Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

I approve the Project application referred to in Schedule 1, subject to the conditions in Schedules 2 to 4.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the Project.

The Hon Kristina Keneally MP

Minister for Planning

Sydney Signed 1 December 2009

The Department has prepared a consolidated version of the consent which is intended to include all modifications to the original determination instrument.

The consolidated version of the consent has been prepared by the Department with all due care. This consolidated version is intended to aid the consent holder by combining all consents relating to the original determination instrument but it does not relieve a consent holder of its obligation to be aware of and fully comply with all consent obligations as they are set out in the legal instruments, including the original determination instrument and all subsequent modification instruments.

SCHEDULE 1

Application Number:	08_0129
Proponent:	Orica Australia Pty Ltd
Approval Authority:	Minister for Planning
Land:	15 Greenleaf Road, Lot 3 in DP 234288, Kooragang Island, Newcastle
Project:	Orica Ammonium Nitrate Expansion Project

SUMMARY OF MODIFICATIONS

Application Number	Determination Date	Decider	Modification Description
08_0129-Mod-1	11 July 2012	Executive Director	modify the existing layout of the expansion project and to carry out a series of risk reduction measures
08_0129-Mod-2	17 December 2014	Executive Director	install a higher capacity Nitric Acid storage tank on the site and relocate it to the western part of the site
08_0129-Mod-3	17 December 2015	Director	increase the approved ammonia production rate from 360,000 tpa to 385,000 tpa
08_0129-Mod-4	13 May 2021	A/Director	Modification to install Nitrate Effluent Tank
08_0129-Mod-5	29 October 2021	Team Leader	Addition of irrigated fibre-bed scrubbing (IFS) technology to the existing Prill Tower and ancillary equipment.

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DEFINITIONS

Ammonium nitrate product	Solid and solution forms of ammonium nitrate including the Orica products Nitropril®, Opal™ and Chemically Pure Ammonium Nitrate (CPAN).
ANP	Ammonium Nitrate Plant
BCA	Building Code of Australia
Construction	The construction of the Project, including the demolition of buildings and/or structures, or the carrying out of works including excavation works and the erection of other infrastructure covered by this consent
Council	The City of Newcastle Council
Department	Department of Planning and Environment
EA	Environmental Assessment titled *Proposed Ammonium Nitrate Facility Expansion Environmental Assessment*, dated 1 June 2009, and the associated response to submissions titled *Proposed Ammonium Nitrate Facility Expansion Submissions Report*, dated 26 August 2009, prepared by AECOM Pty Ltd
~~EA (MOD 1)~~	~~Environmental Assessment titled *Kooragang Island Facility Uprate Modification Request,* dated 20 April 2011, and the associated response to submissions titled *Response to Submissions: Orica Modification 1*, dated 22 July 2011, prepared by AECOM~~
~~EA (MOD 2)~~	~~Environmental Assessment titled *Kooragang Island Modification Request Environmental Assessment* dated 13 November 2013, and the associated response to submissions titled *Response to Submissions Report* dated 10 February 2014, prepared by AECOM~~
~~EA (MOD 3)~~	~~Environmental Assessment titled *Orica Kooragang Island Ammonia Production Limit Increase* dated 28 April 2015 prepared by AECOM, and the associated response to submissions titled *Response to Submissions Report* dated 6 October 2015, prepared by Orica~~
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence
Final Operations	The operation of the Initial Operations and the Project in its end state, once all approved plants and infrastructure have been constructed and commissioned, as generally depicted on the plan in Appendix B
Hazard Studies	The hazard-related studies required by Conditions 14 to 20A of this approval
HWC	Hunter Water Corporation
Initial Operations	The operation of the ammonium nitrate manufacturing facility in the form that existed when the Project was approved, comprising an Ammonia Plant, NAPs 1, 2 and 3 and ANP 1 and 2 and associated infrastructure, as generally depicted in red on the plan in Appendix A with an approved production capacity of up to 500,000tpa of ammonium nitrate product
Minister	Minister for Planning (or delegate)
Modification Assessments	The document assessing the environmental impact of a proposed modification of this consent and any other information submitted with the following modification applications made under the EP&A Act: • MOD 1 - Environmental Assessment titled *Kooragang Island Facility Uprate Modification Request,* dated 20 April 2011, and the associated response to submissions titled *Response to Submissions: Orica Modification 1*, dated 22 July 2011, prepared by AECOM • MOD 2 - Environmental Assessment titled Kooragang Island Modification Request Environmental Assessment dated 13 November 2013, and the associated response to submissions titled Response to Submissions Report dated 10 February 2014, prepared by AECOM

- MOD 3 - Environmental Assessment titled Orica Kooragang Island Ammonia Production Limit Increase dated 28 April 2015 prepared by AECOM, and the associated response to submissions titled Response to Submissions Report dated 6 October 2015, prepared by Orica
- MOD 4 - Statement of Environmental Effects Nitrates Effluent Pond Replacement Project, dated March 2021 prepared by Orica and the associated response to request for information, dated 16 April 2021, prepared by Orica
- **MOD 5 – Modification Report titled Project Approval 08_0129 Orica Kooragang Island: Modification Application – MOD 5 Prill Tower Air Quality Improvement Project August 2021 prepared by Orica and the associated response to request for information, dated 9 August 2021, prepared by Orica and the letter regarding MOD 5: Stack Height, dated 27 October 2021 prepared by Orica**

~~MOD 1~~	~~The development as described in the EA (MOD 1), for modifications to the approved layout on the Project site and design amendments to ANP 3 and NAP 4 and associated plant and infrastructure~~
~~MOD 2~~	~~The development as described in the EA (MOD 2), for the installation of 2 ammonia flares and 1 nitrates flare and the relocation and expansion of the approved Nitric Acid tank on the Project site~~
~~MOD 3~~	~~The development as described in the EA (MOD 3), for an increase in the annual ammonia production limit~~
NAP	Nitric Acid Plant
NPC	Newcastle Port Corporation
Operation	The operation of the Project but does not include commissioning trials of equipment or temporary use of parts of the site during construction
Post Approval Documents	Any study, report, plan, strategy, program, audit or correspondence required by this approval
Preliminary Hazard Analysis	*'Orica Mining Services Report for Kooragang Island Facility Uprate Preliminary Hazard Analysis'* dated May 2009 prepared by GHD, as updated by the: • Preliminary Hazard Analysis titled *'Orica Mining Services Report for Kooragang Island Uprate PHA MOD1 Report'* dated March 2012, prepared by GHD; and • Preliminary Hazard Analysis titled '*Orica Mining Services Kooragang Island Uprate PHA MOD 2, Rev1"* dated May 2014 *prepared* by GHD, and including Appendix VIII *"Nitric Acid Tank PHA, Rev C"* dated May 2014, prepared by Pinnacle Risk Management
Project	The development as described in the EA~~, EA (MOD 1), EA (MOD 2) and EA (MOD 3)~~ and Modification Assessments for the expansion of the existing ammonium nitrate manufacturing facility on the Project site, comprising modifications and upgrades to existing plants and infrastructure and the development of additional plants (NAP4 and NAP3) and associated infrastructure, as generally depicted in blue on the plan in Appendix A to enable an increase in production capacity from 500,000tpa to 750,000tpa
Project Site	The land referred to in Schedule 1
Proponent	Orica Australia Pty Ltd, or its successors in title
Proposed IPL AN Facility	The development proposed by State Significant Development Application SSD-4986, for the construction and operation of an ammonia import and ammonium nitrate manufacturing facility including a NAP and an ANP and associated plants and infrastructure at 39 Heron Road on Kooragang Island with a production capacity of up to 350,000tpa of ammonium nitrate product
RAP	Remediation Action Plan
Reasonable and Feasible	Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided community views and the nature and extent of potential improvements. Feasible relates to engineering considerations and what is practical to build
RM	Roads and Maritime

Secretary	Secretary of the Department (or nominee)
Staging Plan	The Staging Plan for the Project dated **27 September 2021, prepared by the Proponent, as seen in Appendix F**.
Statement of Commitments	The Statement of Commitments for the Project dated 13 October 2014, prepared by the Proponent
tpa	tonnes per annum

SCHEDULE 2
ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction and/or operation of the Project.

