



Planning

***MAJOR PROJECT ASSESSMENT:
Orica Ammonia Nitrate Project -
Kooragang Island***



Director-General's
Environmental Assessment Report
Section 75I of the
Environmental Planning and Assessment Act 1979
November 2009

Cover photo: View of the Orica site from Greenleaf Road, Kooragang Island.
Published November 2009
NSW Department of Planning
www.planning.nsw.gov.au

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EXECUTIVE SUMMARY

Orica Australia Pty Ltd (Orica) operates an ammonium nitrate manufacturing facility on Kooragang Island in the Newcastle local government area. This facility has been operating since 1969, and currently employs about 200 people.

The ammonium nitrate manufactured at the facility is sold in either solution form, or as one of three solid forms, primarily to the mining industry for use in blasting agents.

Orica now proposes to expand the existing facility to increase its maximum production rate from 500,000 to 750,000 tonnes a year. This proposal involves the construction of two new plants (one for ammonium nitrate and the other for nitric acid), the upgrading of existing plant and infrastructure, and an increase in the site's storage capacity.

The proposal has a capital investment value of \$300 million, and would create jobs for 250 people during construction and a further 20 people during operations.

The proposal constitutes a 'major project' under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and consequently requires the Minister's approval.

During the exhibition period, the Department received 14 submissions on the project: 11 from government authorities, 2 from neighbouring industries; and 1 from the general public.

None of these submissions objected to the Project.

Nevertheless, both Council and the Newcastle Port Corporation (NPC) raised a number of concerns about the potential air quality, greenhouse gas, noise, stormwater, rail use, contamination, acid sulphate soils and parking impacts of the project; and Incitec commented on the Preliminary Hazard Analysis for the project.

The Department has assessed the merits of the project in detail, and considers the key issues to be hazards, noise, greenhouse gases and air quality.

The Department is satisfied that all of these issues can be suitably managed to ensure an acceptable level of environmental performance, and has concluded that the project would:

- result in a significant reduction of the likelihood of hazardous incidents occurring on site, including fires, explosions and toxic gas releases;
- reduce the greenhouse gas emissions of the facility by 20%;
- not increase the existing night-time noise impacts of the facility on the nearby Stockton residential area;
- attract significant new investment to the Hunter region; and
- provide an essential product for both the mining and other industries in NSW.

On balance therefore, the Department considers the project is in the public interest, and should be approved subject to conditions.

1. PROPOSED PROJECT

1.1 Background

Orica owns an ammonium nitrate manufacturing facility on Kooragang Island in the Newcastle local government area (see Figure 1). The facility has been operating since 1969, and currently employs about 200 people. To date, it has had two major expansions: one in 1988, and the other in 2004.



Figure 1 – Regional Context

The facility is located on the south-eastern part of Kooragang Island, and is surrounded by various industrial and port-related activities.

Immediate industrial neighbours include:

- a fertiliser distribution centre (Incitec Pivot) to the north;
- a bulk cement silo (Australian Cement) to the north-west;
- ship unloading and storage facilities to the west;
- an agri-terminal used for the storage and loading of seeds and grains to the west;
- a woodchip export facility (Sawmillers Exporters) to the west;
- a warehousing and dispatch facility (Patricks) to the south; and
- a marine fuel and diesel storage and biodiesel production facility (approved Manildra Park facility, not yet built) to the east.

Kooragang Island is bound by the north and south arms of the Hunter River and is located 3 kilometres north of the central business district of Newcastle. The nearest residential community is located at Stockton, approximately 800m to the east of the Orica site. Other residential areas include Carrington, 1.5 kilometres the south-west; and Mayfield, 2 kilometres to the west.

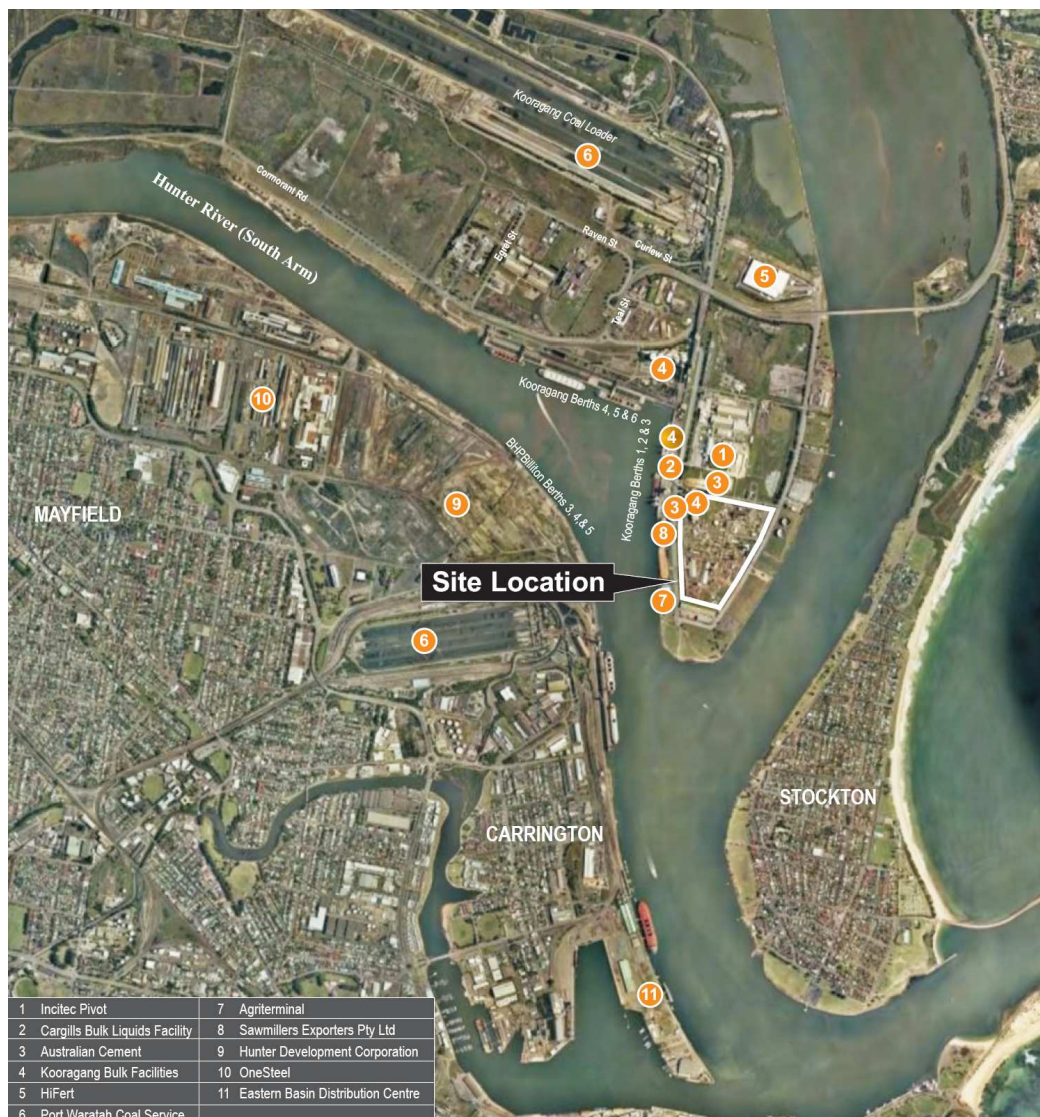


Figure 2 – Surrounding Land Uses

Current Operations

Ammonium nitrate (AN) is the key raw material used in commercial explosives by the mining and quarrying industries.

The main feedstock requirements for the manufacture of AN are: water, electricity and natural gas. At present, the facility consumes about 9.6 ML of water a day, 105,000 MWh of electricity a year, and 12 PJ of natural gas a year.

The current facility manufactures AN via the following three key manufacturing steps:

1. Ammonia production from the steam reforming of natural gas;
2. Nitric Acid (NA) production from reacting ammonia under pressure in the presence of a catalyst; and
3. AN production formed through the reaction of ammonia with nitric acid.

