ORICA KOORAGANG ISLAND

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

DECEMBER 2016

Revision	Date	Description	Author	Approver
1	20/1/2017	Changes made following DoP feedback	A Taylor	S Woodroffe
0	5/01/2017	2016 Annual Environmental Report	A Taylor	S Woodroffe

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ABBREVIATIONS

AN3	No. 3 Ammonium Nitrate Plant
CSEMP	Construction Safety and Environmental Management Plan
DECCW	Department of Environment, Climate Change and Water
DPE	Department of Planning and Environment
DPI	Department of Planning and Infrastructure
EPA	Environment Protection Authority
EPL	Environment Protection Licence
HAZOP	Hazard and Operability Study
ktpa	kilo tonnes per annum
NAP4	No. 4 Nitric Acid Plant
SH&E	Safety, Health and Environment

1 Introduction

Orica Australia Pty Ltd (Orica) operates an ammonia nitrate manufacturing facility on Kooragang Island, NSW (**Figure 1**). The facility commenced operations in 1969 and has undergone several projects aimed at increasing the ammonium nitrate production capability of the site since. The current site operations consist of an Ammonia Plant, three Nitric Acid Plants, two Ammonium Nitrate Plants and associated despatch and support infrastructure (Existing Operations).

An approval for the expansion of the Kooragang Island site (the expansion Project) was granted by the Department of Planning and Infrastructure (DoPI) on 1 December 2009 allowing ammonium nitrate production to increase from 500 kilo tonnes per annum (ktpa) to 750ktpa. The expansion project broadly involves the uprate of the existing ammonia plant, construction of an additional Nitric Acid (NAP4) and Ammonium Nitrate Plants (AN3) and the upgrade and expansion of the site's ammonium nitrate storage and ancillary infrastructure.

Since the approval was granted in 2009, Orica has applied to the DoPI to modify the approval on three occasions.

Modifications to the 2009 approval includes:

Project Modification 1 (approved 11 July 2012)

- The relocation of plant and equipment further away from the closest residential properties located in Stockton;
- Relocation of the No. 3 Ammonium Nitrate Plant closer to the No. 4 Nitric Acid Plant in order to reduce the pipeline distance in which ammonia is required to be transported;

Project Modification 2 (approved 17 December 2014)

- Rationalisation and upgrade of ammonia storage and distribution infrastructure including a reduction in ammonia inventories stored in plant ammonia storage tanks;
- The construction and operation of three ammonia flares; and
- Instrumentation and integrity improvements to ammonia handling and storage systems
- The relocation and increase in storage quantity of a previously approved nitric acid tank.

Project Modification 3 (approved 17 December 2015)

- Increase the allowable annual production limit relating to the manufacture of ammonia at the site from 360,000t to 385,000t.

This report has been prepared in accordance with Condition 50 of the expansion project's Development Consent (08-0129) which requires an Annual Environmental Management Report (AEMR) to be submitted to the Department of Planning and Environment (formerly the Department of Planning and Infrastructure).

Figure 1: Site Location

1.1 Project Description

The activities detailed in the Project Approval include the:

- Upgrade to the existing Ammonia Plant designed at increasing ammonia manufacture capacity from 295 ktpa to 360 ktpa;
- Construction and operation of an additional Nitric Acid Plant (NAP4), capable of manufacturing approximately 260 ktpa of nitric acid;
- Construction and operation of an additional Ammonium Nitrate Plant (ANP3) capable of producing both Ammonium Nitrate Solution (ANS) and the solid prilled product Nitropril®;
- Construction and operation of additional storages for nitric acid, solid ammonium nitrate and ammonium nitrate solution;
- Construction and operation of three ammonia flares
- Supporting infrastructure including cooling towers, an effluent treatment system and boiler; and
- Construction of additional minor storage facilities and improvements to product loading facilities for road transport.

2 Project Approval Requirement

Condition 50 of Project Development Consent (08-0129) requires that Orica submit an AEMR within the first 12 months of commencing the project and annually thereafter. This report details environmental compliance of the Project between the 1 December 2015 and 30 November 2016 and:

a) Identifies the standards and performance measures for the project;

b) Describes the works carried out in the past 12 months and the works to be carried out in the next 12 months;

c) Includes a summary of complaints received in the past year and provide a comparison with previous years;

d) Reports results of all monitoring required by this approval and an EPL for the Project

e) Provides analysis of monitoring results in the context of the relevant criteria and limits, previous monitoring results and predictions made in the EA.

f) Identifies any trends in monitoring results over the life of the Project; and

g) Reports on compliance with the project approval, summarises non-compliances in the previous 12 months and reports on actions taken to rectify non conformances.

3 Project Standards and Performance Measures

The Project is required to meet the standards and conditions detailed in the following documents:

- Project Approval 08-0129 dated 1 December 2009
- Project Environmental Assessment dated June 2009
- Statement of Commitments dated August 2009
- Modification Application 08-0129 MOD 1 and supporting documentation titled Kooragang Island Facility Modification Request dated 20 April 2011;
- Modification Application 08_0129 MOD 2 Environmental Assessment titled Kooragang Island Modification Request dated 13 November 2013;
- Response to MOD 2 submissions dated 10 February 2014;
- Orica Mining Services Report for Kooragang Island Uprate PHA MOD1 Report dated March 2012
- Orica Mining Services Kooragang Island Uprate PHA MOD2 rev 1 dated May 2014 including Appendix VIII" nitric Acid Tank PHA, Rev C dated May 2014.
- Submissions Report dated 13 October 2014
- Orica Kooragang Island Ammonia Annual Quantity Increase Environment Assessment dated 28 April 2015.

Key design criteria detailed in these documents are detailed in Table 1.

Table 1 - Standards and performance implemented in plant design and construction

Criteria	Standard	Performance Measure	Comment
Noise Management	No increase in community noise levels as a result of the Project.	Operating Project to be at least 10dB (A) less than the existing plant noise levels.	No additional noise sources were installed during the 2016 AEMR reporting period. To enable the site to demonstrate compliance with the noise conditions detailed in the Development Consent, background noise testing at the community interface was performed prior to the Ammonia Plant uprate in 2011 in compliance with requirements detailed in Condition 31. Quarterly noise testing was subsequently performed during the 2013 AEMR period and annually thereafter in accordance with the DPI approved noise management plan. Noise testing undertake during the 2016 AEMR reporting period was performed July 2016.

Criteria	Standard	Performance Measure	Comment
Air Quality	Minimisation of particulate emissions associated with the Project.	AN3 stack emissions to be ≤20mg/Nm^3	Ammonium Nitrate Plant 3 has yet to be constructed; however the requirement has been incorporated into the plant design. Particulate emission performance of AN3 will be confirmed during plant commissioning activities.
	Minimisation of NOx emissions associated with the project.	Existing Reformer Stack NOx emission ≤350mg/Nm^3 (as NO_2 equivalent)	A purge gas scrubber was installed in 2011 during the Ammonia Plant uprate aimed at reducing NOx emissions from the Ammonia Plant Reformer Stack. Annual stack emission test data collected since the plant uprate has demonstrated compliance with this requirement, with the exception of two occasions. Stack emission data collected during the 2016 AEMR reporting period complied with the site's EPL NOx concentration limit.
		Pre-Reformer Furnace Stack NOx emission ≤350mg/Nm^3 (as NO_2 equivalent)	Annual stack emission testing has been performed following the commencement of operations on the 29 February 2012. In total five annual stack tests have been performed in compliance the EPL requirements, with NOx emissions significantly below the predictions detailed in the Environmental Assessment and the site's EPL concentration limit.
		Expansion Boiler Stack NOx emission ≤350mg/Nm^3 (as NO_2 equivalent)	Requirement has been incorporated into the Expansion Boiler design. Confirmation testing of NOx concentration will be completed following the commissioning of the new boiler.
		NAP4 Stack NOx ≤150ppm (99%tile)	Requirement incorporated into design for the new acid plant.
		Scrubbing of ammonia emissions under normal plant operations to be installed for NAP4 and AN3.	Requirement has been incorporated into design. In addition the site has commenced a program of works to ensure that ammonia emissions generated from existing operating plants are appropriately treated including the

