# ORICA KOORAGANG ISLAND

# ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

**DECEMBER 2012**

| Revision | Date | Description | Author | Approver |
|---|---|---|---|---|
| 0 | 1/12/2012 | 2012 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 |
| 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 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 ammonium nitrate production capability at the site since. The current 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 the site from 500 kilo tonnes per annum (ktpa) to 750ktpa. The expansion project broadly involves the 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 supporting infrastructure.

On 11 July 2012, Orica successfully applied to the NSW Department of Planning and Infrastructure (DoPI) to modify the project's original 2009 approval. The modifications were minor in nature and primarily related to improvements to the site's expansion layout, aimed at further reducing the site's risk profile. Changes resulting from the project's approval modification included:

- The relocation of plant and equipment further away from the closest residential properties;
- 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;
- Rationalisation and upgrade of ammonia storage and distribution infrastructure including a reduction in inventories; and
- Improvements to internal traffic management through rerouting truck movements away from operating plant.

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 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 storage for nitric acid, solid ammonium nitrate and ammonium nitrate solution;
- 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.

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.

This report details environmental compliance associated with the expansion project between the 1 December 2011 and 30 November 2012.

# 3 Project Standards and Performance Measures

The expansion 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
- Submissions Report dated August 2009
- Modification Application 08-0129 mod 1 and supporting documentation titled Kooragang Island Facility Modification Request dated 20 April 2011;
- Orica Mining Services Report for Kooragang Island Uprate PHA Mod1 Report dated March 2012

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 expansion Project. | New plant and equipment associated with the expansion project should operate at least 10dB (A) less than the existing plant noise levels. | Noise control measures have been included in new plant design. A noise management plan and monitoring program has been developed to confirm compliance to the project's noise performance criteria. |
| Air Quality | Minimisation of particulate emissions associated with the Project. | AN3 stack emissions to be ≤20mg/$Nm^3$ | Requirement incorporated into design. |
| | Minimisation of NOx emissions associated with the project. | Existing Reformer Stack NOx emission ≤350mg/$Nm^3$ (as $NO_2$ equivalent) | A new purge gas scrubber has been incorporated into the Ammonia Plant expansion.<br>Annual stack emission testing has been performed following the commencement of operations on 29 February 2012.<br>Compliance with the performance standards will be further detailed in the air quality verification study. |
| | | Pre-Reformer Furnace Stack NOx emission ≤350mg/$Nm^3$ (as $NO_2$ equivalent) | Requirement incorporated into design.<br>Annual stack emission |

<table>
<tr><th>Criteria</th><th>Standard</th><th>Performance Measure</th><th>Comment</th></tr>
<tr><td></td><td></td><td>testing has been performed following the commencement of operations on 29 February 2012.<br>Compliance with the performance standards will be detailed in the air quality verification study.</td><td></td></tr>
<tr><td></td><td></td><td>New Boiler Stack NOx emission ≤350mg/Nm$^3$ (as $NO_2$ equivalent)</td><td>Requirement incorporated into design.</td></tr>
<tr><td></td><td></td><td>NAP4 Stack NOx ≤150ppm (99%tile) (NOx = NO + $NO_2$)</td><td>Requirement incorporated into design for the new acid plant.</td></tr>
<tr><td></td><td></td><td>Scrubbing of ammonia emissions under normal plant operations to be installed for NAP4 and AN3.</td><td>Requirement incorporated into design.</td></tr>
<tr><td>Greenhouse Gas Emissions</td><td>Installation of abatement technology on Nitric Acid Plants</td><td>Site $N_2O$ emissions to be reduced by ≤65% compared to a “do nothing” approach.<br>Abatement projects to be completed within 6 months of commissioning of NAP4.</td><td>A $N_2O$ emissions reduction strategy for the site is currently being implemented.</td></tr>
<tr><td>Water Emissions</td><td>New Plant and Equipment to comply with existing EPL conditions for effluent discharge parameters.</td><td><table><tr><td></td><td colspan="2">mg/L</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>TSP</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></table></td><td>Requirement incorporated into design.</td></tr>
<tr><td>Production Limits</td><td>Production not to exceed prescribed levels.</td><td>Ammonia – 360ktpa<br>Nitric Acid – 605ktpa<br>Ammonium Nitrate – 750ktpa</td><td>Requirement incorporated into design.</td></tr>
</table>

To ensure that environmental performance standards are appropriately integrated into the new plant design and associated construction activities, a Construction Safety and Environmental Management Plan (CSEMP) was developed and approved for use by the Department of Planning and Infrastructure (DoPI) in 2011. Environmental control measures addressed in the CSEMP 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 has commenced implementation of construction works associated with the expansion project using a staged construction approach. This approach has been adopted to ensure that construction works associated with the upgrade and improvement to site's existing infrastructure including upgrades to the site's internal transport routes, product storage and loadout facilities are completed prior to the construction of the new Nitric Acid and Ammonium Nitrate plants. Construction activities are to be implemented in three phases involving:

Phase 1: Ammonia Plant Uprate: including improvement works designed to increase production capacity of the existing ammonia plant from 295ktpa to 360ktpa. This uprate has been completed and the Ammonia Plant re-commissioned.).

Phase 2: Upgrade and improvement works associated with 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 further 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.

A summary of construction activities associated with the three phases of the project is detailed in Table 2:

**Table 2 – Construction activities associated with project construction phases**

| Phase | Description of Work | Timing |
|---|---|---|
| **Trident Ammonia Plant Expansion Construction Scheduling** | | |
| **PHASE1** | **Ammonia Plant Expansion – Plant Air Compressor Building**<br>• Construction of Plant Air Compressor building shell (compressor installed in Stage 1(b)). | Complete |
| | **Ammonia Plant Expansion - Installation/Modification of Plant**<br>• Installation of new equipment including new compressor<br>• Process vessels, pipework and instruments in the Ammonia Plant. | Complete |

| Phase | Description of Work | Timing |
|---|---|---|
| | Final commissioning and operation of the expanded Ammonia Plant. | 29/2/2012 |
| | **Description of Work** | **Timing** |
| **PHASE2** | **OBL 1(a) –Nitrates Infrastructure & ANS Loadout**<br>Installation of new site infrastructure<br>• The new site entrances<br>• Internal access roads<br>• Security and weighbridge facilities<br>• ANS product storage and despatch facilities<br>• WANS storage tank and load out facility<br>• First Flush System | TBA |
| | **OBL 1(b) – Nitrates Despatch & Support Infrastructure**<br>• Construction of new AN Bag store<br>• AN Despatch facilities and amenities<br>• Demolition of existing AN Bag store and despatch<br>• Construction of new AN Bulk Store<br>• Modification to existing AN bulk store<br>• Duplication of the WANS plant<br>• Construction of new control room and electrical infrastructure<br>• Installation of a Transtank for storing diesel | TBA |
| | **OBL 2 – Ammonia Management Improvement (AMI) project**<br>• Simplification of the ammonia distribution network<br>• Ammonia detection and monitoring system improvements<br>• Ammonia collection and treatment improvements<br>• Plant tie ins | Early 2013 |
| **PHASE3** | **NAP4 – Nitric Acid & AN Solution plants and Support Infrastructure**<br>• Construction of the NAP4/ ANS Plant and tie-ins<br>• Construction of Nitrates support infrastructure<br>• New Nitric Acid Storage<br>• Ammonia Storage<br>• Boiler<br>• Cooling Tower<br>• Demin Plant expansion<br>• Instrument Air upgrades<br>• New ammonia pumps<br>• Pipebridges & transfer lines. | TBA |
| | **AN3 – AN Prill Plant**<br>• Construction of ANP3 Dry Section plant<br>• Tie-ins | TBA |

A summary of the expansion works completed between 1 December 2011 and 30 November 2012 for each of the three project implementation phases is detailed below.

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

Construction works that have been performed in the last 12 months associated with Phase 1 activities includes:

- 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;
- Commissioning of plant and equipment including the new Ammonia Plant Air Compressor, Cooling Tower and Pre-Reformer Furnace;
- Commencement of operations of the uprated ammonia plant on 29 February 2012 following the completion of the extended 2011 Ammonia Plant major maintenance outage;
- Noise improvement works associated with the Ammonia Plant $CO_2$ Vent Stack;
- Installation of a Refrigeration Purge Gas Scrubber to reduce NOx.

### 4.1.2 *Phase 2: Outside Boundary Limits*

Works completed in the previous 12 months associated with Phase 2 activities include:

- The modification of the projects Development Consent allowing for changes to the site's project expansion layout;
- Finalisation of the detail design for construction relating to OBL 1(a) and OBL 1(b).
- Annual revision of existing management plans to ensure compliance with the Development Consent Conditions;
- Submission of all of the required statutory report documentation required for the commencement of construction activities associated with OBL 1(a).
- Submission of required statutory documentation related to OBL 1(b) including construction safety study, fire safety study and HAZOP reports.
- $N_20$ abatement technology installed in Nitric Acid 2 and 3 Plants.

### 4.1.3 *Phase 3: Nitrate expansion*

Works completed in the previous 12 months associated with Phase 3 activities include:

- Finalisation of NAP4 and ANP3 design.
- Submission of hazard related documentation to DoPI including a HAZOP report, fire safety study and construction safety study report.

## 4.2 Planned Project Progress during 2012/2013

Orica has recently completed the detail design processes associated with Phase 2 and Phase 3 of the project. The Project team has optimised the design of the plant and confirmed an engineering pathway for construction. In light of current market conditions, further consultation with customers is required to be undertaken to determine the optimal timing of construction.

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 Environment Protection Licence (EPL).
- Reporting requirements as detailed in the project's Development Consent.

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

- The completion of detail design associated with improvement works;
- The submission of regulatory reports associated with the ammonia management improvement project to the DoPI including a construction safety study and HAZOP report prior to commencing construction;
- Commencement of construction works associated with ammonia distribution network upgrades; and
- Commencement of construction of additional vaporiser and scrubbing infrastructure.

### 4.2.3 *Phase 3 – Nitrates expansion*

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

# 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.

The uprated Ammonia Plant commenced operation on 29 February 2012 and environmental monitoring has been undertaken in accordance with the project approval and the site's EPL.

### 5.1.1 *Air Quality*

Consistent with the site's EPL, Orica undertook annual stack emission testing on both the Pre-reformer and Reformer Stacks located in the Ammonia Plant. Additional nitrogen oxide (NOx) emission sampling was undertaken on the Reformer Stack following the commissioning of a new purge gas scrubber in July 2012, with NOx results found to have significantly reduced.

**Table 3 –** Stack emission testing for uprated Ammonia Plant

| **Parameter** | **Pre Reformer** | **Reformer Stack** (30 March, 2012) | **Reformer Stack** Post purge scrubber installation (20 August 2012) |
|---|---|---|---|
| Equivalent Nitrogen Dioxide ($NO_2$) mg/$m^3$ | 48 | 381* | 194 |
| Regulatory Limit | 350 | 350 | 350 |

*Result exceeded regulatory 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 expansion project's Noise Management Plan (NMP). This plan was approved by the DoPI in July 2011, with compliance to the project's noise criteria to be demonstrated through the:

- Update of the site's noise model 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 will also assist in identifying further noise reduction opportunities onsite.
- 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. 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 4 –** 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. The model was updated using noise data collected from near field noise monitoring. Updated site noise modelling results confirmed that that noise level contribution associated with the uprated ammonia plant was less than 10dB below the predicted noise levels for the reference locations in Stockton and therefore did not increase existing noise levels.

**Table 5 –** 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 consistent with the process previously undertaken in 2011. Whist it is difficult to directly compare current noise data against historical trends due to variability in the meteorological conditions in 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 sites overall noise profile of the site.