AN is produced either in solution or as one of three solid forms. Solid and solution forms of ammonium nitrate include the Orica products Nitropril®, Opal™ and Chemically Pure Ammonium Nitrate (CPAN). A small amount of ammonia and nitric acid are also sold from the facility for industrial uses.

The existing facilities on site, are depicted on Figure 3, and include the:

1. Ammonia Plant (1);
2. Nitric Acid Plants (NAP1, 2 and 3); and
3. 2 Ammonium Nitrate plants (AN1 and 2).

Table 1 below provides detail of the development consent history for the site.

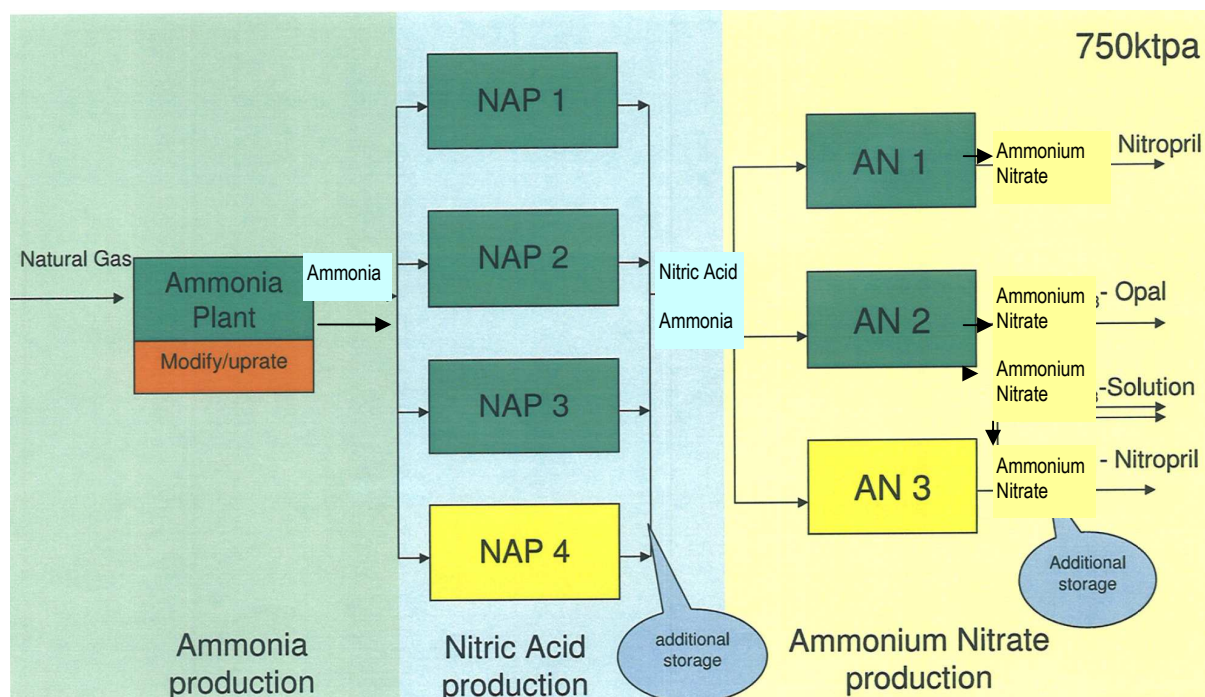
Year	Infrastructure approved	Approval authority	Notes:
1969	Ammonia plant, AN 1 and NAP 1	No existing consent	<ul style="list-style-type: none"> The ammonia plant was originally designed to operate with naphtha as the feedstock; it has since been converted to use natural gas as feedstock. Most of the ammonia is used in the production of Nitric Acid (NA) and AN, however some is also used in fertilisers and as an industrial refrigerant. NAP 1 manufactures Nitric Acid and is driven by a steam turbine. AN 1 manufactures Nitropril (a low density grade of AN used as a blasting agent in the mining industry).
1988	NAP 2 and AN2	Newcastle City Council DA 379/87	<ul style="list-style-type: none"> NAP 2 manufactures NA, and is driven by electricity. Most of the NA is used in the manufacture of AN, however some is also sold for use in other industrial applications. AN 2 manufactures CPAN (used in the manufacture of medical gases), OpalTM (used as a blasting agent in the mining and quarrying industries) and ammonium nitrate solution.
1994	Anhydrous ammonia packaging plant and aqua ammonia plant	Newcastle City Council DA 685/93	<ul style="list-style-type: none"> Ammonia bottling plant.
1998	NAP 3, additional product storage and upgrade of the AN plants.	Minister for Urban Affairs and Planning DA 2/98	<ul style="list-style-type: none"> This DA increased production of AN at the site from 365,000tpa to 500,000tpa. NAP 3 manufactures Nitric Acid and is driven by a steam turbine.

There are various chemicals and products stored on site, including:

- Ammonia**, within a 12,000 tonne refrigerated tank and 3 pressurised bullets with a total capacity of 120 tonnes;
- Nitric Acid**, within 3 bunded tanks with a capacity of 3000 tonnes;
- Solid Ammonium Nitrate**, within 2 storage buildings totalling 22,800 tonnes of product;
- Ammonium Nitrate Solution**, within a storage tank maintained at 110°C with a 375 tonne capacity.

In addition, there are small quantities of chemicals consumed for the management of water chemistry.

Figure 3 below demonstrates the three key manufacturing processes within the current Orica plant.



Key:

Current Infrastructure

Proposed New Infrastructure

Proposed Modified Infrastructure

Figure 3: Current and proposed Orica manufacturing processes

1.2 Project Description

Orica proposes to expand the existing facility to increase its maximum production rate from 500,000 to 750,000 tonnes of AN a year.

The major components of the proposal are summarised in Table 2 depicted in Figure 4, and described in full in the Environmental Assessment (EA) of the project, which is attached as Appendix F.

Table 2: Major Components of the Project

Aspect	Description
Project Summary	Expansion of the existing ammonium nitrate facility on Kooragang Island, increasing production from 500 to 750 ktpa.
New Plant	The expansion includes construction of new plant, including: <ul style="list-style-type: none"> a Nitric Acid Plant (NAP4); and an Ammonium Nitrate Plant (ANP3).
Modifications to existing plant	Modifications to the existing Ammonia Plant, including: <ul style="list-style-type: none"> installation of a new furnace; installation of a new large compressor powered by a steam turbine; minor modifications to machinery and vessels; and improvements to gas efficiency (by 4%).
Storage	Construction of additional storage including: <ul style="list-style-type: none"> nitric acid storage tank (2,000 tonnes); ammonium nitrate solution storage tanks (2 x 500 tonnes); modifications to storage facilities for bulk and bagged AN product, without increasing the volume of storage, but improving efficiencies in product handling; and AN bulk container storage, handling and distribution. <p>Rationalisation and replacement of some existing pressurised ammonia storage and piping.</p>

<i>New infrastructure</i>	Installation of new infrastructure including: <ul style="list-style-type: none"> • cooling towers; • a natural gas-fired boiler; • two new site access points; and • loading facilities.
<i>Upgrade existing infrastructure</i>	Upgrade of existing infrastructure including, air compressors, electrical systems, loading facilities, ammonia supply infrastructure and water supply, stormwater and effluent management systems.
<i>Staging</i>	Construction duration would be 2-3 years, beginning with the Ammonia plant modifications and followed by construction of the NAP4 and AN3 plants.
<i>Production Capacity</i>	<ul style="list-style-type: none"> • ammonia: production would increase from 295,000 tpa to 360,000 tpa • nitric acid: production would increase from 345,000 tpa to 605,000 tpa • ammonium nitrate: production would increase from 500,000 tpa to 750,000 tpa.
<i>Employment</i>	Construction – 250 during peak. Operation - 20 additional staff.
<i>Transport</i>	<ul style="list-style-type: none"> • trucks would increase from 133 to 196 truck movements per day (Monday to Friday); and • cargo shipping use would not change.
<i>Capital Value</i>	\$300 million
<i>Construction</i>	Construction would take between 2- 3 years, followed by a 3 month commissioning period. Modifications to the Ammonia Plant would be completed during the routine maintenance period for the plant, which occurs every 5 years and is next scheduled for 2011.
<i>Hours of Operation</i>	24 hours, 7 days a week.