<table>
<tr><th>Criteria</th><th>Standard</th><th colspan="3">Performance Measure</th><th>Comment</th></tr>
<tr><td></td><td></td><td colspan="3"></td><td>construction and operation of three ammonia flares.</td></tr>
<tr><td>Greenhouse Gas Emissions</td><td>Installation of abatement technology on Nitric Acid Plants</td><td colspan="3">Site N_2O emissions to be reduced by ≤65% compared to a “do nothing” approach.
Abatement projects to be completed within 6 months of commissioning of NAP4.</td><td>A N_2O emissions reduction strategy for the site has been implemented, with N_2O abatement technology installed in NAP2 from July 2013. N_2O emissions are continually monitored in all existing nitric acid plants.
Orica is continuing to investigate suitable technology for application in NAP3.</td></tr>
<tr><td rowspan="11">Water Emissions</td><td rowspan="11">New Plant and Equipment to comply with existing EPL conditions for effluent discharge parameters.</td><td></td><td colspan="2">mg/L</td><td rowspan="11">Requirement incorporated into design.
Effluent discharged from the site is continually monitored and reported in the site’s EPA Annual Return.</td></tr>
<tr><td></td><td>90% limit</td><td>100% limit</td></tr>
<tr><td>As</td><td></td><td>0.05</td></tr>
<tr><td>Oil and Grease</td><td></td><td>10</td></tr>
<tr><td>Nitrogen</td><td>1500</td><td>2000</td></tr>
<tr><td>Cr (6+)</td><td>0.05</td><td>0.2</td></tr>
<tr><td>TSS</td><td></td><td>50</td></tr>
<tr><td>pH</td><td></td><td>6.2 – 9.5</td></tr>
<tr><td>Temperature</td><td></td><td>43ºC</td></tr>
<tr><td>Volume</td><td></td><td>4500kL/day</td></tr>
<tr><td>Nitrogen Mass Discharge</td><td></td><td>200tpa</td></tr>
<tr><td>Production Limits</td><td>Production not to exceed prescribed levels.</td><td colspan="3">Ammonia – 385ktpa
Nitric Acid – 605ktpa
Ammonium Nitrate – 750ktpa</td><td>Requirement incorporated into design.
Production during the 2016 AEMR reporting period was as follows:
Ammonia – 334ktpa
Nitric Acid – 325ktpa
Ammonium Nitrate – 410ktpa</td></tr>
</table>

To ensure that environmental performance standards are appropriately integrated into the new plant design and associated construction activities, a Construction Environmental Management Plan (CEMP) was developed and approved for use by DoPI in 2011. The site CEMP has been recently updated to reflect the additional requirements outlined in Condition 49A of the development consent. Environmental control measures addressed in the CEMP relate to air quality, water quality, contaminated soil and acid sulphate soil, waste management, traffic, heritage and erosion and sediment control.

4 Project Status

4.1 Project Progress Review

Orica is undertaking the expansion of the site in a number of construction phases. This approach has been adopted to ensure that construction works associated with the upgrade have minimal impact on the site's existing operations, that upgraded ammonium nitrate product storage and loadout facilities are completed prior to the construction of the new nitric acid and ammonium nitrate plants and that market demand is accommodated in the construction timing. Project construction phases are as follows:

- *Phase 1*: Ammonia Plant Uprate: including improvement works designed to increase production capacity of the existing ammonia plant from 295ktpa to 360ktpa. This phase has been completed, with the uprated Ammonia Plant commencing operation on the 28 February 2012.
- *Phase 2*: Upgrade and improvement works to the site's supporting infrastructure: including the construction and upgrade of the site's ammonium nitrate storage facilities and product load out infrastructure. Construction works associated with this phase have been designed to reduce the site's risk profile associated with the storage of ammonium nitrate and the transportation and use of ammonia onsite.
- *Phase 3*: Ammonium nitrate expansion: construction works designed to increase ammonium nitrate production capability of the site from 430ktpa to 750ktpa through the construction of a new nitric acid and ammonium nitrate plant.
- *Phase 4*: The construction and operation of three ammonia flares (MOD 2). The flares are only one component of a broader program currently being implemented at the site, designed to reduce the risk associated with handling ammonia.
- *Phase 5:* The construction of a Nitric Acid tank. Orica has approval to change the proposed location and increase the storage capacity of a previously approved nitric acid tank (MOD 2).
- Phase 6: Construction and Operation of the Projects Boiler. Orica has recently completed a consistency review to support a change to the expansion project boiler site location.

Orica's DPE approved project Staging Plan is detailed in Table 2:

Table 2 – Project 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 DPE.	Yet to be determined

Phase Stage		Description of Work	Sub Stage	Approval Status	Estimated Construction Timing
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 DPE.	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 DPE.	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 4. Ammonia storage tank (nitrates)	Approval to commence construction granted on 23 June 2015. **Ammonia Flares** Commissioning activities associated with the ammonia storage and nitrates flares commenced on 31 August 2015. The nitrates flare became operational during February 2016 The ammonia storage flare became operational during April 2016. The ammonia plant flare is currently being installed, with operations to commence following the completion of the	Completed

Phase Stage		Description of Work	Sub Stage	Approval Status	Estimated Construction Timing
				ammonia plant turnaround in April 2017.	
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 sites nitric acid wharf pipeline.		Approval to commence construction not yet granted by DPE.	Yet to be determined
Expansion Project Boiler					
6	6	**Construction and operation of Expansion Project Boiler**		Approval to commence construction granted on 27 July 2015. Construction of the boiler has commenced.	Construction yet to be completed.

A summary of the Project works completed between 1 December 2015 and 30 November 2016 is detailed below.

4.1.1 *Phase 1: Ammonia Plant Expansion*

Works that have been performed in the last 12 months associated with the uprate of the Ammonia Plant include:

- Stack emission testing of Reformer and Pre Reformer monitoring points in accordance with the site's EPL.
- Annual compliance noise monitoring in compliance with the revised noise management plan.
- Regulatory reporting in accordance with the approvals Condition of Consent.

4.1.2 *Phase 2: Outside Boundary Limits*

No construction activities commenced in the previous 12 months associated with Phase 2 construction activities.

4.1.3 *Phase 3: Nitrate expansion*

No construction activities commenced in the previous 12 months associated with Phase 3 construction activities.

4.1.4 *Phase 4: Ammonia Management Improvement Program*

Approval to construct and commission the site's ammonia flares was granted on 15 June 2015. Both the ammonia storage and nitrate flares are now operational, with the ammonia plant flare to be operational in early April 2017.

The nitrates ammonia storage tank was constructed between January and March 2015 and commenced operation during April 2015 This enabled the decommissioning of the No. 2 Ammonia Feed Tank and a subsequent reduction in the quantity of pressurised liquid ammonia stored onsite.

4.1.5 *Phase 5: Nitric Acid Tank*

No construction activities commenced in the previous 12 months associated with Phase 5 construction activities.

4.1.6 *Phase 6: Expansion Project Boiler*

Approval to commence construction activities associated with the boiler was granted on 27 July 2015, with construction commencing a short time thereafter. The completion of construction activities has been delayed, with the revised completion date yet to be finalised.

4.2 Planned Project Progress during 2016/2017

Orica is continuing to focus on implementing site improvement works associated with Phase 4 and 6 of the Project.

Current market conditions have meant that Stages 2, 3 and 5 remain on hold. The timing associated with the implementation of these stages will be reviewed when market conditions are more favourable.

Orica is still progressing with reporting requirements associated with Phase 1 as detailed in the project approval Condition of Consent.

Project works anticipated to be completed in the following twelve months include:

4.2.1 *Phase 1 Ammonia Plant Uprate*

- Environmental monitoring as outlined in the site's EPL.
- Annual noise monitoring in compliance with the updated project noise monitoring plan.
- Reporting requirements as detailed in the project's Development Consent

4.2.2 *Phase 2 - Outside Boundary Limits (OBL)*

No construction works associated this phase are expected in the next 12 months.

