providing evidence that proposal has substantially commenced by 27 September 2017	Letter including photographic evidence sent to DER to confirm that project has substantially commenced	Min for Env		Construction	Within twelve (12) months following the date of this statement	Proposal has not been commenced
728:M5.1	Compliance Reporting	The proponent shall submit annually an audit compliance report, for the previous twelve-month period.	Submit an Audit Compliance Report to DER annually  The audit compliance report shall: 1. be endorsed by the proponent's Managing Director or a person, approved in writing by DER, delegated to sign on the proponent's Managing Director's behalf; 2. include a statement as to whether the proponent has complied with the conditions, procedures, commitments and actions within the Environmental Management Plans; 3. identify all non-compliances and describe the related corrective and preventative actions taken; 4. review the effectiveness of all corrective and preventative actions taken; 5. provide verifiable evidence of compliance with the conditions, procedures and commitments; 6. describe the state of implementation of the proposal; and 7. be prepared in accordance with an audit program and in a format acceptable to the DER	CR	Min for Env		Overall	Annually	The most recent Annual Audit Compliance Report was submitted in March 2016 for the period January 2015 to December 2015.
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	DER		Overall		The 2015 AACR was published to the Alcoa website and is publicly available.
728:M6.1	Performance Review	The proponent shall submit a Performance Review Report to the Environmental Protection Authority every five years after commissioning of the revised proposal.	Submit a report to EPA every 5 years after commissioning which addresses:	Performance Preview Report (PPR) submitted every five years after the	EPA		Overall	Every five years after commissioning of	Condition not triggered during reporting period.



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Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status
			<ul style="list-style-type: none"> <li>1. 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.</li> <li>2. the level of progress in the achievement of sound environmental performance, including industry benchmarking and the use of best available technology where practicable;</li> <li>3. significant improvements gained in environmental management, including the use of external peer reviews</li> <li>4. stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed</li> <li>5. The proposed environmental objectives of the next five years, including improvements in technology and management processes.</li> </ul>	commissioning of the revised proposal				the revised proposal	
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: 1. the rationale for the siting and design of plant and infrastructure as relevant to environmental protection; 2. a conceptual description of the final landform at closure; 3. a plan for a care and maintenance phase; and 4. initial plans for the management of noxious materials.	<p>Submit Preliminary Decommissioning Plan to DEC for approval by 14 September 2008.</p> <p>The plan must describe the framework to ensure that the site is left in an environmentally acceptable condition and provide:</p> <ul style="list-style-type: none"> <li>1. the rationale for the siting and design of plant and infrastructure as relevant to environmental protection;</li> <li>2. a conceptual description of the final landform at closure;</li> <li>3. a plan for a care and maintenance phase; and</li> <li>4. Initial plans for the management of noxious materials.</li> </ul>	Preliminary Decommissioning plan submitted.	DER		Operation	Within two years following the date of this Statement	Preliminary Decommissioning Plan was submitted to the DEC (now DER) 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.	<p>Submit a Final Decommissioning Plan at least six months prior to the anticipated date of closure, or at a time agreed by the EPA</p> <p>Prepare the plan in liaison with the EPA for approval by the DER</p> <p>The Final Decommissioning Plan shall address:</p>	Final Decommissioning Plan	DER	EPA	Operation	At least six months prior to the anticipated date of closure, or at a time agreed by the EPA	Condition not triggered during reporting period.