1.3 Project Need

Growing population and increased development in countries such as China and India has increased the global demand for mineral inputs, including coal for electricity generation and steel and metal products for building and infrastructure development.

The Australian mining sector has grown in order to service this demand with expansion of coal mining and related infrastructure across NSW, Queensland and Western Australia. Orica currently supplies commercial blasting products to the mining, quarry and construction industries in south-east Australia as well as export markets in Asia and the Pacific. Orica is seeking to meet increasing demand from the mining sector for AN by expanding its Kooragang Island facility.

1.4 State Plan and Lower Hunter Regional Strategy 2006

The Project is consistent with the goals and priorities of the State Plan, and in particular priorities P1 (increased business investment), P6 (increased business investment in rural and regional NSW), E3 (cleaner air and progress on greenhouse gas emissions) and E5 (jobs closer to home).

The Project is also consistent with the goals and priorities of the *Lower Hunter Regional Strategy* as the site is located within the strategy's designated employment lands which aim to maximise community access to services and employment opportunities.

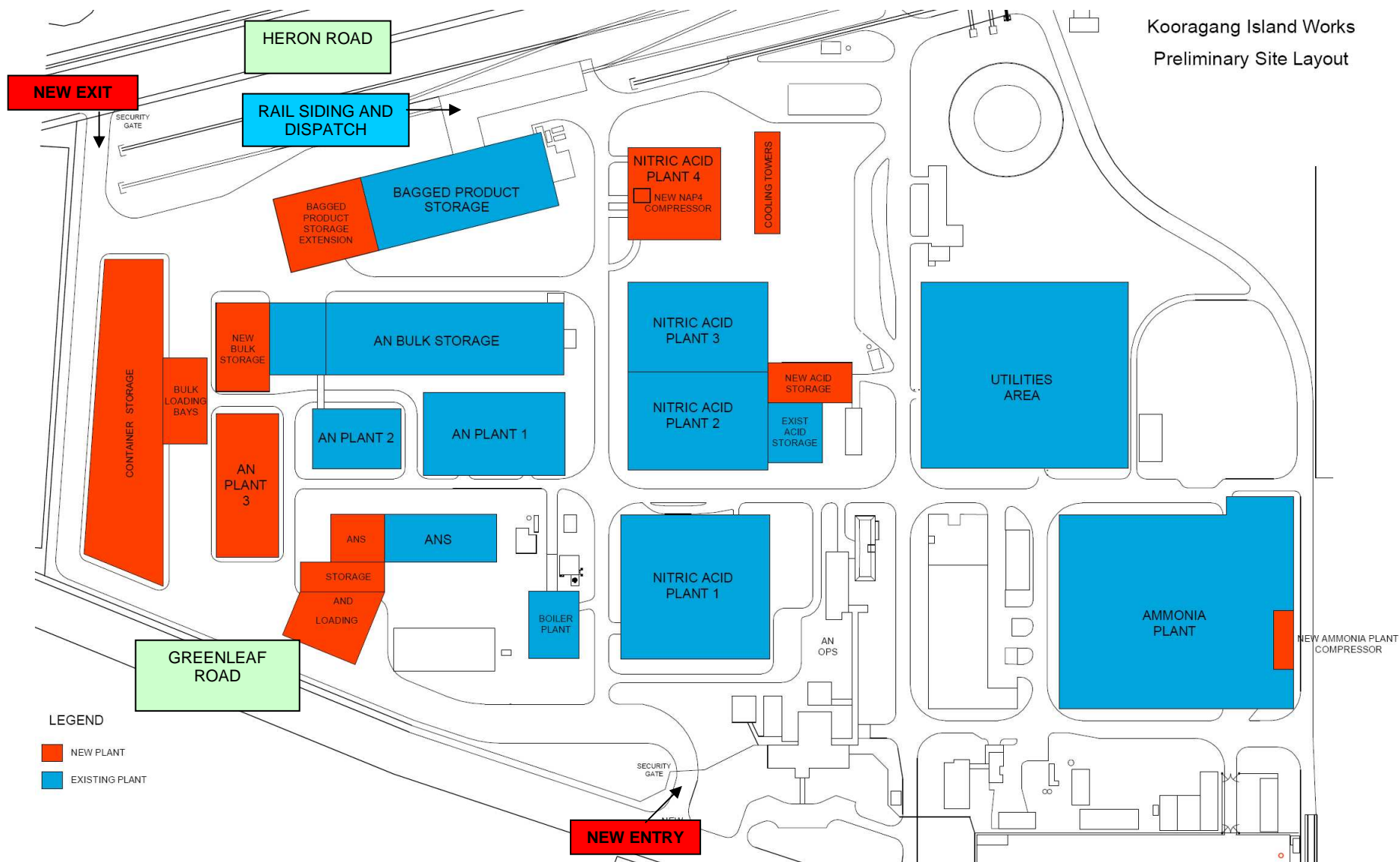


Figure 4: Existing and proposed site layout

2. STATUTORY CONTEXT

2.1 Major Project

The proposal is classified as a major project under Part 3A of the *Environmental Planning and Assessment Act 1979* (the EP&A Act) because it meets the criteria of Schedule 1, Clause 10(1)(e) of the *State Environmental Planning Policy (Major Development) 2005*, namely:

development for the purpose of chemical, manufacturing and related industries, including the manufacture of ammunition or explosives, which employs 100 or more people or has a capital investment value of more than \$20 million.

Consequently, the Minister for Planning is the approval authority for the project.

2.2 Permissibility

Under Section 75J of the EP&A Act, the Minister cannot approve the carrying out of a project that would be wholly prohibited under an environmental planning instrument.

The site is zoned 4(b) Port and Industry Zone under the *Newcastle Local Environmental Plan 2003*.

While the project is permissible with consent as an industry in this zone, it would be prohibited if it was subsequently determined that it is a hazardous or offensive industry.

The Preliminary Hazard Analysis demonstrated that the project does not pose unacceptable risks to surrounding land uses, and is therefore not a hazardous industry. In addition, the detailed merit of the project (see below) has concluded that the project is not an offensive industry.

Consequently, the Department is satisfied that the project is permissible with consent, and that the Minister may approve the project.

2.3 Exhibition and Notification

Under Section 75H(3) of the EP&A Act, the Director-General is required to make the Environmental Assessment (EA) of a Project publicly available for at least 30 days.

After accepting the EA for the Project, the Department:

- made it publicly available from 9 June 2009 until 13 July 2009:
 - on the Department's website, and
 - at the Department's Information Centre and Newcastle Office, and
 - at the Nature Conservation Council;
- notified landowners in the vicinity of the site about the exhibition period by letter;
- notified relevant State government authorities and Newcastle City Council by letter; and
- advertised the exhibition in the Newcastle Herald.

During the assessment process the Department also made a number of documents available for download on the Department's website. These documents included the:

- Project application;
- Director-General's environmental assessment requirements; and
- EA.

2.4 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's report is to include a copy of or reference to the provisions of any:

- *State Environmental Planning Policy* (SEPP) that substantially govern the carrying out of the Project; and
- environmental planning instrument that would (but for Part 3A) substantially govern the carrying out of the Project and that have been taken into consideration in the environmental assessment of the Project.

The Department has considered the Project against the relevant provisions of several environmental planning instruments (including *State Environmental Planning Policy (Major Development) 2005*, *State*

Environmental Planning Policy (Infrastructure) 2007, and the Newcastle Local Environmental Plan 2006).

The Department is satisfied that, subject to the implementation of the recommended conditions of approval, the Project is generally consistent with the aims and objectives of these instruments (see Appendix C).

2.5 Objects of the Environmental Planning and Assessment Act 1979

The Minister's consideration and determination of the application must be consistent with the relevant provisions of the EP&A Act, including the objects set out in Section 5 of the Act.