**Table 6 –** Attended noise results for Kooragang Island

| Reference location | Rated Background levels (RBL) (dBA) | | |
|---|---|---|---|
| | Existing Plant Range | Existing Plant Median | Post ammonia plant uprate Median |
| Assessment Location R4 | 61.2 - 62.9 | 62.0 | 64.3 |
| Assessment Location R5 | 55.8 – 58.2 | 57.0 | 57.2 |
| Assessment Location R6 | 50.3 – 55.9 | 52.7 | 59.8 |

Although the overall modelled noise level of the site was found to have decreased following the restart to the Ammonia Plant, targeted noise monitoring data collected during the noise assessment confirmed that noise levels associated with the Ammonia Plant $CO_2$ Vent Stack had increased. A project aimed at reducing the noise generated from this vent has since been completed, with noise monitoring to be undertaken to assess the effectiveness of the silencer installed in November 2012.

## 5.2 Community Complaints

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, which is distributed to adjacent suburbs including Stockton, Fern Bay, Mayfield, Carrington, Maryville and Tighes Hill and via the Orica Kooragang Island website (www.oricaki.com.au).

In addition to the above, a new 1800 number has been established for community complaints and information requests. This number is advertised in the community newsletters, on the website and in advertising materials.

All complaints received by Orica are documented in the site's Safety, Health and Environment Reporting and Management Information System. All complaints are investigated to establish whether the complaints relate to the Orica operations (or other industrial neighbours) and if so, the root cause of the concern.

During the 2011/2012 reporting period, 27 complaints were recorded for the expansion project including 18 related to the ignition of vented gases during the Ammonia Plant startup activities and the remainder due to noise. Although noise related complaints could not be directly attributed to the uprate of the Ammonia Plant, complaints relating to noise received following the start of operation of the uprated Ammonia Plant have been included in this report for completeness.

**Table 7 –** Community complaints potentially attributable to the Project

| Year | Total | Concern raised in complaint |
|---|---|---|
| 2010 | 0 | - |
| 2011 | 219 | • Inquiries and complaints relating to the 8 August 2011 hexavalent chromium release. |

| | | |
|---|---|---|
| 2012 | 27 | • 18 Related to ignition of vent stacks during Ammonia Plant restart<br>• 9 complaints relating to noise |

## 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 $PM_{10}$ emissions from the existing Prill Tower on the Ammonium Nitrate Plant No. 1. The report shall:

a) be provided annually, and can be reported through the Annual Environmental Management Report required by condition 50; and

b) Provide an update on the timeframe for the implementation of emission controls.

In addition to the Development Consent Condition requirements Orica also applied to the NSW EPA to include the particulate investigation program as a Pollution Reduction Program (PRP) in the site's EPL. The EPL PRP requires the following to be undertaken:

*U1 PRP 21 - AN1 Prill Tower Emission Investigation*

*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:*

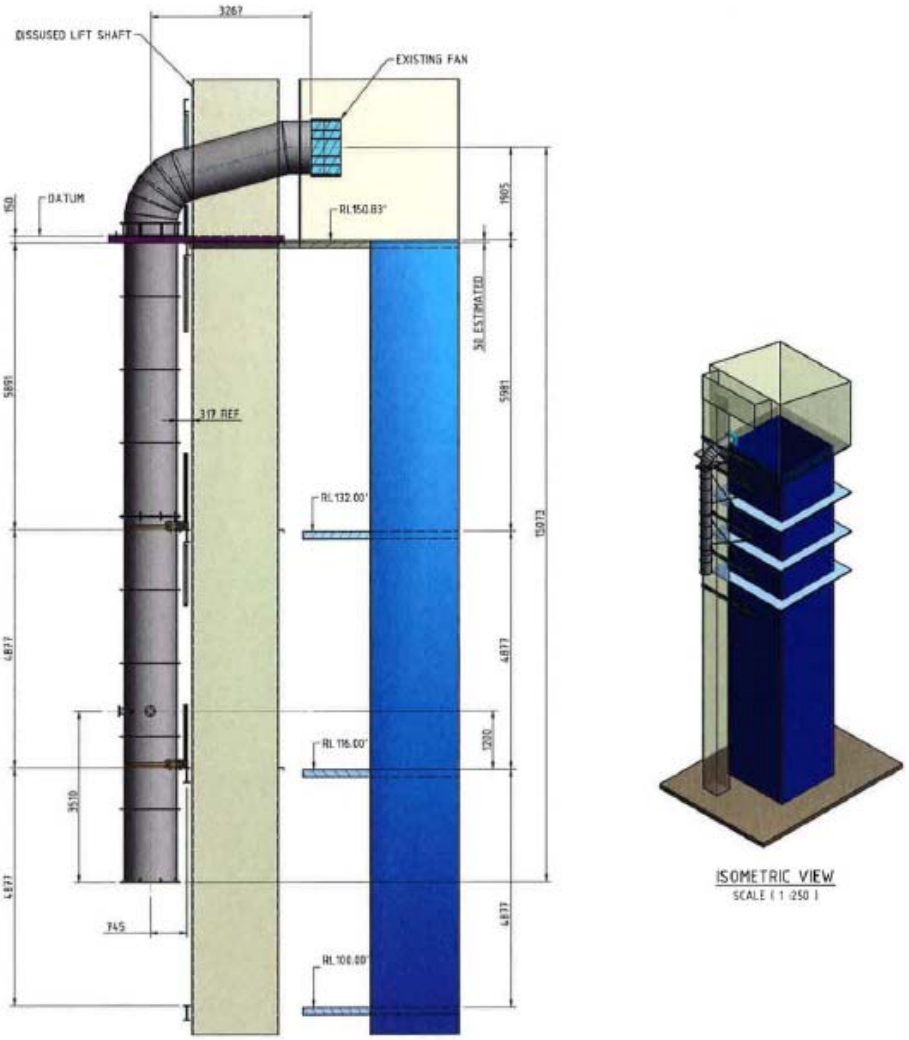
*(a) Monitoring of the concentration of coarse and fine particulates; and, the estimated annual mass discharge of particulates from the AN1 Prill Tower. Monitoring must be undertaken in accordance with the requirements under Australian Standard AS4323.1:1995.*

*(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.*

In the last 12 months the following activities have been undertaken in accordance with the PRP requirements:

- The construction of a new sampling duct on one of the twelve Prill Tower fan outlets. The sampling duct was designed in accordance with Australian Standard AS4323.1:1995 to allow for isokinetic stack emission sampling to be performed.
- Particulate sampling: 30 particulate samples were collected from the sampling duct under different operating conditions in order to identify the relationship between particulate conditions and different operating conditions including ammonium nitrate production rate and ambient weather conditions.
- A report detailing the outcomes of the testing program was submitted to the NSW EPA in September 2012 in accordance with the PRP requirements.




In the next 12 months the following activities are anticipated to be completed.

- A repeat of particulate sampling program corresponding to a period of higher ambient temperature in order to determine seasonal variations.
- A review of options to reduce particulate emissions from the Prill Tower, March 2013.
- Detailed evaluation of identified feasible options including timeframes for implementation of the preferred option to reduce particulate emissions, December 2013.

## 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

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| **General Responsibilities** | 1 | Implement all reasonable and feasible measures to prevent pollution and minimise harm to the environment. | Compliant | Management plans and project management activities are in place that address the minimisation of environmental harm during construction activities . |
| | 2 | Project to be carried out in accordance with the EA, Statement of Commitments, Project Approval and Submission Approval, Modification report and PHA. | Compliant | Project documentation has been updated to reflect development consent the projects updated Preliminary Hazard Analysis(Mod 1 ). |
| | 3 | Management of inconsistencies between the various Project Approval documents. | n/a | No inconsistencies were identified during the period. |
| | 4 | Comply with the requirements of the Director-General | n/a | No requirements were identified during the period. |
| | 5 | Production capacity limits for ammonia, nitric acid and ammonium nitrate. | Compliant | |
| | 6 | Management of Project Approval conditions in the event that there are delays to the stages of the project. | n/a | Construction works associated with the expansion project have been delayed. Regulatory reporting associated with the uprated ammonia plant will continue in accordance with the Conditions of the project approval. |
| | 7 | Submission of plans on a progressive basis. | Compliant | Orica has submitted plans on a progressive basis following discussions with the Department of Planning and Infrastructure. |
| | 8 | Buildings and structures to be constructed in accordance with the requirements of the Building Code of Australia. | Compliant | 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.<br>Phase 2 and 3 –no works associated with these phases have commenced during the 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. | Compliant | Phase 1 –complete<br>A revised dilapidation report for Phases 2 and 3 has been prepared in consultation with NPC and submitted to the Department of Planning and Infrastructure associated with these phases of construction. |
| | 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. |
| | 12 | Ensure all equipment is maintained and operated in a | Compliant | Phase 1 - complete. |

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| | | proper and efficient manner. | | |
| | 13 | Section 94 contribution to NCC. | Complied. | The Section 94 contribution was made 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. | Phase 1 - The Phase 1 Fire Safety Study (FSS) was approved by Fire and Rescue NSW on 19 July 2011<br><br>Phase 2 – OBL 1(a) was submitted to DoPI and FRNSW and approved on 24 May 2012<br><br>Phase 2 – OBL 1(b) was submitted to DoPI and FRNSW on 6 November 2012 |
| | b) | • HAZOP | Complied. | Phase 1 - Complete<br><br>Phase 2 - All Hazops associated with this phase of works have been submitted to the DoPI for approval.<br><br>Phase 3 – All Hazops associated with this phase of works have been submitted to the DoPI for approval in November 2012 |
| | c) | • Final Hazard Analysis | Complied. | Phase 1 - complete<br><br>Phase 2/3- no construction works associated with Phase 2 have commenced |
| | d) | • Construction Safety Study | Complied. | Phase 1 - complete<br><br>Phase 2- n./a no construction works associated with Phase 2 have commenced |
| | 15 | Undertake the following studies and submit to DoP Director-General for approval:<br>• Transport of Hazardous Materials Study | Complied | Phase 1 –This study was not required to be submitted for this phase of the project.<br>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). |

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| | | • Emergency Plan | Complied | Phase 1- This study was prepared and submitted to DPI on 23/12/2010. DPI approved the document on 18/07/11. |
| | | • Safety Management System | 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 | Phase 1 - This study was been developed and approved by the DoPI |
| | 17 | Submission of Post-Startup Compliance Report | Complied | Phase 1 – This report was submitted to the DoPI May 2012 in accordance with the Conditions requirement. |
| | 18 | Submission of Risk Reduction Program to reduce risk to neighbouring land | Complied | This Condition is deemed satisfied as propagation risk as outlined in the projects Preliminary Hazard Analysis Mod 1 report is compliant with NSW risk criteria. . |
| | 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. |
| **Air Quality** | 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 has been commissioned and is operating in accordance with the environmental assessment. |
| | 22 | Air emission monitoring required by the EPL is to be undertaken for the Project. | n/a during the period. | Air emission monitoring has been performed on the uprated ammonia plant in accordance with the requirements of the site's EPL |
| | 23 | Undertake an Air Quality Verification Study | n/a during the period. | This report was not required to be submitted 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. | This report was not required to be submitted 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.<br>No construction works were completed during this period of reporting |
| | 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. |

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| | 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. |
| **Greenhouse Gas Emissions** | 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 $N_2O$ abatement technology on NAP1, NAP2 and NAP3. | n/a during the period. | $N_2O$ abatement technology was installed in the No. 2 and 3 Nitric Acid Plants during the period. The performance of the technology is currently being assessed. |
| | 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 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.<br>Phase 2 – the Stormwater Management Plan for Phase 2 and 3 has been submitted to the DoPI. |
| | 43 | Bunding design to meet Australian and DECCW requirements | Complied | A bunding specification in accordance with the Australian standard has been incorporated into the design of the plants. |
| **Noise Management** | 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.<br>Phase 2 and 3- Design of plant and equipment has considered the requirements to meet this condition.<br>Noise monitoring undertaken following the commencement of operations of the uprated ammonia plant has confirmed compliance to this requirement. |
| | 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 projects 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 projects noise verification program was submitted and approved |