4.2.3 *Phase 3 – Nitrates expansion*

No construction works associated this phase are expected in the next 12 months.

4.2.4 *Ammonia Management Improvement Program*

The ammonia plant flare will become operational during the first quarter of 2017. Orica will ensure that all pre and post operational reporting requirements are completed.

Upgrade works associated with the replacement of a section of the ammonia export pipeline are expected to commence on 16 February 2017.

4.2.5 *Nitric Acid Tank*

No construction works associated this phase are expected in the next 12 months.

4.2.6 *Expansion Project Boiler*

Construction activities associated with the expansion project boiler have been suspended due to changing site priorities and capital availability. The boiler is now expected to be completed by the end of 2018.

Orica will complete stack emission testing to confirm environmental performance of the boiler combustion system (NOx concentration) compared to that predicted in the project EA documentation upon commissioning of the expansion project boiler. This data will be submitted in the Project Stage Air Quality Verification Study (Condition 23).

5 Environmental Monitoring and Complaints Summary

5.1 Environmental Monitoring

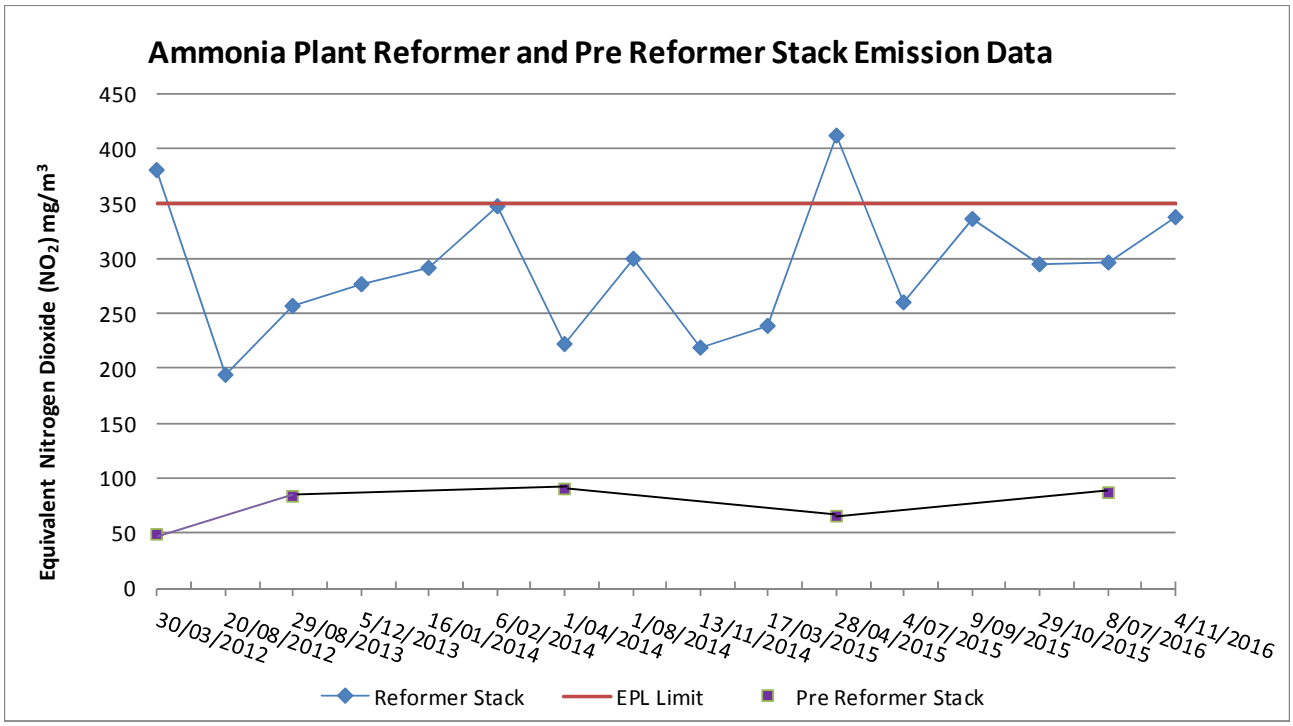
The Project Approval and EPL do not require environmental monitoring to be undertaken during the construction phase of the Project, however control measures specified in the project's CEMP have been implemented.

The uprated Ammonia Plant has completed all required environmental monitoring in accordance with the site Environment Protection Licence (EPL 828).

5.1.1 *Air Quality*

Orica is required to perform stack emission testing for both the Pre-Reformer and Reformer Stacks annually in accordance with the site's EPL anniversary date, 1 April each year. Additional nitrogen oxide (NOx) emission sampling has been completed for the Reformer Stack following the commissioning of a new purge gas scrubber in July 2012.

Figure 2 – Stack emission testing for uprated ammonia plant



Stack emission data collected during the 2016 AEMR reporting period complied with the site's Environment Protection Limit.

5.1.2 Noise

In order to demonstrate compliance to noise criteria for new plant and equipment associated with the ammonia plant uprate, the following procedure was developed by Orica and detailed in the Project's Noise Management Plan (NMP). This plan was approved by the DPI in July 2011, with compliance to the project's noise criteria to be demonstrated through the:

- Update of the site's noise model (Table 3) following the commencement of operation of the Project to predict the noise contribution for expansion project new plant and equipment in

relation to identified reference monitoring locations. This process assisted in the identification of further noise reduction opportunities.

- Undertake attended and unattended noise monitoring to evaluate changes in noise levels and identify trends in ambient noise levels.

Noise modelling detailed in the 2009 environmental assessment predicted that the noise contribution associated with the site expansion would satisfy the 10dB below pre expansion predicted levels consent requirement. As the expansion project is being implemented in three phases, the noise model will be updated following the commencement of operations for each project phase.

Table 3 – Noise compliance modelling results detailed in 2011 mod 1 report

Assessment Location	Predicted Sound Pressure Levels LAeq, 15min	
	Existing Plant	Uprated Plant
Assessment Location R1	50	37
Assessment Location R2	53	41
Assessment Location R3	51	39

The site's noise model was updated following the commencement of operations of the uprated ammonia plant representing the completion of Phase 1 construction activities. This model was updated using noise data collected from near field noise monitoring. Site noise modelling results confirmed that that noise level contribution associated with the uprated ammonia plant were less than 10dB below the predicted noise levels for the reference locations in Stockton and therefore did not increase existing noise levels (Table 4).

Table 4 – Revised compliance modelling results (quarter 1 testing)

Assessment Location	**Predicted Sound Pressure Levels $LA_{eq,15min}$ (dBA)**		
	Existing Plant	**Post Ammonia Plant Uprate**	**Ammonia Plant contribution**
Assessment Location R1	50	50	20
Assessment Location R2	53	52	22
Assessment Location R3	51	50	21

Attended and unattended noise monitoring was also undertaken at the reference locations in order to establish noise trends for the entire site, consistent with the process previously undertaken in 2011. The location of each noise monitoring point is detailed in Figure 3 – Noise Monitoring Locations **Figure 3.**

Figure 3 – Noise Monitoring Locations

Whist it is difficult to directly compare current noise data against historical trends due to variability in the meteorological conditions under which the data was collected, attended and unattended monitoring can be useful in gaining an increased understanding of the individual noise sources that contribute to the overall noise profile of the site. Noise monitoring was undertaken on a quarterly basis during the first 12 months of the ammonia plant being uprated (2013) and annually thereafter.

Attended and unattended measurements were conducted during July 2016 to assess noise from the Orica site and ambient noise trends. Noise monitoring results are detailed in **Figure 4**.