The objects of most relevance to the Minister's decision on whether or not to approve the project are found in section 5(a)(i), (ii), (iv), (vi) and (vii). They are:

- (a) *to encourage:*
 - (i) *the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
 - (ii) *the promotion and co-ordination of the orderly and economic use and development of land,*
 - (iv) *the provision of land for public purposes,*
 - (vi) *the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
 - (vii) *ecologically sustainable development".*

The Department has fully considered the objects of the EP&A Act, including the encouragement of ESD, in its assessment of the merits of the application.

This assessment has integrated all significant economic and environmental considerations and sought to avoid any potential serious or irreversible damage to the environment.

Orica has also considered a number of alternative designs to the proposed project (including the alternative of not proceeding, expansion of the AN plant in Gladstone, Queensland and building a new facility in the Hunter Valley). Of the alternatives considered, increasing capacity at Kooragang Island was considered the preferred option due to proximity to the market and raw materials, the industrial nature of the area and the infrastructure that is already in place.

Orica has also considered the project in the light of the principles of ESD.

2.6 Statement of Compliance

Under Section 75I of the EP&A Act, the Director-General's report is required to include a statement relating to compliance with the environmental assessment requirements with respect to the project. The Department is satisfied that the environmental assessment requirements have been complied with.

3. ISSUES RAISED IN SUBMISSIONS

During the exhibition period, the Department received 14 submissions on the project, including:

- 11 from public authorities - Department of Environment and Climate Change (now the Department of Environment, Climate Change and Water or DECCW), Department of Water and Energy (now the Office of Water within DECCW), the Ministry for Transport and RTA (now part of the Department of Transport and Industry or DTI), NSW Fire Brigade, NSW Maritime, Newcastle Port Corporation, NSW Police Force, NSW Health, Hunter Water and Newcastle City Council (Council);
- 2 from neighbouring industries - Incitec Pivot Ltd (Incitec) and Port Waratah Coal Services Limited (PWCS); and
- 1 from the general public.

Most of the public authorities raised no concerns with the project, and provided recommended conditions of approval.

Council and the Newcastle Port Corporation (NPC) did not object to the project; but raised various concerns about the potential air quality, greenhouse gas, noise, stormwater, contamination, acid sulphate soils and parking impacts of the project. Both Council and NPC provided recommendations in relation to these issues.

Incitec provided detailed comments on the Preliminary Hazard Analysis for the project, whilst PWCS asked to be included in Orica's emergency response procedures.

The private submission supported the project due to its employment opportunities, improved plant efficiencies and reduced greenhouse gas emissions.

A full copy of all of the submissions is attached in Appendix E.

3.1 Response to Submissions

Orica has provided a formal response to the issues raised in submissions (see Appendix D). This has been made publicly available on the Department's website.

The Department has considered the issues raised in submissions, and Orica's response to these issues, in its assessment of the merits of the project.

4. ASSESSMENT

The Department has assessed the project, in accordance with the requirements in the EP&A Act and Regulation, and considers the key issues to be: hazards and risks, noise, greenhouse gas emissions and air quality.

Other issues, including water and energy use, traffic, stormwater and effluent management, contamination, visual impacts and rail use have been addressed in the Environmental Assessment (EA), Statement of Commitments and Submissions Report. These issues are summarised briefly in Section 4.5 of this assessment report.

As Orica has an existing operation on site and is seeking to expand as part of this project application, this assessment report and recommended conditions makes reference to both components (existing and proposed) of Orica's operations. The assessment of the key issues in both the EA and this assessment report has also considered both the existing operations and the project

Figures 5 & 6 illustrate these definitions.

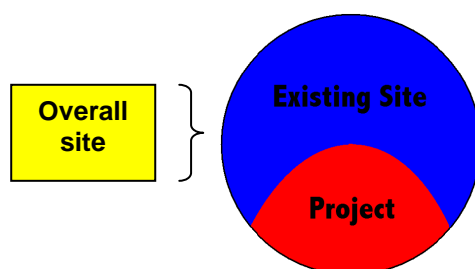


Figure 5: Definitions used within this assessment report

4.1 Hazards and Risks

The production, handling and storage of AN and NA presents various hazards and risks. The project has the potential to alter the existing hazard and risk profile of the facility, therefore a detailed risk assessment was undertaken as part of the EA.

Background

The purpose of a risk assessment is to identify potential hazards, analyse consequences and likelihood of occurrence, estimate resultant risks to surrounding land uses, assess against relevant criteria and determine whether a project would impose an unacceptable level of risk. The risk assessment process is shown diagrammatically in Figure 6.

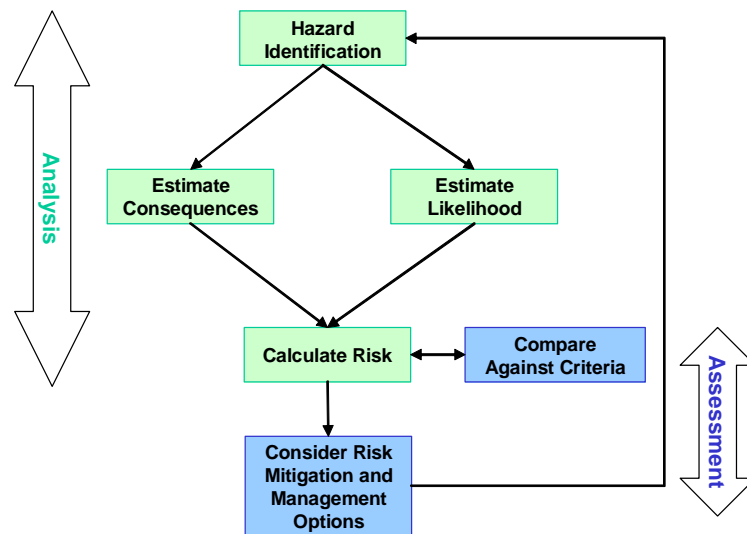


Figure 6: The Elements of Risk Analysis and Assessment

In 1991, the Department undertook a risk assessment of the Newcastle Industrial Area, including the Kooragang Island Area, and the results of this assessment were published in the *Newcastle and Kooragang Island Area Risk Assessment Study 1992*. The study included a risk assessment for Orica's facility (owned by Incitec at the time of the study), and produced risk contours for the site, including individual fatality risk contours for specific landuses, as depicted in Figure 7.

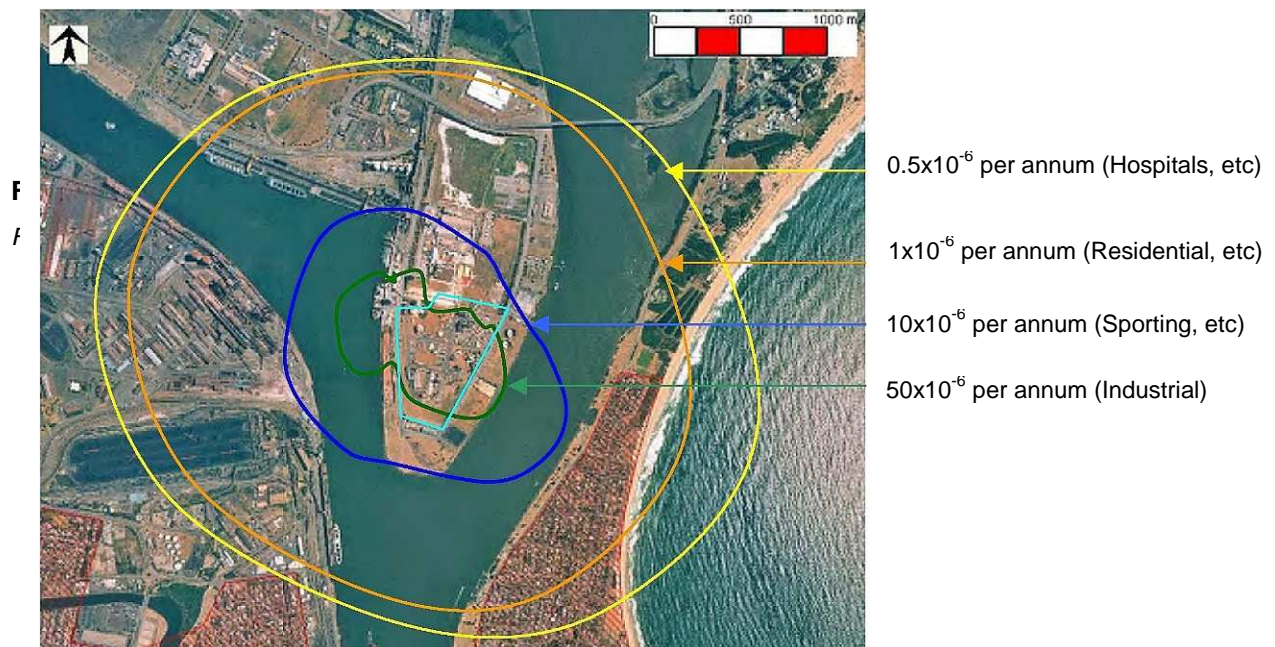


Figure 7: Individual Facility Risk Contours – Certain Landuses

The study found that the individual fatality risks posed by the AN facility exceeded the NSW risk criteria applicable to new plants for residential and industrial areas (reproduced in Table 3 below).