Terms of Approval

~~The Proponent shall carry out the Project in accordance with the:~~
~~a) EA;~~
~~a) EA (MOD 1);~~
~~b) EA (MOD 2);~~
~~c) EA (MOD 3);~~
~~b) site layout plans (Appendices A and B); and~~
~~c) Statement of Commitments for the Project (Appendix C). ;~~

2. The Proponent shall carry out the Project in accordance with the:
   a) EA;
   b) Modification Assessments;
   c) site layout plans (Appendices A, B and E); and
   d) Statement of Commitments for the Project (Appendix C and D).

3. If there is any inconsistency between the above plans and documentation, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this approval shall prevail to the extent of any inconsistency.

4. The Proponent shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of:
   a) any post approval documents that are submitted in accordance with this approval; and
   b) the implementation of any actions or measures contained in these post approval documents.

Limits on Approval

5. The Proponent shall not produce more than the following at the Project Site:
   a) 385,000tpa of ammonia product;
   b) 605,000tpa of nitric acid product;
   c) 750,000tpa of ammonium nitrate product;

Staging of Works

6. Should the works covered by this approval be significantly delayed, or only partially completed, the Secretary may direct the Proponent to conduct the studies outlined in this approval for the completed works.

Project Staging

7A. Unless otherwise agreed to in writing by the Secretary, the Proponent shall stage the carrying out of the Project generally in accordance with the approved Staging Plan.

7B. Prior to the commencement of construction of the next Project stage following the commencement of operation of Phase 1 or within an alternative timeframe agreed to in writing by the Secretary, the Proponent shall prepare a Staging Report for the Project to the satisfaction of the Secretary. The Report shall:
   a) summarise the scope and sequence of development that will be carried out under each Project stage;
   b) include plans and a description of the nature, duration and likely timing of development that will be carried out as part of each Project stage;
   c) demonstrate how the conditions of this approval are being complied with as each Project stage is progressively constructed, commissioned and becomes operational;
   d) report on the status of all post approval documents including which of these documents will be staged and/or combined (see Condition 7D); and
   e) include triggers for reviewing and updating the Staging Report, including the triggers referred to in Condition 7C.

7C. The Proponent shall review and if necessary update and submit a revised Staging Report for the Project which has been prepared to the satisfaction of the Secretary (or advise the Secretary in writing that no changes to the Staging Report are required):

a) no later than 2 months prior to the commencement of construction, commissioning and operation of development within each Project stage;

b) within 3 months of any modifications to this approval; and/or

c) when directed to do so by the Secretary.

Notes:

- *These conditions do not relate to staged development within the meaning of Section 83B of the EP&A Act and are only required to be complied with at the time and to the extent that they are relevant to the specific stage(s).*
- *Where post approval documents and/or hazard studies have approval to be staged and/or combined under Condition 7D, then each approved document and/or study must clearly describe the specific stage to which the document or study applies, the relationship of this stage to any future stages and the trigger for updating these documents or studies.*

Staged Submission of Post Approval Documents and Hazard Studies

7D. With the written approval of the Secretary, the Proponent is permitted to:

a) submit any post approval documents on a progressive basis; and/or

b) combine any post approval documents required by this approval.

7E. With the written approval of the Secretary, the Proponent is also permitted to progressively submit and/or combine certain hazard studies provided that the scope of these studies has been agreed to by the Secretary and that they are tied to and form part of the Staging Report required by Condition 7B.

Notes:

- *Whilst any post approval documents and/or hazard studies may be submitted on a progressive basis, the Proponent must ensure that operations being carried out on the Project site are covered by approved post-approval documents and/or hazard studies at all times.*
- *Until they are replaced by equivalent approved post-approval documents and/or hazard studies required under the terms of this approval, the Proponent must continue to implement all existing post-approval documents and/or hazard studies for the Initial Operations.*
- *There must be a clear relationship between the approved post-approval documents and/or hazard studies to be combined.*

Minor Design Variations

7F. At the written request of the Proponent, the Secretary may approve in writing, minor design variations to the plans approved in Condition 2d) in relation to ancillary infrastructure but only if the Secretary considers the variations to be minor.

Structural Adequacy

8. The Proponent shall ensure that all new buildings and structures on the Project Site are constructed in accordance with the relevant requirements of the Building Code of Australia.

Notes:

- *Under Part 4A of the EP&A Act, the Proponent is required to obtain construction and occupation certificates for the proposed building works.*
- *Part 8 of the EP&A Regulation sets out the requirements for the certification of the Project.*

Protection of Public Infrastructure

9. The Proponent shall:

a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the Project; and

b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the Project.

10. Prior to commencement of construction, the Proponent shall prepare a dilapidation report of the public infrastructure in the vicinity of the Project Site (including roads, gutters, footpaths, etc) in consultation with NPC and submit a copy of this report to the Secretary.

11. Prior to the construction of any utility works, the Proponent shall obtain the relevant approvals from service providers, including HWC.

Operation of Plant and Equipment

12. The Proponent shall ensure that all plant and equipment used on the Project Site is:
    c) maintained in a proper and efficient condition; and
    d) operated in a proper and efficient manner.

Section 94 Contributions

13. Prior to the operation of the Project, the Proponent shall pay Council $272,000 in Section 94 contributions.

Notes: This contribution is subject to indexation to reflect quarterly variations in the Consumer Price Index All Group Index Number for Sydney, as published by the Australian Bureau of Statistics.

SCHEDULE 3
SPECIFIC ENVIRONMENTAL CONDITIONS

HAZARDS

Pre-construction

14. At least 1 month prior to the commencement of construction of each Project stage (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as the Secretary may agree, the Proponent shall prepare and submit for the approval of the Secretary the studies set out under subsections a) to d) (the pre-construction studies).
    a) A **Fire Safety Study** to include the Initial Operations and each Project stage. This study shall cover the relevant aspects of the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'* and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study shall also be submitted for approval, to the NSW Fire Brigades;
    b) A **Hazard and Operability Study** for each Project stage, chaired by a qualified person, independent of the Project, approved by the Secretary prior to the commencement of the study. The study shall be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'*. The study report must be accompanied by a program for the implementation of all recommendations made in the report. If the Proponent intends to defer the implementation of a recommendation, reasons must be documented;
    c) A **Final Hazard Analysis** of the Project as modified, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 6, 'Guidelines for Hazard Analysis'*. The Final Hazard Analysis shall:
        - report on the implementation of the recommendations of the Preliminary Hazard Analysis;
        - re-evaluate and reconfirm the relevant data and assumptions from the Preliminary Hazard Analysis;
        - re-evaluate and reconfirm all control measures for prevention and mitigation of incidents; and
        - evaluate all relevant findings and recommendations from the official investigation report(s), as available, relating to the accident at West, Texas in April 2013.
    d) A **Construction Safety Study** for each Project stage, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety Study Guidelines'*. For a Project in which the construction period exceeds 6 months, the commissioning portion of the Construction Safety Study may be submitted 2 months prior to the commencement of commissioning.

