



**ORICA KOORAGANG ISLAND**

**ANNUAL ENVIRONMENTAL MANAGEMENT  
REPORT**

**DECEMBER 2011**



<b>Revision</b>	<b>Date</b>	<b>Description</b>	<b>Author</b>	<b>Approver</b>
0	1/12/2011	2011 Annual Environmental Report	R Sheehan SH&E Advisor	S Woodroffe Sustainability Manager

## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	PROJECT DESCRIPTION.....	1
<b>2</b>	<b>PROJECT APPROVAL REQUIREMENT .....</b>	<b>2</b>
<b>3</b>	<b>PROJECT STANDARDS AND PERFORMANCE MEASURES.....</b>	<b>1</b>
<b>4</b>	<b>PROJECT STATUS .....</b>	<b>3</b>
4.1	PROJECT PROGRESS REVIEW.....	3
4.1.1	<i>Phase 1: Ammonia Plant Expansion.....</i>	<i>4</i>
4.1.2	<i>Phase 2: Ammonium Nitrate Expansion Project.....</i>	<i>4</i>
4.2	PLANNED PROJECT PROGRESS DURING 2011/2012 .....	5
4.2.1	<i>Phase 1b Ammonia Plant Expansion.....</i>	<i>5</i>
4.2.2	<i>Phase 2 and 3: Ammonium Nitrate Expansion Project.....</i>	<i>5</i>
4.2.3	<i>Phase 2A - OBL 1(a) – Nitrates Infrastructure &amp; ANS Loadout .....</i>	<i>5</i>
4.2.4	<i>Phase 2B - OBL 1(b) – Nitrates Despatch &amp; Support Infrastructure .....</i>	<i>6</i>
<b>5</b>	<b>ENVIRONMENTAL MONITORING AND COMPLAINTS SUMMARY .....</b>	<b>7</b>
5.1	ENVIRONMENTAL MONITORING.....	7
5.2	COMMUNITY COMPLAINTS.....	7
<b>6</b>	<b>AN1 PRILL TOWER EMISSION REDUCTION INVESTIGATIONS.....</b>	<b>8</b>
<b>7</b>	<b>PROJECT APPROVAL COMPLIANCE .....</b>	<b>9</b>

**ABBREVIATIONS**

AN3	No. 3 Ammonium Nitrate Plant
CSEMP	Construction Safety and Environmental Management Plan
DECCW	Department of Environment, Climate Change and Water
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 Ammonium Nitrate Plant
SH&E	Safety, Health and Environment

## 1 Introduction

Orica Australia Pty Ltd (Orica) operates a manufacturing facility at Kooragang Island, Newcastle, NSW, which produces ammonia, nitric acid and ammonium nitrate (**Figure 1**). The facility commenced operations in 1969 and there have been several major increases to production capacity at the site. The existing operations at the site include an Ammonia Plant, three Nitric Acid Plants, two Ammonium Nitrate Plants and associated despatch and support infrastructure (Existing Operations).

In December 2009 approval of an expansion project (the Project) at the site was granted by the Minister for Planning to enable the production of ammonium nitrate to increase from the current maximum of 500 kilo tonnes per annum (ktpa) to 750ktpa.

This document has been prepared to comply with the requirement of the Project Approval (08-0129) that an Annual Environmental Management Report be prepared for the Project.



Figure 1: Site Location

### 1.1 Project Description

The activities covered by the Project Approval include the following:

- An upgrade to the existing Ammonia Plant to increase its capacity from 295 ktpa to 360 ktpa;
- Construction and operation of an additional Nitric Acid Plant (NAP4), which would produce approximately 260 ktpa of nitric acid, increasing the total capacity of the facility from approximately 345 ktpa to 605 ktpa;

- Construction and operation of an additional Ammonium Nitrate Plant (ANP3) to produce increased volumes of Ammonium Nitrate Solution (ANS) and the solid prilled product Nitropril<sup>®</sup>. The proposed expansion and construction of the third Ammonium Nitrate Plant would enable the facility to increase its maximum capacity from 500 ktpa to 750 ktpa;
- Construction and operation of additional storages for nitric acid, solid ammonium nitrate and ammonium nitrate solution; and
- Some additional infrastructure such as cooling towers, an effluent treatment system and boiler.

The proposal also includes construction of additional minor storage facilities and improvements to product loading facilities for road transport.

