



Report and recommendations of the Environmental Protection Authority



**Wagerup Alumina Refinery - production to
a maximum capacity of 4.7 million tonnes
per annum and associated bauxite mining
proposal - inquiry under section 46 of the
Environmental Protection Act 1986
to amend Ministerial Statement 728**

Alcoa of Australia Limited

Report 1604

October 2017

**ENVIRONMENTAL PROTECTION AUTHORITY
REPORT AND RECOMMENDATIONS TO THE MINISTER FOR
ENVIRONMENT**

**WAGERUP ALUMINA REFINERY PRODUCTION TO A MAXIMUM
CAPACITY OF 4.7 MILLION TONNES PER ANNUM AND ASSOCIATED
BAUXITE MINING PROPOSAL - INQUIRY UNDER SECTION 46 OF THE
ENVIRONMENTAL PROTECTION ACT 1986 TO AMEND MINISTERIAL
STATEMENT 728**

The Minister for Environment has requested that the Environmental Protection Authority (EPA) inquire into and report on the matter of changing the implementation conditions relating to the Wagerup Alumina Refinery proposal.

The following is the EPA's Report and Recommendations (No. 1604) to the Minister pursuant to section 46(6) of the *Environmental Protection Act 1986* (EP Act).

Section 46(6) requires the EPA Report to include:

- a) a recommendation on whether or not the implementation conditions to which the inquiry relates, or any of them, should be changed; and
- b) any other recommendations that it thinks appropriate.

Background

The Wagerup Alumina Refinery revised proposal is to construct and operate the Wagerup Alumina Refinery to a maximum production capacity of 4.7 million tonnes per annum (Mtpa) and its associated bauxite mining.

The EPA assessed the revised proposal at the level of Environmental Review and Management Program (ERMP) and released its assessment Report 1215 in January 2006. The EPA identified the following key environmental factors relevant to the revised proposal:

- Air pollutant emissions;
- Predicted ambient air quality and Health Risk Assessment;
- Potential for health and amenity impacts due to short-term ground level concentrations;
- Land use management in proximity to the refinery;
- Noise; and
- Greenhouse gas emissions.

In applying the Environmental Protection *Statement of Environmental Principles, Factors and Objectives*, December 2016 (SEPFO) these factors are now represented by:

- Air Quality; and
- Social Surroundings.

EPA Report 1215 (January 2006) concluded that “having considered the advice of the Department of Health and Department of Environment, the EPA considers that approval for expansion at Wagerup could be considered provided the safeguards listed in this report are introduced as a complete package to protect and monitor the health of the community”.

Subsequent to finalising appeal determinations 007 to 056 of 2006 (May 2006), the Minister for Environment approved the proposal for implementation, subject to the implementation conditions of Ministerial Statement 728, 14 September 2006.

Requested changes to conditions

Condition 4 of Ministerial Statement 728, as amended by Ministerial Statement 897, required the proponent to substantially commence the revised proposal within five years of the date of issue of the Statement (that is, before 14 September 2016).

The proponent for the proposal, Alcoa of Australia (Alcoa), requested an extension of the Time Limit of Authorisation for substantial commencement (now referred to as the Time Limit of Proposal Implementation) to be extended by five years to 14 September 2021 as the third production unit had not yet been constructed. In response, the Minister for Environment requested (17 February 2016) that the EPA inquire into and report on the matter of changing implementation conditions for the Wagerup Alumina Refinery (Ministerial Statement 728).

In September 2016, following the Minister’s request to the EPA to inquire into the conditions, the Minister, with the consent of the proponent, issued a section 46A Notice of Interim Implementation Conditions, extending the Time Limit for Proposal Implementation for a period of one year, to 27 September 2017. A second section 46A Notice of Interim Implementation Conditions, extending the Time Limit for Proposal Implementation for a period of six months, to 27 March 2018 was approved on 31 August 2017. The interim condition will remain in effect until a further statement is published under section 45(5) as applied by section 46(8) of the *EP Act* (that is, following the Minister’s consideration of this report and consultation with other relevant decision making authorities).