Pre-Commissioning

15. The Proponent shall develop and implement the plans and systems set out under subsections a) to c), no later than 2 months prior to the commencement of commissioning of each Project stage, or within such further period as the Secretary may agree. The Proponent shall submit, for the approval of the Secretary, documentation describing those plans and systems. Commissioning shall not commence until approval has been given by the Secretary.
    a) **Transport of Hazardous Materials** – Arrangements covering the transport of hazardous materials including details of routes to be used for the movement of vehicles carrying hazardous materials to or from the site (Initial Operations and Project). The routes selected shall be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No 11, 'Route Selection'*. Suitable routes identified in the study shall be used except where departures are necessary for local deliveries or emergencies.
    b) **Emergency Plan** – The Proponent's Emergency Plan and detailed procedures shall be updated to include the Project as modified and must be maintained for the life of the Project. The plan shall include detailed procedures for the safety of all people including consideration of the safety of all people outside of the facility who may be at risk from the Project. The Plan shall be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 1, 'Industry Emergency Planning Guidelines'*.
    c) **Safety Management System** – The Proponent's Safety Management System shall be updated to include the Project as modified and must be maintained for the life of the Project. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. The procedures shall ensure that the testing frequencies of all safety critical equipment and systems are consistent with the frequencies applied in the fault tree analyses undertaken in the Preliminary Hazard Analysis/Final Hazard Analysis. Records shall be kept on-site and shall be available for inspection by the Secretary upon request. The Safety Management System shall be developed in accordance with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'*.

    Note: If a modification does not require an update of the studies listed in Conditions a) and c) above, the Proponent shall provide written justification to the satisfaction of the Secretary.

Pre-Startup

16. One month prior to the commencement of operation of each Project stage, the Proponent shall submit to the Secretary, a **Pre-Startup Compliance Report** detailing compliance with conditions 14 and 15, including:
    a) dates of study/plan/system submission, approval, commencement of construction and commissioning;
    b) actions taken or proposed, to implement recommendations made in the studies/plans/systems; and
    c) responses to any requirement as imposed by the Secretary under condition 4.

Post-Startup

17. 3 months after the commencement of operation of each Project stage, the Proponent shall submit to the Secretary, a **Post-Startup Compliance Report** verifying that:
    a) transport routes specified under condition 15a) are being followed;
    b) the **Emergency Plan** required under condition 15b) is effectively in place and that at least one emergency exercise has been conducted; and
    c) the **Safety Management System** required under condition 15c) has been fully implemented and that records required by the system are being kept.

Risk Reduction Program

18. Within 12 months of the commencement of Final Operations of the Project, the Proponent shall prepare a program for further risk reduction to the neighbouring land uses. The program shall:
    a) be approved by the Secretary;
    b) identify the overpressure propagation risk from the Project as per Figure 10.5 of the EA;
    c) identify the main risk contributors and analyse the appropriate measures to be implemented to reduce the risk; and
    d) include an implementation schedule with due dates and a person responsible for the implementation of each measure.

    Note: In the case that the propagation risk from the Project is reduced earlier than anticipated in the EA, and it meets the NSW criteria, this condition will be satisfied and the risk reduction program will not be required.

Hazard Analysis Update

19. 3 years after the commencement of Final Operations of the Project, or as otherwise agreed to by the Secretary, the Proponent shall undertake a Hazard Analysis of the Initial Operations and the Project to update the hazard analysis contained in the Preliminary Hazard Analysis and the Final Hazard Analysis.

Hazard Audit

20. 12 months after the commencement of operations of Phase 1 of the Project and every 3 years thereafter, or at such intervals as the Secretary may agree, the Proponent shall carry out a comprehensive Hazard Audit of the Initial Operations and the Project as modified and within 1 month of each audit submit a report to the Secretary. The:
    a) audit(s) shall be carried out at the Proponent's expense by a qualified person or team, independent of the Project, approved by the Secretary prior to commencement of each audit. Hazard Audits shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines'.
    b) audit(s) report must be accompanied by a program for the implementation of all recommendations made in the audit report, as well as any outstanding recommendations from previous hazard audit reports (if applicable). If the Proponent intends to defer the implementation of a recommendation, reasons must be documented.
    c) first site hazard audit report and all subsequent reports shall cover the entire facility and include all Project stages that are in operation at the time of the hazard audit and shall (in addition to the general requirements detailed in Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines'):
    - evaluate all relevant findings and recommendations from the official investigation report(s), as available, relating to the accident at West, Texas in April 2013. If necessary, the hazard audit report shall make appropriate recommendations to address any shortfalls; and
    - report on the findings of the audit in relation to compliance with the current version of AS 4326 and the relevant provisions of the current version of the *SAFEX International Good Practice Guide: Storage of Solid Technical Grade Ammonium Nitrate*.

Further Requirements

20A. The Proponent shall comply with all reasonable requirements of the Secretary in respect of the implementation of any measures arising from the hazard studies submitted in respect of conditions 14 to 20 inclusive, within such time as the Secretary may agree.

20B. The Proponent shall ensure that the risk associated with increased shipping operations is reduced to so far as is reasonably practicable (SFARP), consistent with *Work Health and Safety Regulation 2011* requirements and compliant with the land use criteria detailed in the NSW Department of Planning's Hazardous Industry *Planning and Advisory Paper 4* (HIPAP 4), during each stage of the Project. Records of the risk reduction identification and implementation process shall be maintained.

AIR QUALITY

Design

21. The Proponent shall implement the emission control measures identified in the EA (Section 7.8.1) prior to the commencement of operations of the Project. These shall include:
    a) absorption columns in the new Nitric Acid Plant No. 4 (NAP4) to reduce NOx;
    b) catalytic reduction from the NAP4 stack to reduce NOx;
    c) air scrubbing and recirculation technology in the new Prill Tower as part of the new Ammonium Nitrate Plant No. 3 (ANP3) to minimise particulates, including PM_{10};
    d) a refrigeration purge gas scrubber to be installed in the existing Ammonia Plant to reduce NOx;
    e) scrubbers on the new NAP4 and ANP3 to remove ammonia.

Ammonia and Nitrate Flares

21A. The Proponent shall ensure that the ammonia and nitrate flares are operated in a proper and efficient manner in accordance with the requirements of the EPL for the premises.

Monitoring

22. The Proponent shall undertake air emission monitoring as required by the EPL for the Project.

Air Quality Verification Study

23. The Proponent shall carry out an Air Quality Verification Study for each relevant stage of the Project to the satisfaction of the Secretary and the EPA. The study shall:
    a) be prepared by a suitably qualified expert whose appointment has been agreed to in writing by the Secretary;
    b) be based on a minimum of 12 months of monitoring data and be completed during the initial 18 months of operation or as otherwise agreed to in writing by the Secretary;
    c) include a verification of actual monitored emissions performance against the assumptions adopted within the EIS, including:
        - point source pollutant concentrations;
        - point source pollutant mass emission rates; and
        - point source emission parameters as relevant to plume dispersion.
    d) confirm, through direct measurement, that applicable EPL air emission limits are being complied with; and
    e) confirm, using reasonable means, the effectiveness of the implemented emission controls in minimising air quality impacts.

24. Should the air quality verification study or routine monitoring required by the EPL indicate that emissions from the Project exceed the relevant regulatory criteria, the Department may request that Orica implement all reasonable and feasible measures to minimise emissions.

Mitigation

25. The Proponent shall carry out all reasonable and feasible measures to minimise dust generated by the Project.

26. During construction, the Proponent shall ensure that:
    a) all trucks entering or leaving the Project Site with loads have their loads covered; and
    b) trucks associated with the Project do not track dirt onto the public road network.