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| | | | | by the DoPI in May 2012 |
| | 33 | Construction hours for the Project are:<br>Monday – Friday: 7am to 6pm<br>Saturday: 8am to 1pm<br>Sunday and Public Holidays: Nil<br>Construction outside of these hours is permitted if inaudible at the nearest residences. | Complied. | Phase 1 - Complete.<br>Phase 2 and 3 – no construction activities have commenced during this time.<br>A revised CEMP for Phases 2 and 3 has been developed, with control measures outlining noise Conditions associated with the approval, was submitted to DoPI on 05/11/11. |
| | | Operational hours for the Project are:<br>All days: 24 hours | n/a. | |
| **Land Management** | 38 | Provide a Project Site Contamination Plan to the DoP Director-General | Complied. | Phase 1 - Complete.<br>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.<br>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.<br>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. |
| **Traffic Management** | 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.<br>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 | Complied. | Phase 1 - Complete. |

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| | | be submitted to the DoP Director-General | | 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 |
| **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.<br>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. | This report is required to be completed by the 28 February 2013 |
| | 53 | The following information regarding the Project is to be included on the website:<br>• Copy of all current statutory approvals<br>• Copy of the current EMS and associated plans and programs<br>• Copy of the last 5 years of Annual Reports<br>• 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.oricaki.com.au). |
| | 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 | Complied | No incidents associated with the Project were required to be notified to the DoPI during this period. |
| | 50 | Prepare an Annual Environmental Management Report and submit to the DoP Director-General | Complied. | Submission of this report by 1 December 2012. |
| | 52 | An Independent Environmental Audit by a team of | n/a during the | This report is required to be completed by the 28 February 2014 |

| Issue | Condition | Requirement | Compliance Status | Comment |
|---|---|---|---|---|
| | | experts is to be undertaken in relation to the Project | period. | |

# Orica Kooragang Island
# Expansion Project Development Consent

# Project Approval

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

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

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

The Hon Kristina Keneally MP
**Minister for Planning**

Sydney 2009

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**SCHEDULE 1**

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

Red text represents MOD 1 dated 11 July 2012

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## DEFINITIONS

| | |
|---|---|
| Ammonium nitrate product | Solid and solution forms of ammonium nitrate including the Orica products Nitropril®, Opal™ and Chemically Pure Ammonium Nitrate (CPAN). |
| ANP | Ammonium Nitrate Plant |
| BCA | Building Code of Australia |
| Council | Newcastle City Council |
| Existing Operations | The existing Orica infrastructure, comprising an Ammonia Plant, 3 Nitric Acid Plants (NAP1, 2 and 3), 2 Ammonium Nitrate Plants (ANP1 and 2) and dispatch infrastructure with approved production to 500,000 tonnes per annum (tpa) of ammonium nitrate product |
| Department | Department of Planning and Infrastructure |
| Director-General | Director-General of Department of Planning and Infrastructure, or delegate |
| EA | Environmental Assessment titled *Proposed Ammonium Nitrate Facility Expansion Environmental Assessment* and dated June 2009 |
| EPA | Environment Protection Authority |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EP&A Regulation | *Environmental Planning and Assessment Regulation 2000* |
| EPL | Environment Protection Licence |
| Minister | Minister for Planning and Infrastructure, or delegate |
| NAP | Nitric Acid Plant |
| Project | The development as described in the EA for the expansion of the existing ammonium nitrate facility on Kooragang Island, enabling an increase in production from 500,000 to 750,000 tpa. The expansion includes new plant and infrastructure such as 1 additional nitric acid plant (NAP4) and 1 additional Ammonium Nitrate Plant (ANP3); and modifications and upgrades to existing plant, equipment, storage and infrastructure. |
| Proponent | Orica Australia Pty Ltd, or its successors in title |
| Reasonable and Feasible | Reasonable relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements. Feasible relates to engineering considerations and what is practical to build |
| Project Site | The land referred to in Schedule 1 |
| Statement of Commitments | Final Statement of Commitments prepared by AECOM and dated 26 August 2009 |
| Documents | Any report, plan, management plan, study or strategy required by this project approval |
| Submissions Report | Submissions Report titled *Proposed Ammonium Nitrate Facility Expansion Submission Report* and dated 26 August 2009 |
| tpa | tonnes per annum |

## SCHEDULE 2
## ADMINISTRATIVE CONDITIONS

### Obligation to Minimise Harm to the Environment

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

### Terms of Approval

2. The Proponent shall carry out the Project generally in accordance with the:
   a) EA;
   b) statement of commitments
   c) Submissions Report; and
   d) Modification Application (08_0129 MOD 1) with supporting documentation titled *Kooragang Island Facility Uprate Modification Request,* prepared by AECOM for Orica Australia Pty Ltd and dated 20 April 2011;
   e) report titled *Orica Mining Services Report for Kooragang Island Uprate PHA MOD1 Report*, prepared by GHD for Orica Australia Pty Ltd and dated March 2012; and
   f) conditions of this approval.

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

4. The Proponent shall comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   a) any reports, plans, strategies, programs or correspondence that are submitted in accordance with this approval; and
   b) the implementation of any actions or measures contained in these reports, plans, strategies, programs or correspondence.

### Limits on Approval

5. The Proponent shall not produce more than the following at the Project Site:
   a) 360,000 tpa of ammonia product;
   b) 605,000 tpa of nitric acid product;
   c) 750,000 tpa of ammonium nitrate product;

### Staging of Works

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

### Submission of Documentation

7. With the approval of the Director-General, the Proponent may submit any plan, study or document required by this approval on a progressive basis.

   *Note: The conditions of this approval require certain documents to be prepared for the Project. They also require these documents to be reviewed and audited on a regular basis to ensure they remain effective. However, in some instances, it will not be necessary or practicable to prepare these documents for the whole Project at any one time; particularly as these documents are intended to be dynamic and improved over time. Consequently, the documents may be prepared and implemented on a progressive basis. In doing this however, the Proponent will need to demonstrate that it has suitable documents in place to manage the existing operations of the Project Site.*

### Structural Adequacy

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

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

**Protection of Public Infrastructure**

9. The Proponent shall:
   a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the Project; and
   b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the Project.

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

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

**Operation of Plant and Equipment**

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

**Section 94 Contributions**

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

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

**SCHEDULE 3**
**SPECIFIC ENVIRONMENTAL CONDITIONS**

## HAZARDS

### Pre-construction

14. At least one month prior to the commencement of construction of the Project (except for construction of those preliminary works that are outside the scope of the hazard studies), or within such further period as the Director-General may agree, the Proponent shall prepare and submit for the approval of the Director-General the studies set out under subsections (a) to (d) (the pre-construction studies).
    a) A **Fire Safety Study** to include the Existing Operations and Project. This study shall cover the relevant aspects of the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 2, 'Fire Safety Study Guidelines'* and the New South Wales Government's 'Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'. The study shall also be submitted for approval, to the NSW Fire Brigades;
    b) A **Hazard and Operability Study** for the Project, chaired by a qualified person, independent of the development, approved by the Director-General prior to the commencement of the study. The study shall be consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 8, 'HAZOP Guidelines'*. The study report must be accompanied by a program for the implementation of all recommendations made in the report. If the Proponent intends to defer the implementation of a recommendation, reasons must be documented;
    c) A **Final Hazard Analysis** of the Project, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 6, 'Guidelines for Hazard Analysis'*. The study shall also update all aspects of the risks from the Existing Operations and the Project, as provided in the Preliminary Hazard Analysis Report for Kooragang Island Facility Uprate, Rev 8, Dated 28 May 2009 and submitted to the Department with letter dated 9 June 2009;
    d) A **Construction Safety Study** for the Project, consistent with the Department of Planning's *Hazardous Industry Planning Advisory Paper No. 7*, *'Construction Safety Study Guidelines'*. For a Project in which the construction period exceeds six (6) months, the commissioning portion of the Construction Safety Study may be submitted two months prior to the commencement of commissioning.

### Pre-commissioning

15. The Proponent shall develop and implement the plans and systems set out under subsections (a) to (c), no later than two months prior to the commencement of commissioning of the Project, or within such further period as the Director-General may agree. The Proponent shall submit, for the approval of the Director-General, documentation describing those plans and systems. Commissioning shall not commence until approval has been given by the Director-General.
    a) **Transport of Hazardous Materials** – Arrangements covering the transport of hazardous materials including details of routes to be used for the movement of vehicles carrying hazardous materials to or from the site (Existing Operations and Project). The routes selected shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No 11, 'Route Selection'. Suitable routes identified in the study shall be used except where departures are necessary for local deliveries or emergencies.
    b) **Emergency Plan** – An update of the existing Emergency Plan and the emergency procedures to include the Project. This plan shall include consideration of the safety of all people outside of the facility who may be at risk from the Project. The plan shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, 'Industry Emergency Planning Guidelines'. The study shall also be submitted for approval, to the NSW Fire Brigades.
    c) **Safety Management System** – A document setting out a comprehensive Safety Management System, covering all onsite operations and associated transport activities involving hazardous materials. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to the procedures. Records shall be kept on-site and shall be available for inspection by the Director-General upon request. The Safety Management System shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

### Pre-Startup

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

**Post-Startup**

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

**Risk Reduction program**

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

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

**Hazard Analysis Update**

19. Three years after the commencement of operations of the Project, or as otherwise agreed to by the Director-General, the Proponent shall undertake a Hazard Analysis of the Existing Operations and the Project to update the hazard analysis contained in the Preliminary Hazard Analysis and the Final Hazard Analysis.

**Hazard Audit**

20. Twelve months after the commencement of operations of the Project and every three years thereafter, or at such intervals as the Director-General may agree, the Proponent shall carry out a comprehensive Hazard Audit of the Existing Operations and the Project and within one month of each audit submit a report to the Director-General.
    a) The audits shall be carried out at the Proponent's expense by a qualified person or team, independent of the Project, approved by the Director-General prior to commencement of each audit. Hazard Audits shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 5, 'Hazard Audit Guidelines', including with respect to the requirements of these guidelines in relation to records of inspection and testing of critical equipment and instrumentation as they specifically relate to significant risk reduction as outlined in the document listed in Condition 2 e) in Schedule 2.
    b) The audit report must be accompanied by a program for the implementation of all recommendations made in the audit report. If the Proponent intends to defer the implementation of a recommendation, reasons must be documented.

**AIR QUALITY**

**Design**

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

**Monitoring**

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

23. The Proponent shall undertake an air quality verification study for the Project. The study shall:
    a) be prepared by a suitably qualified expert;
    b) be completed within 12 months of the commencement of operation or as otherwise agreed to by the Director-General;

c) include a comparison of monitoring results with the predictions outlined in the EA (including predictions for ground level concentrations at Stockton) and with any limits or conditions in the EPL;
d) verify the effectiveness of the implemented emission controls.

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

**Mitigation**

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

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

**Further Emissions Reduction**

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

**GREENHOUSE GAS EMISSIONS**

**Emission Reductions for the Project**

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

**Emission Reductions for the Existing Site**

29. Within 6 months of the commencement of operations of NAP4, the Proponent shall implement $N_2O$ abatement technology on the three existing Nitric Acid Plants (NAP1, 2 and 3).

**NOISE**

**Noise Limits**

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

**Existing Operations - Noise Verification Program**

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

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

**Noise Management Plan**

32. Prior to the commencement of operations of the Project, the Proponent shall prepare and implement a Noise Management Plan in consultation with the EPA and to the satisfaction of the Director-General. The Plan shall:
(a) be undertaken by a suitability qualified and experienced expert;

(b) demonstrate how noise levels from the Project would be managed to ensure noise levels would be 10dB(A) below noise levels from Orica's Existing Operations (see conditions 30 & 31);
(c) include a detailed monitoring program for reporting on ongoing compliance. The monitoring program shall:
- outline the proposed receiver sites at Stockton and sites on Kooragang Island that would be monitored;
- include both attended and unattended noise monitoring;
- verify that actual noise levels from the Project are consistent with the predictions made in the EA; and
- verify that noise levels from the Project are 10dB(A) below the noise levels identified in condition 31 for Orica's Existing Operations;

(d) provide details of any complaints received in the preceding year relating to noise generated by the Project, and action taken to respond to those complaints;
(e) detail procedures for implementing additional reasonable and feasible noise mitigation measures for the Project in response to exceedance of limits and/or noise complaints; and
(f) be updated annually, unless otherwise agreed to by the Director-General.