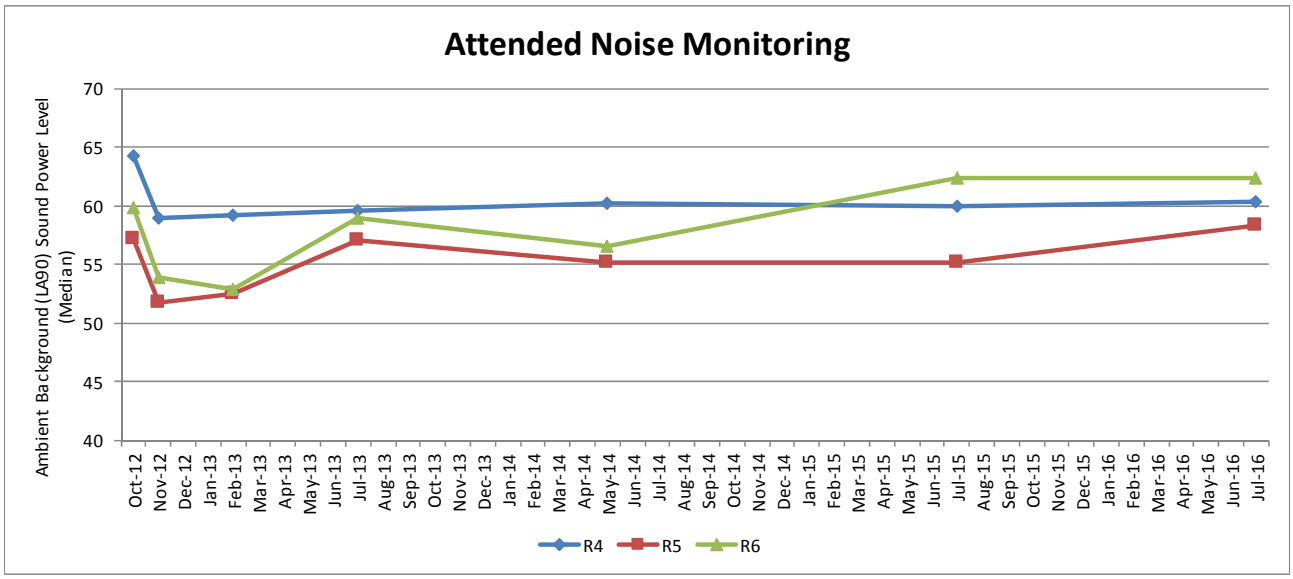


Figure 4 – Attended noise results for Kooragang Island

Following the completion of both attended and unattended monitoring, the data was evaluated against the baseline 2012 data, with medium noise levels found to be consistent with the 2012 median range as detailed in **Table 5.**

Table 5: Comparison of baseline and attended and unattended monitoring results

Reference Measurement Location	Ambient Background RBL's dBA					
	Baseline Levels (2012)		Measured Levels 2012/2013	Measured Levels 2013/2014	Measured Levels 2014/2015	Measured Levels 2015/2016
	Median Range	Median	Median	Median	Median	Median
R4 - Roadside (South)	61.2 - 62.9	62	59.6	61.5	59.7	60.2
R5 - Riverside (Central)	55.8 - 58.2	57	55.4	55.0	54.9	55.5
R6 - Riverside (North	58.2 - 60.6	59.8	57.7	60.0	62.8	62.5

Observations noted during attended audits identified that a temporary earth mound constructed on the adjoining property provided some localised noise shielding for the ammonia plant at location R5. Noise from the Ammonia Plant CO2 stack was identified at R6.

The site noise audit confirmed that the measured noise levels for June 2016 were marginally above the median levels at R6. The increase in noise level has been attributed to a change in the noise monitoring location, approximately 40 metres closer to the ammonia plant, as access to the a original noise monitoring location has been restricted. The levels for R4, R5 and R6 are considered within the normal range of ambient levels with no significant noise trends identified.

5.2 Community Complaints

Information on how the community can contact Orica to discuss the Project or make a complaint in relation to site activities is provided in community newsletters, which are distributed to adjacent suburbs including Stockton, Fern Bay, Carrington, and areas of Mayfield, Maryville and Tighes Hill, via the Orica Kooragang Island website (www.orica.com/kooragang) and in periodic advertorials run in the local print media.

All complaints received by Orica are documented in the site's incident reporting system (Enablon). All complaints are investigated to establish the root cause of the concern and determine whether the complaint is justified.

During the 2016 AEMR reporting period 14 complaints were received relating to noise and ammonia odour or associated with the ammonia plant operations. Investigation of the complaints was undertaken to determine whether they were potentially associated with Orica's operations. Although noise and odour related complaints were not directly attributed to the uprate of the ammonia plant, complaints received following the commencement of operations of the uprated Ammonia Plant have been included in this report for completeness (**Table 6**).

Table 6 – Community complaints received regarding noise and ammonia odour or associated with the ammonia plant

Year	Total	Concern raised in complaint
2016	14	• 10 complaints related to odour received from residents and industrial neighbours • 3 complaints were received regarding noise • 1 complaint regarding ignition of ammonia plant vent
2015	8	• 6 complaints related to odour received from residents and industrial neighbours • 2 complaints related to noise generated from steam venting
2014	10	• 7 complaints were received relating to ammonia odour • 1 complaint received regarding noise from the Ammonia Plant • 2 complaints relating to ignition of vent stack in Ammonia Plant during plant startup.
2013	7	• 6 complaints relating to noise • 1 complaint relating to ammonia odour as a result of an incident in the Ammonia Plant
2012	27	• 18 related to ignition of vent stacks during Ammonia Plant restart • 9 complaints relating to noise

6 AN1 Prill Tower Emission Reduction Investigations

6.1 Particulate Minimisation Program

Condition 27 of the Project Approval requires:

> *The Proponent shall investigate and report on the progress to reduce PM10 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 the implementation of emission controls.

In addition to the Project Approval requirements Orica's Environment Protection License previously included the particulate investigation program as a Pollution Reduction Program (PRP). The PRP required the following investigations to be completed:

U1.1 The licensee must undertake a program of works to characterise the emission of particulates from the No. 1 Ammonium Nitrate ("AN1") Prill Tower. The investigation must include, but is not limited to, an assessment of the following:

(a) Monitoring of the concentration of coarse and fine particulates; and, the estimated annual mass discharge of particulates from the AN1 Prill Tower. Monitoring must be undertaken in accordance with the requirements under Australian Standard AS4323.1:1995.

(b) A review of the relationship between plant operating conditions and particulate concentrations and characteristics.

(c) A review of the effect of meteorological conditions on particulate concentrations and characteristics.

U1.2 - The licensee must undertake a review that identifies available options to reduce particulate emissions from the AN1 Prill Tower and assess the feasibility of the options identified, and

U1.3 - The licensee must undertake a detailed evaluation of identified feasible options to reduce particulate emissions from the AN1 Prill Tower.

In compliance with both Condition 27 and the Pollution Reduction Program, Orica undertook an assessment of feasible options designed to reduce particulate emissions from the AN1 Prill Tower during 2014. From the 11 feasible options identified by the study, the Particulate Minimisation Program was identified as the preferred option. A final report was developed in accordance with the requirements detailed in PRP U1.3 titled *AN1 Prill Tower Particulate Emission Reduction Project Feasibility Report*, dated 20 December 2013 and submitted to the EPA.

The program consists of four stages, with progression to each stage dependent on a review of results from ongoing sampling / monitoring programs against performance metrics and triggers. An update regarding progress made in implementing the program is outlined in Table 7.