The proponent is now seeking to modify condition 4 of Ministerial Statement 728, to extend the Time Limit for Proposal Implementation, and to clearly specify that the condition only relates to that portion of the revised proposal, being the third production unit.

The proponent is seeking a five year extension to the Time Limit for Proposal Implementation for the third production unit (that is until 27 September 2022). As a result of the modification to condition 4, related conditions 8 to 11 would also be changed to relate only to the third production unit.

In EPA Report 1215 (January 2006), the assessment of the revised proposal included:

- the operating refinery approved under Ministerial Statement 390, as amended by Ministerial Statement 564, and approved for up to 3.3 Mtpa of alumina production and associated mining activities; and
- changes to existing infrastructure and the construction and operation of the expansion to the refinery up to 4.7 Mtpa (i.e. the third production unit).

The Wagerup Alumina Refinery is an operating refinery that is currently licensed by the Department of Water and Environmental Regulation under the EP Act Part V operating Licence L6217/1983/15, for production of up to 2.85 Mtpa of alumina.

The addition of a third production unit to the two production units currently operating in the refinery was assessed as part of the revised proposal and is defined in the original ERMP. The third production unit will replicate the existing Bayer process steps from bauxite grinding through to alumina calcination and increase alumina production capacity up to 4.7 Mtpa. The third production unit has not yet been constructed.

The relevant factors relating to this change to conditions are:

- Air Quality; and
- Social Surroundings.

No other factors are considered relevant to this change to conditions.

Application of relevant EPA Policies and Guidelines

On 13 December 2016, the EPA released a new suite of environmental impact assessment policy and guidance documents.

The Minister requested the section 46 (s46) inquiry on 17 February 2016, prior to the release of the new *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016* and environmental impact assessment policy and guidance documents.

In inquiring into the change to conditions, the EPA has given due consideration to relevant published EPA policies and guidelines, noting that a number of published policies and guidelines pertaining to this proposal were considered but not determined to be relevant.

In its assessment, the EPA has considered and given due regard, where relevant, to its current and any applicable former environmental impact assessment policy and guidance documents (Table 1).

Inquiry into the requested changes to conditions

The EPA has discretion as to how it conducts its inquiry. This inquiry has considered the currency of the EPA's assessment (Report 1215) and issue of Ministerial Statement 728, September 2006, as these documents are instructive in determining the extent and nature of the inquiry under s46.

Inquiry Findings

In conducting this inquiry the EPA reviewed the information provided by the proponent and advice from relevant decision making authorities.

Air Quality

The EPA's objective for this factor is "to maintain air quality and minimise emissions so that environmental values are protected".

In relation to air pollutant emissions, in EPA Report 1215 the EPA considered that the emissions from the Wagerup Refinery had been reasonably characterised and quantified to assess the likely changes in emissions for the proposed expansion.

In relation to the predicted ambient air quality and health risk assessment, it was the EPA's opinion that the proposal could be managed to meet the EPA's environmental objective for this factor provided that further validation of the air dispersion modelling is undertaken and, if necessary, the proponent to make revisions to the engineering design. This would meet the objective of demonstrating that there would be no general increase in ambient ground level concentrations for key pollutants from the refinery, consistent with those levels predicted in the ERMP.

In relation to the potential for health and amenity impacts due to short-term ground level concentrations, it was the EPA's opinion that the proposal could be managed to meet the EPA's environmental objective for this environmental factor to ensure that the potential for health and amenity impacts are not increased. The EPA had regard to the following information:

- the total refinery odour and estimated reduction in Volatile Organic Compounds emissions;
- the proposed increase in odour from the calciners was predicted to be offset by significant reductions from the low elevation source and was considered unlikely to lead to a significant change in ground level contribution from that source; and
- the additional modelling data provided reasonable confidence that odour levels at Yarloop and Hamel should decrease with the proposal. The results of ambient air quality monitoring in the areas indicated that ground level concentrations of pollutants were very low and that the levels are below relevant national and international health guidelines.