**Construction and Operating Hours**

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

*Table 2: Construction hours for the Project and Operation hours for the Project.*

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

*Notes:*
- *Construction activities may be conducted outside the hours in Table 2 provided that the activities are not audible at any residence beyond the boundary of the Project Site.*

**TRANSPORT**

**Design of Site Access, Internal Roads and Parking**

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

**Vehicle Queuing and Parking**

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

**Construction Traffic Management**

36. Prior to the construction of the Project, the Proponent shall prepare and implement a Construction Traffic Management Plan, consistent with the requirements of the RTA. The plan shall be prepared in consultation with Newcastle Port Corporation and submitted to Director-General as part of the environmental management strategy for the Project, as required by condition 49.

**WATER EFFICIENCY**

37. The Proponent shall prepare and implement a Water Efficiency Plan for the Project to the satisfaction of the Director-General. The plan must:
(a) be submitted to the Director-General within 12 months of this approval or as otherwise agreed to by the Director-General;
(b) be prepared with reference to the *Guidelines for Water Savings Action Plans (DEUS 2005);* and
(c) include a report on the progress of investigations to receive recycled water from Hunter Water Corporations' recycled water scheme.

**CONTAMINATION**

38. Prior to construction of the Project, the Proponent shall provide to the Director-General a detailed Project Site Plan showing the location of known soil and groundwater contamination areas. If the plan identifies that construction of the Project is likely to impact on known contamination areas, the Proponent shall prepare and implement a Remedial Action Plan (RAP), or update the existing RAP, to manage and remediate contaminated material in accordance with the requirements of the *Contaminated Land Management Act 1997* and the recommendations of the RAP.

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

**STORMWATER AND EFFLUENT MANAGEMENT**

**Discharges**

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

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

**Stormwater Management Plan**

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

**Bunding**

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

**Erosion and Sediment Control**

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

**VISUAL**

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

**Lighting**

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

## WASTE

### Operating Conditions

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

### Waste Management Plan

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

## SCHEDULE 4
## ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

### ENVIRONMENTAL MANAGEMENT STRATEGY

49. The Proponent shall prepare and implement an Environmental Management Strategy for the Project to the satisfaction of the Director-General. This strategy must be submitted to the Director-General prior to carrying out any development related to the Project, and:
    a) provide the strategic context for environmental management of construction and operation of the Project;
    b) identify the statutory requirements that apply to the Project;
    c) describe in general how the environmental performance of the Project would be monitored and managed;
    d) describe the procedures that would be implemented to:
        - keep the local community and relevant agencies informed about the operation and environmental performance of the Project;
        - receive, handle, respond to, and record complaints;
        - resolve any disputes that may arise in relation to operations at the Project;
        - respond to any non-compliance;
        - manage cumulative impacts; and
        - respond to emergencies; and
    e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the Project.

### ENVIRONMENTAL REPORTING

#### Annual Environmental Management Report

50. Within 12 months of this approval, and annually thereafter, the Proponent shall submit an Annual Environmental Management Report (AEMR) for the Project to the 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 the 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.

#### 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.

**AUDITING**

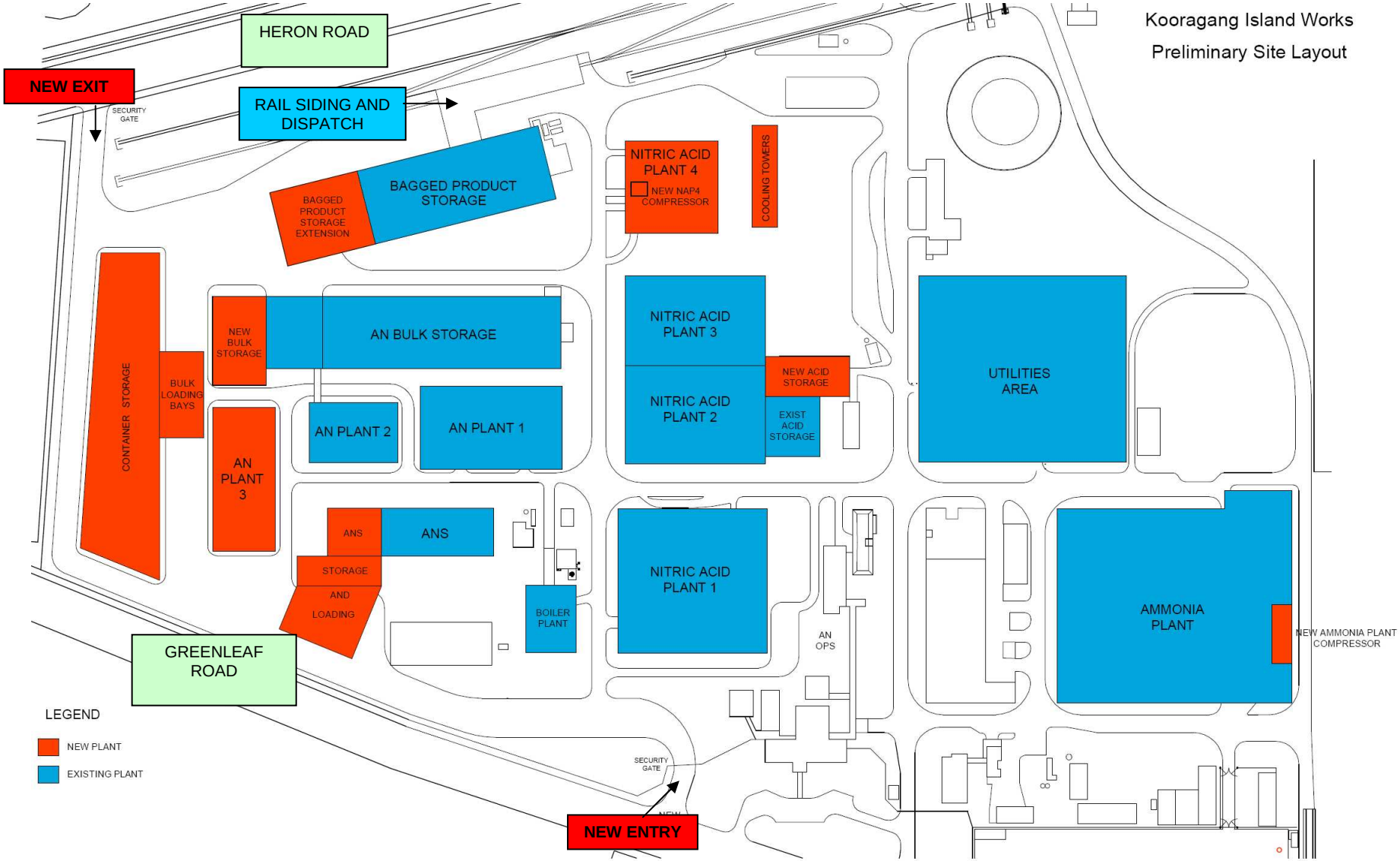
**Independent Environmental Audit**

52. Within 2 years of the commencement of operations of the Project, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the Project. This audit must:
    (a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;
    (b) assess the environmental performance of the Project, and its effects on the surrounding environment;
    (c) assess whether the Project is complying with the relevant standards, performance measures, and statutory requirements;
    (d) review the adequacy of any strategy/plan/program required under this approval; and, if necessary,
    (e) recommend measures or actions to improve the environmental performance of the Project, and/or any strategy/plan/program required under this approval.

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

**ACCESS TO INFORMATION**

53. From the end of 2009, the Proponent shall provide regular reporting on the environmental performance of the Project on its website, including ensuring the following information is publicly available on its website:
    (a) a copy of all current statutory approvals;
    (b) a copy of the current environmental management strategy and associated plans and programs;
    (c) a copy of any Annual Reports (over the last 5 years);
    (d) a copy of any Independent Environmental Audit, and the Proponent's response to the recommendations in any audit; and
    (e) any other matter required by the Director-General.


Kooragang Island Works
Preliminary Site Layout
HERON ROAD
NEW EXIT
SECURITY GATE
RAIL SIDING AND DISPATCH
BAGGED PRODUCT STORAGE EXTENSION
BAGGED PRODUCT STORAGE
NITRIC ACID PLANT 4
NEW NAP4 COMPRESSOR
COOLING TOWERS
CONTAINER STORAGE
BULK LOADING BAYS
NEW BULK STORAGE
AN BULK STORAGE
NITRIC ACID PLANT 3
NITRIC ACID PLANT 2
NEW ACID STORAGE
EXIST ACID STORAGE
UTILITIES AREA
AN PLANT 3
AN PLANT 2
AN PLANT 1
ANS
ANS
STORAGE AND LOADING
BOILER PLANT
NITRIC ACID PLANT 1
AN OPS
AMMONIA PLANT
NEW AMMONIA PLANT COMPRESSOR
GREENLEAF ROAD
LEGEND
NEW PLANT
EXISTING PLANT
SECURITY GATE
NEW ENTRY

# Orica Kooragang Island
# Environmental Protection Licence

# Environment Protection Licence

Licence - 828

| Licence Details | |
|---|---|
| Number: | 828 |
| Anniversary Date: | 01-April |

**Licensee**

ORICA AUSTRALIA PTY LTD

PO BOX 80

MAYFIELD NSW 2304

**Premises**

ORICA KOORAGANG ISLAND

15 GREENLEAF ROAD

KOORAGANG NSW 2304

**Scheduled Activity**

Chemical Production

| Fee Based Activity | Scale |
|---|---|
| Ammonium nitrate production | > 100000 T produced |

**Region**

North East - Hunter

Ground Floor, NSW Govt Offices, 117 Bull Street
NEWCASTLE WEST NSW 2302

Phone: (02) 4908 6800

Fax: (02) 4908 6810

PO Box 488G NEWCASTLE

NSW 2300

# Environment Protection Licence

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# Environment Protection Licence

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# Environment Protection Licence

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## Information about this licence

### Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

### Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act); and
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

### Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

### Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

### Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

### Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

# Environment Protection Licence



The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

**Transfer of licence**

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

**Public register and access to monitoring data**

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

## This licence is issued to:

| |
|---|
| **ORICA AUSTRALIA PTY LTD** |
| **PO BOX 80** |
| **MAYFIELD NSW 2304** |

subject to the conditions which follow.