Table 7 - Particulate Minimisation Program update

Task	Description	Completed	Dates
Stage 1			
1.1	Identify the most appropriate monitoring method for coarse particulate emissions	✓	Jan 2014 - ongoing
1.2	Undertake further baseline monitoring	✓	Jan–Aug 2014
1.3	Develop metrics by which the performance will be assessed and triggers for further assessment or consideration of additional options	✓	Aug 2014
1.4	Improve operator awareness and active process monitoring	✓	Apr 2014- ongoing

Task	Description	Completed	Dates
1.5	Validate CFD modelling	-	Partial
1.6	Review of prill head design, condition and availability	✓	Apr-Aug 2014
1.7	Review and validate results of sampling / monitoring programs against performance metrics and triggers, and assess whether progression to Stage 2 is required.	✓	Ongoing and this report
Stage 2			
2.1	Improvements to the vibrating prill head system	✓	Oct 2014 - ongoing
2.2	Improvements to prill head management (handling, change-outs, systems and cleaning)	✓	Aug-Nov 2014
2.3	Review and validate results of sampling / monitoring programs against performance metrics and triggers, and assess whether progression to Stage 3 is required.	✗	Not applicable - further monitoring required
Stage 3			
3.1	Design and implement system to minimise the impact of wind at the inlet louvres (to assist in creating uniform air flow at the base of the Prill Tower).	✗	Not currently required
3.2	Reduction of Prill Tower air flow: Review effects of optimising prill size distribution and/or reducing prill head hole size to minimise cooling requirements Consider further reduction in air flow through implementation of cooling system or internal sleeve, and progress design if installation appears justified.	-	Partial – prill head design modifications and prill size changes completed
3.3	Review and validate results of sampling / monitoring programs from Stages 1 – 3 activities against performance metrics and triggers, and assess whether progression to Stage 4 is required.	✗	Not applicable - further monitoring required
Stage 4			
4.1	Document the Particulate Minimisation Program	✗	Not yet applicable
4.2	Consider next steps: Review and validate results of sampling / monitoring programs from Stages 1 – 4 activities against performance metrics and triggers, and assess whether further particulate reduction controls are required. Review previously evaluated options (in particular Options 1, 5 and 10), and re-assess for suitability in light of additional information obtained through the Particulate Minimisation Program.	✗	Not yet applicable

Orica propose to continue implementation of the Particulate Minimisation Program during the next 12 months in general accordance with the plan presented in the Feasibility Assessment and summarised in Table 7 - Particulate Minimisation Program update

Planned works for 2016/2017 include:

- Ongoing iso-kinetic sampling, deposition monitoring and continuous stack monitoring to ensure compliance with requirements of the site's EPL and assess the effectiveness of Particulate Minimisation Program measures.
- Continued logging of relative emission concentrations exceeding trigger levels and plant operating conditions.
- Completion of the system to monitoring vibration frequency of each prill head.
- Continued management of newly designed prill heads.

6.2 PM2.5 Particle Characterisation Study

The Lower Hunter Particle Characterisation Study undertaken by the NSW EPA, NSW Office of Environment and Heritage, CSIRO and ANSTO, which was released in April 2016, identified that elevated levels ammonium nitrate were present in PM2.5 samples collected at the Stockton Air Quality Monitoring Station during the winter months of 2014. In response to these findings Orica entered into a Pollution Reduction Program with the following requirements:

U3.1 – The licensee must fund the analysis of the ammonium and nitrate component of samples collected at the Stockton Air Quality Monitoring Station as part of the ANSTO Aerosol Sampling Program (ASP) PM2.5 during the period April to September 2015 and April to September 2016.

Within one month of receiving the results the licensee must submit them to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300, or by email to hunter.region@epa.nsw.gov.au.

U3.2 – The licensee will undertake an investigation to determine the contribution of ammonium nitrate particles with a diameter of 2.5µm or less (PM2.5) discharged from sources located at the site to total PM2.5 concentrations at the Stockton Air Quality Monitoring Station.

A report detailing this investigation and its findings must be submitted to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300, or by email to hunter.region@epa.nsw.gov.au.

Date for completion: 31 December 2017

U3.3 - The licensee must undertake a review that identifies feasible options to reduce PM2.5 ammonium nitrate particle emissions from sources identified as being significant as a result of the investigation completed in U3.2.

A report detailing the outcomes of the review must be submitted to the EPA's Regional Manager – Hunter at PO Box 488G, Newcastle NSW 2300, or by email to hunter.region@epa.nsw.gov.au.

Date for completion: 31 December 2017

Orica will provide a summary of the outcomes from the program in the 2017 AEMR.

6.3 Prill Tower particulate monitoring data

Orica has continued with a particulate monitoring program over the past 12 month period to support emission reduction initiatives implemented in the Particulate Minimisation Program. Results of the sampling program for 2014, 2015 and 2016 are detailed below in Figure 5.

Figure 5 - Particulate monitoring results

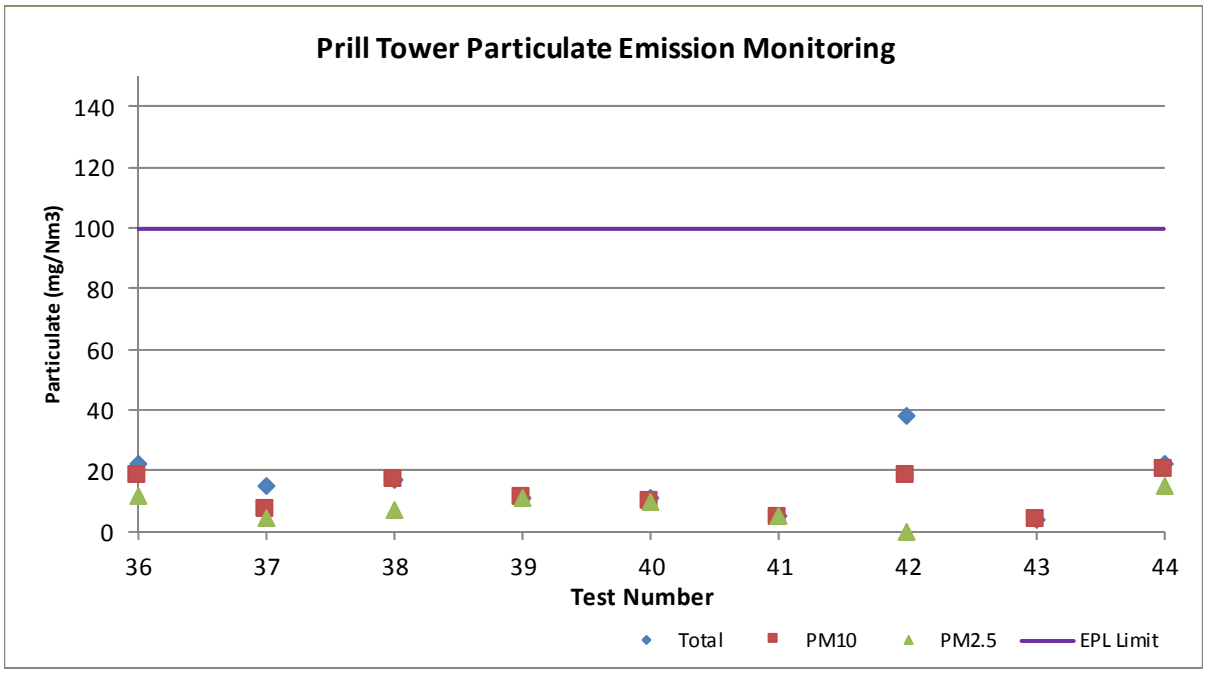


Figure 6 – Particulate monitoring data from AN1 collected during 2014, 2015 and 2016