Further Emissions Reduction

27. The Proponent shall investigate and report on the progress to reduce PM_{10} emissions from the existing Prill Tower on the Ammonium Nitrate Plant No. 1. The report shall:
    a) be provided annually, and can be reported through the Annual Environmental Management Report required by condition 50; and
    b) provide an update on the timeframe for implementation of emission controls.

Air Quality Management Plan

27A. The Proponent shall prepare and implement an Air Quality Management Plan for the Project to the satisfaction of the Secretary. The plan shall:
    a) be prepared by a suitably qualified and experienced expert whose appointment has been agreed to in writing by the Secretary;
    b) be approved by the Secretary (see Conditions 49A and 49B for scope and timing and Condition 49C for management plan requirements);
    c) describe the measures that will be implemented to minimise the potential risks to adverse air quality in the regional air-shed including:
        - reasonable and feasible measures being employed on the Project site;
        - plant and equipment being maintained to ensure that it is in good order;
        - how the air quality impacts of the Project will be minimised and managed; and
        - identification of the likely nature and timing of Project-related activities and works that could generate potential elevated air emissions and a description of the mitigation measures that will be implemented to ensure compliance with the relevant conditions of this approval and the EPL.

27B. The Proponent shall consult with the operators of the proposed IPL AN facility adjacent to the Project Site, with the objective of developing an Air Quality Risk Management Strategy suitable for incorporation into the Air Quality Management Plan. The objective of this strategy is to minimise the potential for cumulative air quality impacts from any air emissions from the Project and the proposed IPL facility. This strategy is expected to include protocols for the communication and planning of planned non-routine operations such as plant start-up, shutdown and commissioning events between the Project and the proposed IPL facility.

27C. The Proponent shall provide evidence to the Secretary that it has made genuine and reasonable attempts to consult with the operators of the proposed IPL facility in order to develop a suitable Air Quality Risk Management Strategy for both it and the proposed IPL facility to follow.

Note: Conditions 27B and 27C only apply if SSD-4986 is approved and if the proposed IPL AN facility becomes operational.

GREENHOUSE GAS EMISSIONS

Emission Reductions for the Project

28. Prior to the commencement of operation of each relevant stage of the Project, the Proponent shall implement the emissions reduction technology identified in the EA including:
    a) N_2O abatement technology on the new Nitric Acid Plant (NAP4); and
    b) energy efficiency improvements to the Ammonia Plant.

Emission Reductions for the Existing Site

29. Within 6 months of the commencement of operations of NAP4, the Proponent shall implement N_2O abatement technology to NAP's 1, 2 and 3.

NOISE

Noise Limits

30. The Proponent shall ensure that noise levels from the operation of the Project are at least 10dB(A) below noise levels from the Initial Operations as specified by conditions 31 and 32.

Note: Ammonia flaring events are excluded from the noise limits and levels referred to in conditions 30 and 31.

Initial Operations - Noise Verification Program

31. Prior to the commencement of construction, the Proponent shall prepare and implement an Initial Operations Noise Verification Program to the satisfaction of the Secretary. The Program shall:
    a) be undertaken by a suitably qualified and experienced person;
    b) identify future reference points that will be used to demonstrate compliance;
    c) collect new or review existing data, and report on the seasonal background levels for the noise catchment; and
    d) confirm the noise levels from the Initial Operations.

Note: Some construction activities may occur under the Project Approval provided that such activity are not undertaken during the monitoring period or that the Proponent can demonstrate that the activity would not contribute to the background noise level, to the satisfaction of the Secretary.

Noise and Vibration Management Plan

32. The Proponent shall prepare and implement a Noise and Vibration Management Plan for the Project to the satisfaction of the Secretary. The Plan shall:
    a) be prepared by a suitably qualified and experienced expert whose appointment has been agreed to in writing by the Secretary;
    b) be approved by the Secretary (see Conditions 49A and 49B for scope and timing and Condition 49C for management plan requirements);
    c) demonstrate how noise levels from the Project would be managed to ensure noise levels would be 10dB(A) below noise levels from the Proponent's Initial Operations (see Conditions 30 and 31);
    d) include a detailed monitoring program for reporting on ongoing compliance. The monitoring program shall:
        - outline the proposed receiver sites at Stockton and sites on Kooragang Island that would be monitored;
        - include both attended and unattended noise monitoring;
        - verify that actual noise levels from the Project are consistent with the predictions made in the EA;
        - verify that noise levels from the Project are 10dB(A) below the noise levels identified in Condition 31 for the Proponent's Initial Operations;
    e) provide details of any complaints received in the preceding year relating to noise generated by the Project, and action taken to respond to those complaints;
    f) detail procedures for implementing additional reasonable and feasible noise mitigation measures for the Project in response to exceedance of limits and/or noise complaints;
    g) be updated annually, unless otherwise agreed to by the Secretary; and
    h) describe the measures that will be implemented to prevent and minimise potential adverse noise and vibration impacts from the Project, including:
        - reasonable and feasible measures being employed on the Project site;
        - plant and equipment being maintained to ensure that it is in good order;
        - how potential noise and vibration impacts will be minimised and managed; and
        - identification of the likely nature and timing of Project-related activities and works that could generate potential elevated noise emissions and a description of the mitigation measures that will be implemented to ensure compliance with the relevant conditions of this approval and the EPL.

Ports Precinct Noise Management

32A. The Proponent shall use its best endeavours to participate in the development and implementation of a precinct-wide noise map for the Port of Newcastle should one be developed to the satisfaction of the Secretary.

Note: The aim of a noise map is to establish an efficient, equitable and cumulative noise management, monitoring and reporting framework across the precinct.

Hours of Construction and Operation

33. The Proponent shall comply with the restrictions in Table 2, unless otherwise agreed by the Secretary.

Table 2: Hours of Construction and Operation

Activity	Day	Time
Construction	Monday – Friday	7:00am to 6:00pm
	Saturday	8:00am to 1:00pm
	Sunday and Public Holidays	Nil
Operation	All days	24 hours

33A. Construction works outside of the work hours identified in Table 2 above may be undertaken in the following circumstances:

a) works (excluding piling) that generates airborne noise that is inaudible at any residence beyond the boundary of the Project site or is no more than 5 dB(A) above rating background level at any residence in accordance with the Interim Construction Noise Guideline (DEC, 2009);
b) works that are consistent with the Proponent's existing maintenance procedures and are in accordance with the existing EPL;
c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons;
d) where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm; or
e) exceptional circumstances with the written agreement of the Secretary.

TRANSPORT

Design of Site Access, Internal Roads and Parking

34. The Proponent shall ensure that new site access points, internal roads and parking associated with the Project are designed, constructed and maintained in accordance with the latest versions of the Australian Standards *AS 2890.1:2004*and*AS 2890.2:2002*.

Vehicle Queuing and Parking

35. The Proponent shall ensure that all vehicles associated with the Project do not impede traffic flow on Greenleaf Road and Heron Road.

Construction Traffic Management

36. Prior to the construction of the Project, the Proponent shall prepare and implement a Construction Traffic Management Plan, consistent with the requirements of RM. The plan shall be prepared in consultation with NPC and submitted to Secretary as part of the environmental management strategy for the Project, as required by Condition 49A.

WATER EFFICIENCY

37. The Proponent shall prepare and implement a Water Efficiency Plan for the Project to the satisfaction of the Secretary. The plan must:

a) be submitted to the Secretary within 12 months of this approval or as otherwise agreed to by the Secretary;
b) be prepared with reference to the *Guidelines for Water Savings Action Plans (DEUS 2005);* and
c) include a report on the progress of investigations to receive recycled water from HWC's recycled water scheme.