# Environment Protection Licence

Licence - 828

## 1 Administrative Conditions

### A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

| Scheduled Activity | Fee Based Activity | Scale |
|---|---|---|
| Chemical Production | Ammonium nitrate production | > 100000 T produced |

### A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

| Premises Details |
|---|
| ORICA KOORAGANG ISLAND |
| 15 GREENLEAF ROAD |
| KOORAGANG |
| NSW 2304 |
| LOT 2 DP 234288, LOT 3 DP 234288 |

### A3 Other activities

A3.1 This licence applies to all other activities carried on at the premises, including:

| Ancillary Activity |
|---|
| Contaminated groundwater treatment |

### A4 Information supplied to the EPA

A4.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

# Environment Protection Licence

Licence - 828

## 2 Discharges to Air and Water and Applications to Land

### P1 Location of monitoring/discharge points and areas

P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

***Air***

| EPA identification no. | Type of Monitoring Point | Type of Discharge Point | Location Description |
|---|---|---|---|
| 3 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | No. 1 Nitric Acid Plant Stack shown as Environmental Monitoring Point "3" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 4 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | No. 2 Nitric Acid Plant Stack shown as Environmental Monitoring Point "4" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 7 | Ambient air monitoring | | 134 Roxburgh Street, Stockton |
| 8 | Ambient air monitoring | | Fullerton Street Sub Station |
| 9 | Weather monitoring | | Wind speed and direction monitor shown as Environmental Monitoring Point "9" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 16 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Horizontal louvers at the top of the Prill Tower shown as Environmental Monitoring Point "16" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 17 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Pre dryer scrubber stack shown as Environmental Monitoring Point "17" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 18 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Cooler dust collector shown as Environmental Monitoring Point "18" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |

| | | | |
|---|---|---|---|
| 19 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Granulator stack shown as Environmental Monitoring Point "19" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 20 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Reformer stack shown as Environmental Monitoring Point "20" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 21 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | Boiler Stack shown as Environmental Monitoring Point "21" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" (on EPA file LIC07/2522-02). |
| 22 | Discharge to air<br>Air emissions monitoring | Discharge to air<br>Air emissions monitoring | No. 3 Nitric Acid Plant Stack shown as Environmental Monitoring Point "22" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 29 | Discharge to Air<br>Air emissions monitoring | Discharge to Air<br>Air emissions monitoring | Ammonia Plant Pre-Reformer Furnace Stack shown as Environmental Monitoring Point "29" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

P1.3 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

***Water and land***

| EPA Identification no. | Type of Monitoring Point | Type of Discharge Point | Location Description |
|---|---|---|---|
| 10 | Discharge quality monitoring | | Stormwater Drain 1 shown as Environmental Monitoring Point "10" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 11 | Discharge quality monitoring | | Stormwater Drain 2 shown as Environmental Monitoring Point "11" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |

# Environment Protection Licence

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| | | | |
|---|---|---|---|
| 12 | Discharge quality monitoring | | Stormwater Drain 3 shown as Environmental Monitoring Point "12" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 13 | Discharge quality monitoring | | Stormwater Drain 4 shown as Environmental Monitoring Point "13" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 14 | Discharge quality monitoring | | Stormwater Drain 5 shown as Environmental Monitoring Point "14" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 15 | Discharge quality monitoring | | Stormwater Drain 6 shown as Environmental Monitoring Point "3" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/2011 (on EPA file LIC07/2522-03). |
| 23 | Discharge to waters Effluent quality and volume monitoring | Discharge to waters Effluent quality and volume monitoring | Discharge to Hunter River from Effluent Pump 74J06 or 74J07 via Effluent Discharge Pipe shown as Environmental Monitoring Point "23" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02" dated 26/8/11. |
| 24 | Discharge to waters Effluent quality and volume monitoring | Discharge to waters Effluent quality and volume monitoring | Discharge to Hunter River from Overflow of Effluent Diversion Pond via Effluent Discharge Pipe shown as Environmental Monitoring Point "24" on plan titled "Site Layout, Site Emergency Data, Environmental Monitoring Locations" drawing "10-20000-02". |
| 25 | | Discharge to waters | Zero valent iron treatment zone, as shown on Figure A titled "Field Trial Injection and Monitoring Network" dated 14/6/2010, within the "Arsenic Geochemical Fixation Field Trial -Work Plan" dated 8/4/2011 (on EPA file LIC07/2522-03). |

# Environment Protection Licence



| | | | |
|---|---|---|---|
| 26 | | Discharge to waters | Ferrous chloride treatment zone, as shown on Figure A titled "Field Trial Injection and Monitoring Network" dated 14/6/2010, within the "Arsenic Geochemical Fixation Field Trial -Work Plan" dated 8/4/2011 (on EPA file LIC07/2522-03). |
| 27 | Soil quality monitoring | | Network of soil bores, shown on Figure A titled "Field Trial Injection and Monitoring Network" dated 14/6/2010, within the "Arsenic Geochemical Fixation Field Trial -Work Plan" dated 8/4/2011 (on EPA file LIC07/2522-03). |
| 28 | Groundwater quality monitoring | | Network of groundwater wells, shown on Figure A titled "Field Trial Injection and Monitoring Network" dated 14/6/2010, within the "Arsenic Geochemical Fixation Field Trial -Work Plan" dated 8/4/2011 (on EPA file LIC07/2522-03). |

## 3 Limit Conditions

### L1 Pollution of waters

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

### L2 Load limits

L2.1 The actual load of an assessable pollutant discharged from the premises during the reporting period must not exceed the load limit specified for the assessable pollutant in the table below.

Note: An assessable pollutant is a pollutant which affects the licence fee payable for the licence.

L2.2 The actual load of an assessable pollutant must be calculated in accordance with the relevant load calculation protocol.

| Assessable Pollutant | Load limit (kg) |
|---|---|
| Coarse Particulates (Air) | 137800.00 |
| Fine Particulates (Air) | 208110.00 |
| Nitrogen (total) (Estuarine Water) | 200000.00 |
| Nitrogen Oxides (Air) | 644950.00 |

L2.3 For the purposes of condition L2.2 and M1.1 the relevant load calculation protocol is the methodology detailed in the document titled “Development of Load Calculation Method and Trial Calculation” (June 2003) approved by the EPA in September 2003 and any subsequent amendments approved by the EPA in writing.

## L3 Concentration limits

L3.1 For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.

L3.2 Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.

L3.3 To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table\s.

L3.4 Air Concentration Limits

**POINT 17**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Total Solid Particles | milligrams per cubic metre | 250 | | | |

**POINT 18**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Total Solid Particles | milligrams per cubic metre | 100 | | | |

**POINT 19**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Total Solid Particles | milligrams per cubic metre | 250 | | | |

**POINT 20**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Nitrogen Oxides | grams per cubic metre | 0.35 | | | |

# Environment Protection Licence

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**POINT 21**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Nitrogen Oxides | grams per cubic metre | 1.0 | | | |

**POINT 29**

| Pollutant | Units of measure | 100 percentile concentration limit | Reference conditions | Oxygen correction | Averaging period |
|---|---|---|---|---|---|
| Nitrogen Oxides | grams per cubic metre | 0.35 | | | |

Note: Nitrogen oxides means nitrogen dioxide ($NO_2$) or nitric oxide (NO) or both, as $NO_2$ equivalent.

L3.5 The following special air emission concentrations limits apply for start-up and shut down of the acid plants on the premises.

| Point | Pollutant | Units of Measure | 99 percentile concentration limit |
|---|---|---|---|
| 3 | Nitrogen oxides | ppm | 400 |
| 4 | Nitrogen oxides | ppm | 250 |
| 22 | Nitrogen oxides | ppm | 200 |

Note: Nitrogen oxides means nitrogen dioxide ($NO_2$) or nitric oxide (NO) or both, as $NO_2$ equivalent.

L3.6 Water and/or Land Concentration Limits

**POINT 23**

| Pollutant | Units of Measure | 50 percentile concentration limit | 90 percentile concentration limit | 3DGM concentration limit | 100 percentile concentration limit |
|---|---|---|---|---|---|
| Arsenic | milligrams per litre | | | | 0.05 |
| Chromium (hexavalent) | milligrams per litre | | 0.05 | | 0.20 |
| Nitrogen (total) | milligrams per litre | | 1500 | | 2000 |
| Oil and Grease | milligrams per litre | | | | 10 |
| pH | pH | | | | 6.2 to 9.5 |

| | | | | | |
|---|---|---|---|---|---|
| Temperature | degrees Celsius | | | | 43 |
| Total suspended solids | milligrams per litre | | | | 50 |
| Zinc | milligrams per litre | | | | 5.0 |

**POINT 24**

| Pollutant | Units of Measure | 50 percentile concentration limit | 90 percentile concentration limit | 3DGM concentration limit | 100 percentile concentration limit |
|---|---|---|---|---|---|
| Arsenic | milligrams per litre | | | | 0.05 |
| Chromium (hexavalent) | milligrams per litre | | 0.05 | | 0.20 |
| Nitrogen (total) | milligrams per litre | | 1500 | | 2000 |
| Oil and Grease | milligrams per litre | | | | 10 |
| pH | pH | | | | 6.2 to 9.5 |
| Temperature | degrees Celsius | | | | 43 |
| Total suspended solids | milligrams per litre | | | | 50 |
| Zinc | milligrams per litre | | | | 5.0 |

L3.7 The limit conditions specified for the pH of wastewater discharged via Discharge Points 23 and 24 are for 1-hour average results.

## L4 Volume and mass limits

L4.1 For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
a) liquids discharged to water; or;
b) solids or liquids applied to the area;
must not exceed the volume/mass limit specified for that discharge point or area.

| Point | Unit of Measure | Volume/Mass Limit |
|---|---|---|
| 23 | kilolitres per day | 4500 |

| | | |
|---|---|---|
| 24 | kilolitres per day | 4500 |

Note: The cumulative volume for Points 23 and 24 must not exceed 4500 kilolitres per day.

### L5 Waste

L5.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.

L5.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

### L6 Potentially offensive odour

L6.1 No condition of this licence identifies a potentially offensive odour for the purposes of Section 129 of the Protection of the Environment Operations Act 1997.

L6.2 The licensee must not cause or permit the emission of offensive odour beyond the boundary of the premises.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

## 4 Operating Conditions

### O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

### O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O2.2 The licensee must regularly sweep roads and vehicle manoeuvring areas to remove product spillage from

these areas.

### O3 Emergency response

O3.1 The licensee must maintain, and implement as necessary, a current emergency response plan for the premises. The licensee must keep the emergency response plan on the premises at all times. The emergency response plan must document systems and procedures to deal with all types of incidents (e.g. spills, explosions or fire) that may occur at the premises or that may be associated with activities that occur at the premises and which are likely to cause harm to the environment. If a current emergency response plan does not exist at the date on which this condition is attached to the licence, the licensee must develop an emergency response plan within three months of that date.

### O4 Waste management

O4.1 The licensee must ensure that any liquid and/or non liquid waste generated and/or stored at the premises is assessed and classified in accordance with the EPA's Waste Classification Guidelines as in force from time to time.

O4.2 The licensee must ensure that waste identified for recycling is stored separately from other waste.

### O5 Other operating conditions

O5.1 All above ground tanks containing material likely to cause environmental harm must be bunded or have an alternative spill containment system in-place.

## 5 Monitoring and Recording Conditions

### M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

## M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

**POINT 3**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Nitrogen Oxides | parts per million | Continuous | CEM-2 |

**POINT 4**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Nitrogen Oxides | parts per million | Continuous | CEM-2 |

**POINT 7**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Nitrogen Oxides | parts per hundred million | Continuous | AM-12 |

**POINT 8**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Total suspended particles | micrograms per cubic metre | Every 6 days | AM-15 |

**POINT 16,17,18,19**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Total Solid Particles | milligrams per cubic metre | Yearly | TM-15 |

**POINT 20,21,29**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Nitrogen Oxides | grams per cubic metre | Yearly | TM-11 |

**POINT 22**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|

# Environment Protection Licence

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| | | | |
|---|---|---|---|
| Nitrogen Oxides | parts per million | Continuous | CEM-2 |

## M2.3 Water and/ or Land Monitoring Requirements

**POINT 10,11,12,13,14,15**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Arsenic | milligrams per litre | Monthly during discharge | Grab sample |
| Chromium (hexavalent) | milligrams per litre | Monthly during discharge | Grab sample |
| Nitrogen (total) | milligrams per litre | Monthly during discharge | Grab sample |
| pH | pH | Monthly during discharge | Grab sample |
| Phosphate | milligrams per litre | Monthly during discharge | Grab sample |
| Total suspended solids | milligrams per litre | Monthly during discharge | Grab sample |

**POINT 23**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Arsenic | milligrams per litre | Daily | 24 hour composite sample |
| Chromium (hexavalent) | milligrams per litre | Daily | 24 hour composite sample |
| Nitrogen (total) | milligrams per litre | Daily | 24 hour composite sample |
| Oil and Grease | milligrams per litre | Twice weekly | Grab sample |
| pH | pH | Continuous | In line instrumentation |
| Temperature | degrees Celsius | Continuous | In line instrumentation |
| Total suspended solids | milligrams per litre | Daily | 24 hour composite sample |
| Zinc | milligrams per litre | Daily | 24 hour composite sample |

**POINT 24**

| Pollutant | Units of measure | Frequency | Sampling Method |
|---|---|---|---|
| Arsenic | milligrams per litre | Daily during any discharge | Grab sample |
| Chromium (hexavalent) | milligrams per litre | Daily during any discharge | Grab sample |
| Nitrogen (total) | milligrams per litre | Daily during any discharge | Grab sample |
| Oil and Grease | milligrams per litre | Daily during any discharge | Grab sample |

| | | | |
|---|---|---|---|
| pH | pH | Daily during any discharge | Grab sample |
| Temperature | degrees Celsius | Daily during any discharge | Grab sample |
| Total suspended solids | milligrams per litre | Daily during any discharge | Grab sample |
| Zinc | milligrams per litre | Daily during any discharge | Grab sample |

## M3 Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The *Protection of the Environment Operations (Clean Air) Regulation 2010* requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

M3.2 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

Note: Clause 18 (1), (1A) and (2) of the Protection of the Environment Operations (General) Regulation 2009 requires that monitoring of actual loads of assessable pollutants listed in L2.1 must be carried out in accordance with the testing method set out in the relevant load calculation protocol for the fee-based activity classification listed in condition A1.1.

