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Published on: 7 January 2021

Statement No. 1157

**STATEMENT TO CHANGE THE IMPLEMENTATION CONDITIONS  
APPLYING TO A PROPOSAL  
(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

**Report of the Environmental Protection Authority:** 1691

**Preceding Statement/s Relating to this Proposal:** 728, 897 and 1069

Pursuant to section 45 of the *Environmental Protection Act 1986*, as applied by section 46(8), it has been agreed that the implementation conditions set out in Ministerial Statement No. 728 be changed as specified in this Statement.

**The following conditions, procedure and note of Ministerial Statement 728 (as amended by Ministerial Statements 897 and 1069) are deleted and replaced with:**

**4 Time Limit for Proposal 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 the 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 CEO with written evidence, on or before 27 September 2022.

## 8 Best Practice Pollution Control Measures to be Applied

- 8-1 As part of any Works Approval and/or Licence application (under Part V of the *Environmental Protection Act 1986*) for works included in that portion of the revised proposal being the Expansion Works, as documented and described in Schedule 1 of Ministerial Statement 728, to increase refinery production up to 3.3 million tonnes per annum (Mtpa) the proponent shall prepare and submit a Detailed Design Report that details the best practice pollution control measures employed to minimise emissions from the Wagerup Alumina Refinery (the Refinery).

The Detailed Design Report shall set out the base emission rates for the major sources for the Refinery and the design emission targets for the works. In particular, the Detailed Design Report shall demonstrate that the design of the expansion works achieves to the extent reasonably practicable the following reductions from base emission rates:

- (1) at least a 75% reduction in peak and average emissions rates of Volatile Organic Compounds (VOCs) and odour from slurry storage tanks vents (25A tanks); and
- (2) reduction to negligible emissions of VOCs and odour from calciner vacuum pumps exhaust vents for any new calciner.

Note: the term “base emission” rates for production increases up to 3.3 Mtpa means emissions rates based on the Wagerup Refinery 2018 Emissions Inventory for the production at 2.85 Mtpa.

- 8-1A As part of any Works Approval and/or Licence application (under Part V of the *Environmental Protection Act 1986*) for works included in that portion of the revised proposal being the Expansion Works, as documented and described in Schedule 1 of Ministerial Statement 728, to increase refinery production from 3.3 Mtpa up to 4.7 Mtpa, 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.

The Detailed Design Report shall set out the base emission rates for the major sources for the Refinery and the design emission targets for the expanded works. In particular, the design emission targets in Detailed Design Report shall demonstrate that the design emission targets of the expansion works will reasonably achieve no overall increase in VOC or odour emissions from the Refinery through the application of best practice pollution control measures. The Detailed Design Report shall analyse potential emission reduction measures for the following sources:

- (1) milling vents (building 25);
- (2) seed filtration stacks (building 44);

- (3) filtration tank vents (35A unit) and causticisation tank vents (35J unit);
- (4) sand separation stacks (building 26);
- (5) boilers and turbines stacks (building 110);
- (6) calciner stacks;
- (7) calciner vacuum pumps exhaust vents; and
- (8) 45K cooling towers.

Note: the term “base emission” rates for production increases between 3.3 Mtpa to 4.7 Mtpa means emissions rates based on the Wagerup Refinery Emissions Inventory, as updated and approved by the CEO.

- 8-1B The proponent shall make the VOC and odour emissions rates, as set out in the Detailed Design Reports required by conditions 8-1 and 8-1A, publicly available in a manner approved by the CEO.
- 8-2 The Detailed Design Reports required by conditions 8-1 and 8-1A shall address how the design emission targets in conditions 8-1 and 8-1A will be met during stable operations. The Detailed Design Reports shall also address how best practice will be applied to minimising emissions during unstable operating conditions such as during shut-downs, start-up, and equipment failure.
- 8-3 In the case where best practice pollution control measures do not achieve the individual reductions in base emission rates in condition 8-1 and 8-1A, the Detailed Design Report required by the condition shall provide alternative measures to achieve equivalent overall reductions.
- 8-4 Detailed Design Reports referred to in conditions 8-1 and 8-1A shall be subject to independent peer review (refer to Procedure 1).
- 8-5 Notwithstanding the requirements of conditions 8-1, 8-1A, 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 requirement of a Works Approval and/or Licence under Part V of the *Environmental Protection Act 1986*, on the *proviso* that the individual works:
- (1) have effect in reducing or offsetting air emissions (including odour) from the existing refinery, where practicable; and
  - (2) do not significantly increase the production capacity of the refinery.