CONTAMINATION

38. Prior to construction of the Project, the Proponent shall provide to the Secretary a detailed Project Site Plan showing the location of known soil and groundwater contamination areas. If the plan identifies that construction of the Project is likely to impact on known contamination areas, the Proponent shall prepare and implement a RAP,

or update the existing RAP, to manage and remediate contaminated material in accordance with the requirements of the *Contaminated Land Management Act 1997* and the recommendations of the RAP.

39. Prior to construction of the Project, the Proponent shall prepare an Acid Sulphate Soil Management Plan in accordance with the Acid Sulphate Soils Manual, Acid Sulphate Soils Management Advisory Committee 1998.

STORMWATER AND EFFLUENT DISCHARGES

40. The Proponent shall ensure that the Project meets the EPL requirements for stormwater and effluent discharge to the Hunter River.

41. The Proponent shall comply with Section 120 of the *Protection of the Environment Operations Act 1997*.

Stormwater Management Plan

42. Prior to the commencement of construction of the Project the Proponent shall prepare and implement a Stormwater Management Plan for the Project in consultation with the NPC and to the satisfaction of the Secretary. The plan must:
    a) include detailed plans of the stormwater management system for the Project, incorporating the requirements for a retention system as specified in the Fire Safety Study;
    b) include an engineering assessment of the capacity of the Walsh Point stormwater system to accept additional flows;
    c) describe the procedures for the installation, inspection and maintenance of the stormwater system for the Project; and
    d) ensure that water sensitive design options avoid infiltration in areas of known soil and groundwater contamination.

Bunding

43. The Proponent shall ensure that all chemicals, fuels and oils associated with the Project are stored in appropriately bunded areas, with impervious flooring and sufficient capacity to contain 110%of the largest container stored within the bund. The bund(s) shall be designed and installed in accordance:
    a) the requirements of all relevant Australian Standards; and
    b) DECC's *Storing and Handling Liquids: Environmental Protection, Participants Handbook*.

Erosion and Sediment Control

44. Prior to construction of the Project, the Proponent shall prepare an Erosion and Sediment Control Plan in accordance with Landcom's 2004 *Managing Urban Stormwater: Soils and Construction*.

VISUAL

45. Prior to commencement of operations of the Project, the Proponent shall submit to the Secretary a Landscaping Plan providing details of native screening plants to be planted along the eastern boundary of the Project Site. The plan shall demonstrate that the landscaping does not compromise on-site security and shall include a program for implementation.

Lighting

46. The Proponent shall ensure that lighting associated with the Project:
    a) complies with the latest version of Australian Standard *AS 4282(INT)-Control of Obtrusive Effects of Outdoor Lighting*; and
    b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

WASTE

Operating Conditions

47. The Proponent shall ensure that all waste generated by the Project during construction and operation is classified in accordance with the DECC's *Waste Classification Guidelines 2008*and if required, disposed of to a facility that may lawfully accept the waste.

Waste Management Plan

48. The Proponent shall prepare and implement a Waste Management Plan for the Project to the satisfaction of the Secretary. This plan must:
   a) be submitted to the Secretary for approval within 1 year of the commencement of operations of the Project;
   b) characterise the various waste streams of the Project and include details of the quantities and destinations of all waste materials;
   c) describe what measures would be implemented to avoid, reuse or recycle the waste generated by the Project;
   d) identify a waste reduction target for the Project and detail procedures for measuring the Projects performance against the target;
   e) include a program to monitor the effectiveness of these measures.

SITE SECURITY

48A. The Proponent shall ensure that:
   a) the site is secured by a perimeter fence and security gates; and
   b) the perimeter fence and security gates are under surveillance at all times.

AVIATION SAFETY

48B. The Proponent must obtain all necessary approvals from the Air Base Command Post of RAAF Base in Williamstown and the Directorate of External Land Planning within the Defence Support Group of the Department of Defence for the erection of all structures that constitute transient/temporary or permanent obstructions in accordance with the *Operation of cranes and tall structures in the vicinity of Newcastle Airport* (Department of Defence, 2013).

SCHEDULE 4

ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Construction Environment Management Plan

49A. The Proponent shall prepare and implement a Construction Environmental Management Plan for the construction of the Project to the satisfaction of the Secretary. The Plan must:

a) be prepared by a suitably qualified and experienced expert or team of experts;
b) be submitted to the Secretary for approval no later than 4 weeks prior to the commencement of each construction stage of the Project, or within an alternative timeframe agreed to in writing by the Secretary (see Condition 49C for management plan requirements);
c) identify the statutory licences, permits and approval/consents that apply to the Project;
d) include a copy of all relevant management plans and monitoring programs required by this approval;
e) incorporate all relevant management and mitigation measures outlined in Appendix C of this approval;
f) outline all environmental management practices and procedures to be followed during construction and demolition works associated with the Project;
g) describe all activities to be undertaken on the site during construction of the Project, including a clear indication of construction stages (see Condition 7 and 8);
h) detail how the environmental performance of the construction of the Project will be monitored, and what actions will be taken to address identified adverse environmental impacts and issues, including (but not limited to):
   - Air Quality (see Conditions 21 to 27C);
   - Noise and Vibration (see Conditions 30 to 33A);
   - Transport (see Conditions 34 to 36);
   - Soil and Water (see Conditions 37 to 44);
   - Visual (see Conditions 45 and 46);
   - Waste (see Conditions 47 and 48);
   - Site Security (see Condition 48A); and
   - Aviation Safety (see Condition 48B).
i) describe the roles and responsibilities for all relevant employees involved in construction and demolition works associated with the Project;
j) include arrangements for community consultation at key stages of the Project;
k) include a complaints handling procedure during construction; and,
l) include appropriate procedures to allow the regular review of the requirements of each plan to ensure that they are effective and allow for adaptive management to address contingencies that may arise over the life of the Project.

The approval of a Construction Environmental Management Plan does not relieve the Proponent of any requirement associated with this approval. If there is an inconsistency with an approved Construction Environmental Management Plan and the conditions of this approval, the requirements of this approval prevail.

Operational Environmental Management Plan

49B. The Proponent shall prepare and implement an Operational Environmental Management Plan for the Project to the satisfaction of the Secretary. This Plan must:

a) be submitted to and approved by the Secretary prior to the commencement of operation of each stage of the Project (see Condition 49C for management plan requirements);
b) provide the strategic framework for environmental management of the Project;
c) identify the statutory licences, permits and approval/consents that apply to the Project;
d) include a copy of all relevant management plans and monitoring programs under this Project;
e) consolidate all relevant management and mitigation measures for the Initial Operations that will continue to be implemented the Project site together with those outlined in Appendix C of this consent;
f) outline all environmental management practices and procedures that will followed during the operation of the Project, including those that will continue to be implemented by the Proponent in respect of the Initial Operations (see Condition 7);
g) include a description of all activities to be carried on the site during the operation of the Project;
h) detail how the environmental performance of the operation of the Project will be monitored, and what actions will be taken to address identified adverse environmental impacts, including (but not limited to):
   - Air Quality (see Conditions 21 to 27C);
   - Noise and Vibration (see Conditions 30 to 33A);
   - Transport (see Conditions 34 to 36);
   - Soil and Water (see Conditions 37 to 44);

- Visual (see Conditions 45 and 46);
- Waste (see Conditions 47 and 48);
- Site Security (see Condition 48A); and
- Aviation Safety (see Condition 48B).

i) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Project;

j) describe the procedures that will be implemented to:

- keep the local community and relevant agencies informed about the operation and environmental performance of the Project, , including information on and notification during flare activation and operation;
- receive, handle, respond to, and record complaints;
- resolve any disputes that may arise during the course of the Project;
- respond to any non-compliance; and
- respond to emergencies; and

k) include:

- copies of any strategies, plans and programs approved under the conditions of this approval; and
- a clear plan depicting all the monitoring required to be carried out under the conditions of this approval.