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			<ul style="list-style-type: none"> <li>1. removal or, if appropriate, retention of plant and infrastructure in consultation with relevant stakeholders;</li> <li>2. rehabilitation of all disturbed areas to a standard suitable for the agreed new land uses(s); and</li> <li>3. Identification of contaminated areas, including provision of evidence of notification and proposed management measures to relevant statutory authorities.</li> </ul>						
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 DER that the proponents decommissioning responsibilities are complete.	CR	Min for Env	DER	Decommissioning		Condition not triggered during reporting period.
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	DER		Operation		Condition not triggered during reporting period.
728:M8.1	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 the revised proposal, 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.	<p>Submit a Detailed Design Report (DDR) to the Minister for Environment.</p> <p>The Detailed Design Report shall set out the base emissions rates for major sources for the Refinery and the design emission targets for the expanded works. In particular, the Detailed Design Report shall demonstrate that the design of the expansion works will reasonably achieve the following reductions from base emission rates:</p> <ul style="list-style-type: none"> <li>1. at least a 75% reduction in peak and average emission rates of volatile organic compounds (VOCs) and odour from the 25A slurry tank vents</li> <li>2. at least a 50% reduction in peak and average emissions rates VOCs and odour from clarification tanks – 35A green liquor</li> <li>3. reduction to negligible emissions of VOCs and odour from clarification tanks – 35J causticisation</li> <li>4. at least a 50% reduction in peak and average emission rates VOCs and odour from cooling towers</li> <li>5. reduction to negligible emissions of VOCs and odour from calciner low volume vent emissions</li> </ul>	Detailed Design Report submitted.	Min for Env	EPA	Pre-Construction		Condition not triggered during reporting period.



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			(vacuum pumps, Dorcco and Filter scroll hoods) 6. the mass of VOCs discharged to the cooling pond shall not increase by more than 50%; and 7. no increase in particulate emissions from the Residue Disposal Area.  <b>NOTE:</b> The term "base emission rates" means emission rates determined from monitoring from July 2002 to March 2004. Base emission rates will be updated where applicable through monitoring undertaken for Condition 9-1						
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.	Min for Env		Pre-Construction		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.	Min for Env		Pre-Construction		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.	Min for Env		Pre-Construction		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: (1) have effect in reducing or offsetting emissions from the existing refinery, where possible; and (ii) 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.	Works Approval Application submitted for individual works where appropriate.	Min for Env		Construction		Condition not triggered during reporting period.
728:M9.1	Air Dispersion Model Validation	Prior to submitting a Works Approval application (under Part V of the Environmental Protection Act 1986) for works included in the revised proposal, 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). The data acquisition and investigation shall include: 1. twelve months of meteorological data from an escarpment meteorological station; 2. twelve months of vertical profile temperature and wind velocity measurements using methods acceptable to the DER;	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	Min for Env	EPA	Pre-Construction		Condition not triggered during reporting period.



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			<p>3. twelve months of meteorological data (wind speed, direction and temperature) from up to two additional meteorological stations located on the coastal plain, using methods and at locations acceptable to the DER;</p> <p>4. investigation into the validity of the building wake dispersion scheme used in the air dispersion model, by a suitably qualified modeller.</p> <p>5. investigation into the validity of modelled multiflue plume rise behaviour, in light of recent findings reported in literature, by a suitably qualified modeller;</p> <p>6. twelve additional months of base case emission rate data for key sources;</p> <p>7. any revised emission rates from the Detailed Design Report referred to in condition 8.1.</p> <p><b>NOTE:</b> the "key sources" referred are the liquor burner, calciners, 25A tank vents, 35A tanks, 35J tanks and cooling towers.</p>	<p>Investigation into building wake dispersion scheme</p> <p>Investigation into validity of modeled plume rise behaviour.</p> <p>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.</p> <p>Revised emission rates from detailed design report to be documented.</p>					
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.	<p>Validate the air dispersion model through incorporation of data obtained through M9.1</p> <p>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 kilometres from the multiflue stacks.</p>	Modelling report	Min for Env	DER	Pre-Construction		Condition not triggered during reporting period.
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 GLC's predicted in ERMP (2005) is demonstrated.	Modelling report	Min for Env		Pre-Construction		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: (1) have effect in reducing or. offsetting emissions from the existing refinery, where possible; and (ii) do not significantly increase the production capacity of the refinery.	<p>Submit a Works Approval Application for implementation of individual works that shows that the individual works.</p> <p>1. have effect in reducing or offsetting emissions for the existing refinery, where possible;</p> <p>2. do not significantly increase the production capacity of the refinery.</p>	Technical information to be submitted with the Works Approval Application if individual works are implemented.	Min for Env		Construction		Condition not triggered during reporting period.