Table 3: NSW Individual Fatality Risk Criteria as published in the Hazardous Industry Planning Advisory Paper No. 4

Land Use	Suggested Criteria (acceptable fatality risk per million individuals, per year)
Hospitals, schools, child-care facilities, old age housing	0.5
Residential, hotels, motels, tourist resorts	1
Commercial developments including retail centres, offices and entertainment centres	5
Sporting complexes and active open space	10
Industrial	50

The societal risk assessment (which considers neighbouring population densities rather than specific land use) also indicated a need for additional risk reduction measures. The primary 'societal' risks were found to be from the release of ammonia gas from the various storage vessels and from the transfer of chemicals through pipelines.

The study established that the ammonium nitrate preparation and storage operations did not pose significant levels of risk off-site.

Based on the findings of the study, the Department made a number of recommendations aimed at reducing the risk in the Newcastle and Kooragang Island Area. Eleven of these recommendations were related to the AN facility site. Currently, nine recommendations have been implemented and the remaining two are being addressed. As a result the overall risk has been reduced.

Existing Operations and Proposed Project

The EA for the project assessed the risk posed by the existing operations - presented in this assessment report as Figure 8. It is evident that the fatality risk contours for the existing operations are significantly improved compared to the 1992 risk contours and meet the individual fatality risk criteria for new plants for sensitive, residential and commercial land uses.

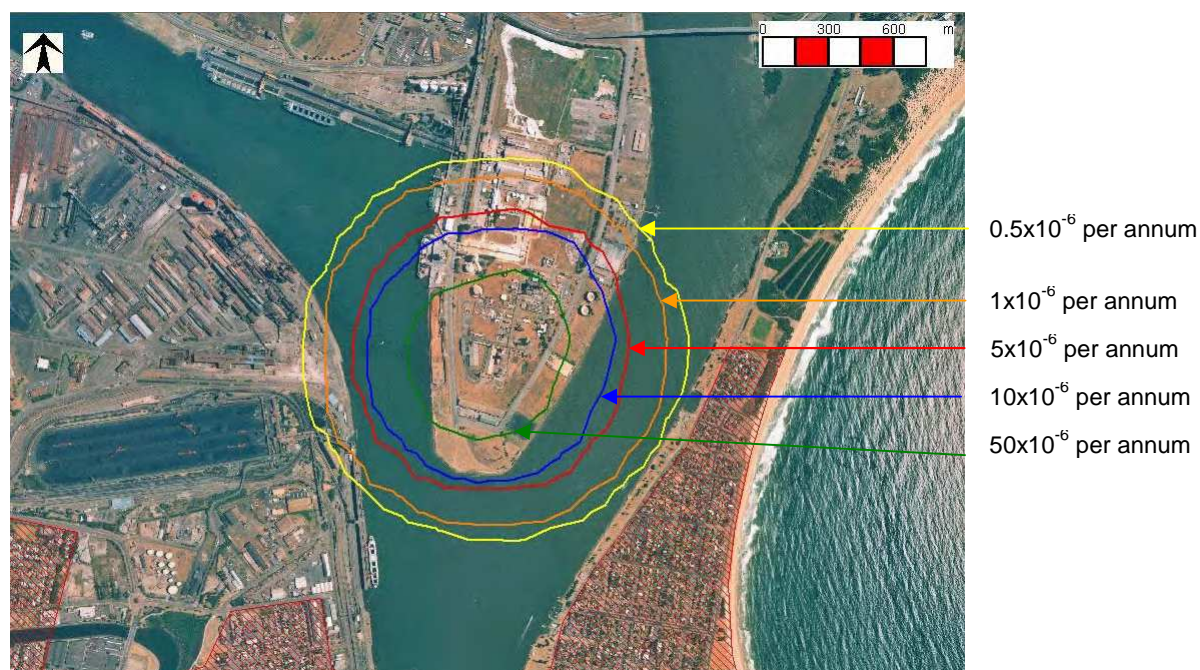


Figure 8: Individual Fatality Risk Contours – Existing Operations

As described in the EA, Orica now proposes to build a number of new plants and to re-organise the ammonia and AN storage. As a result, the quantity of hazardous materials on site will be reduced or will remain the same, except for an increase in the storage of ammonium nitrate solution.

Hazard Identification

The EA has identified that the major hazardous materials with the potential for offsite safety or environmental effects are:

- anhydrous ammonia;
- ammonium nitrate;
- nitrogen oxides;
- chlorine;
- natural gas; and
- hydrogen.

The likely hazardous incidents involving the above materials with potential to cause injury or fatalities to people, or damage to property or the biophysical environment include fires, explosions and toxic gas releases.

The existing and proposed facilities are both a “potentially hazardous industry” as defined under the provisions of *State Environmental Planning Policy No. 33 Hazardous and Offensive Development* (SEPP 33) and therefore a Preliminary Hazard Analysis (PHA) was prepared to assess the risk to people, property and the environment. In preparing the PHA, Orica has been required to estimate both risks from the project (i.e. the new infrastructure) and from the overall site (the cumulative risk). Orica has also been required to consider possible risk reduction in the existing operations as well as from the project.

The PHA includes a full Quantitative Risk Assessment (QRA) prepared in accordance with the guidance documents issued by the Department.

Orica handles materials at the site which are of a security sensitive nature and therefore parts of the PHA were segregated as confidential. These parts are not included in the public document but were provided to the Department. The Department’s findings are based on assessment of both the public and confidential reports.

Consequence and Frequency Analysis

The PHA has estimated the consequences of each incident scenario that may have potential offsite impacts, either directly or as a result of escalation to other plant and equipment. Commercial software for risk assessment (SAFETI) was used for the calculations. The Department is satisfied with the methodology used for calculation of the consequences and considers it to be sound and well applied.

The frequency data used in the PHA is based on analysis of Orica’s bank of leak frequency data and in the cases where site specific data was not available, on frequency data published in the public domain. During the assessment process the Department required justification of the data used and requested additional information on the methodology used for estimation of the site specific data. A private submission questioned the accuracy of three failure frequencies used in the PHA. In response to the Department’s request and the private submission, Orica reviewed the data and recalculated the impacted risk contours.

Based on the PHA and the additional information provided by Orica, the Department considers that the frequency data used is appropriate.

Risks

The identified incident scenarios have been analysed, by means of consequence and frequency analysis, to establish the risks posed by the project and by the overall site (cumulative). The consequence of each identified hazardous scenario has been calculated and represented as a distance to specified levels of overpressure, thermal radiation and toxic impact. The following risk levels have been calculated:

- individual fatality risks;
- injury risk from heat radiation and explosion overpressure;
- injury and irritation risk from toxic exposure;
- societal risk; and
- risk of property damage and accident propagation

The risk to the biophysical environment has been qualitatively estimated.

Results

The PHA has compared risks from the project, the existing operations and the overall site against the Department's risk criteria to demonstrate that:

- the risk from the project complies with the criteria adopted in NSW for new developments (Figure 9); and
- a significant reduction in risks from the overall site compared with the existing operations will be achieved (Figure 10).