In relation to Land Use Management in proximity to the refinery, in EPA Report 1215 (January 2006) the EPA had regard to the fact that Alcoa had a current land use management strategy for Area A (for properties close to the refinery) and Area B (covering the townships of Yarloop and Hamel), which provided opportunities for people within these areas to relocate where they considered that they were being impacted by the Refinery's operations. It was the EPA's opinion that the proposal could be managed to meet the EPA's environmental objective for this factor provided that:

- recommended Procedures 2 and 3 in relation to formal health surveys by Government were applied. These Procedures were not retained in Ministerial Statement 728 as they could not be applied to the proponent;

- the Government establish a program to enable people who have been considered to be experiencing chemical sensitivity to relocate from the area without disadvantage; and
- the Government establish a formal land management scheme for the area with the principle that there be no intensification of residential development within the 5 km management zone. This condition was not retained in Ministerial Statement 728 as this was not a condition that could be applied to the proponent.

In relation to greenhouse gases, EPA Report 1215 (January 2006) noted that, having particular regard to the fact that the Wagerup Refinery has better than average energy efficiency with respect to the world alumina industry and the improvement in energy efficiency and greenhouse gas intensity associated with the proposal, it was the EPA's opinion that the proposal could be managed to meet the EPA's environmental objective for this factor.

In summary, it was the EPA's opinion that the revised proposal could be managed to meet the EPA's environmental objective for the Air Quality factor, provided that the EPA's recommended conditions were implemented by the proponent.

The proponent has confirmed that there are no changes to the engineering design or operation of the third production unit.

The EPA notes that in regards to the extension of Time Limit for Proposal Implementation for the third production unit, that a number of existing implementation conditions in Ministerial Statement 728 require that the proponent undertake additional studies and investigations with expert input to ensure that the construction and operation of the third production unit is consistent with those levels modelled in the ERMP. As a result of the modification to condition 4, related conditions 8 to 10 would also be changed to relate only to the third production unit.

- Condition 2 (Proponent Environmental Management Commitments). Commitment 1 (December 2005) Separation Distance. Proponent commitment to provide residents near the refinery with an option to relocate;
- Condition 8 (Best Practice Pollution Control Measures to be Applied) to demonstrate that the engineering design meets best practice and achieves the reductions stated in the condition for specified emissions.
- Condition 9 (Air Dispersion Model Validation) to require validation of the air dispersion model predictions of ground level concentrations in the ERMP and associated documents.
- Condition 10 (Operational Performance Verification) to require a detailed Air Quality Management Plan for performance verification monitoring for air quality; and
- Procedure 1 (Independent Design Review Team) to establish a team including specialists in design, construction, commissioning, and monitoring of large industrial plants and pollution control equipment. This team would review the engineering design details leading to the works approval application under Part V of the EP Act, and advise and assist the

Department of Environment and Conservation (now Department of Water and Environmental Regulation) prior to the works approval being granted.

The EPA considers, having regard to the environmental objective for the Air Quality factor and relevant policies and guidelines, that the impacts to this factor are manageable and would not be significant provided that modified implementation conditions 4 (Time Limit for Proposal Implementation), 8 (Best Practice Pollution Control Measures to be Applied), 9 (Air Dispersion Model Validation), and 10 (Operational Performance Validation) and existing Condition 2 and Procedure 1 are implemented.

Social Surroundings

The EPA's objective for this factor is "to protect social surroundings from significant harm".

Noise impacts were assessed in the original assessment (Report 1215). The EPA had regard to the fact that:

- Alcoa had implemented a significant program of noise reduction, noise modelling, noise monitoring and complaint response over a 10 year period;
- noise emissions could not reasonably or practicably be ameliorated and/or managed so as to comply with the prescribed standard in the noise regulations;
- the revised proposal was capable of being managed so as to achieve no increase in noise from the baseline noise emissions from 2001;
- for both the existing and upgraded refinery there was a benefit in pursuing further noise levels at the nearest residences and to minimise audible occurrences of the noise at other residences;
- issues raised by the community in relation to noise monitoring, provision of noise information and complaint response would be better addressed during the Part V regulatory process;
- Alcoa had in place an effective noise insulation program for affected dwellings; and
- there were ongoing land management issues for the community that would need to continue to be addressed through careful implementation of Alcoa's Land Management Plan.