Management Plan Requirements

49C. The Proponent shall ensure that Management Plans required under this approval are prepared in accordance with any relevant guidelines, and include:

a) detailed baseline data;

b) a description of:

- the relevant statutory requirements (including any relevant approval, licence or lease conditions);
- any relevant limits or performance measures/criteria; and
- the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Project or any management measures;

c) a description of the measures that will be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;

d) a program to monitor and report on the:

- impacts and environmental performance of the Project; and
- effectiveness of any management measures (see (c above);

e) a contingency plan to manage any unpredicted impacts and their consequences;

f) a program to investigate and implement ways to improve the environmental performance of the Project over time;

g) a protocol for managing and reporting any:

- incidents;
- complaints (including a complaints register);
- non-compliances with statutory requirements; and
- exceedence/s of the impact assessment criteria and/or performance criteria; and

h) a protocol for periodic review of the plan.

Notes:

- *This condition only applies to management plans that are submitted from 30 November 2014 onwards.*
- *TheSecretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

Revision of Strategies, Plans & Programs

49D. Within 3 months of the submission of an:

a) Annual Environmental Management Report under Condition 50;

b) Incident Report under Conditions 51A to 51B;

c) any modifications to this approval,

the Proponent shall review, and if necessary revise all post approval documents required under this approval to the satisfaction of the Secretary.

Note: This is to ensure the post approval documents are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Project.

ENVIRONMENTAL REPORTING

Annual Environmental Management Report

50. Within 12 months of this approval, and annually thereafter, the Proponent shall submit an Annual Environmental Management Report (AEMR) for the Project to the Secretary. The report must:
    a) identify the standards and performance measures for the Project;
    b) describe the works carried out in the past 12 months and the works to be carried out in the next 12 months;
    c) include a summary of complaints received in the past year and provide comparison with previous years;
    d) report results of all monitoring required by this approval and an EPL for the Project;
    e) provide analysis of monitoring results in the context of relevant criteria and limits, previous monitoring results and the predictions made in the EA~~, EA (MOD 1), EA (MOD 2) and, EA (MOD 3)~~ and Modification Assessments;
    f) identify any trends in monitoring results over the life of the Project; and
    g) report on compliance with the Project approval, summarise non-compliances in the previous 12 months and report on actions taken to rectify non-compliances.

Incident Reporting

51A. The Proponent shall notify the Secretary and any other relevant agencies of any incident or potential incident with actual or potential significant off-site impacts on people or the biophysical environment associated with the facility immediately after the Proponent becomes aware of the incident.

51B. Within 7 days of the date of this incident, the Proponent shall provide the Secretary and any relevant agencies with a detailed report on the incident.

Flare Activation Reporting

51C. The Proponent shall provide a report to the Secretary that summarises all ammonia flare activations. The report must be provided on a three monthly basis for the first 12 months of flare operation, commencing three months following the date of commissioning of the first flare. Following the first 12 months, the Proponent must provide the report annually to the Secretary by 31 March each year. The ammonia flare activation summary report must include, but is not limited to, the following:
    a) the date and time the ammonia flare activation occurred;
    b) the duration of the ammonia flare activation;
    c) the estimated quantity of ammonia directed to the flare during the flare activation period;
    d) details of operational parameters that affected destruction efficiency during the flare activation; and
    e) actions identified to prevent further flare activations.

AUDITING

Independent Environmental Audit

52. 2 years after the commencement of operations of Phase 1 of the Project, and every 3 years thereafter, or at such intervals as the Secretary may agree, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the Project and within 1 month of each audit submit a report to the Secretary. This audit must:
    a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Secretary;
    b) assess the environmental performance of the Project, and its effects on the surrounding environment;
    c) assess whether the Project is complying with the relevant standards, performance measures, and statutory requirements;
    d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
    e) recommend measures or actions to improve the environmental performance of the Project, and/or any strategy/plan/program required under this approval.

    Note: The audit team must include experts in the field of noise and air quality.

ACCESS TO INFORMATION

53. The Proponent shall, unless otherwise agreed to in writing by the Secretary:

(a) make the following information publicly available on its website:
- the EA~~, EA (MOD 1), EA (MOD 2) and, EA (MOD 3)~~ and Modification Assessments;
- current statutory approvals for the Project;
- all approved post approval documents;
- a summary of the monitoring results of the Project, which have been reported in accordance with the conditions of this approval;
- copies of any annual reviews (over the last 5 years);
- any independent environmental audit, and the Proponent's response to the recommendations in any audit; and
- any other matter required by the Secretary; and

(b) keep this information up-to-date.

APPENDIX A
SITE LAYOUT PLANS OF THE INITIAL OPERATIONS AND THE PROJECT

Figure 1.2 **Proposed Site Layout**
Orica Australia Pty Ltd
Environmental Assessment
Proposed Ammonium Nitrate Facility Expansion
Greenleaf Road, Kooragang Island

APPENDIX B
SITE LAYOUT PLANS OF THE FINAL OPERATIONS

Existing Infrastructure Key

1 Ammonia Plant	5 Nitric Acid Plant 2	9 AN Plant 2
2 Utilities Area	6 Nitric Acid Plant 1	10 AN Plant 1
3 Acid Storage (Dilution infrastructure will be contained in the Tank 1 bund)	7 Boiler Plant	11 AN Bulk Storage
4 Nitric Acid Plant 3	8 ANS	12 Bagged Product Storage

Infrastructure Key (1 - 16)

1 New demin water system	5 New NA storage	9 Cooling water supply pumps	13 New NAP4 plant
2 New ammonia storage nitrate pumps	6 New pipe rack	10 New cooling water treat,emt skids	14 Ammonia compressor
3 New instrument air compressor and dryer	7 11kV trident switchroom	11 New cooling towers	15 Contaminated condensate tank
4 Extension to No.2 11kV substation	8 New boiler	12 New NAP4/AN3 switchroom and transformer	16 Clean process condensate tank

Infrastructure Key (17 - 32)

17 New No.6 ammonia bullet	21 New workshop	25 New concentrator plant	29 New bag store
18 New emergency generator and switchroom	22 New entry security gate	26 New ANS/WANS loadout	30 New AN road bulk loadout and weighbridges
19 New control room	23 New office	27 New first flush pi	31 2x 1.05/1.2t bag lines and 1x 25/40kg bag line
20 New entry	24 New weighbridge	28 New dispatch office and amenities	32 Switchroom

Infrastructure Key (33 - 38)

33 Transformers	39 New FEL workshop and forklift parking	45 Proposed Recycled Water Tank (consistent with existing site approvals)
34 Container bag loading area	40 Transtank	
35 New bulk store	41 Proposed AN# plant	
36 New weighbridge	42 New container storage	
37 New office	43 Nitrogen tie in	
38 New exit security gate	44 New ammonia plant nitrates pump	

Key

- Site boundary
- Existing infrastructure location
- OBL Stage 1A
- OBL Stage 1B
- OBL Stage 2
- NAP4 & ANS
- AN3

Note:
Information derived from Hatch EMA plan HEN2561-0000-00-014-0012 **(05/04/2011)**