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Audit Code	Subject	Action	How	Evidence	Satisfy	Advice	Phase	When	Status
728:M10.1	Operational Performance Verification	Prior to submitting a Works Approval application (under Part V of the 'Environmental Protection Act 1986) for works included in the revised proposal, 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"><li>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 practicable and appropriate, continuous monitoring;</li><li>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</li><li>3. a program for independent audit and review of the results of monitoring undertaken in accordance with the Air Quality Management Plan.</li></ol>	Air Quality Management Plan available.	Min for Env	EPA	Pre-Construction	Prior to submitting a Works Approval application	Condition not triggered during reporting period.
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.	Min for Env		Pre-Construction		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	Min for Env	EPA	Operation		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 Minister for the Environment on advice front the Environmental Protection Authority.	Air Quality Management Plan is made publicly available on the Alcoa website and copies provided on request.	CR, Air Quality Management Plan published on the Alcoa website and copies made available upon request	Min for Env	EPA	Pre-Construction		Condition not triggered during reporting period.
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	Min for Env		Operation		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	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	Min for Env		Operation		Condition not triggered during reporting period.



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		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.		Triennial Environmental Review					
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 (ii) 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.	Min for Env		Overall		Condition not triggered during reporting period.
728:M11.1	Noise.	Prior to issue of any Works Approval (under Part V of the Environmental Protection Act, 1986) for works included in the revised proposal, 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.	Prepare and submit a revised Noise Management Plan (NMP) The Plan shall include details of: 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 noise verification.	Revised Noise Management Plan	Min for Env	EPA	Pre-Construction		Condition not triggered during reporting period.
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	Min for Env	EPA	Pre-Construction		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	Min for Env	EPA	Overall		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	Submit a Works Approval Application if individual works of the proposal	Technical information to be submitted with the Works Approval	Min for Env		Overall		Condition not triggered during reporting period.



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		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 (ii) do not significantly increase the production capacity of the refinery.	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.	Application if individual works are implemented.					
728:M12.1	Water Use	Prior to the commencement of construction, 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.	Min for Env		Pre-construction	Prior to the commencement of construction	Condition not triggered during reporting period.
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	Min for Env		Overall		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	Min for Env		Construction		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 LTRMS in consultation with the 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 Long Term Residue Management Strategy	Min for Env	EPA	Pre-construction	Prior to the commencement of construction	The LTRMS was updated in 2012 as part of a scheduled review process, in consultation with RPLG and community stakeholders. Finalization and distribution of the LTRMS occurred in 2013.
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 I: 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.	Min for Env		Pre-construction		The LTRMS was updated in 2012 as part of a scheduled review process, in consultation with RPLG (representing the independent peer review process) and community stakeholders. Finalization and distribution of the LTRMS occurred in 2013.
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	Min for Env		Construction		The LTRMS is published on the Alcoa website
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	Min for Env		Overall		The LTRMS has been implemented and relevant aspects are built into residue operations.
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	Participate in the Inter-agency Working group – Rail noise impacts (co-ordinated by DMP) of the logistical aspects of rail transport	CR, Attendance/participation in working group	Min for Env		Overall		Participation in an Interagency Working Group commenced in October 2007, with the provision