In EPA Report 1215, the EPA accepted that the noise predictions presented by Alcoa in relation to the revised proposal were reasonable estimates of the expected noise emissions and concluded that the revised proposal would not be reasonably or practicably capable of complying with the prescribed standard for noise emissions. A Noise Regulation 17 assessment, undertaken under the *Environmental Protection (Noise) Regulations 1997* was included in EPA Report 1215. To ensure that practicable noise reductions were achieved the EPA also recommended that high level scrutiny of the design and commissioning processes be carried out at all stages of the process, and that this be conditioned under the Ministerial Statement.

It was the EPA's opinion that the proposal could be managed to meet the EPA's objective for this factor provided that:

- a noise Regulation 17 approval was granted because noise emissions could not reasonably or practicably be ameliorated and/or managed so as to comply with the prescribed standard;
- the proponent commitment to continue support of its Wagerup Land Management Strategy was implemented; and
- Condition 11 be implemented to ensure that the proponent revise, make publicly available and implement the Noise Management Plan submitted with the ERMP, to reasonably demonstrate that the design of the expansion works will include all reasonable and practical measures to control noise emissions, is implemented.

The Regulation 17 approval was gazetted in June 2012, and an amendment was gazetted on 10 December 2013. A Regulation 17 extension application is currently under assessment by the DWER Regulatory Services.

The proponent has confirmed that there are no changes to the design or operation of the third production unit.

In addition to the requirements of the Regulation 17 approval, the EPA notes that the following existing implementation conditions are relevant to the implementation of the third production unit. As a result of the modification to condition 4, related condition 11 would also be changed to relate only to the third production unit.

- Condition 11 (Noise) requires the preparation of a revised Noise Management Plan prior to implementation of the third production unit, that provides details on all reasonable and practicable measures to control noise emissions incorporated in design and construction of the expansion works; and
- Implementation Procedure 2 (Inter-agency Working Group – Rail Noise Impacts) requires the establishment of a working group to further define rail noise impacts, and identifying practicable operational measures necessary to mitigate noise impacts.

The EPA considers, having regard to the environmental objective for the Social Surroundings factor and relevant policies and guidelines, that the impacts to this factor are manageable and would not be significant provided that modified existing implementation condition 11, existing Procedure 2 and existing Regulation 17 approval are implemented.

EPA conclusions and recommendations

Conclusions

In relation to the environmental factors, and in consideration of the information provided by the proponent and relevant EPA policies and guidelines, the EPA concludes that:

- there are no changes to the proposal;
- there is no significant new or additional information that justifies the reassessment of the issues raised by the proposal;

- the environmental factors of the proposal have not changed significantly from those originally assessed in EPA Report 1215 (January, 2006);
- no new significant key environmental factors have arisen since the EPA's assessment of the proposal;
- Alcoa has consulted with all relevant government authorities and stakeholders in regards to the extension of the Time Limit for Proposal Implementation;
- the following Decision Making Authorities were consulted and do not object to the extension of the Time Limit for Proposal Implementation:
 - Director General of the Department of Jobs, Tourism, Science and Innovation (the then Department of State Development);
 - Director General of the Department of Mines, Industry Regulation and Safety (the then Department of Mines and Petroleum);
 - Chief Executive Officer of the Shire of Waroona;
 - Chief Executive Officer of the Southern Ports Authority
 - Director General of the Department of Water and Environmental Regulation; and
 - Director General of the Department of Health.
- the implementation conditions of Ministerial Statement 728 manage and mitigate the potential impacts of the implementation of the third production unit; and
- prior to implementation of the third production unit, Alcoa will require a Works Approval issued under Part V of the *Environmental Protection Act 1986* from the Department of Water and Environmental Regulation, for which there will be additional public consultation.