Figure 9 demonstrates that the risks from the project comply with all individual fatality risk criteria adopted in NSW.

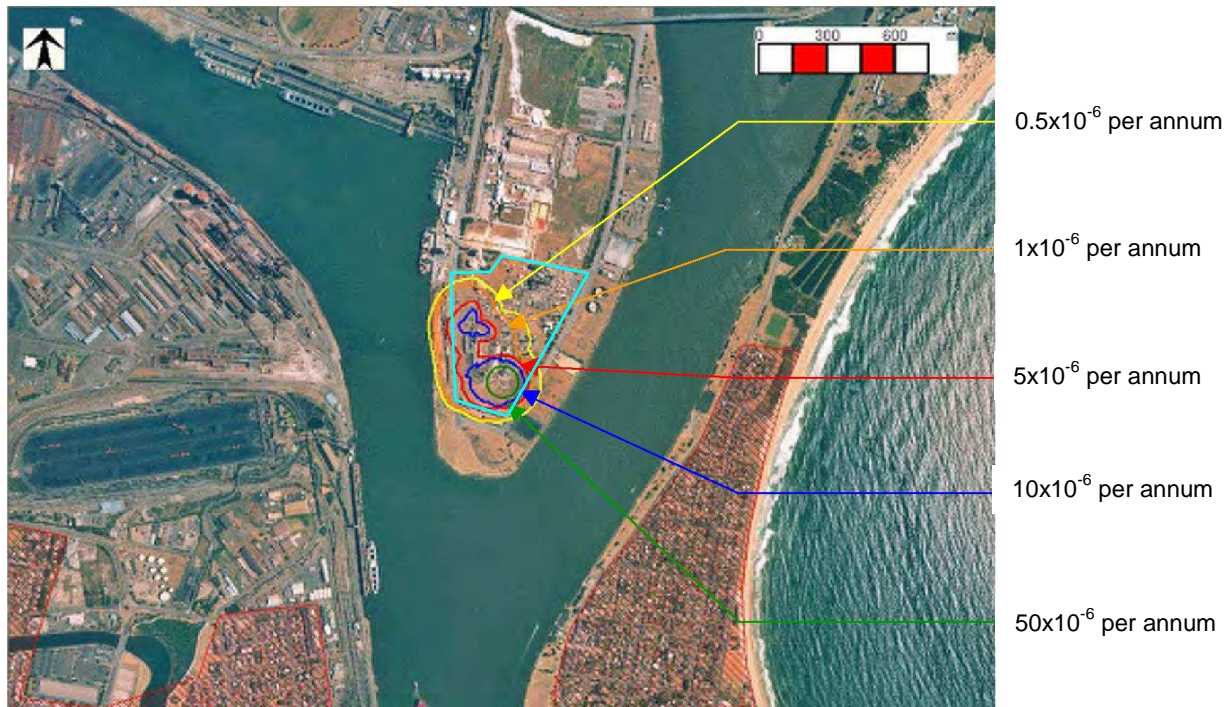


Figure 9: Individual Fatality Risk Contours – Project

The risk assessment also concluded that:

- the project complies with all NSW injury risk criteria; and
- the estimated societal risk is in the “negligible” societal risk region.

The individual fatality risk contours for the overall site are presented in Figure 10. It is evident that by comparing Figures 8 and 10, **the risks from the overall site are lower than the risks from the existing operations**. It should be noted that, the risk from the overall site will comply with the NSW criteria for individual fatality risk and that the societal risk will be further reduced to the “negligible” societal risk region.

The overall risk reduction will be achieved by implementation of the following risk reduction measures, identified in the PHA:

- reconfiguration of the ammonia nitrate storage aimed at reducing the quantity of the material involved in an explosion;
- elimination of timber pallets in the storage area for large bags of ammonium nitrate;
- implementation of additional ammonia detection and isolation systems to minimise the potential quantity released in a leak; and
- rationalisation of the pressurised liquid ammonia storage and piping systems to reduce inventories and simplify isolation to minimise the quantity of ammonia released in a leak.

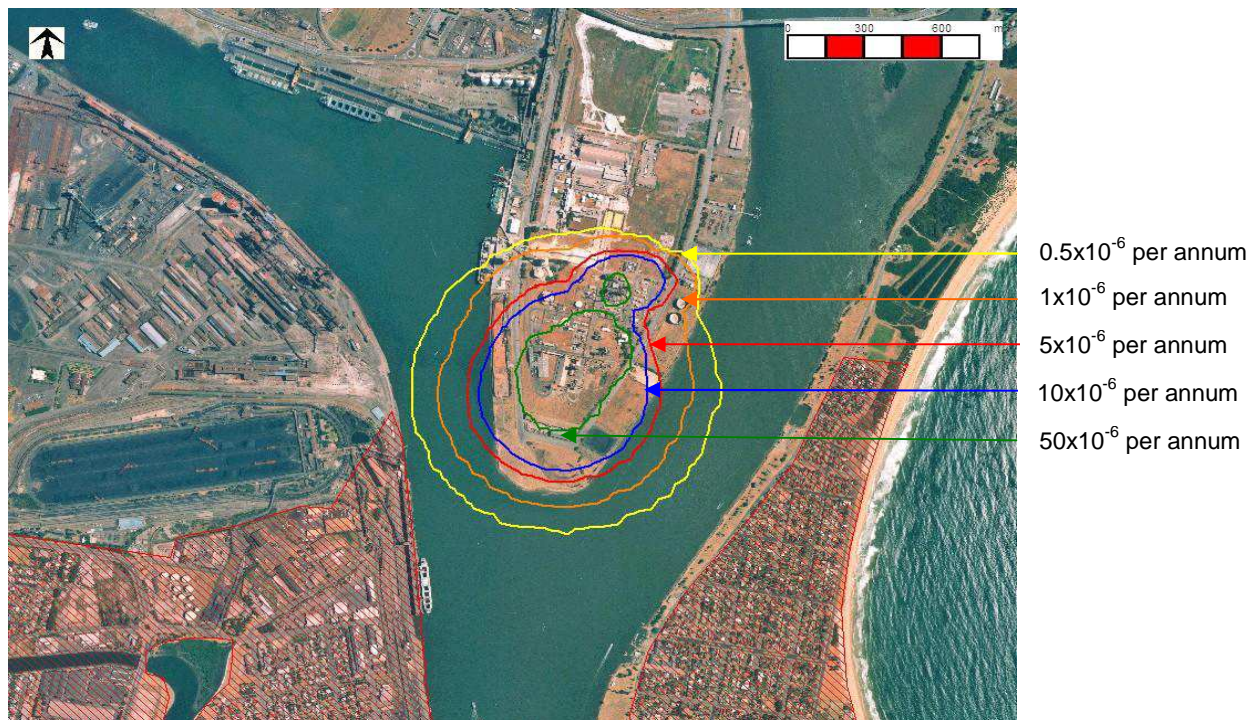


Figure 10: Individual Fatality Risk Contours – Overall Site

The PHA also considered the risk of an accident as a result of the project, triggering an accident at a neighbouring property – the so called ‘domino’ effect. This is known as the overpressure damage and propagation risk.

Figure 11 demonstrates that the overpressure damage and propagation risk *to other potentially hazardous installations* extends south of Orica’s site boundary, and therefore slightly exceeds the recommended criteria.



Figure 11: Overpressure Damage and Propagation Risk Contour – Project

No potentially hazardous installation is located within this area and therefore this criterion is currently met. However, to ensure that the project does not limit the future use of the adjacent land, the Department recommends that a Risk Reduction Program be implemented within 12 months of operation of the expanded facility.

Based on the information provided in the EA and after implementation of the risk reduction measures and the recommendations of the PHA and QRA, the Department is satisfied that the project would contribute to further reduction of the risk in the vicinity of the Orica site.

Following finalisation of the design and prior to operation of the project, the Department recommends that Orica submit a Final Hazard Analysis (FHA) to confirm the findings of the PHA. Operations cannot commence prior to approval of the FHA by the Director-General. The Department considers that these measures would ensure hazards and risks are continually monitored and managed to acceptable levels.