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		managed in a manner which minimises impacts on residential amenity.	associated with the refinery operations.  <u>NOTE</u> The DMP is responsible for establishing the inter-agency working group within 12 months following this statement.						of information requested by the then DoIR.  DMP have put further activity by the Working Group on hold until Alcoa has finalised a position with respect to the proposed expansion at Wagerup.
728:M15.1	Community Consultation – Mining Plans	Report the results of consultation with the affected local government authorities in the preparation of mining plans.	Consult with affected local government when preparing mining plans and report results to the MMPLG: - detail consultation - feedback received - and action taken	CR, Consultation summarised in annual Mining and Management Program submissions to the MMPLG	MMPLG		Operation		Section 4.22 of the 2017-2021 Mining and Management Program details the planned consultation with applicable local government authorities for that year and the actual consultation for the previous year. The Mining and Management Program was approved by the Minister in January 2017.
728:M15.2	Community Consultation - Mining	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 MMPLG.	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. - detail consultation - feedback received - and action taken	CR, Consultation summarised in annual Mining and Management Program submissions to the MMPLG  Register of Contacts	MMPLG		Operations Annually		Section 4.21 of the 2017-2021 Mining and Management Program details consultation with applicable neighbours based on risk of impact in the five years of the plan. The Mining and Management Program was approved by the Minister in January 2017.
728:M16.1	Long-term Bauxite Residue Management – Closure Strategy Review	Revise the “closure strategy” for the residue storage areas at Wagerup, in consultation with the RPLG and submit to Minister for approval.	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	CR, Closure Strategy included in LTRMS	Min for Env on advice of EPA		Operation		The residue closure strategy is reviewed as part of the LTRMS. The LTRMS was reviewed in 2012. Finalization and distribution of the LTRMS occurred in 2013.
728:M16.2	Long-term Bauxite Residue Management – closure strategy implementation	Implement the Bauxite Residue “closure strategy”	Implement the actions detailed within the closure strategy.	CR, Closure Strategy implemented	Min for Env on advice of Minister responsible for administering the Alumina Refinery (Wagerup) Agreement and Acts 1978		Closure		Condition not triggered during reporting period.
728:M17.1	Social Impacts – Local Government Liaison	Maintain formal liaison and monitoring processes at appropriate times with the Shire of Waroona and the Shire of Harvey.	Formal liaison with the Shires of Waroona and Harvey where appropriate.	CR, Consultation summarised in Annual Environmental Review.	Min for Env		Overall		During this reporting period formal liaison and monitoring processes have included: <ul style="list-style-type: none"><li>▪ Attendance at Council meetings when required</li><li>▪ Briefings and one-on-one discussions with</li></ul>



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									<p>Shire Officers including the Chief Executive Officers, Shire Planners and Shire Environmental Health Officers</p> <ul style="list-style-type: none"> <li>▪ Discussions with the Shire representative at the Community Consultative Network (CCN) meetings convened by Alcoa.</li> <li>▪ Discussions with Shire representatives and staff through the Environmental Improvement Plan (EIP) process for 2014-2016.</li> </ul>
728:M17.2	Social Impacts – Local government Liaison Reporting Requirements	Provide details on formal liaison and monitoring processes with the Shire of Waroona and the Shire of Harvey.	Provide detail on formal liaison with Shire of Waroona & Shire of Harvey in annual report of environmental research and operations	CR, Consultation summarised in Annual Environmental Review.	Min for Env		Overall		<p>During this reporting period formal liaison and monitoring processes have included:</p> <ul style="list-style-type: none"> <li>▪ Attendance at Council meetings when required</li> <li>▪ Briefings and one-on-one discussions with Shire Officers including the Chief Executive Officers, Shire Planners and Shire Environmental Health Officers as required.</li> <li>▪ Discussions with the Shire representative at the CCN meetings convened by Alcoa.</li> </ul> <p>A summary of communications with local Shires is provided in the Annual Environmental Report.</p>
728:Procedure 1	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	DER		Overall		Procedure is to be implemented by the DER when the project reaches the detailed design stage (not yet reached)



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728:Procedure 2	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 (co-ordinated by DMP) of the logistical aspects of rail transport associated with the refinery operations.  <u>NOTE</u> The DMP is responsible for establishing the inter-agency working group within 12 months following this statement.	CR, Attendance/participation in working group	DMP		Design	Dependent on establishment of Inter-agency working group by DoIR	Participation in an Interagency Working Group commenced in October 2007, with the provision of information requested by the then DoIR.  DMP have put further activity by the Working Group on hold until Alcoa has finalised a position with respect to the proposed expansion at Wagerup.
728: Procedure 3	Final Rehabilitation Completion Criteria	1) 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) 2) The review of the final rehabilitation completion criteria shall include public consultation 3) The revised final rehabilitation completion criteria shall be made publicly available. 4) Best practice principles shall be applied.	Complete regular review of completion criteria according to requirements of Procedure 3.	Completion criteria reviewed	EPA		Operation		The most recent review of Alcoa's Completion Criteria involving Alcoa and the MMPLG, and including a public review phase, was completed in October 2015. These new Criteria are available online and apply to rehabilitation completed from 2016 onwards.
728: Procedure 4	Mining and Management Planning Liaison Group	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.  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:  (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 (iii) Potential hydrological impacts on private properties	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	EPA		Operation		Pre mining monitoring for dust, noise, aesthetic, conservation values and radiation has been completed for the Huntly Mine Myara Mine Region. Operational monitoring and community consultation in relation to these aspects is ongoing. Specific management plans are being developed as required. The next mine region planned is Willowdale Mine Larego mine. Pre mining assessments are in progress.
728:P1	Separation Distance	Implement the Wagerup Land Management Strategy.	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.	CR, Land title documentation	Min for Env		Overall		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. Specific data are available upon request.
728:P2	Mining Planning and Forest Management	Prepare and submit Mining and Management Programmes	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	CR, Submission of the MMP's	MMPLG		Overall		The 2017-2021 Huntly and Willowdale Mining and Management Program was