Note: Testing for the concentrations of Nitrogen (ammonia), and Oil and Grease must be conducted in accordance with the methods detailed in correspondence from the Licensee to the EPA dated 4 February 2008.

Testing for the concentration of Phosphorous (total), must be conducted in accordance with the method detailed in correspondence from the Licensee to the EPA dated 24 January 2007.

## M4 Weather monitoring

M4.1 The licensee must monitor each parameter specified in Coulmn 1 in the table below. The licensee must use the sampling method, units of measure, and sample at the frequency specified in the opposite in the other columns.

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| Parameter | Units of Measure | Frequency | Sampling Method |
|---|---|---|---|
| Rainfall | Millimetres | Daily | AM-4 |
| Wind speed or run | Metres per second | Continuous | AM-2 and AM-4 |
| Wind direction | Degrees | Continuous | AM-2 and AM-4 |

## M5 Recording of pollution complaints

M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M5.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.

## M6 Telephone complaints line

M6.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M6.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M6.3 The preceding two conditions do not apply until 3 months after:
a) the date of the issue of this licence or
b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10 of that regulation.

## M7 Requirement to monitor volume or mass

M7.1 For each discharge point or utilisation area specified below, the licensee must monitor:
a) the volume of liquids discharged to water or applied to the area;

b) the mass of solids applied to the area;
c) the mass of pollutants emitted to the air;
at the frequency and using the method and units of measure, specified below.

POINT 23

| Frequency | Unit of Measure | Sampling Method |
|---|---|---|
| Continuous | kilolitres per day | In line instrumentation |

POINT 24

| Frequency | Unit of Measure | Sampling Method |
|---|---|---|
| Continuous | kilolitres per day | In line instrumentation |

# 6 Reporting Conditions

## R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
a) a Statement of Compliance; and
b) a Monitoring and Complaints Summary.
At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 Where the licensee is unable to complete a part of the Annual Return by the due date because the licensee was unable to calculate the actual load of a pollutant due to circumstances beyond the licensee's control, the licensee must notify the EPA in writing as soon as practicable, and in any event not later than the due date. The notification must specify:
a) the assessable pollutants for which the actual load could not be calculated; and
b) the relevant circumstances that were beyond the control of the licensee.

R1.7 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.8 Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.9 A person who has been given written approval to certify a certificate of compliance under a licence issued under the Pollution Control Act 1970 is taken to be approved for the purpose of this condition until the date of first review of this licence.

## R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.

## R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a

specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

### R4 Other reporting conditions

R4.1 On or before 31 March each year the licensee must provide a report to affected land users and landholders describing progress, during the previous year, implementing Voluntary Remediation Agreement No. 26093 dated 8 December 2006.

Note: The first report is due on 31 March 2008.

## 7 General Conditions

### G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

### G2 Other general conditions

G2.1 **Completed Pollution Studies and Reduction Programs (PRPs)**

| PRP | Description | Completed Date |
|---|---|---|
| Prepare action plan to divert stormwater | Prepare action plan and timetable to divert stormwater flows from the southen end of the premises to the authorised discharge point to reduce pollution of groundwater and stormwater. | 30-September-2002 |

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| | | |
|---|---|---|
| Action plan to reduce nitrogen discharged | Action plan to reduce the amount of total nitrogen discharged from the premises to the Hunter River. | 30-September-2002 |
| Install magflow meter on effluent pipeline | Install magflow measurement device on effluent pipeline to provide a better measurement of volumes discharged. | 31-August-2003 |
| Modification to ammonia plant | Modificatino to the ammonia plant to facilitate recycling of ammonia plant effluent; preparation of N mass balance; and determination of the most cost effective strategy to reduce N discharges. | 31-March-2004 |
| Install pH monitoring and caustic dosing system | Install pH monitoring and caustic dosing system to control pH of discharges from the nitric acid plants. | 31-December-2003 |
| Works to control pH of effluent | Works to control pH of effluent arising from the demineraliser pond. | 31-March-2004 |
| Stormwater contamination report | Preparation of a stormwater contamination report. | 31-December-2004 |
| First flush system | Construction of a first flush system to serve the southern end of the plant, comprising Catchments 4,5 and 6, to reduce ammonium nitrate contamination of stormwater and groundwater. | 01-May-2006 |
| Installation of CO2 blower in drain 120F | Installation of a CO2 blower in drain 120F to effluent system to reduce stormwater contamination. | 24-February-2006 |
| Installation of effluent concentrator | Installation of effluent concentrator to reduce the amount of nitrogen discharged from the premsies. | 31-May-2005 |
| Direct absorber sump to effluent system | Direct absorber sump to effluent system to reduce stormwater contamination. | 24-February-2006 |
| Bunding of the alum storage facility | Bund of the alum storage facility to contain spillages and prevent stormwater contamination. | 25-November-2006 |
| NAP2 oil spearator connected to effluent system | NAP2 oil spearator discharge connected to effluent system to contain oil spillages. | 24-March-2006 |
| Connect AN1 wet section drain to effluent system | Connect AN1 wet section drain to effluent system. | 25-November-2006 |
| Bag warehouse boundary drain | Construct bag warehouse boundary drain to reduce stormwater contamination. | 15-December-2006 |
| Construct drain around coating plant | Construct new drain around coating plant to reduce stormwater contamination. | 31-July-2006 |
| Nitrogen discharge reduction works action program | Develop and carry out program of works to reduce the nitrogen load discharged to the Hunter River via Discharge Points 23 & 24, to achieve a reduced load limit of 200,000kg per year. | 31-March-2010 |
| Noise impact assessment | The licensee must conduct a noise impact assessment; prepare and submit a report detailing the findings and recommendations. | 13-November-2008 |
| Groundwater nutrient monitoring plan | The licensee must develop and implement a groundwater nutrient monitoring plan. | 28-November-2008 |

| | | |
|---|---|---|
| PRP 20 - Bunding Review | The licensee must undertake a review of all above ground tanks and assess whether they are bunded or have an alternate spill containment system. | 30-September-2011 |
| PRP 22 - Nitrates Drainage Upgrade Works | Preparation of a plan detailing drainage improvement works to be undertaken in the nitrates area during the reporting period. | 31-May-2012 |
| PRP 23 - Nitrogen in Effluent Source Investigation | Investigation of the source of nitrogen discharged to the site's effluent system. | 31-March-2012 |
| PRP 24 - Noise Reduction Program | Implementation of noise control measures identified for the NAP1 Compressor Building and NAP2 Primary Air Compressor; revised noise modelling and assessment. | 31-March-2012 |
| PRP 25 - Investigation of HVAS | Review of the location of the High Volume Air Sampler (HVAS) at Point 8 with the Aust. Std.; and plan to address any issues identified. | 22-December-2011 |
| PRP 26 - Nitrates Boiler Stack Sampling Plane | Installation of new monitoring points on the Nitrates Boiler Stack (Point 19) compliant with the Aust. Std. | 31-May-2012 |
| PRP 27 - Effluent Temperature Reduction Program | Upgrade the Process Condensate RO Plant pre-treatment system to reduce the solution temperature of effluent discharged via Point 23. | 31-March-2012 |
| PRP 28 - Automatic Stormwater Samplers | Installation of automatic sampling units at Points 10 to 15 to enable th automatic sampling of stormwater discharging these points. | 31-March-2012 |
| PRP 31 - Low pH Groundwater Plume Remediation | Assess and inplemention actions to remediate the low pH groundwater plume in the vicinity of the No. 1 Nitric Acid Plant Air Lift. | 31-January-2012 |

# 8 Pollution Studies and Reduction Programs

## U1 PRP 21 - AN1 Prill Tower Emission Investigation

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.

A report detailing the investigations and its findings must be submitted to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300.

Date for completion: 30 September 2012.

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.

A report detailing the options identified and feasibility review must be prepared and submitted to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300.

Date for completion: 31 March 2013.

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

A report detailing the identified options and recommendations for implementation, including timeframes for implementation of preferred options to reduce particulate emissions, must be prepared and submitted to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300.

Date for completion: 31 December 2013.

## U2 PRP 29 - Stormwater Isolation Valves

U2.1 The licensee must install isolation valves on the stormwater drainage lines that discharge from the premises at Points 10, 11, 12, 13, 14 and 15. The isolation valves must be able to be operated from a control room, such that the valves can be activated remotely during an incident to prevent the pollution of waters.
(a) The stormwater isolation valves on Points 10, 11 and 12 must be installed by 31 January 2013.
(b) The stormwater isolation valves on Points 13, 14 and 15 must be installed by 30 November 2012.
Upon completion of these works, the licensee must provide written notification to the EPA's Regional Manager – Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

## U3 PRP 30 - Bunding Improvement Works

U3.1 The licensee must undertake the following bunding improvement works in respect of the Methyl Diethanol Amine (MDEA) Solution Storage Tank referred to as "1101F" that is located in the Ammonia Plant, as outlined in the report titled "Bunding Review Plan" prepared by the licensee dated September 2011.

(a) Install a splash shield to ensure that, in the event of a leak developing in the tank, any solution is directed to the tank's bund, rather than being discharged outside of the tank's bunded area.
(b) Upon completion of the above works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Note: These works have been completed.

U3.2 The licensee must undertake the following bunding improvement works in respect of the AN 1 C Reject Tank referred to as "14-19F10" that is located adjacent to the eastern wall of the AN1 Dry Section Building, as outlined in the report titled "Bunding Review Plan" prepared by the licensee dated September 2011.

(a) Replace the AN 1 C Reject Tank with a new tank within the AN1 Dry Section Building. The new tank must be bunded or includes an alternative spill containment system to ensure that any the loss of containment from the new tank is managed within the AN1 Dry Section Building.

(b) Upon completion of the above works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Note: These works have been completed.

U3.3 The licensee must undertake the following bunding improvement works in respect of the No. 2 Ammonium Nitrate Plant (AN2) Reclaim Tank referred to as "17-03F01" that is located to the west of the AN2 Wet Section, as outlined in the report titled "Bunding Review Plan" prepared by the licensee dated September 2011.

(a) Replace the existing AN2 Reclaim Tank with a new 80m$^3$ reclaim tank to be located south west of the existing tank.
(b) The new tank is to be installed within a bund that complies with the requirements of Australian Standard "AS4326-2008: Storage and Handling of Oxidising Agents" and that comforms with EPA guidelines on bund capacity and design.
(c) Upon completion of the above works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Note: These works have been completed.