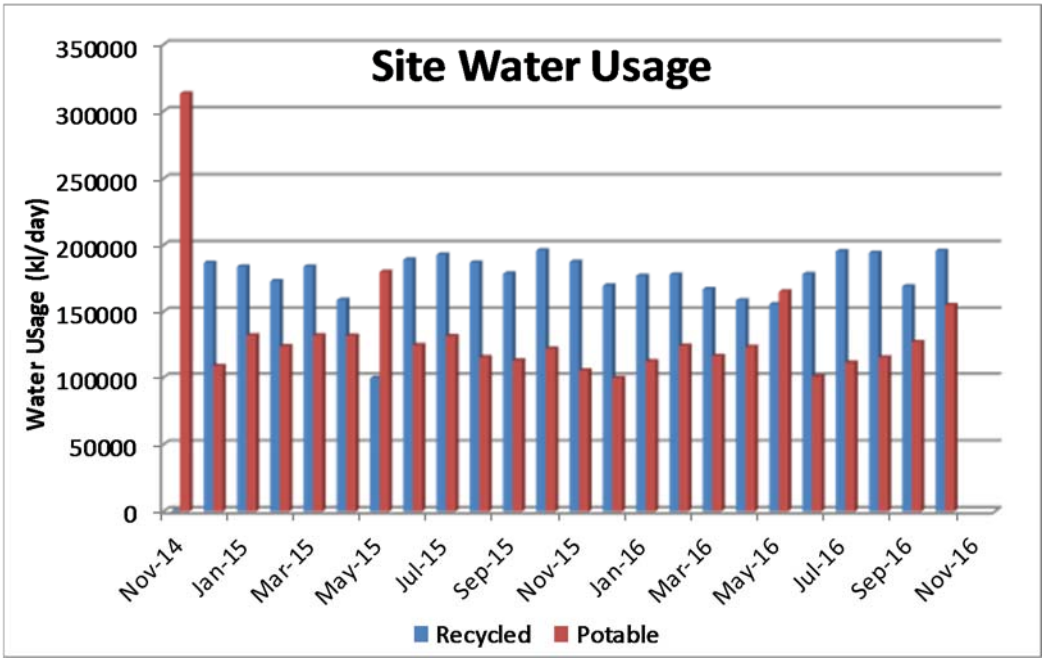
During the 2016 AEMR reporting period, two prill tower stack emission tests were performed (Sample 43 and 44).

The particulate results demonstrated that particulate levels associated with PM 10 and PM 2.5 are significantly below regulatory limits and also lower than the conservative PM10 concentration data that was utilised in the air quality assessment that was previously submitted to the DPI to support Orica's expansion project approval.

7 Reclaimed Water Project

As detailed in Condition 37 of the Project Approval, Orica was required to investigate the feasibility of receiving recycled water from Hunter Water Corporation's recycled water scheme. This project was successfully implemented, with recycled water received by the site for the first time on the 28 November 2014. The water is used in the Ammonia Plant Cooling Tower and the Demineralised Water Treatment Plant. A breakdown of potable water usage compared with recycled water usage is detailed in **Table 8**.

Table 8 - Potable water and recycled water usage comparison



Orica continues to explore additional options to increase recycle water use onsite.

8 Project Approval Compliance

8.1 Condition Compliance

A review of the current status of compliance with the Project Approval 08-0129 is detailed in the table below. Where there was not complete compliance with the condition, actions to address the issues are detailed.

SUMMARY OF COMPLIANCE WITH PROJECT APPROVAL DURING 2016 AEMR REPORTING PERIOD

Issue	Condition	Requirement	Compliance Status	Comment
General Responsibilities	1	Implement all reasonable and feasible measures to prevent pollution and minimise harm to the environment.	Complied	Management plans and project management activities are in place to ensure that environmental harm during construction activities is minimised.
	2	Project to be carried out in accordance with the EA, Statement of Commitments, Project Approval and Submission Approval, Modification report and PHA.	Complied	Project documentation has been updated to reflect development consent MOD1, MOD2 and MOD3 documentation.
	3	Management of inconsistencies between the various Project Approval documents.	Complied	No issues were identified during the period.
	4	Comply with the requirements of the Director-General	Complied	No issues were identified during the period.
	5	Production capacity limits for ammonia, nitric acid and ammonium nitrate.	Complied	Ammonia – 334ktpa (360ktpa) Nitric Acid – 325ktpa (605ktpa) Ammonium Nitrate – 410ktpa (750ktpa)
	6	Management of Project Approval conditions in the event that there are delays to the stages of the project.	Complied	No construction works were undertaken in relation to Phase 2 and 3 of the expansion construction program. Regulatory reporting associated with the uprated ammonia plant (Phase 1) has continued in accordance with the conditions of the project approval.
	7(a) 7(b)	The project shall be carried out generally in accordance with the approved Staging Plan	Complied	Staging Plan updated on 18 August 2015.
	7 (e)	Submission of plans on a progressive basis.	Complied	Orica has submitted plans on a progressive basis following discussions with the DPE. A revised Staging Plan outlining the progressive submission of plans was submitted to the DPE dated 18 August 2015.
	7(f)	Minor design Variations	Complied	Approval to change the location the expansion project boiler was approved on the 11 June 2015.
	8	Buildings and structures to be constructed in accordance with the requirements of the Building Code of Australia.	Complied	No buildings or structures were constructed or designed during the 2016 AEMR monitoring period

Issue	Condition	Requirement	Compliance Status	Comment
	9	The Proponent is required to repair any public infrastructure damaged as a result of the Project.	Complied	No construction works requiring the use of public roads were undertaken during the 016 AEMR reporting period.
	10	Undertaking of a dilapidation report prior to the commencement of construction. The report is to be undertaken in consultation with NPC and submitted to the Department of Planning.	Complied	No updates to the dilapidation report were required during the 2016 AEMR reporting period.
	11	Obtain approval from service providers prior to commencement of utility construction activities	Complied	Recycled water was connected to the site in cooperation with Hunter Water Corporation in 2014.
	12	Ensure all equipment is maintained and operated in a proper and efficient manner.	Complied	Phase 1 - ongoing. Maintenance and training activities associated with Phase 1 have been incorporated into routine plant activities.
	13	Section 94 contribution to NCC.	Complied.	Section 94 contribution was submitted to NCC in September 2010.
Hazard Management	14	Undertake the following studies and submit to DoP Director-General for approval:		
	a)	• Fire Safety Study	Complied	The site FSS has been updated to reflect changes made to the site over the past 5 years. The updated FSS was submitted as part of MOD3 documentation.
	b)	• HAZOP	Complied	No HAZOP reports were submitted to DPE during the 2016 AEMR reporting period.
	c)	• Final Hazard Analysis	Complied	No FHA's were submitted during the 2016 AEMR period.
	d)	• Construction Safety Study	Complied	No CSS's were submitted to DPE during the 2016 AEMR reporting period.
	15	Undertake the following studies and submit to DoP Director-General for approval: • Transport of Hazardous Materials Study	Complied	No amendments to the transport of hazardous materials study were required during the 2016 reporting period.
		• Emergency Plan	Complied	The site's Emergency Plan was updated during the 2016 AEMR reporting period.
		• Safety Management System	Complied	The site's safety management system was updated during the 2016 AEMR reporting period.

Issue	Condition	Requirement	Compliance Status	Comment
	16	Submission of Pre-Startup Compliance Report	Complied	No additional pre startup reports were required to be submitted to the DPE during the 2016 AEMR reporting period.
	17	Submission of Post-Startup Compliance Report	Complied	No additional post startup reports were required to be submitted to the DPE during the 2016 AEMR reporting period
	18	Submission of Risk Reduction Program to reduce risk to neighbouring land	Complied	This Condition is deemed satisfied through the risk reduction measures detailed in the Mod1 Mod 2 and MOD3 PHA's.
	19	Undertake a Hazard Analysis of the site operations	Complied	This report was not required to be submitted during the period.
	20	Undertake a comprehensive Hazard Audit of the Project and submit a report to the DoP Director-General	Complied	A Hazard Audit report was submitted to DPE on 14 November 2016. An action plan to address recommendations was also submitted on 14 December 2016.
Air Quality	21	Emission controls detailed in Section 7.8.1 of the Environmental Assessment are to be incorporated into the design.	Complied	The Refrigeration Purge Gas Scrubber was commissioned in 2012 and is operating in accordance with the environmental assessment.
	21 (a)	The site will operate the flares in a proper and efficient manner	Complied	The ammonia storage and nitrates flares were operational during the 2016 AEMR reporting period.
	22	Air emission monitoring required by the EPL is to be undertaken for the Project.	Complied	Orica has maintained quarterly stack testing during the 2016 AEMR reporting period to support plant improvement initiatives. All tests complied with the site's EPL requirements.
	23	Undertake an Air Quality Verification Study	Complied	No updates to the Project's air quality verification study were required during the 2016 AEMR reporting period.
	24	Implement reasonable and feasible actions to address exceedences identified in the Air Quality Verification Study or routine monitoring.	Complied	No exceedances were identified in the Air Quality Verification Study.
	25	Minimisation of dust generation from Project using reasonable and feasible means.	Complied.	Measures for the control of dust were included in the Construction Environmental Management Plan which was approved by DPI in February 2010. The CEMP was updated during the 2016 AEMR period.
	26	Trucks entering or leaving the Project site must have their loads covered and must not track dirt onto public roads	Complied.	Measures for the control of dust were included in the Construction Environmental Management Plan which was approved by DPI in February 2010. All vehicles must exit the