0 100 200m

APPENDIX C

STATEMENT OF COMMITMENTS FOR THE PROJECT

Issue	Commitment	Timing
General	Orica will prepare and implement the following management plans for the project: • A Construction Environmental Management Plan (CEMP) and • Operational Environmental Management Plan (OEMP).	Construction and Operation
Community Consultation	Orica will continue to consult with community through the implementation of the project through: • Phone number • Regular briefings to community via the Reference Group • Information on project Web Page	Construction and Operation
Odour and Air Quality	Orica will incorporate engineering measures into its plant design to ensure it minimises the impact of the proposed expansion on air quality, including: • Catalytic NOx Abatement to reduce NOx in the tail gas of the Nitric Acid Plant No. 4 to a 99 percentile concentration limit of 150ppm NOx. • Air scrubbing and recirculation technology on the new AN Plant No.3 Prill Tower to minimise particulate emissions from the new tower based on a 100 percentile concentration limit for TSP's of 20 mg/m3. • Installation of a Refrigeration Purge Gas Scrubber on the Ammonia Plant to reduce NOx emissions from the Ammonia Plant to a 100 percentile concentration of 250 mg/Nm3 NOx • Scrubbing of ammonia emissions from the Nitric Acid Plant No.4 and Ammonium Nitrate Plant No. 3 during normal plant operation.	Detailed Design
Odour and Air Quality	As part of its improvement plans for its existing operations, Orica will also continue to investigate options to further reduce particulate and PM_{10} emissions from the existing AN Plant No.1 Prill Tower	Ongoing
	Within the CEMP, Orica will include measures to control dust during construction.	Construction
Greenhouse Gas	Orica is committed to the maximum practical GHG reduction for its existing and expanded facility as part of its company sustainability goals. Through the course of the expansion project, it is Orica's intention to install N_2O abatement technology on the proposed new nitric acid plant (NAP4) and retrofit technology to the existing nitric acid plants. Such technology is expected to reduce N_2O emissions from nitric acid production by at least 65%.	Detailed Design

Issue	Commitment	Timing
Noise and Vibration	Noise and vibration would be managed during construction and form part of the CEMP. The CEMP would include a monitoring program, mitigation options and management practices.	Construction
	As part of the expansion project Orica will design new plant and equipment to result in boundary noise at existing residential properties to be 10dB(A) less than current operations incorporating design measures to minimise the noise impact of new plant.	Design and Operation
	Orica will continue to work with EPA to implement the programme to reduce noise emissions from the existing plant based on the existing PRP in the site EPL.	Ongoing
Hazard and Risk	Orica will implement the following hazard and risk reduction measures by the completion of the Project to reduce the risk profile associated with its operations at Kooragang island. • Reconfigure bulk ammonium nitrate storage arrangements through storage segregation to reduce the risk associated with the onsite bulk storage. • Reconfigure packaged ammonium nitrate storage arrangements including the withdrawal of timber pallets currently used in the store, to further reduce the likelihood of fires in storage areas. • Implement additional ammonia detection and isolation systems to reduce the potential quantity released in an ammonia leak.	Detailed Design
	Orica will undertake a Hazard Analysis of the expanded operations 3 years after completion of the Project to update the hazard analysis contained in the PHA and subsequent FHA.	Operation
Parking	Orica will ensure the provision of adequate parking during the construction phase of the Project.	Construction
	Orica will ensure the provision of adequate car park facilities for additional staff anticipated for the expanded facility.	Operation
Transport	Orica will ensure that the movement of oversized loads to the site during the construction phase are undertaken in accordance with the standard procedures documented by the RTA and appropriate approval from the RTA.	Construction
	Orica will ensure that the detailed design of the new access points will be undertaken in accordance with the relevant standards and guidelines to cater for B-Doubles.	Detailed Design
Surface Water Quality	The CEMP will include requirements for the management of erosion and sedimentation during the construction of the Project.	Construction
	Orica will incorporate measures into the plant design to minimise the generation of contaminated stormwater runoff in the catchments such as bunding, roofing, first flush systems etc. where appropriate.	Detailed Design

Issue	Commitment	Timing
Effluent	Orica will ensure effluent recovery measures are integrated into the new plant design, including the use of equipment to minimise water consumption, such as water-limiting devices on ANP3 washdown systems and hoses, mist eliminator pads on Cooling Towers to minimise loss of water droplets from the cooling tower system, and recycling liquid streams within site processes where possible.	Detailed Design
Resource Implications	Orica will also implement design measures to improve the efficiency of resource use including • Consideration of water efficiency and recycling in design of new plant • Modification to the Ammonia Plant with a resultant improvement in gas efficiency • Implementation of steam driven compressor trains versus electrical drives where appropriate (i.e. Ammonia Plant modification) • Consideration of optimising energy recovery into a usable form in the Nitric Acid Plant design	Detailed Design
Soils and Groundwater	Orica will incorporate into the design of the proposal appropriate use of sealed areas, bunding and double containment to minimise the potential for failures that could result in soil and groundwater contamination. All process areas and tanks will be bunded in accordance with relevant Orica and Australian Standards. Plant areas will be classified according to risks to soil and appropriately sealed. The use of underground piping and pits will be minimised and, where unavoidable, secondary containment will be provided for systems that could impact on the environment in the event of a loss of containment	Detailed Design
	The CEMP will detail the measures to be implemented to address potential impacts to soil and groundwater during construction including: • A requirement that all excavated soils be tested to identify whether there are contaminants present in the soil. • Require soil testing to be conducted on excavated soils to determine the presence of acid sulphate soils (ASS) or other contaminants. All construction activities and works will be in accordance with "Managing Urban Stormwater; Soils and Construction" (Landcom, 2004).	Construction
Visual Amenity	Orica will consider vegetation/screening options along the eastern boundary that can be implemented and maintained in accordance with the onsite Security Plan for the Facility.	Operation
Flora and Fauna	The CEMP will include requirements to ensure that sedimentation and erosion from the construction activities are minimised to prevent potential impacts to nearby water bodies and habitat.	Construction

Issue	Commitment	Timing
Heritage	The CEMP will include the following requirement in relation to heritage considerations: • Any Aboriginal objects that are uncovered during the remediation works should be left undamaged and *in situ*. Construction works should cease and an assessment be conducted by a qualified archaeologist in consultation with Aboriginal stakeholders and the DECC for direction as to its preservation, historical recording and / or removal if such items are uncovered.	Operation
Waste	Orica will develop a Waste Management Plan for the new plant detailing the means by which Orica will manage recyclable and waste materials at the site. This will include: • Recycling of solid and liquid waste materials where possible. • Classification of all non-recyclable wastes in accordance with DECCS guidelines for waste classification and disposed of to an approved waste disposal facilities by licenced contractors. • Monitoring of recycling and waste disposal systems to assess the overall effectiveness of the plan.	Operation