A modification to the Project was submitted in April 2011 to seek changes to layout, plant and equipment.

## 2 Project Approval Requirement

Condition 50 of Project Approval 08-0129 requires that Orica prepare an Annual Environmental Management Report by the 1 December 2010 and for each subsequent year thereafter. The report is to include the following:

- 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 Director-General. 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 predictions made in the EA;
  - 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.

In addition condition 51 of Project Approval 08-0129 requires that Orica notify the director general of certain incident as soon as practicable, and follow up with a detailed report within 7days of the date of the incident.

- 51 The Proponent shall notify the Director-General 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 Project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.

### 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
- Statement of Commitments dated August 2009
- Project Environmental Assessment dated June 2009
- Submissions Report dated August 2009
- Project Approval modification request dated 20 April 2010

The key standards and performance measures for the operating Project include:

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.	Noise control objectives have been incorporated into the design and selection of new plant and equipment for the project.
Air Quality	Minimisation of particulate emissions associated with the Project.	AN3 stack emissions to be $\leq 20 \text{mg/Nm}^3$	Requirement incorporated into design.
	Minimisation of NOx emissions associated with the project.	Existing Reformer Stack NOx emission $\leq 350 \text{mg/Nm}^3$ (as NO <sub>2</sub> equivalent)	A new purge gas scrubber has been incorporated into the Ammonia Plant expansion.  Compliance with the performance standards will be detailed in the air quality verification study.
		Pre-Reformer Furnace Stack NOx emission $\leq 350 \text{mg/Nm}^3$ (as NO <sub>2</sub> equivalent)	Requirement incorporated into design.  Compliance with the performance standards will be detailed in the air quality verification study.
		New Boiler Stack NOx emission $\leq 350 \text{mg/Nm}^3$ (as NO <sub>2</sub> equivalent)	Requirement incorporated into design.
		NAP4 Stack NOx $\leq 150 \text{ppm}$ (99%tile) (NOx = NO + NO <sub>2</sub> )	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 incorporated into design.
Greenhouse	Installation of abatement	Site N <sub>2</sub> O emissions to be reduced by $\leq 65\%$ compared to a "do	A N <sub>2</sub> O emissions reduction strategy for the site is

Criteria	Standard	Performance Measure	Comment		
Gas Emissions	technology on Nitric Acid Plants	nothing” approach. Abatement projects to be completed within 6 months of commissioning of NAP4.	currently being developed to ensure this commitment is met.		
Water Emissions	New Plant and Equipment to comply with existing EPL conditions for effluent discharge parameters.		Requirement incorporated into design.		
				mg/L	
				90% limit	100% limit
		As			0.05
		Oil and Grease			10
		Nitrogen		1500	2000
		Cr (6+)		0.05	0.2
		TSP			50
		pH			6.2 – 9.5
		Temperature			43°C
Volume		4500kL/day			
Nitrogen Mass Discharge		200tpa			
Production Limits	Production not to exceed prescribed levels.	Ammonia – 360ktpa Nitric Acid – 605ktpa Ammonium Nitrate – 750ktpa	Requirement incorporated into design.		

Performance standards for Phase 1 of the construction project were incorporated into the Construction Safety and Environmental Management Plan (CSEMP) which was approved by Department of Planning and Infrastructure (DPI). This includes requirements associated with air quality, water quality, contaminated soil and acid sulphate soil, waste management, traffic, heritage and erosion and sediment control.

This document was updated to address the expected impacts associated with the construction works for Phase 2 and 3.

## 4 Project Status

### 4.1 Project Progress Review

The expansion project activities have previously been advised as being undertaken in two separate phases, as detailed below:

Phase 1: Ammonia Plant expansion, which involves undertaking works to increase production capacity from 295 ktpa to 360 ktpa.

Phase 2: Increasing ammonium nitrate production capacity from 430 ktpa to 750 ktpa through the installation of a new nitric acid plant, new ammonium nitrate plant and associated infrastructure.

Since the completion of the Phase 1 works the Phase 2 works have been redefined and comprise two discrete phases, bringing the number of project phases to 3. The updated project phasing is represented in the table below.