Recommendations

Having inquired into this matter, the EPA submits the following recommendations to the Minister for Environment:

1. That condition 4, 8, 9, 10 and 11 be amended under section 46 of the *Environmental Protection Act 1986* to relate only to the Time Limit of Authorisation for that portion of the revised proposal, being the third production unit; and
2. That, after complying with section 46(8) of the *Environmental Protection Act 1986*, the Minister issues a statement of decision to change conditions 4, 8, 9, 10, and 11 of Statement 728 in the manner provided for in the attached recommended Statement.

Table 1 – Relevant EPA Policies and Guidelines

Process/ Factor/s	Policies and guidelines considered relevant	Applied Yes/No	Comments
Change to conditions	<i>Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2016</i>	Yes	The Administrative Procedures provide the principles and practices around the environmental impact assessment process undertaken by the Office of the Environmental Protection Authority under Part IV of the EP Act. Relevantly, section 5.4 of the Administrative Procedures provide guidance on the process for changing conditions under section 46 of the EP Act.
Change to conditions	<i>Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual, December 2016</i>	Yes	The Procedures Manual supports the Administrative Procedures and contains more detailed information on each step of the EIA process, including section 46 changes to conditions, under stage 5.4. More relevantly, stage 5.4 details the process for changing implementation conditions.
Change to conditions	<i>Statement of Environmental Principles, Factors and Objectives (December 2016) (SEPFO).</i>	Yes	Relevantly, the SEPFO: <ul style="list-style-type: none"> • considers the object and principles of the <i>Environmental Protection Act 1986</i>; • uses environmental factors and objectives to organise and systemise environmental impact assessment and reporting; • takes a holistic view of the environment and a proposal or scheme’s potential impact on the environment; and • considers significance when determining whether or not to assess a proposal or scheme and recommend whether or not an assessed proposal or scheme may be implemented. <p>In this case the SEPFO was applied in:</p> <ul style="list-style-type: none"> • confirming the key environmental factors identified in EPA Report 1215 in the current policy context; • confirming that the identified environmental factors are still relevant and that no new factors should be considered; and • preparing advice on whether the EPA’s environmental objectives can still be met.
Air Quality	<i>Environmental Factor Guideline – Air Quality, (December 2016).</i>	Yes	The purpose of this guideline is to communicate how the factor Air Quality is considered by the Environmental Protection Authority (EPA) in the environmental impact assessment process.

Process/ Factor/s	Policies and guidelines considered relevant	Applied Yes/No	Comments
			<p>In considering the change to conditions, this Guideline was applied when defining and identifying environmental values for the factor air quality.</p> <p>Relevantly this guideline was applied with regard to:</p> <ul style="list-style-type: none"> • application of the mitigation hierarchy potential air quality impacts on health and amenity; • whether numerical modelling and other analyses to predict potential impacts has been undertaken using recognised standards with accepted inputs and assumptions; • whether existing background air quality, including natural variations, has been established through monitoring and accepted proxy data; • whether analysis of potential health and amenity impacts has been undertaken using recognised criteria and standards, where relevant, informed by Australian and international standards; • the significance of the likely change to air quality as well as the environmental values affected by those changes, in the context of existing and predicted cumulative impacts; and <p>The third production unit has not yet commenced, and the proponent has advised that there has been no significant changes to this key environmental factor since the EPA's original assessment. In addition the EPA notes that there are conditions to ensure that the design and implementation of the third production unit minimise impacts on air quality.</p>
Social Surroundings	<i>Environmental Factor Guideline – Social Surroundings, December 2016.</i>	Yes	<p>The purpose of this guideline is to communicate how the factor Social Surroundings is considered by the EPA in the EIA process.</p> <p>Relevant to the proposed change to conditions, the guideline was applied to ensure that for social surroundings to be considered in EIA, there must be a clear link between a proposal's impact on the physical and biological surroundings and the subsequent impact on a person's aesthetic, cultural, economic or social surroundings.</p> <p>In EPA Report 1215 the proposal was considered to have impacts on the physical and biological surroundings and that these impacts could potentially impact on a person's social surroundings in relation to noise to surrounding residents of the refinery;</p>

Process/ Factor/s	Policies and guidelines considered relevant	Applied Yes/No	Comments
			The proponent has confirmed that there are no changes to the design or construction of the third production unit and therefore the potential impacts related to Social Surrounds are considered to be unchanged from those discussed in EPA Report 1215.