APPENDIX D
STATEMENT OF COMMITMENTS FOR MOD 2

Aspect	Mitigation measure
Air Quality and Odour	- All construction works will be undertaken in accordance with Conditions 25 and 26 of the Project Approval. - Operational air quality verification will be undertaken for the proposed modification in accordance with Condition 23 of the Project Approval. - Ongoing operational air quality monitoring would be undertaken in accordance with Condition 22 of the Project Approval.
Noise and Vibration	- All construction works will be undertaken during hours as specified by Condition 33 of the Project Approval; - All reasonable and feasible construction noise mitigation measures will be implemented during construction to minimise noise impacts; - The final pump specification will comply with a Sound Power Level of 82dB(A) at 1m; and - Maintenance and testing of the flare will be limited to standard working hours.
Hazards and Risk	- A Layers of Protection Analysis (or similar) will be implemented for the nitric acid tank level instrumentation to determine the required level of reliability to reduce the risk of tank overflow to an acceptable level; - A Layers of Protection Analysis (or similar) will be undertaken during the design phase of the project to ensure the risk of liquid releases to the environment is acceptable; - A HAZOP study and a construction safety study will be undertaken in relation to the proposed modification; and - The existing safety management system, including the emergency response plan will be updated.
Visual	- All lighting design will be undertaken in accordance with *AS 4282(INT)-Control of Obtrusive Effects of Outdoor Lighting* pursuant to Condition 46 of the Project Approval; - The existing landscaping and vegetation screens of the Orica site will be subject to ongoing upkeep to maintain the effectiveness of the vegetated screen in accordance with the Landscape Plan prepares under Condition 45 of the Project Approval; and - All infrastructure will be maintained to a high standard and appearance with a focus on the external skin of the nitric acid tank.
Soils and water	- In accordance with Condition 44 of the Project Approval, a Construction Sediment and Erosion Control plan will be prepared in accordance with the 'Managing Urban Stormwater; Soils and Construction' (Landcom, 2004).
Greenhouse Gas	- Construction plant and equipment not be left idling for prolonged periods and will where feasible be turned off.
Transport	- Orica will ensure that the movement of oversized loads to the site during the construction phase is undertaken in accordance with the standard procedures documented by the Roads and maritime Services (RMS) and with appropriate approval from the RMS. - In accordance with Condition 36 of the Project Approval a Construction Traffic Management Plan will be prepared for the construction of both the nitric acid tanks and ammonia flares.

Aspect	Mitigation measure
Waste	- Construction waste will be managed in accordance with the waste hierarchy and the conditions of the Project Approval. - The Operational Waste Management Plan prepared under Condition 48 of the Project Approval will be updated to incorporate potential waste streams from the proposed modification.
Flora and fauna	- Sediment and erosion controls will be implemented to control runoff into, and ecological impact to, nearby water bodies. - Other potential impacts to flora and fauna will be managed through the implementation of the mitigation measures specified in the 2009 EA where applicable.
Heritage	- Any indigenous or on-indigenous objects that are uncovered during the remediation works should be left undamaged and in situ. Construction works should cease and an assessment be conducted by a qualified archaeologist in consultation with Aboriginal stakeholders and the OEH for direction as to its preservation, historical recording and / or removal if such items are uncovered.

Issue	Commitment	Timing
Hazard and Risk (MOD2)	Orica when developing the FHA will update during each relevant stage, will: • Confirm that the final design of the Nitric Acid tank ensures that the drainage path and ultimate drainage location for a spill from the tank will, as far as practicable, be retained on site. • Clarify the data and intent of Table AI-6 in the Preliminary Hazard Analysis. • Address the final design of the Nitric Acid tank overfill protection system (based on the findings of the SIL analysis), and its implications for the risk analysis. • Confirm the ground level radiation limits from the flares based on the final design. • Validate the failure analysis of the automatic isolation associate with major ammonia pipelines as detailed in the MOD 2 PHA. • Rationalise pressurised liquid ammonia storage and piping systems to reduce inventories and simplify isolation to minimise the potential quantity of ammonia released in an ammonia leak as detailed in the MOD 2 PHA. These measures will be in place by the completion of the Project.	Detailed Design

APPENDIX E
SITE LAYOUT PLANS

Job No.	Drawing No.	Rev.	Date	Title
PR0000631	211004-00035-PO-DSK-0003	B	09/03/2021	Nitrate Effluent Tank Storage Tank 15-74F66 Elevations of Tank and Ancillary Piping
PR000631	211004-00035-PI-DSK-C0C1	C	09/03/2021	Nitrate Effluent Tank Storage Tank 15-74F66 General Arrangement, Tank, Tie-In Points and Ancillary Piping
C.006149	**C7711-000-ME-GA-00-0004**	**A**	**13/07/2021**	**General Arrangement Drawing - Elevation & Side View**
C.006149	**C7711-000-ME-GA-00-0003**	**A**	**13/07/2021**	**General Arrangement Drawing – Plan View**

APPENDIX E
STAGING PLANS

Attachment A – Revised Project Staging Plan (MOD5) – September 2021

Project Staging Plan (27 September 2021)

Table 1 – Staging Plan

Phase	Stage	Description of Work	Sub-Stage	Approval Status	Estimated Construction Timing
Ammonia Plant Uprate					
1	1a	**Ammonia Plant Expansion – Plant Air Compressor Building** Construction of Plant Air Compressor building shell (compressor installed in Stage 1(b)).	Completed	Construction Complete and Operational	Completed
	1b	**Ammonia Plant Expansion - Installation/Modification of Plant** Installation of new equipment including new compressor, process vessels pipework and instruments in the Ammonia Plant.	Completed		
Proposed Trident Nitrates Expansion Project Construction Scheduling					
2	2a	**OBL 1(a) – Nitrates Infrastructure & ANS Loadout** Installation of new site infrastructure including the new site entrances, internal access roads, security and weighbridge facilities, ANS product storage and despatch facilities.	1. Internal access roads and minor civil works. 2. Site entrances, security offices and weighbridges. 3. Major civil works including piling and foundations. 4. New ANS storage vessel loading equipment	Approval for Construction granted / construction yet to commence.	Yet to be determined
	2b	**OBL 1(b) – Nitrates Despatch & Support Infrastructure** Construction of new AN Bag store, AN Despatch facilities and amenities, demolition of existing AN Bag store and despatch, construction of new AN Bulk Store, modification to existing AN bulk store, construction of WANS, construction of new control room and electrical infrastructure.		Approval to commence construction not yet granted by DoPI.	Yet to be determined
3	3a	**NAP4 – Nitric Acid & AN Solution plants and Support Infrastructure** Construction of the NAP4/ ANS Plant and tie-ins Construction of Nitrates support infrastructure including new Nitric Acid Storage, Ammonia Storage, Boiler, Cooling Tower, Demin Plant expansion Instrument Air upgrades, new Ammonia pumps, pipebridges & transfer lines.		Approval to commence construction not yet granted by DoPI.	Yet to be determined
	3b	**AN3 – AN Prill Plant** Construction of ANP3 Dry Section plant and tie-ins		Approval to commence construction not yet granted by DoPI.	Yet to be determined
Ammonia Management Improvement Program					
4	4	**Ammonia Flares** Construction and operation of three ammonia flares.	1. Nitrates Plant Flare 2. Ammonia Storage Flare 3. Ammonia Plant Flare	Approval to commence construction of the flares was granted on 23 June 2015. **Ammonia Flares** The nitrates flare became operational during February 2016 The ammonia storage flare became operational during April 2016. The ammonia plant flare was commissioned during April 2017.	Completed

Phase	Stage	Description of Work	Sub-Stage	Approval Status	Estimated Construction Timing
Nitric Acid Tank					
5	5	**Nitric Acid Tank** Construction and Operation of a nitric acid tank and associated scrubber, capable of exporting and importing nitric acid via the site's nitric acid wharf pipeline.		Approval to commence construction not yet granted by DoPI.	Yet to be determined
Boiler					
6	6	**Construction and operation of new Site Boiler** Construction and Operation of a new site boiler (to replace the decommissioned original site boiler)		Approval to commence construction granted on 27 July 2015	Construction completed 12 December 2019
Nitrates Effluent Tank					
7	7	**Construction and operation of new Nitrates Effluent Tank (MOD4)** Construction and Operation of a new Nitrate Effluent Tank (to replace the Nitrates Effluent Pond)		Approval to commence construction granted on 13 May 2021	Estimated to commence December 2021
Prill Tower Scrubber					
8	8	**Construction and operation of new Prill Tower Scrubber (MOD5)**		Development approval pending.	Estimated to commence November 2022