Phase		Description of Work	Timing
<b>Trident Ammonia Plant Expansion Construction Scheduling</b>			
1	1a	<b>Ammonia Plant Expansion – Plant Air Compressor Building</b> Construction of Plant Air Compressor building shell (compressor installed in Stage 1(b)).	Complete
	1b	<b>Ammonia Plant Expansion - Installation/Modification of Plant</b> Installation of new equipment including new compressor, process vessels pipework and instruments in the Ammonia Plant.	Complete
		Final commissioning and operation of the expanded Ammonia Plant.	TBA*
<b>Proposed Trident Nitrates Expansion Project Construction Scheduling</b>			
Phase		Description of Work	Timing
2	2a	<b>OBL 1(a) –Nitrates Infrastructure &amp; ANS Loadout</b> Installation of new site infrastructure including the new site entrances, internal access roads, security and weighbridge facilities, ANS product storage and despatch facilities.	Early 2012 – late 2012
	2b	<b>OBL 1(b) – Nitrates Despatch &amp; Support Infrastructure</b> 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.	TBA
3	3a	<b>NAP4 – Nitric Acid &amp; AN Solution plants and Support Infrastructure</b> 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.	TBA
	3b	<b>AN3 – AN Prill Plant</b> Construction of ANP3 Dry Section plant and tie-ins	TBA

\* Final commissioning and operation is subject to approval for restart of the ammonia plant following incident on 8 August 2011

A summary of the key works undertaken since 1 December 2010 on each of these phases is described below.

#### **4.1.1 Phase 1: Ammonia Plant Expansion**

During the last 12 months there has been significant activity associated with the expansion of the Ammonia Plant, with the completion of the works for Phase 1a and 1b.

This includes;

- Completion of detailed design work;
- Completion of construction activities;
- Completion of the installation and precommissioning activities ;

During 2010/2011 the following activities were completed.

- Installation of the Pre-Reformer Furnace, Reaction Vessel and associated stack,;
- Installation of the remaining plant and equipment associated with the expansion project, including heat exchangers, pipework and valves;
- Decommissioning of redundant equipment;
- Pre-commissioning of plant and equipment including the new Ammonia Plant air compressor, Cooling Tower and Pre-Reformer Furnace;
- Tie-in activities to connect the new plant and equipment into the existing Ammonia Plant. .
- Completion of the required activities associated with the Project Approval and Orica's project processes.

The newly expanded plant was expected to commence operation following completion of the 2011 Ammonia Plant major maintenance outage. However, as a result of an incident on the 8 August 2011 which involved an airborne release of a sodium chromate containing solution from a vent stack during the commissioning phase, the final expanded plant has not yet commenced operation.

#### **4.1.2 Phase 2: Ammonium Nitrate Expansion Project**

The last 12 months of activity in Phase 2 of the expansion project has involved the following:

- Finalisation of the design and layout for the Phases 2 and 3. Submission of a modification to the NSW DPI regarding the changes to the approved project layout, plant and equipment in April 2011. Further work on the engineering design associated with the nitric acid and ammonium nitrate plants; and
- 
- Revision of existing management plans and other activities to ensure compliance with Project Approval conditions associated with the commencement of construction of this phase of the project; and
- Submission of all of the required statutory management documents required for the commencement of construction activities associated with Phase 2A.

## 4.2 Planned Project Progress during 2011/2012

### 4.2.1 Phase 1b Ammonia Plant Expansion

As a result of the incident on the 8 August 2011 there are some minor final commissioning works that are yet to be completed. These will be undertaken once the plant is approved to recommence operations. They include;

- Final commission works for the Pre-Reformer Furnace.

### 4.2.2 Phase 2 and 3: Ammonium Nitrate Expansion Project

The expansion of ammonium nitrate production capacity will be undertaken in two phases:

Phase	Description of Work	Timing
2	<b>2a OBL 1(a) –Nitrates Infrastructure &amp; ANS Loadout</b> Installation of new site infrastructure including the new site entrances, internal access roads, first flush pit, security and weighbridge facilities, ANS product storage and despatch facilities.	Early 2012 – late 2012
	<b>2b OBL 1(b) – Nitrates Despatch &amp; Support Infrastructure</b> 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.	TBA
3	<b>3a NAP4 – Nitric Acid &amp; AN Solution plants and Support Infrastructure</b> 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.	TBA
	<b>3b AN3 – AN Prill Plant</b> Construction of ANP3 Dry Section plant and tie-ins	TBA

Over the next 12 months there will be significant activity associated with Phase 2 of the expansion project, including:

- Commencement of construction activities associated with the new site entrance and exit and ammonium nitrate solution storage and layout facilities for Phase 2A
- Commencement of construction activities for Phase 2B pending DPI approval of the project modification;
- Finalisation of detailed design of the new Phase 3 plant, equipment and infrastructure;

The Phase 3 activities will involve the continuation of engineering and design activities on the Nitric Acid and Ammonium Nitrate Plants and is likely to commence in 2013.