Notes:

1. Best practice pollution control measures include technology, practices, and equipment which are:

- proven reliable in full-scale operation and applied in similar application to achieve lower emissions; and
  - reasonable and practicable given the level of emissions and risk of health and/or amenity impacts from emissions.
2. A significant increase is defined as more than a 5% increase on the assessed annual production capacity for the Licence for the refinery (as amended) under Part V of the *Environmental Protection Act 1986*, but in any event not greater than the approved annual alumina production as defined in Schedule 1 of Ministerial Statement 728.

## **9 Air Dispersion Model Validation**

9-1 Prior to submitting a Works Approval and/or Licence application (under Part V of the *Environmental Protection Act 1986*) for works included in that portion of the revised proposal being Expansion Works, as documented and described in Schedule 1 of Ministerial Statement 728, to increase production to 3.3 Mtpa, 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 CEO.

The data acquisition and investigations shall include:

- (1) twelve (12) months of meteorological data from an escarpment meteorological station;
- (2) twelve (12) months of vertical profile temperature and wind velocity measurements using methods acceptable to the CEO;
- (3) twelve (12) months of meteorological data (wind speed, direction and temperature) from up to two (2) additional meteorological stations located on the Swan Coastal Plain, using methods and at locations acceptable to the CEO;
- (4) investigation into the validity of the building wake dispersion scheme used in the air dispersion model, by a suitable qualified modeller;
- (5) investigation into the validity of modelled multiflued plume rise behaviour, in light of recent findings reported in literature, by a suitable qualified modeller; and
- (6) twelve (12) additional months of base case emissions rate data for key sources.

Note: the “key sources” referred to in condition 9-1 are the liquor burner, calciners, 25A tank vents, 35A tanks, 35J tanks and cooling towers.

9-1A Prior to submitting a Works Approval and/or Licence application (under Part V of the *Environmental Protection Act 1986*) for works included in that portion of the revised proposal being the Expansion Works, as documented and described in Schedule 1 of Ministerial Statement 728, to increase refinery production from 3.3 Mtpa up to 4.7 Mtpa, 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 CEO.

The data acquisition and investigations shall include:

(1) additional investigation of techniques and approaches for measurement and assimilation of vertical wind velocity measurements into the Wagerup air dispersion model using methods acceptable to the CEO.

9-2 The proponent shall make use of the results of the data acquisition and investigations, referred to in conditions 9-1 and 9-1A to:

(1) validate the performance of the dispersion model; and

(2) provide details on whether ground level concentrations predicted with the updated air dispersion model and design emission targets set out in the Detailed Design Reports referred to in conditions 8-1 and 8-1A are consistent with 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 (10) kilometres from the multiflued stacks.

This work shall be carried out to the requirements of the CEO.

9-3 In the case that the validation of the dispersion modelling, referred to in condition 9-2, does not reasonably demonstrate ground level concentrations consistent with those 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.

9-4 Notwithstanding the requirements of conditions 9-1, 9-1A, 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 requirement of a Works Approval and/or Licence under Part V of the *Environmental Protection Act 1986*, on the *proviso* that the individual works:

(1) have effect in reducing or offsetting air emissions (including odour) from the existing refinery, where practicable; and

(2) do not significantly increase the production capacity of the refinery.

Note: A significant increase is defined as more than a 5% increase on the assessed annual production capacity for the Licence for the refinery (as amended) under Part V of the *Environmental Protection Act 1986*, but in any event not greater than the approved annual alumina production as defined in Schedule 1.

## **10 Operational Performance Verification**

10-1 Prior to submitting a Works Approval and/or Licence application (under Part V of the *Environmental Protection Act 1986*) for any works included in that portion of the revised proposal being the Expansion Works, as documented and described in Schedule 1, the proponent shall prepare and submit an Air Quality Management Plan/s for those works to the satisfaction of the CEO.

The Air Quality Management Plan/s shall include:

- (1) an emission and ambient air quality monitoring program, for performance verification monitoring, that addresses emissions monitoring for the works and ambient air quality, including where practicable and appropriate, continuous monitoring; and
- (2) management procedures with the objective of achieving the design emission targets referred to in conditions 8-1 and 8-1A for the works 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.