Issue	Condition	Requirement	Compliance Status	Comment
				site through a manned security point that is able to audit vehicles for this requirements
	27	An annual report must be prepared detailing the progress of the project to reduce PM10 emission from the existing Prill Tower	Complied.	A summary of the progress is detailed in this Annual Environmental Management Report.
	27 (a)	Air Quality Management Plan	N/A	IPL expansion project is not operational
	27 (b)	Consult with IPL in regard to the Air Quality Management Plan	N/A	IPL expansion project is not operational
Greenhouse Gas Emissions	28	Emission reduction technologies to be implemented in accordance with EA commitment	Complied.	The following emission reduction technologies were included in the Ammonia Plant; a Pre-Reformer, a new compressor powered by a steam turbine and a larger motor generator (Item 28b) have been installed in the plant.
	29	Implementation of N_2O abatement technology on NAP1, NAP2 and NAP3.	n/a during the period.	N_2O abatement technology was installed in the No. 2 Nitric Acid Plant. Assessment of technologies suitable for use in No. 3 Nitric Acid Plant continue to be undertaken.
Water Management	37	Water management Plan, including reporting on progress of investigations to receive recycled water from Hunter Water Corporations recycled water scheme.	Complied	A Water Management Plan for Phase 1 was completed. Infrastructure associated with receiving recycled water has been installed and commissioned, with recycled water received at site on the 28 November 2014.
	40	The Project is to meet the requirements of the EPL in relation to stormwater and effluent discharge	Complied	The site's effluent and stormwater was monitored in accordance with the requirements of the EPL.
	37	A Water Efficiency Plan is to be prepared and implemented to the satisfaction of the DoP Director-General	Complied	No amendments to the Project's water efficiency plans were required in the 2016 AEMR reporting period.
	41	Compliance with s120 of POEO	Complied.	There were no water pollution related incidents directly attributed to the Project recorded during the 2016 AEMR reporting period.
	42	A Stormwater Management Plan is to be prepared and implemented	Complied	No changes to the Project's approved stormwater monitoring plan were required during the 2016 AEMR reporting period,
	43	Bunding design to meet Australian and DECCW requirements	Complied	A bunding specification in accordance with the Australian standard has been implemented into the design of the plants. Orica continues to upgrade existing bunds in accordance with Special Condition detailed in the EPL.

Issue	Condition	Requirement	Compliance Status	Comment
Noise Management	30	Noise emissions from Project to be 10dB(A) below that of the existing operations.	Complied.	Annual noise monitoring was completed during the 2016 AEMR reporting period.
	31	Existing Operations Noise Verification Program to be developed and implemented to the satisfaction of the DoP Director-General	Complied.	An updated noise management plan, including details of the Project's noise verification program was submitted and approved by the DoPI in May 2012.
	32	A Noise Management Plan is to be developed and implemented. The plan is to be updated annually.	Complied	An updated noise management plan, including details of the Project's noise verification program was submitted and approved by the DoPI in May 2012. The noise management plan was reviewed and updated during the 2016 AEMR reporting period.
	32 (a)	Ports Precinct Noise Management	n/a	Study yet to commence.
	33	Construction hours for the Project are: Monday – Friday: 7am to 6pm Saturday: 8am to 1pm Sunday and Public Holidays: Nil Construction outside of these hours is permitted if inaudible at the nearest residences.	Complied.	Construction activities associated with the expansion project Boiler and AMI were limited to the hours detailed in the condition.
		Operational hours for the Project are: All days: 24 hours	Complied	The Project operated in accordance with the requirements.
Land Management	38	Provide a Project Site Contamination Plan to the DPI Director-General	Complied.	Phase 1 - Complete. Phase 2 and 3 – no construction activities have commenced at this time. However the revised CEMP for Phase 2 and 3, which includes measures for the management and identification of contamination, was submitted to DPI on 05/11/2011.
	39	Prepare an Acid Sulphate Soil Management Plan	Complied.	Phase 1- Complete. Phase 2 and 3 – no construction activities have commenced at this time. However the revised CEMP for Phase 2 and 3, which has measures for the management and identification of ASS, was submitted to DPI on 05/11/2011.
	44	Prepare an Erosion and Sediment Control Plan	Complied.	Phase 1 -Complete. Phase 2 and 3 – no construction activities have commenced at this time. However the revised CEMP for Phase 2 and 3, which has measures for erosion and sediment control, was submitted to DPI on 05/11/2011.

Issue	Condition	Requirement	Compliance Status	Comment
Traffic Management	34	All roads, access points and parking to comply with the nominated Australian Standards	n/a during the period.	N/A
	35	Traffic associated with the Project must not impede traffic on Greenleaf Road and Heron Road	Complied.	Phase 1- Complete. Phase 2 and 3 – no construction activities have commenced at this time. However a revised Construction Traffic Management Plan for Phase 2 and 3, which includes measures for the management of traffic during construction, was submitted to DPI on 05/11/2011.
	36	A Construction Traffic Management Plan (CTMP) is to be submitted to the DoP Director-General	Complied.	A CTMP for Phase 2 and 3, including measures for the management of traffic during construction has been submitted to DPI (05/11/2011). No amendments were made to the plan during the 2016 AEMR reporting period.
Visual	45	Prepare a Landscape Plan for the Project and submit to the DoP Director-General	n/a during the period.	
	46	Lighting to comply with Australian Standards and avoid nuisance to surrounding landusers and roadways.	n/a during the period.	Phase 1 – There was no additional external lighting installed by the project during the 2016 AEMR reporting period.
Waste Management	37	Water management Plan, including reporting on progress of investigations to receive recycled water from Hunter Water Corporation's recycled water scheme.	Complied	A Water Management Plan for Phase 1 has been completed. Infrastructure associated with receiving recycled water has been installed and commissioned with recycled water received at site on the 28 November 2014.
	47	Waste to be classified in accordance with DECCW guidelines and disposed of to approved premises	Complied.	All wastes disposed of at the site are classified in accordance with the relevant EPA guidelines.
	48	Prepare and implement a Waste Management Plan which has been submitted to the DoP Director-General	Complied	A waste management plan for the uprated Ammonia Plant was submitted to the DPI on 28 March 2013.
Environmental Reporting and Auditing	49(a)	Construction Environmental Management Plan	Complied	CEMP was reviewed and updated during 2016 AEMR reporting period.
	49(b)	Operational Environmental Management Plan	N/A	No project Stage has commenced operations since this condition was included in approval.
	50	Prepare an Annual Environmental Management Report and submit to the DoP Director-General	Complied.	Submission of this report annually

Issue	Condition	Requirement	Compliance Status	Comment
	51(a)	The DoP Director-General is to be notified of any incident associated with the Project that results in actual or potential for offsite harm to people or the environment	Complied	No incidents associated with the Project occurred during the 2016 AEMRmonitoring period.
	51(c)	Flare activation reporting	Complied	Flare activation reports were submitted to DPE on 31 December 2015, 31 March 2016, 4 July 2016 and 4 October 2016.
	52	An Independent Environmental Audit by a team of experts is to be undertaken in relation to the Project	Complied.	The independent environmental audit was not required to be undertaken during 2016 AEMR period.
	53	The following information regarding the Project is to be included on the website: • Copy of all current statutory approvals • Copy of the current EMS and associated plans and programs • Copy of the last 5 years of Annual Reports • Copy of Independent Environmental Audit reports and responses to recommendations	Complied	Copies of relevant information relating to the project continue to be included on the Kooragang Island website (www.orica.com/kooragang).