U3.4 The licensee must undertake the following bunding improvement works in respect of the two Fire Water Pump diesel tanks referred to as "15-76F01" and "15-76F02" that are located to the south of the Fire Water Pump Station, as outlined in the report titled "Bunding Review Plan" prepared by the licensee dated September 2011.

(a) Decommission and remove the Fire Water Pump diesel tank referred to as "15-76F01".
(b) Replace Fire Water Pump diesel tank referred to as "15-76F02" with a new tank located within a bunded that is compliant with Australian Standard AS1940-2004: Storage and Handling of Flammable and Combustible Liquids" and that conforms with EPA guidelines on bund capacity and design.
(c) Upon completion of the above works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Date for completion: 31 December 2012.

U3.5 The licensee must undertake the following bunding improvement works in respect of the Demin Plant Clarifier Tank referred to as "11-2001U" that is located in the south western corner of the Demin Plant, as outlined in the report titled "Bunding Review Plan" prepared by the licensee dated September 2011.

(a) Replace Demin Plant Clarifier Tank referred to as "11-2001U" as part of the project to replace the Demineralised Water Plant Effluent Treatment System that includes the Demineralised Water pond and Clarifier. The new tank must be bunded or have an alternative spill containment system in place. (b) Upon completion of the above works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Date for completion: 31 March 2013.

U3.6 The licensee must undertake the following bunding improvement works in respect of the No. 1 Ammonium Nitrate Plant (AN1) Reclaim Solution Tank referred to as "14-19F12" that is located to the west of the AN1 Dry Section, as outlined in the report titled "Bunding Review Plan" prepared by the licensee dated September 2011.

(a) Replace the existing AN1 Reclaim Solution Tank with a new 200m$^3$ reclaim tank to be located to the east AN1.
(b) The new tank is to be installed within a bund that complies with the requirements of Australian Standard "AS4326-2008: Storage and Handling of Oxidising Agents" and that comforms with EPA guidelines on bund capacity and design.
(c) Upon completion of the above works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Date for completion: 31 March 2013.

U3.7 By 31 March each year the licensee must provide to the EPA's Regional Manager - Hunter an annual report regarding bunding improvement works. The report must include, but is not limited to, the following.

(a) A summary of bunding works completed in the 12 month period prior to 31 March of that year.
(b) Proposed bunding works to be undertaken in the 12 month period proceeding 31 March of that year, inlucding the scope and timing of the nominated works.
(c) Information on plant upgrades that may render existing tanks obsolete or proposed to see new tanks installed on the premises to ensure compliance with the respective Australian Standards on bunding.

## U4 PRP 32 - General Improvements Program

U4.1 The licensee must design and implement effective procedures to control and enforce the disabling of alarms.

Note: These works have been completed.

U4.2 The licensee must undertake a review of the Nitrates area critical alarm panel to ensure that appropriate alarms are included, and that the display is placed in a prominent central location at desk height within the control panel display format. The critical alarm panel must be designed and installed to allow operators to quickly and easily identify and respond to critical alarms as a priority.

Note: These works have been completed.

U4.3 The licensee must ensure that pressure gauges on the No.1 Ammonia Feed Tank, No. 2 Ammonia Feed Tank and No. 5 Ammonia Feed Tank are fitted with restriction orifices.

Note: These works have been completed.

U4.4 The licensee must develop and implement processes and procedures that allow and require operations personnel to identify abnormal operations, and perform a risk assessment prior to proceeding with abnormal operations.

Note: These works have been completed.

U4.5 The licensee must provide a report by the Independent Engineer who conducted the investigation into the ammonia release at the premises on 9 November 2011, or another engineer approved in writing by the EPA's Regional Manager - Hunter, that the works and modifications contained within PRPs U4.1, U4.2,

U4.3 and U4.4 including but not limited to any training have been installed, fitted, tested and delivered. The report must be provided to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 by 1 April 2012.

Note: These works have been completed.

U4.6 The licensee must develop and implement a comprehensive alarm management program that conforms with ANSI/ISA S18.2 2009 to improve the operability and robustness of the Nitrates area alarm system. The program must include the development of an alarm philosophy, alarm rationalisation to eliminate as far as possible irrelevant and chattering alarms, and include engineered suppression of alarms for offline equipment.

Date for completion: 31 December 2012.

U4.7 The licensee must review and modify the site operating procedures to ensure that reasonably foreseeable abnormal operations are included, and any activities not covered by procedure are addressed by a risk assessment.

Date for completion: 31 December 2012.

U4.8 The licensee must assess the adequacy of trip protection across the enitre premises, including the need for additional trip protection, based on the requirements of Australian Standard AS61511. This must use the Safety Report being produced to comply with the requirements under the Occupational Health and Safety Amendment (Major Hazard Facilities) Regulation 2008.

Date for completion: 31 December 2012.

U4.9 The licensee must provide a report by the Independent Engineer who conducted the investigation into the ammonia release at the premises on 9 November 2011, or another engineer approved in writing by the EPA's Regional Manager - Hunter, that the works and modifications contained within PRPs U4.6, U4.7, and U4.8 including but not limited to any training have been installed, fitted, tested and delivered. The report must be provided to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 by 30 January 2013.

U4.10 The licensee must either remove the No. 5 Ammonia Feed Tank or upgrade the relief system of the No. 5 Ammonia Feed Tank (V115) so that any discharge from the tank's pressure relief valves is directed to a scrubber.

Date for completion: 31 December 2013.

U4.11 The licensee must upgrade the existing Nitrates area Distributed Control System (DCS) to include effective alarm management tools. This should include alarm prioritisation, managed suppression for alarms from offline equipment, periodic automated reactivation of disabled alarms, effective use of alarm priorities and the ability to nominate which alarms can and cannot be deactivated or disabled based on different security levels.

Date for completion: 31 December 2013.

U4.12 The licensee must provide a report by the Independent Engineer who conducted the investigation into the ammonia release at the premises on 9 November 2011, or another engineer approved in writing by the EPA's Regional Manager - Hunter, that the works and modifications contained within PRPs U4.10 and

U4.11 including but not limited to any training have been installed, fitted, tested and delivered. The report must be provided to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 by 30 January 2014.

## U5 PRP 33 - Implementation of Low pH Remediation Actions

U5.1 The licensee must remediate the low pH groundwater plume in the vicinity of the No. 1 Nitric Acid Plant ("NAP1"). The low pH plume is defined as groundwater at the premises in the vicinity and downgradient of the NAP1 Air Lift System that has a pH level of less than 6. The remediation may be guided by the report titled "Low-pH Groundwater, Nitric Acid Plant 1, Orica Kooragang Island, Remediation Action Plan (Revised)" prepared by Golder Associates and dated 29 June 2012 ("the Revised RAP"), but the licensee must include the following actions as part of the remediation:

(a) By **1 October 2012** undertake further monitoring between MWNAP20 and MWNAP18S, as identified in the Revised RAP, to delineate the extent of the low pH groundwater plume.

(b) Mass Reduction - **By 1 January 2013** the licensee must commence extracting groundwater from the core of the low pH groundwater plume to reduce the mass of acidity in the aquifer to supplement natural attenuation processes. The extracted groundwater must be lawfully disposed. The licensee must continue to extract groundwater until the extracted water achieves the following remediation goals:

(i) Removal of one pore volume of low pH groundwater (of the order of 750$m^3$); or

(ii) Extracted groundwater exceeds pH 6 for a period of more than five (5) days of extraction after 50% of one pore volume has been extracted.

(c) Monitored Natural Attenuation

(i) **From 1 October 2012** undertake monthly monitoring of groundwater at monitoring wells identified in the Revised RAP for the following parameters: depth to water, pH, electrical conductivity, redox, dissolved oxygen and temperature.

(ii) **From 1 October 2012** undertake six monthly monitoring of groundwater of at least one monitoring well upgradient of the low pH groundwater plume; at least one monitoring well within the core of the low pH groundwater plume; and at least two monitoring wells downgradient of the low pH groundwater plume for the following parameters: dissolved metals, major ions, nitrate and ammonia.

(iii) **From 1 October 2012**, provide a report to the EPA's Regional Manager – Hunter every six months that provides the results and interpretation of monitoring undertaken as required by this Pollution Reduction Program; reviews the adequacy of the existing remediation strategy and recommends whether contingency remediation strategies are required to be implemented to prevent the migration of the low pH groundwater plume beyond the boundary of the premises and protect the environment.

(iv) Provide a Remediation Validation Report to the EPA's Regional Manager – Hunter upon achiving the remediation objective of groundwater in the vicinity and downgradient of the NAP1 Air Lift System having been remediated to pH levels greater than pH 6.

## U6 PRP 34 - Ammonia Plant CO2 Vent Stack Silencer

U6.1 The licensee must install a silencer on the Ammonia Plant $CO_2$ Vent Stack to reduce noise emissions.

Upon completion of these works, the licensee must provide written notification to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 that details the works undertaken.

Date for completion: 30 November 2012.

# 9 Special Conditions

## E1 In-situ geochemical fixation field trial

E1.1 The licensee may carry out a field trial to assess the feasibility of full scale in-situ geochemical fixation to mitigate the migration of arsenic in groundwater from the former arsenic disposal pit located on the premises. The trial is limited to the injection of hydrogen peroxide, zero valent iron, guar gum and ferrous chloride reagents within the treatment zones identified by Points 25 and 26 respectively.

The trial must be undertaken in accordance with the information supplied in support of the Licence Variation Application dated 27 January 2011; the "Arsenic Geochemical Fixation, Field Trial – Work Plan, Kooragang Island, NSW" prepared by Golder Associates dated 8 April 2011, and as subsequently amended; and the "Work Plan, Field Trial for In-situ Geochemical Fixation of Arsenic, Orica Facility, Kooragang island, NSW" prepared by URS Australia dated 8 April 2011, and as subsequently amended.

The field trial injection works must be completed by **30 September 2011**, unless monitoring necessitates the further addition of the above reagents to balance the desired parameters in assessing the feasibility of the trial.

E1.2 The licence must undertake soil quality monitoring at Point 27, and monitor groundwater quality and flow parameters at Point 28 before, during and post the arsenic geochemical fixation trial. The licensee must also monitor the process control parameters for each injection point for each location, and the geochemical parameters during the injection process.

The monitoring must be undertaken in accordance with the information supplied in support of the Licence Variation Application dated 27 January 2011; the "Arsenic Geochemical Fixation, Field Trial – Work Plan, Kooragang Island, NSW" prepared by Golder Associates dated 8 April 2011, and as subsequently amended; and the "Work Plan, Field Trial for In-situ Geochemical Fixation of Arsenic, Orica Facility, Kooragang Island, NSW" prepared by URS Australia dated 8 April 2011, and as subsequently amended.

E1.3 The licensee must prepare and submit reports that detail the trial and assesses the feasibility of full scale in-situ geochemical fixation to mitigate the migration of arsenic in the groundwater from the former arsenic disposal pit located on the premises based on the field trial. The reports must include, but is not limited to, the following.

(i) An overview of the field trial.
(ii) The results of all monitoring associated with the field trial.
(iii) An interpretation of the field trial monitoring results.
(iv) An assessment of the feasibility of full scale in-situ geochemical fixation to mitigate the migration of arsenic in the groundwater from the former arsenic disposal pit located on the premises based on findings of the field trial.
(v) Recommended findings and outcomes for the remediation of groundwater contamination associated with the former arsenic disposal pit located on the premises.
The report must be provided to the EPA's Regional Manager – Hunter at PO Box 488G, Newcastle NSW 2300.

**Dates for completion:**
(a) The Stage 4 Voluntary Management Proposal "Final Field Trial Report (R11)" must be submitted to the EPA's Regional Manager – Hunter at PO Box 488G, Newcastle NSW 2300 **within 19 months** after the completion of the completion of the field trial injection program.

(b) The Stage 4 Voluntary Management Proposal "Feasibility of In Situ Remediation Options Report (R12)" must

be submitted to the EPA's Regional Manager – Hunter at PO Box 488G, Newcastle NSW 2300 **within 21 months** after the completion of the completion of the field trial injection program.