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			<p>rehabilitation in accordance with the procedures to be agreed between 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.</p> <p>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.</p> <p>(Refer to Procedures 3 &amp; 4)</p>						approved by the Minister in January 2017.
728:P3	Mining Planning and Forest Management	Plan and manage mining operations to minimise disturbance to biologically diverse areas fringing major rock outcrops and stream zones	<p>Plan and manage mining operations to minimise disturbance to biologically diverse areas fringing major rock outcrops and stream zones by:</p> <ul style="list-style-type: none"> <li>▪ Maintaining appropriate buffers between these areas and mine pit boundaries.</li> <li>▪ 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.</li> </ul>	<p>CR, No clearing within 50 m of rock outcrops &gt; 1 ha.</p> <p>Adhering to the DoW stream zone buffer guidelines for best practice operators.</p> <p>Rehabilitating all stream zone crossings using best practice techniques.</p>	MMPLG		Overall		<p>A 50m buffer has been created around all granite outcrops. At the drilling issue stage, the drill plan is laid over the area and any drill holes that fall within the buffer zones are removed from the plan. This prevents accidental disturbance of the land within the buffer zones.</p> <p>Two new stream crossing approvals were received in 2016 for Kisler1 stream crossings, located in the Myara Mine Region of the Huntly Mine site. Construction of the crossings will commence in 2017.</p> <p>In 2016, no stream zones were rehabilitated at Huntly or Willowdale mines.</p>
728:P4	Mining Planning and Forest Management	Conduct biological surveys and support conservation of rare, endangered & priority species near 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.	<p>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.</p> <p>Management techniques contained within management plans will be continuously reviewed and improved to minimise impact on identified species.</p>	MMPLG		Overall		<p>Pre-mining fauna surveys of threatened species populations and habitat have been completed for the Myara crusher region and are ongoing for the future Larego region. All identified black cockatoo roosting and nesting habitat is mapped on Alcoa's GIS system. Threatened fauna species management plans have been developed for the four taxa known to occur in ML1SA (chuditch, quokka, noisy scrub bird &amp; black cockatoos).</p> <p>Pre-mining flora surveys to identify rare and endangered, especially protected or priority species were completed for Larego in 2008 and for Myara in 2012. No Rare or Threatened Australian Plants have been recorded in these mining regions. Vegetation communities</p>