8.2 Summary of Submitted Reports

Details on the reports submitted in compliance with the Project Approval are detailed in the table below.

✓ = Submitted to DPE and Approved ✓ = Submitted to DPE awaiting approval from DPE or Other **x** = not submitted to DPE

Condition	Condition Requirement	Project Phase								Reports submitted to DPE to date
		Phase 1	Phase 2		Phase 3		Phase 4	Phase 5	Phase 6	
		Ammonia Plant Uprate	OBL 1(a)	OBL 1(b)	NAP4 & ANS	ANP	AMI	Nitric Acid Tank	Boiler	
Reporting Requirements for Commencing Construction										
14 (a)	**A Fire Safety Study**	✓	✓	✓	✓		**N/A***	N/A	✓^	1. FSS Kooragang Island Site (21 June 2011) – updated on 14 February 2016 2. FSS Ammonia Uprate project (17 April 2010) 3. FSS Phase 2 OBL 1(a) (17 February 2012) 4. FSS Phase 2 OBL 1(b) (23 October 2012) 5. FSS Phase 3 Nitric Acid and Ammonium Nitrate plants (7 January 2013) * No formal requirement for FSS associated with Phase, however reduction in ammonia inventories to be updated to site FSS in next FSS revision ^ Boiler detailed in Site FSS. New location to be updated in Site FSS in next revision
14 (b)	**A Hazard and Operability Study**	✓	✓	✓	✓	✓	✓	**x**	✓	1. Ammonia Plant Uprate (22 March 2010) 2. Phase 2 OBL 1(a) (27 March 2012) 3. Phase 2 OBL 1(b) (30 October 2012) 4. Ammonium Nitrate Prill Plant (15 Nov 2012) 5. Nitric Acid 4 and Ammonium Nitrate Solution 3 (28 Oct 2012) 6. AMI HAZOP Report (dated 12 January 2015) 7. KI Steam HAZOP Report (dated 22 June 2015)
14 (c)	**A Final Hazard Analysis**	✓	✓	**x**			✓	**x**	N/A	1. Kooragang Island Phase 1 Uprate FHA (March 2010) 2. OBL 1(a) (letter dated 28 March 2012) 3. AMI FHA (dated 7 April 2015)
14 (d)	**A Construction Safety Study**	✓	✓	✓	✓*		✓	**x**	✓	1. CSS for air compressor building (5 December 2009) 2. CSS for ammonia plant uprate (29 March 2010) 3. CSS OBL 1 (a) (3 December 2011) 4. CSS OBL 1(b) (1 August 2012) 5. CSS AMI Rev C (dated 2 April 2015) 6. CSS Boiler Rev B (dated 15 June 2015) * Civil construction activities associated with phase 3 considered in OBL 1(b) CSS only
36	**Construction Traffic Management Plan**	✓	✓				N/A	N/A	N/A	1. Ammonium Nitrate Facility Upgrade CTMP (March 2010) 2. Ammonium Nitrate Facility Upgrade CTMP (September 2011)
37	**Water Efficiency Plan**	✓	N/A	N/A	✓		N/A	N/A	N/A	1. Water efficiency Plan Phase 1: Ammonia Plant Upgrade (April 2011) 2. Water efficiency Plan Phase 3: NAP4 and AN3 (May 2013)

Condition	Condition Requirement	Project Phase								Reports submitted to DPE to date
		Phase 1	Phase 2		Phase 3		Phase 4	Phase 5	Phase 6	
		Ammonia Plant Uprate	OBL 1(a)	OBL 1(b)	NAP4 & ANS	ANP	AMI	Nitric Acid Tank	Boiler	
38	**Soil and Groundwater Contamination investigation**					✓				1. Soil Management Plan (December 2009) 2. Targeted soil and groundwater quality assessment (13 April 2012)
42	**Stormwater Management Plan**	✓				✓				1. Stormwater Nitrate Facility Upgrade Stormwater Management Plan Phase 1 (March 2010) 2. Stormwater Nitrate Facility Upgrade Stormwater Management Plan (November 2011)
45	**landscape plan**					✓				1. Landscape Plan (3 June 2011)
49	**Environmental Management Strategy**			✓			N/A	N/A		1. Environmental Management Strategy (December 2009)
49A	**Construction Environment Management Plan**					✓				1. Construction Environment Management Plan rev 2 dated September 2011
Reporting Requirements for Commencing Commissioning										
15 (a)	**Transport of Hazardous Materials Study**	N/A	N/A	N/A	N/A	✓	N/A	N/A	N/A	1. Transport and hazardous materials study (22 April 2013)
15 (b)	**Emergency Plan**			✓			✓*	X*	X*	1. KI emergency response plan (11 April 2011) 2. KI emergency response plan update (August 2015) 3. KI emergency respoce plan (December 2015) *Update to approved ERP undertaken for Phase
15 (c)	**Safety Management System**			✓			✓*	X*	X*	1. Safety management system (December 2010) 2. Safety management system update (August 2015) *Update to approved SMS undertaken for Phase
16	**Pre-Startup Compliance Report**	✓	**X**	**X**	**X**	**X**	✓	**X**	**X**	1. Pre- Start up Compliance report Phase 1 Ammonia plant uprate (June 2011) 2. Pre-Start up Compliance report Phase 4 AMI (dated August 2015)
49B	**Operational Environmental Management Plan**					✓^				1. Environmental Management Strategy (December 2009) ^ update to approved EMS is required to meet additional requirements incorporated into Development Consent following the completion of MOD2 approval process.
Reporting Requirements following Commencing Operations										
17	**Post-Startup Compliance Report**	✓	**X**	**X**	**X**	**X**	✓	**X**	**X**	1. Post- Start up Compliance report Phase 1 Ammonia plant uprate (May 2012) 2. Post Start up Compliance report (AMI)
18	**Further risk reduction program**	**N/A**								Not required due to updated PHA is now compliant
19	**Hazard Analysis Update**	**X**								3 years after the completion of the Project
20	**Hazard Audit of the Project**					✓				1. Hazard Audit (28 March 2013)

Condition	Condition Requirement	Project Phase							Reports submitted to DPE to date
		Phase 1	Phase 2		Phase 3		Phase 4	Phase 5	Phase 6	
		Ammonia Plant Uprate	OBL 1(a)	OBL 1(b)	NAP4 & ANS	ANP	AMI	Nitric Acid Tank	Boiler	
										2. Hazard Audit (11 November 2016) * Three yearly schedule
23	**Air quality verification study**	✓	N/A	N/A	x	x	x	x	x	1. Ammonia Plant uprate air verification study (27 February 2014)
27A	**Air Quality Management Plan**	✓	x	x	x	x	x	x	x	1. Construction Air Quality Management Plan dated 15 January 2010
30	**Noise Verification Program**					✓				1. Noise verification assessment Orica Ammonium Nitrate expansion project (March 2011)
32	**Noise Management Plan**	✓				✓				1. Noise Management plan (August 2011) * Quarterly noise testing compliance noise testing completed (2012-2013) * Noise management plan reviewed in 2014 * Annual noise test requirement
45	**landscape plan**					✓				1. Landscape plan (3 June 2011)
48	**Waste Management Plan**	✓	x		N/A		N/A	N/A		1. Ammonia Plant waste management plan (February 2013)
50	**Annual Environmental Management Report**					✓				1. Annual Environmental Management Plan (November 2010) 2. Annual Environmental Management Plan (November 2011) 3. Annual Environmental Management Plan (November 2012) 4. Annual Environmental Management Plan (November 2013) 5. Annual Environmental Management Plan (November 2014) 6. Annual Environmental Management Plan (November 2015) 7. Annual Environmental Management Plan (December 2016)
51C	**Ammonia Flare Activation**					✓				1. Flare activation Summary (January to March 2016 2. Flare Activation Summary (April to June 2016) 3. Flare Activation Summary (July to September 2016) 4. Flare Activation Summary (October to December 2016)
52	**Independent Environmental Audit**					✓				1. Independent Environmental audit dated (24 March 2014) * 3 yearly audit schedule.