## E2 Mandatory Environmental Audit

### E2.1 Mandatory Environmental Audit

Plant means:

(a) the ammonia plant,
(b) number one, number two and number three Nitric Acid Plant, and
(c) number one and number two Ammonium Nitrate Plant

situated at the premises.

Environmentally satisfactory manner :
The Plant and the premises are operated in an environmentally satisfactory manner if they are operated in a manner that does not contravene Section 95 of the Act.

The licensee must:

1. Engage a suitably qualified and experienced independent environmental auditor with internationally recognised certification and experience as an environmental auditor (the independent environmental auditor) to review and assess the Plant, and the operations, procedures and practices at the premises to ensure the Plant and the premises are operated in an environmentally satisfactory manner and to provide the licensee with advice on improvements that can be made to the way the scheduled activities are carried on in order to better protect the environment.

The independent environmental auditor must be approved of in writing by the EPA's Regional Manager Hunter before being engaged.

Details of the independent environmental auditor proposed to be engaged by the licensee, including name, qualifications and experience must be provided to the EPA's Regional Manager Hunter at PO Box 488G, Newcastle NSW 2300 or facsimile number (02) 4908 6810 **by 16 September 2011.**

2. Instruct the independent environmental auditor to prepare the following:

(a) An environmental audit report for all components of and operational practices and procedures associated with the ammonia plant **by 1 July 2012.**
(b) An environmental audit report for all components of and operational practices and procedures associated with the number one , two and three Nitric Acid Plant **by 1 October 2012.**
(c) An environmental audit report for all components of and operational practices and procedures associated with the number one and two Ammonium Nitrate Plant by **1 March 2013.**
(d) An environmental audit report for the remainder of the premises including operational practices and procedures **by 1 May 2013.** The remainder of the premises includes the packaging areas, the ammonia bottling area and the chemical storage area not included in 2(a), (b) and (c) above.

(e) A consolidated site environmental audit report for the premises including the Plant **by 1 July 2013.** This report must include.

(i) works as executed drawings to standard engineering standards for the Plant.
(ii) an inventory of all chemicals stored on the premises and a description of all planned chemical reactions involved in the production processes at the Plant.

3. Instruct the independent environmental auditor to comply with ISO 19011 in undertaking the environmental audit and preparing the environmental audit reports set out in paragraph 2.

4. Instruct the independent environmental auditor to provide as part of each of the environmental audit reports set out in paragraph 2 the following:

(a) a copy of all documents considered by the independent environmental auditor in preparing the report.
(b) certification by the independent environmental auditor that the Plant the subject of the audit report is or can be operated in an environmentally satisfactory manner.
(c) recommendations on plant, equipment, procedure, monitoring or alarm system modifications or any other modifications to operations and practices that are required to enable the Plant the subject of the audit report to be operated in an environmentally satisfactory manner.
(d) a full risk assessment of any potential or possible discharge to air, land or waters from the Plant the subject of the audit report, including identification of critical systems or procedures.
(e) an assessment of the adequacy and reliability of the currently installed duty and standby equipment in relation to the Plant the subject of the audit report, including any alarm or monitoring system.
(f) an assessment of the Plant the subject of the audit report against best practice for similar plants worldwide.
(g) any recommendation for improvements to the Plant the subject of the audit report and to any operations, practices and procedures at that Plant.
(h) a full assessment of the Plant the subject of the report and the premises' interlock systems to prevent unauthorised discharges of pollutants on or from the premises, including recommendations for installation of additional interlock systems or upgrading of existing systems.
(i) include the past history of plant and system upgrades completed in relation to the Plant the subject of the audit report.
(j) a review of incident logs since 1 July 2009 for the Plant the subject of the report, the cause of each incident, an assessment of the potential impact of each incident, and recommendations on preventative actions for each incident.
(k) a summary of conclusions.
(l) the declarations required under Section 176 of the Act.

5. Instruct the independent environmental auditor to provide the environmental audit reports set out in paragraph 2 directly to the EPA's Regional Manager Hunter by the dates set out in paragraph 2.

6. The licensee must not edit the independent environmental auditor's reports before they are sent to the EPA's Regional Manager Hunter.

7. The licensee is to provide the independent environmental auditor with any assistance requested in carrying out each audit, including providing documents and information as requested.

## E3 Works and Modifications to the Ammonia Feed Tanks

Note: This condition is deleted by varaition notice

## E4 Investigation and actions to prevent further spillage of Ammonium Nitrate Solution

E4.1 The licensee must develop a ground water monitoring program **("the Program"**). The Program must include daily sampling of ground water (unless otherwise approved by condition E4.2(e)) in the impacted and surrounding area of an incident at the premises involving the loss of communications to the Weak Ammonium Nitrate Solution (WANS) Tank causing the WANS tank to overflow a bund within the Weak ANS Filtration Area. The overflow from this bund flowed across the surrounding area and seeped to the ground near the Weak ANS Filtration Area building ("**the Incident")**.
The Program must be designed and implemented in a manner that determines the impact from the Incident on waters and further determines the extent and movement of any contamination caused by the Incident on both waters and lands.
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E4.2 The Program must be conducted according to the following schedule;

(a) Monitoring well installation must be completed by 15 December 2011;
(b) Results of the first five (5) days sampling must be submitted to the EPA Regional Manger Hunter by 23 December 2011;

(c) Further sampling results must be submitted to the EPA Regional Manager Hunter by the last Friday of each month for a period of up to six (6) months;

(d) All sample results must be submitted to the EPA's Regional Manager Hunter at PO Box 488G, Newcastle NSW 2300, facsimile number (02) 4908 6810 or by email to NewcastleRequest@environment.nsw.gov.au;

(e) Sampling frequency may be varied under this condition after 23 December 2011 with the written approval of EPA Regional Manager Hunter.

E4.3 Condition deleted by variation notice

E4.4 Condition deleted by variation notice

E4.5 The licensee must conduct two hourly inspections and complete a report of each inspection of the bund containing the Weak AN Soultion Export Tank 17-04F07.

The licensee must ensure that inspection reports are reviewed daily by the licensees senior staff resposable for this plant to ensure inspections are carried out and document this review process.

The licensee must document each inspection and review and retain this record for six months

## E5 Nitrates Drainage Upgrade Plan

E5.1 The Nitrates Drainage Upgrade Plan that details the licensee's drainage improvement works program for

the premises must be updated on an annual basis to detail the implementation of the previous year's Nitrates Drainage Upgrade Plan and outline works proposed to be undertaken during the following reporting period, and include the timeframes for the completion of the nominated works.

The licensee must submit the annual Nitrates Drainage Upgrade Plan to the EPA's Regional Manager - Hunter at PO Box 488G, Newcastle NSW 2300 by 31 March each year.

# Environment Protection Licence

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## Dictionary

### General Dictionary

| | |
|---|---|
| **3DGM [in relation to a concentration limit]** | Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples |
| **Act** | Means the Protection of the Environment Operations Act 1997 |
| **activity** | Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997 |
| **actual load** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **AM** | Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*. |
| **AMG** | Australian Map Grid |
| **anniversary date** | The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. |
| **annual return** | Is defined in R1.1 |
| **Approved Methods Publication** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **assessable pollutants** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **BOD** | Means biochemical oxygen demand |
| **CEM** | Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*. |
| **COD** | Means chemical oxygen demand |
| **composite sample** | Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume. |
| **cond.** | Means conductivity |
| **environment** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **environment protection legislation** | Has the same meaning as in the Protection of the Environment Administration Act 1991 |
| **EPA** | Means Environment Protection Authority of New South Wales. |
| **fee-based activity classification** | Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009. |
| **general solid waste (non-putrescible)** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |

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| **flow weighted composite sample** | Means a sample whose composites are sized in proportion to the flow at each composites time of collection. |
| **general solid waste (putrescible)** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997 |
| **grab sample** | Means a single sample taken at a point at a single time |
| **hazardous waste** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **licensee** | Means the licence holder describe d at the front of this licence |
| **load calculation protocol** | Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009 |
| **local authority** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **material harm** | Has the same meaning as in section 147 Protection of the Environment Operations Act 1997 |
| **MBAS** | Means methylene blue active substances |
| **Minister** | Means the Minister administering the Protection of the Environment Operations Act 1997 |
| **mobile plant** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **motor vehicle** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **O&G** | Means oil and grease |
| **percentile [in relation to a concentration limit of a sample]** | Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence. |
| **plant** | Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles. |
| **pollution of waters [or water pollution]** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **premises** | Means the premises described in condition A2.1 |
| **public authority** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **regional office** | Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence |
| **reporting period** | For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act. |
| **restricted solid waste** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **scheduled activity** | Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **special waste** | Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997 |
| **TM** | Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*. |

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| **TSP** | Means total suspended particles |
| **TSS** | Means total suspended solids |
| **Type 1 substance** | Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements |
| **Type 2 substance** | Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements |
| **utilisation area** | Means any area shown as a utilisation area on a map submitted with the application for this licence |
| **waste** | Has the same meaning as in the Protection of the Environment Operations Act 1997 |
| **waste type** | Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non - putrescible), special waste or hazardous waste |

Mr Grahame Clarke

Environment Protection Authority

(By Delegation)

Date of this edition: 14-November-2000

# Environment Protection Licence

Licence - 828

## End Notes

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|---|---|
| 1 | Licence varied by change of Contact, issued on 10-Jan-2002, which came into effect on 10-Jan-2002. |
| 2 | Licence varied by notice 1016534, issued on 23-Jul-2002, which came into effect on 17-Aug-2002. |
| 3 | Licence varied by notice 1020245, issued on 10-Oct-2002, which came into effect on 04-Nov-2002. |
| 4 | Licence transferred through application 141572, approved on 15-Nov-2002, which came into effect on 01-Nov-2002. |
| 5 | Licence varied by notice 1022415, issued on 12-Aug-2003, which came into effect on 19-Aug-2003. |
| 6 | Licence transferred through application 142185, approved on 21-Aug-2003, which came into effect on 01-May-2003. |
| 7 | Licence varied by notice 1038929, issued on 21-Jul-2004, which came into effect on 15-Aug-2004. |
| 8 | Licence varied by notice 1044622, issued on 10-Mar-2005, which came into effect on 04-Apr-2005. |
| 9 | Licence varied by notice 1048785, issued on 25-Jul-2005, which came into effect on 19-Aug-2005. |
| 10 | Licence varied by notice 1054025, issued on 07-Apr-2006, which came into effect on 07-Apr-2006. |
| 11 | Licence varied by notice 1068940, issued on 22-May-2007, which came into effect on 22-May-2007. |
| 12 | Licence varied by notice 1076785, issued on 31-Oct-2007, which came into effect on 31-Oct-2007. |
| 13 | Licence varied by notice 1083938, issued on 29-Oct-2008, which came into effect on 29-Oct-2008. |
| 14 | Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date> |
| 15 | Licence varied by correction to scheduled activity name, issued on 22-Dec-2010, which came into effect on 22-Dec-2010. |
| 16 | Licence varied by correction to scheduled activity name, issued on 22-Dec-2010, which came into effect on 22-Dec-2010. |
| 17 | Licence varied by notice 1125998, issued on 08-Jun-2011, which came into effect on 08-Jun-2011. |
| 18 | Licence varied by notice 1500429 issued on 02-Sep-2011 |

# Environment Protection Licence

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| 19 | Licence varied by notice | 1501581 issued on 30-Nov-2011 |
| 20 | Licence varied by notice | 1503045 issued on 05-Dec-2011 |
| 21 | Licence varied by notice | 1503257 issued on 09-Dec-2011 |
| 22 | Licence varied by notice | 1504713 issued on 16-Mar-2012 |
| 23 | Licence varied by notice | 1508019 issued on 27-Aug-2012 |
| 24 | Licence varied by notice | 1509021 issued on 28-Sep-2012 |