### 4.2.3 Phase 2A - OBL 1(a) – Nitrates Infrastructure & ANS Loadout

Phase 2A is known as the Outside Battery Limits (OBL) works (i.e. for the NAP4 and AN3 plants) and includes;

- the installation of new site infrastructure including the new site entrances, internal access roads, security and weighbridge facilities,
- Set up of site construction offices and amenities

- Construction of a temporary access road
- Construction of new ANS product storage and despatch load out facilities.
- Construction of new first flush facilities and associated drainage works

#### **4.2.4 Phase 2B - OBL 1(b) – Nitrates Despatch & Support Infrastructure**

Pending approval of the modification work may commence on a number of aspects of Phase 2B (OBL) works, including;

- Revised Bulk AN store (including use of the existing AN bulk store), 9,200 t;
- AN reclaim system, e.g. conveyors, bucket elevators and hoppers;
- AN bulk loading bays and equipment, e.g. hoppers and surge bins;
- Construction of a new AN bagging equipment and Storage Building (2,500 t). This area also contains screening equipment. Wooden pallets are no longer to be used. There is an overhead crane for moving bulkibags.
- Demolition of existing bag store building
- Container bag / bulk loading area (existing equipment – road and rail);
- Container storage pad (4,800 t); and
- New Nitrates Site Control Room
- New Nitrates Dispatch offices
- New 11kv switchroom
- New Front End Loader (FEL) Workshop
- A new Transtank for storing diesel supply for FEL.
- Increased Weak ANS product storage and despatch facilities.
- Civil works including revised drainage layout works

## **5 Environmental Monitoring and Complaints Summary**

### **5.1 Environmental Monitoring**

The Project Approval and Environment Protection Licence (EPL) does not include any requirements for the undertaking of Project specific environmental monitoring during the construction phase of the Project. The expanded Ammonia Plant has not yet entered the operational phase and as such operational monitoring has not yet been undertaken.

Following the commissioning of the expanded Ammonia Plant monitoring will be undertaken to assess the compliance of the Ammonia Plant with relevant conditions in the Project Approval and the modified EPL.

### **5.2 Community Complaints**

During the 12 months of the expansion project there were 219 community complaints received by the site in relation to the project. All of these complaints relate to the incident on the 8 August 2011.

There were no other complaints received regarding any other Project activities.

Information on how the community can contact Orica to discuss the project or make a complaint in relation to our activities is provided in Community Newsletters. in the Annual Community Calendar, which is distributed to the adjacent suburbs of Stockton and Fern Bay and via the Orica Kooragang Island website ([www.oricaki.com.au](http://www.oricaki.com.au)).

In addition to the above a new 1800 number has been established for community complaints and information requests. This number has been circulated in the various community newsletters.

## 6 AN1 Prill Tower Emission Reduction Investigations

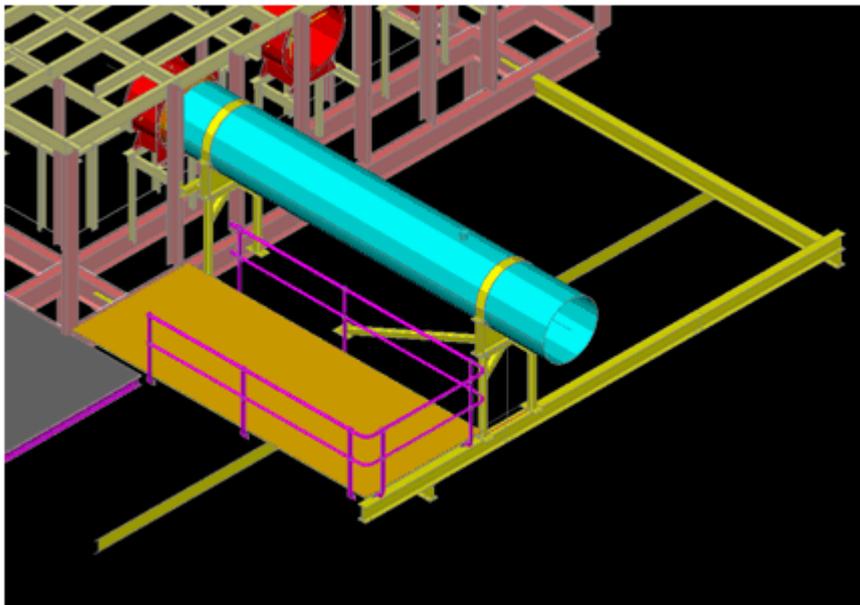
Condition 27 of the Project Approval requires:

- 27 The Proponent shall investigate and report on the progress to reduce PM<sub>10</sub> emissions from the existing Prill Tower on the Ammonium Nitrate Plant No. 1. The report shall:
- be provided annually, and can be reported through the Annual Environmental Management Report required by condition 50; and
  - Provide an update on the timeframe for the implementation of emission controls.

During the year a project to investigate options to reduce PM<sub>10</sub> emissions from the existing Prill Tower continued.

In the last 12 months the following activities have been undertaken:

- A detailed literature search of causes of Prill Tower emissions, the testing that can be undertaken to quantify the emission and its characteristics, and technology to reduce emissions has been completed.
- A design of a system to enable testing of the Prill Tower to determine current particulate emissions levels, enable quantification of factors such as the particle size and shape, and the effect of plant and atmospheric conditions on the emissions has been completed for final assessment. A concept design of a horizontal stack which will be mounted on a discharge at 45m above ground level is shown in the figure below;



- The design is currently being assessed to ensure that the Prill Tower structure is able to support the installation of this design.

During 2012 it is proposed to undertake the following activities:

- Commencement of a program of Prill Tower emission testing, with the first round to be undertaken during the first quarter of 2012.
- Follow-up testing in mid 2012 to ensure the effects of any potential seasonal variations are identified.
- Issue a report in September 2012 detailing the outcomes of the testing program.

## **7 Project Approval 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 KEY PROJECT APPROVALS**

<b>Issue</b>	<b>Condition</b>	<b>Requirement</b>	<b>Compliance Status</b>	<b>Comment</b>
<b>General Responsibilities</b>	1	Implement all reasonable and feasible measures to prevent pollution and minimise harm to the environment.	See further in "comment"	Management plans and project management activities are in place to ensure that environmental harm during construction activities is minimised. However an incident occurred on 8 August 2011 associated with start up of the Ammonia Plant resulted in the emission of a sodium chromate solution from a vent stack. DPI were advised verbally of the incident on 11 August and in writing on 15 August 2011.
	2	Project to be carried out in accordance with the EA, Statement of Commitments, Project Approval and Submission Approval.	Non Compliance.	See condition 51
	3	Management of inconsistencies between the various Project Approval documents.	n/a	No issues have been identified.
	4	Comply with the requirements of the Director-General	n/a	No issues were identified during the period.
	5	Production capacity limits for ammonia, nitric acid and ammonium nitrate.	Complied	
	6	Management of Project Approval conditions in the event that there are delays to the stages of the project.	n/a	There have been no significant delays to the project during the period
	7	Submission of plans on a progressive basis.	Complied.	Orica has submitted plans on a progressive basis following discussions with the Department of Planning.
	8	Buildings and structures to be constructed in accordance with the requirements of the Building Code of Australia.	Complied.	Buildings are being designed in accordance with the relevant requirements. Construction and occupation certificates have been obtained for relevant buildings.
	9	The Proponent is required to repair any public infrastructure damaged as a result of the Project.	n/a	Phase 1 – complete, No repairs were required to be undertaken. Phase 2 – n/a no works associated with Phase 2 have commenced
	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.	Phase 1 –complete A revised dilapidation report for Phases 2 and 3 was prepared in consultation with NPC and submitted to the Department of Planning on 15/01/2010.
	11	Obtain approval from service providers prior to commencement of utility construction activities	n/a	There have been no utility related construction activities to date.