4.2 Noise

A noise impact assessment (NIA) was carried out as part of the EA to establish existing noise levels and to predict noise impacts from the project on the nearest sensitive residential receivers at Stockton, located 800m to the east of the site. Industrial premises are located immediately adjacent to the Orica site to the north, south and west and vacant land is located directly to the east. The NIA was carried out in accordance with the DECCW's Industrial Noise Policy (INP), in consultation with both the Department and DECCW.

Existing facility

The existing facility operates 24 hours a day, 7 days a week and generates noise from the operation of compressors, pumps, fans, gas flow through high pressure pipe work and venting.

The Independent Hearing and Assessment Panel (IHAP) for the Newcastle Coal Loader in 2007 found that the long term noise goal for the Stockton area should be the 'suburban' criteria, as defined in the INP. The existing noise levels at Stockton routinely exceed the suburban criteria as a result of cumulative noise from industry on Kooragang Island. The IHAP identified that noise reductions should be sought over the long-term to improve the amenity for residents.

As operations on the Orica site are undertaken 24 hours a day, it is the night time amenity criterion which is the most important to manage. The NIA found that existing noise levels at the monitoring sites on the western edge of Stockton exceed the INP goals at night-time with noise ranging from 53 to 57 $L_{Aeq}dB(A)$ during night time periods.

Orica's existing Environment Protection Licence (EPL) has a Pollution Reduction Program (PRP) for noise reduction. It should be noted that noise reductions are also being sought from various other industrial developments on Kooragang Island. The PRP is on-going and Orica are in the process of identifying key noise sources from the existing facility and identifying control options to minimise noise from these sources. The Department notes that no submissions were received from Stockton residents in relation to noise, but nevertheless, ongoing implementation of the PRP aims to achieve noise reductions from the existing facilities in-line with the long-term noise objectives for Stockton.

Proposed Project

The noise impact assessment identified the primary noise sources associated with the project as:

- a new compressor within the Ammonia Plant. The compressor would be housed within a purpose built building to contain noise with noise controls installed to minimise noise during start-up and shut-down;
- a new Nitric Acid Plant including a series of compressors housed in an acoustic enclosure and noise from gas flow in high pressure pipe work;
- a new Ammonium Nitrate Plant including new Prill Tower, drying and cooling equipment. The primary noise sources include scrubber fans, motors and conveyors; and
- additional cooling towers.

Given that the existing noise environment for the residents of Stockton exceeds the recommended criteria by more than 2 dBA, the INP requires that any additional operations must achieve a noise level of at least 10dB(A) below the existing noise level. This would ensure no discernible increase in noise levels at the nearest receivers.

The Department considers that an appropriate methodology was employed to both collect data and assess the operational noise impacts of the project.

The NIA predicted that the project would generally achieve noise levels at least 10 dB(A) below existing noise levels, but would only be able to achieve a level of 9 dB(A) under certain adverse weather conditions. These meteorological conditions are expected to occur infrequently; and the slightly elevated noise levels from the site are unlikely to result in a perceptible change to the noise levels at Stockton.

The Department has discussed this issued with DECCW in detail. Both DECCW and the Department are satisfied that the project is unlikely to increase noise levels at Stockton.

Monitoring and compliance

Over recent years there has been a considerable amount of noise data collected showing high noise levels in Stockton. The Department considers that there is a high potential for error associated with the data collected because although the data generally contains industrial noise, it may also contain a significant contribution of extraneous noise. There are also known weather conditions which can significantly affect the noise levels recorded at Stockton.

The Department therefore recommends that the monitoring sites in Stockton be retained and further monitoring sites on Kooragang Island be established to reduce the margin for error for compliance monitoring. Both DECCW and Orica have agreed that this would allow for a more accurate assessment of noise levels from the existing operations. This option does however require that appropriate sites be identified on Kooragang Island and that additional data be collected which represents all seasons and weather conditions to allow compliance measurements to be made.

The Department has therefore recommended detailed conditions for noise that require Orica to develop a noise verification program to confirm the noise levels from the existing operations, and a noise management plan to demonstrate the ability of the project to operate without any increase in noise at Stockton residences. The noise management plan is required to have a detailed monitoring program for reporting on ongoing compliance. The first compliance audit should be undertaken within six months of the commencement of operations, and include verification of the predictions within the EA. The plan shall be updated annually, and, if necessary, the plan shall identify additional measures that may be required to minimise noise from the project.

The Department is satisfied that the recommended conditions will ensure that existing noise levels at Stockton would not increase as a result of the project.

Construction Noise

Construction activities would take place over a period of 2-3 years and would involve typical works such as civil excavation, foundation piling, concrete work, welding, grinding and mechanical lifting. Orica propose to carry out construction activities from 7am to 5pm Monday to Saturday.

The noise impact assessment concluded that construction activities would not exceed the relevant construction noise goals.

The Department recommends limiting construction works to the hours stipulated by the DECCW's Interim Construction Noise Guideline (July 2009), with the exception of allowing works that are inaudible at residences to be undertaken outside of the proposed hours. This would effectively enable Orica to carry out construction works during the hours proposed, whilst also maintaining the amenity at nearby residential premises.

Road Traffic Noise

An assessment of road traffic noise was undertaken to both establish existing road traffic noise levels and to predict noise impacts on the residential receivers due to the proposal. When compared to the existing daily traffic volumes at the Stockton Bridge of over 20 000 vehicles per day, the Department is satisfied that the additional 222 vehicles per day would not result in any perceptible increase of road traffic noise.

4.3 Greenhouse Gas Emissions

A greenhouse gas assessment was undertaken as part of the EA. The assessment quantified the Scope 1, 2 and 3 (direct and indirect) emissions from the existing operations and project, calculated in accordance with the *National Greenhouse Accounts (NGA) Factors* (Department of Climate Change, 2008).

The primary emissions from the project include nitrous oxide (N₂O) and carbon dioxide (CO₂) from process reactions and burning of fuels during the production of ammonia and nitric acid and through the use of electrical energy. The N₂O emissions are the most significant given the global warming potential of N₂O being 310 times that of CO₂. A summary of estimated emissions from the project are shown in Table 3.

Table 3: Annual Greenhouse Gas Emissions from the Project (tonnes of carbon dioxide equivalent t/CO₂-e)

Sources	Existing Plant	Overall site (without N ₂ O abatement)	Overall site (with N ₂ O abatement)
CO ₂ from on-site electricity use	95,699	88,155	88,155
CO ₂ from on-site natural gas use	596,371	729,924	720,924
N ₂ O from Nitric Acid Production	1,000,141	1,556,717	544,851
Emissions due to transportation of Orica's product (vehicles, trains, shipping)	10,481	17,581	17,581
Total emissions	1,702,692	2,392,377	1,371,511

With the proposed expansion, total N₂O emissions from the site would increase by 56%.

Given the global warming potential of N₂O emissions and the significant increase associated with the expansion, Orica proposes to implement abatement technology on the new Nitric Acid Plant (NAP4) and on the three existing Nitric Acid Plants. The proposed N₂O abatement on the new NAP4 involves air filtration and temperature controls to maximise the efficiency of the catalyst and minimise the risk of reduced conversion efficiency and formation of N₂O. The technology proposed would destroy at least 65% of the N₂O produced in the process. Similar technology is being investigated for the existing NAPs and Orica is committed to implementing N₂O abatement on the existing NAPs to meet the federal government's emission reduction targets and the Carbon Pollution Reduction Scheme (CPRS) due to be enacted on 1 July 2011.

The project would result in a net reduction of greenhouse gas emissions largely through the implementation of N₂O abatement technology on the existing and proposed NAP plants (as demonstrated in Table 2), and also through other energy efficiency measures such as modifications to the existing ammonia plant.

Overall, these measures would reduce greenhouse gas emissions by 20% (comparing the expanded plant with the existing plant).

To consider the impacts associated with the greenhouse gas emissions from the overall site, they must be reviewed in the context of annual Australian emissions. Total emissions of 1.4 million t/CO₂-e per year represent:

- 0.25% of Australia's total emissions of 553 million t/CO₂-e per year (in 2008) and would be insignificant in the global context;
- 0.9% of NSW's total emissions of 151.6 million t/CO₂-e per year (in 2007); and
- 4.9% of Australia's emissions from industrial processes of 28.4 million t/CO₂-e per year.