Identified Decision-making Authorities

Section 44(2) of the EP Act specifies that the EPA's report must set out (if it recommends that implementation be allowed) the conditions and procedures, if any, to which implementation should be subject. This Appendix contains the EPA's recommended conditions and procedures.

Section 45(1) requires the Minister for Environment to consult with decision-making authorities, and if possible, agree on whether or not the proposal may be implemented, and if so, to what conditions and procedures, if any, that implementation should be subject.

The following decision-making authorities have been identified for this consultation:

Decision-making Authority	Approval
1. Minister for State Development	<i>Alumina Refinery (Wagerup) Agreement Act and Acts Amendment Act 1978</i>
2. Minister for Mines and Petroleum	<i>Mining Act 1978</i>
3. Director General Department of Mines, Industry Regulation and Safety	<i>Dangerous Goods Safety Act 2004</i>
4. Director General Department of Water and Environmental Regulation	<i>Part V of the Environmental Protection Act 1986</i>
5. Chief Executive Officer Shire of Waroona	
6. Chief Executive Officer Southern Ports Authority	

Note: In this instance, agreement is only required with DMA # 1 and # 2 since these DMAs are Ministers.

RECOMMENDED ENVIRONMENTAL CONDITIONS

**STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL
(PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE *ENVIRONMENTAL
PROTECTION ACT 1986*)**

WAGERUP ALUMINA REFINERY – PRODUCTION TO A MAXIMUM CAPACITY OF
4.7 MILLION TONNES PER ANNUM AND ASSOCIATED BAUXITE MINING

Proposal: The construction and operation of the Wagerup Alumina Refinery to a maximum production capacity of 4.7 million tonnes per annum and its associated bauxite mining, as documented in Schedule 1 of Ministerial Statement 728.

Proponent: Alcoa of Australia Limited
Australian Company Number 004 879 298

Proponent Address: 181-205 Davy Street, BOORAGOON WA 6154

Assessment Number: 2079

Report of the Environmental Protection Authority: 1604

Previous Assessment Numbers: 1527, 1919

Previous Report Numbers: 1215, 1430

Preceding Statement/s Relating to this Proposal: 728 and 897

The implementation of the revised proposal to which the above report of the Environmental Protection Authority relates, is subject to the conditions and procedures contained in Ministerial Statement 728 and this Ministerial Statement.

This Ministerial Statement replaces all conditions and procedures contained in Ministerial Statement 897 and the Interim Implementation Conditions dated 27 September 2016 and 31 August 2017.

Condition 4 of Ministerial Statement 728 is changed

Condition 4 of Ministerial Statement 728 (as amended by Ministerial Statement 897 and Interim Implementation Conditions dated 27 September 2016 and 31 August 2017) is deleted and replaced with:

4 Time Limit for Implementation of the Third Production Unit

4-1 The proponent shall not commence implementation of that portion of the revised proposal being the third production unit after 27 September 2022, and any commencement prior to this date must be substantial.

4-2 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.

Conditions 8 to 10 of Ministerial Statement 728 are changed

Condition 8-1, condition 9-1 and condition 10-1 are amended by deleting the words 'the revised proposal' and replacing them with the words 'that portion of the revised proposal being the third production unit'.

Condition 11 of Ministerial Statement 728 is changed

Condition 11-1 is amended by deleting the words 'Prior to issue of any Works Approval (under Part V of the *Environmental Protection Act, 1986*) for works included in the revised proposal' and replacing them with the words:

'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'.

Condition 12 of Ministerial Statement 728 is changed

Condition 12-1 is amended by deleting the words 'Prior to the commencement of construction' and replacing them with the words:

'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 Chief Executive Officer of the Department of the Public Service which is responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or his delegate.