Issue	Condition	Requirement	Compliance Status	Comment
	12	Ensure all equipment is maintained and operated in a proper and efficient manner.	See further under "comment"	Phase 1 - complete. The CSEMP details the systems installed to ensure compliance with this condition. As noted previously, an incident occurred on 8 August 2011 involving the operation of the Ammonia Plant. The EPA has commenced proceedings in the Land and Environment Court alleging breach of a condition of the EPL that requires Orica to operate plant and equipment in a proper and efficient condition. Orica has yet to enter a plea in relation to the alleged offence. Phase 2 - An updated CEMP has been compiled for Phases 2 and 3 of the project.
	13	Section 94 contribution to NCC.	Complied.	The Section 94 contribution was made to NCC in September 2010.
<b>Hazard Management</b>	14	Undertake the following studies and submit to DoP Director-General for approval:		
	a)	<ul style="list-style-type: none"> <li>Fire Safety Study</li> </ul>	Complied.	Phase 1 - The Phase 1 Fire Safety Study (FSS) was approved by Fire and Rescue NSW on 19 July 2011 with minor comments which have been addressed. DPI had approved the study in March 2010. Actions within this document have been completed prior to their due date. Phase 2 – n./a no construction works associated with Phase 2 have commenced
	b)	<ul style="list-style-type: none"> <li>HAZOP</li> </ul>	Complied.	Phase 1 - Complete  Phase 2- n./a no construction works associated with Phase 2 have commenced
	c)	<ul style="list-style-type: none"> <li>Final Hazard Analysis</li> </ul>	Complied.	Phase 1 - complete  Phase 2- n./a no construction works associated with Phase 2 have commenced
	d)	<ul style="list-style-type: none"> <li>Construction Safety Study</li> </ul>	Complied.	Phase 1 - complete  Phase 2- n./a no construction works associated with Phase 2 have commenced

Issue	Condition	Requirement	Compliance Status	Comment
	15	Undertake the following studies and submit to DoP Director-General for approval: <ul style="list-style-type: none"> <li>Transport of Hazardous Materials Study</li> </ul>	Complied	Phase 1 – Orica advised the department of its approach, ie This study was not required to be submitted during the period as there was no increase in transport as a result of increased production on 23/12/2010. The department advised that it had no objections to this approach and expected submission of the study prior to the commissioning of the No. 3 Ammonium Nitrate Plant (DPI, 14/03/2011).
		<ul style="list-style-type: none"> <li>Emergency Plan</li> </ul>	Complied	Phase 1- This study was prepared and submitted to DPI on 23/12/2010. DPI approved the document on 18/07/11.
		<ul style="list-style-type: none"> <li>Safety Management System</li> </ul>	Complied	This study was prepared and submitted to DPI on 23/12/2010. DPI approved the document on 11/03/2011
	16	Submission of Pre-Startup Compliance Report	complied	This study was prepared and submitted to DPI on 23/06/2011. The department approved the document on 11/03/2011
	17	Submission of Post-Startup Compliance Report	n/a	This report was not required to be submitted during the period.
	18	Submission of Risk Reduction Program to reduce risk to neighbouring land	n/a	This report was not required to be submitted during the period.
	19	Undertake a Hazard Analysis of the site operations	n/a	This report was not required to be submitted during the period.
	20	Undertake a comprehensive Hazard Analysis of the Project and submit a report to the DoP Director-General	n/a	This report was not required to be submitted during the period.
<b>Air Quality</b>	21	Emission controls detailed in Section 7.8.1 of the Environmental Assessment are to be incorporated into the design.	n/a	The Refrigeration Purge Gas Scrubber (item 21 d) has been installed and the unit will be commissioned upon restart of the Ammonia Plant.
	22	Air emission monitoring required by the EPL is to be undertaken for the Project.	n/a during the period.	n/a during the period.
	23	Undertake an Air Quality Verification Study	n/a during the period.	n/a during the period.
	24	Implement reasonable and feasible actions to address exceedences identified in the Air Quality Verification Study or routine monitoring.	n/a during the period.	n/a during the period.
	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 DoP in February 2010.