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									associated with identified priority species are not planned to be disturbed by mining.
728:P5	Water Resources	Conduct research before mining in the intermediate rainfall zone.	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.	MMPLG		Overall		A major catchment research project investigating the effects of mining in the intermediate rainfall zone (IRZ) was concluded in 2016. The results of the study, with updates presented to the MMPLG on an annual basis, showed that there was no effect on stream flow or salinity due to mining. Monitoring and salinity risk reporting to the MMPLG are continuing for the O'Neil mining region and the IRZ parts of the Myara region.
728:P6	Mine Rehabilitation	Monitor success of all rehabilitated Mining areas.	Monitor the success of all rehabilitated Mining areas in consultation with the DPaW	CR, Completion criteria reports for rehabilitated areas are submitted to DPaW annually for audit.	DPaW		Overall		DPaW inspects rehabilitation works annually and assesses each area against completion criteria requirements. This information is collated and provided to DPaW for their records. Completion criteria reports for 2016 rehabilitation at both sites are due to be finalised shortly. Reports include the areas rehabilitated for that year, rehabilitation checklists, fertilizer reports, and 9 month and 15 month botanical monitoring results.
728:P7	Forest Conservation	Utilise environmental management procedures in jarrah forest conservation areas, agreed in consultation with the MMPLG.	Alcoa will not mine the bauxite resources in the jarrah forest 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.	CR, No clearing for mining will be undertaken in conservation reserves.	MMPLG		Operation		A conceptual haul road crossing of the Lane Poole Reserve Conservation area was approved in the Willowdale MMP in 2013 which will allow access to ore in the Larego region. Alcoa retains the right to cross these reserves with haul road or conveyor alignments but not mine the ore. A submission to the CARIREC was made in April 2014, and approved in May 2014.
728:P8	Forest Conservation	Mining in the recreation zone of the Land Poole Reserve will be undertaken in accordance with site specific environmental management procedures.	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 DPaW	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	MMPLG		Operation		No additional approval sought for areas within Lane Poole Reserve. Ongoing development of previously approved areas.



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			and the Lane Poole Reserve Advisory Committee.	Informal Reserve Evaluation Committee first as agreed by the Chairman of the EPA.					
728:P9	Dieback Management	Implement dieback management programme mine operations in the jarrah forest.	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 mine operating areas, in accordance with procedures agreed with State agencies, and irrespective of the cause of introduction of the disease.	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 DFR steering committee that contains DPaW and Alcoa representatives.	MMPLG		Overall		The dieback management program has been implemented at Huntly and Willowdale as per procedures agreed with the DPaW as part of the Alcoa/DER Working Arrangements. The Myara Dieback Strategy continued to be implemented during 2016 with rehabilitation of some areas planned to commence in 2017/2018. No areas were identified as suitable for DFR in 2016.
728:P10	Environmental Research	Implement ongoing research programme into all aspects of the operation that have the potential to adversely impact the environment.	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.	MMPLG		Operation		Research programs are ongoing for mining rehabilitation, dieback fallowing, catchment hydrology, recalcitrant plant species propagation and threatened fauna species management. Details of these research programs are provided in the Annual Environmental Report (AER). The 2015 AER was submitted to the DSD in April 2016 with an email acknowledging receipt by DSD dated 11 <sup>th</sup> May 2016.
728:P11	Environmental Research	Submit a review of research and management programme to the Department of Industry and Resources on an annual basis.	Submit a brief review of research and management programme to the Department of State Development 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.	DSD		Operation		The 2015 Mining AER was submitted to the DSD in April 2016 with an email acknowledging receipt by DSD dated 11 <sup>th</sup> May 2016. This included details on the mining research and management programme.
728:P12	Noise Monitoring	Conduct noise monitoring.	Noise monitoring undertaken for assessment purposes will be undertaken by a recognised acoustical consultant, in consultation with the DER. Ongoing monitoring will be undertaken by Alcoa personnel, or consultants, appropriately trained in the measurement of environmental noise.	CR, Included in Annual Environmental Review.	DER		Operation		Ongoing noise monitoring is conducted by appropriately trained personnel and acoustic consultants.
728:P13	Noise Monitoring	Report noise monitoring results.	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.	DMP		Operation		Noise monitoring results are reported to DSD in the AER submitted prior to 31 March each year.

NOTES:



**Government of Western Australia**  
**Department of Environment Regulation**

**AUDIT TABLE**

**Proposal Implementation Monitoring Section**

**PROJECT: Wagerup Alumina Refinery-Production to a maximum capacity of 4.7 million tonnes per annum and associated bauxite mining**

1. Where a condition states “on advice of the Environmental Protection Authority”, the Environmental Protection Authority will provide that advice to the Department of Environment Regulation for the preparation of written notice to the proponent.
2. It is expected that the Environmental Protection Authority will seek advice from other agencies or organisations ‘including the Department of Health, as required, in order to, ‘provide its advice to the Department of Environment Regulation’.
3. The Minister for the Environment will determine any dispute ‘between the proponent and the Environmental Protection, Authority or the Department of Environment Regulation over the fulfillment of the requirements of the conditions.