Note: During the development of the Air Quality Management Plan/s, the proponent must consult with community and stakeholders.

10-2 The Air Quality Management Plan/s referred to in condition 10-1 shall be subject to independent peer review (refer to Procedure 1) as required by the CEO.

10-3 The proponent shall implement the Air Quality Management Plan/s referred to in condition 10-1 throughout the commissioning and operational phase of each Refinery expansion.

10-4 The proponent shall make the Air Quality Management Plan/s referred to in condition 10-1 publicly available to the requirements of the CEO.

10-5 In the case that the performance monitoring referred to in condition 10-1 indicates that the design emission targets referred to in the Detailed Design Reports required by conditions 8-1 and 8-1A 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.

10-6 The proponent shall regularly review and, where appropriate, employ adaptive management practices to facilitate continuous improvement in key source

emissions management at the Refinery in line with current best practice management.

Note: It is expected that the outcomes of condition 10-6 will be implemented through Part V of the *Environmental Protection Act 1986*.

10-7 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 requirement of a Works Approval and/or Licence under Part V of the *Environmental Protection Act 1986*, on the proviso that the individual works:

- (1) have effect in reducing or offsetting air emissions (including odour) from the existing refinery, where practicable; and
- (2) do not significantly increase the production capacity of the Refinery.

Note: A significant increase is defined as more than a 5% increase on the assessed annual production capacity for the Licence for the refinery (as amended) under Part V of the *Environmental Protection Act 1986*, but in any event not greater than the approved annual alumina production as defined in Schedule 1.

## **11 Noise**

11-1 As part of any Works Approval and/or Licence application (under Part V of the *Environmental Protection Act 1986*) for any works included in that portion of the revised proposal being the Expansion Works, as documented and described in Schedule 1 of Ministerial Statement 728, the proponent shall submit a Noise Management Plan for those works 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 CEO.

The Noise Management 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 relevant to the works;
- (2) acoustic modelling of noise emission levels in the surrounding environment utilising the design target Sound Power Levels relevant to the works;
- (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 condition 11-1(2); and
- (4) parties engaged in the design, acoustic modelling and noise verification as covered by conditions 11-1(1) to 11-1(4).

- 11-2 The proponent shall make the Noise Management Plan required by condition 11-1 publicly available to the requirements of the CEO.
- 11-3 The proponent shall implement the Noise Management Plan required by condition 11-1 to the requirements of the CEO.
- 11-4 Notwithstanding the requirements of conditions 11-1, 11-2 and 11-3, the proponent may implement individual works of this proposal, as described in Schedule 1 of this Statement, subject to the requirement of a Works Approval and/or Licence under Part V of the *Environmental Protection Act 1986*, on the proviso that the individual works:
- (1) have effect in reducing or offsetting air emissions (including odour) from the existing refinery, where practicable; and
  - (2) do not significantly increase the production capacity of the Refinery.

Note: A significant increase is defined as more than a 5% increase on the assessed annual production capacity for the Licence for the Refinery (as amended) under Part V of the *Environmental Protection Act 1986*, but in any event not greater than the approved annual alumina production as defined in Schedule 1 of Ministerial Statement 728.

**Condition 12 of Ministerial Statement 728 (as amended by Ministerial Statement 897 and 1069) is retained.**

## **Procedures**

1. The Department of Water and Environmental Regulation, 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 seek specialist input from international experts where required.

The IDRT will review the engineering design details for the Wagerup Expansion Works leading to the Works Approval and/or Licence application to advise the Department of Water and Environmental Regulation 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/s required in condition 10 to ensure that the monitoring and management is undertaken in accordance with international best practice.

## **Notes**

4. The proponent is required to apply for a Works Approval and/or Licence for this proposal under the provisions of Part V of the *Environmental Protection Act 1986*.

The Works Approval and/or Licence application is to include the Detailed Design Reports referred to in conditions 8-1 and 8-1A and the Air Quality Management Plan referred to in condition 10-1, which will be considered in preparation of the Works Approval and Licence.

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

[signed on 7 January 2021]

Hon Stephen Dawson MLC  
**MINISTER FOR ENVIRONMENT**