Issue	Condition	Requirement	Compliance Status	Comment
	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 DoP in February 2010.
	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.
<b>Greenhouse Gas Emissions</b>	28	Emission reduction technologies to be implemented in accordance with EA commitment	Complied.	The following emission reduction technologies have been included in the Ammonia Plant; a Pre-Reformer, a new compressor powered by a steam turbine and a larger motor generator (Item28b) have been installed in the plant.
	29	Implementation of N <sub>2</sub> O abatement technology on NAP1, NAP2 and NAP3.	n/a during the period.	Project work has commenced on the design of N <sub>2</sub> O abatement technology for the existing acid plants.
	40	The Project is to meet the requirements of the EPL in relation to stormwater and effluent discharge	n/a during the period.	n/a during the period.
	37	A Water Efficiency Plan is to be prepared and implemented to the satisfaction of the DoP Director-General	Complied	Phase 1 – Complete The Water Efficiency was submitted to DPI on 20/04/2011 and approved on the 14/06/2011.
	41	Compliance with s120 of POEO	Complied.	There were no water pollution related incidents associated with the Project.
	42	A Stormwater Management Plan is to be prepared and implemented	Complied.	Phase 1 - Completed in May 2010. Phase 2 – the Stormwater Management Plan for Phase 2 and 3 was submitted on 24/11/2011.
	43	Bunding design to meet Australian and DECCW requirements	Complied	A bunding specification was prepared for implementation in the Project.
<b>Noise Management</b>	30	Noise emissions from Project to be 10dB(A) below that of the existing operations.	Complied.	Phase 1- Design of plant and equipment has considered the requirements to meet this condition. Phase 2 and3- Design of plant and equipment has considered the requirements to meet this condition.
	31	Existing Operations Noise Verification Program to be developed and implemented to the satisfaction of the DoP Director-General	Complied.	A Noise Verification Program was submitted in February 2010. The program was approved by the DPI in February 2010.
	32	A Noise Management Plan is to be developed and implemented. The plan is to be updated annually.	n/a during the period.	The final document was submitted to DPI for approval on 01/12/11.
	33	Construction hours for the Project are:	Complied.	Phase 1 - Complete. Phase 2 and 3 – no construction activities have commenced at

Issue	Condition	Requirement	Compliance Status	Comment
		Monday – Friday	7am to 6pm	this time. However the revised CEMP for Phases 2 and 3, which has measures for the control of noise, was submitted to DPI on 05/11/11
		Saturday	8am to 1pm	
		Sunday and Public Holidays	Nil	
		Construction outside of these hours is permitted if inaudible at the nearest residences.		
		Operational hours for the Project are:		n/a during the period.
		All days	24 hours	
<b>Land Management</b>	38	Provide a Project Site Contamination Plan to the DoP 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 the erosion and sediment control, was submitted to DPI on 05/11/2011.
<b>Traffic Management</b>	34	All roads, access points and parking to comply with the nominated Australian Standards	n/a during the period.	
	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 is to be submitted to the DoP Director-General	Complied.	Phase 1 - Complete. Phase 2 and 3 – no construction activities have commenced at this time. However a revised CTMP for Phase 2 and 3, includes measures for the management of traffic during construction, was submitted to DPI on 05/11/2011

Issue	Condition	Requirement	Compliance Status	Comment
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 associated with the project.
Waste Management	47	Waste to be classified in accordance with DECCW guidelines and disposed of to approved premises	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 appropriate disposal of waste, was submitted to DPI on 05/11/2011.
	48	Prepare and implement a Waste Management Plan which has been submitted to the DoP Director-General	n/a during the period.	
	53	The following information regarding the Project is to be included on the website: <ul style="list-style-type: none"> <li>• Copy of all current statutory approvals</li> <li>• Copy of the current EMS and associated plans and programs</li> <li>• Copy of the last 5 years of Annual Reports</li> <li>• Copy of Independent Environmental Audit reports and responses to recommendations</li> </ul>	Complied.	Copies of relevant information relating to the project continue to be included on the Kooragang Island website ( <a href="http://www.oricaki.com.au">www.oricaki.com.au</a> ).
	51	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	See further in "comment"	An incident occurred on the Ammonia Plant on the 8 August 2011 whereby Chromium containing liquid was discharged from the SP8 vent stack offsite. Orica verbally notified DPI of the incident on 11 August 2011 and in writing on 15 August 2011.
	50	Prepare an Annual Environmental Management Report and submit to the DoP Director-General	Complied.	Submission of this report by 1 December 2011.
	52	An Independent Environmental Audit by a team of experts is to be undertaken in relation to the Project	n/a during the period.	