While the Department considers the direct emissions of the Project and overall site to be minor both in the NSW, national and global context, it considers that Orica should be required to implement all reasonable and feasible measures to minimise these emissions as outlined in the EA, including N₂O abatement technology for the existing nitric acid plants and the new nitric acid plant. Council recommended that the timeframe for implementation of the technology be clarified within the EPL and project approval.

The Department recommends that Orica implement the emissions abatement technology for the new NAP4 plant prior to the commencement of operations of the project. Further, within 6 months of the

commencement of operations of NAP4, the Proponent shall ensure implementation of the N₂O abatement technology on the three existing Nitric Acid Plants (NAP1, 2 and 3).

Council recommended that Scope 3 indirect emissions from consumption of AN within the mining industry (the predominant consumer of AN) should be included in the greenhouse gas assessment for the project, including emissions resulting from coal extraction and consumption.

Although the indirect emissions of the project, generated by the downstream use of the ammonium nitrate (i.e extraction and subsequent burning of coal), would be much greater than the direct emissions of the project, the Department does not consider it to be reasonable or desirable to require Orica to offset or try to minimise these emissions, principally because:

- these emissions are the Scope 1 and 2 emissions of other industries/activities, and should be considered in the assessment of these industries/activities rather than Orica's activities;
- Orica, as a supplier and distributor of ammonium nitrate, has limited power to influence the generation of these downstream emissions; and
- these emissions should be regulated by means of economic instruments such as a national carbon trading scheme rather than through the conditions of approval for individual projects.

Furthermore, the project would result in a net reduction (20%) of greenhouse gas emissions compared to the existing facility. This is in line with the Federal Government's medium-term target range to reduce Australia's greenhouse gas emissions by between 5 and 15 per cent below 2000 levels by 2020.

Finally, Orica has been implementing an Energy Savings Action Plan (ESAP) and provides annual reports to the DECCW on their progress with the most recent report provided in March 2009. The ESAP, however, will be replaced by the National Greenhouse and Energy Reporting System which will form the basis for the federal Carbon Pollution Reduction Scheme (CPRS). The CPRS will be the main driver to achieve Australia's emissions reduction targets when it commences on 1 July 2011.

The Department is satisfied that the greenhouse gas impacts of the project will be appropriately monitored and managed via the ESAP and the future National Greenhouse and Energy Reporting System, and that appropriate steps are being taken to minimise greenhouse gas emissions from the site.

4.4 Air Quality

Background air quality in the Newcastle area is dominated by motor vehicle emissions and emissions from major industries at Kooragang Island, Mayfield and Tomago. Significant heavy industry that would contribute to air emissions in the area include coal transportation, woodchip and grain loading facilities, aluminium smelting, steel manufacturing, seed processing, a coal tar facility and fertiliser storage and dispatch.

The EA provided background air emissions data from monitoring stations located at Stockton, 800m from the Orica site. A summary of data from the 2006-2008 period indicated that total suspended particulates (TSP), particulate matter less than 10 microns in diameter (PM₁₀) and nitrogen dioxide (NO₂) meet the DECC air quality impact assessment criteria.

Primary emissions from Orica's existing operations include PM₁₀ from the Prill Tower on Ammonium Nitrate Plant No. 1 and oxides of nitrogen (NO_x) emissions from the existing Nitric Acid Plants (NAP1, 2 and 3). The EA identified the likely emissions from the expansion project as:

- NO_x from the new nitric acid plant (NAP4) and new gas fired boiler; and
- TSP, PM₁₀ and Ammonia (NH₃) from the new ammonium nitrate plant (AN3) including a new prill tower.

The EA included dispersion modelling to predict air emissions from the project (which include similar emissions to the existing operations). The modelling assumed worst-case emissions and incorporated a number of factors to ensure a conservative assessment.

The assessment concluded that the DECCW air quality impact assessment criteria for NO_2 , TSP, PM_{10} and NH_3 would be met for the expanded facility. The primary emissions from the Project, being NO_x , would be at a maximum cumulative concentration of $141\text{ug}/\text{m}^3$ at sensitive receptors and would easily meet the DECC criteria of $246\text{ug}/\text{m}^3$.

The assessment indicated that cumulative PM_{10} (24 hour average) concentrations would be close to the DECCW criteria of $50\text{ug}/\text{m}^3$ at some locations, with a maximum of $49.8\text{ug}/\text{m}^3$ predicted, as illustrated by Figure 12. However, the maximum concentrations would occur at isolated locations, with the majority of Stockton predicted to be at $40\text{ug}/\text{m}^3$, which is similar to the existing facility, see Figure 12. It should also be noted that the assessment determined the contribution to PM_{10} levels from the expanded facility to be $24.5\text{ug}/\text{m}^3$, well below the DECCW criteria of $50\text{ug}/\text{m}^3$.



Figure 12: Cumulative PM_{10} (24 Hour average) Existing Facility (left) and overall site (right)

The assessment also considered odorous emissions from the facility by considering emissions of ammonia (NH_3) and concluded that emissions would easily meet the DECC criteria at identified sensitive receivers, therefore odour impacts are unlikely to occur.

A number of design measures would be incorporated into the new plant, aimed at minimising emissions and ensuring compliance with air quality criteria. These measures include:

- absorption columns in the new NAP4 to reduce NO_x ;
- catalytic reduction from the NAP4 stack to reduce NO_x ;
- air scrubbing and recirculation technology in the new Prill Tower as part of the new Ammonium Nitrate Plant (ANP3) to minimise particulates, including PM_{10} ;
- a refrigeration purge gas scrubber to be installed in the existing Ammonia Plant to reduce NO_x ;
- scrubbers on the new NAP4 and ANP3 to remove ammonia.

As compliance with air quality criteria is likely to be dependent on the installation of these design measures, the Department has recommended as conditions that these design measures are implemented prior to operation of the expanded facility. The Department also recommends that an air quality verification study be conducted within 12 months of commencing operation of the expanded plant to verify that actual emissions are meeting relevant criteria and to verify the effectiveness of the implemented emission controls.

The DECCW in its submission raised no issues with the assessment and indicated that the existing EPL could be varied. DECCW provided recommended conditions of approval including detailed monitoring requirements. These requirements are reflected in the Department's recommended conditions of approval which require monitoring in accordance with the EPL.

Newcastle Council recommended that a timeframe be incorporated into the recommended conditions and/or Environment Protection Licence for installation of air scrubbing technology on the Prill Tower to reduce particulate emissions. The Department requires via the recommended conditions that this, and other identified air emission control measures, be implemented prior to commencement of operation of

the expanded facility. Orica has indicated that they are investigating options to reduce PM₁₀ emissions from the existing Prill Tower on Ammonium Nitrate Plant No. 1 (ANP1). The Department requires Orica to report on the progress of investigations to reduce particulates from this source. As the existing facility meets air quality criteria and the expanded facility is predicted to present no discernible increase in emissions, the Department does not believe it necessary to require Orica to implement emission controls on the existing ANP1 Prill Tower at this stage. However, should the air quality verification study or routine monitoring indicate that emissions are exceeding the relevant criteria, the Department may request that Orica implement all reasonable and feasible measures to minimise emissions.

The Department is satisfied that air emissions from the expanded facility would be adequately managed to meet relevant criteria and avoid detrimental impacts on the surrounding community.

4.5 Other Issues

Table 3: Other assessment issues

Issue	Key Impacts	Recommendation
Water use	<ul style="list-style-type: none"> The proposed expansion would increase water demand (currently supplied by Hunter Water) from 9.6 ML per day to 15 ML's per day. This Projected demand would equate to approximately 7.5% of all water supplied to the Hunter region on a daily basis (200 ML); The EA notes that Hunter Water is currently investigating the supply of recycled water to Kooragang Island; Orica has committed in the EA to further investigating the re-use of process water on-site; and Council has recommended that Orica should be required to prepare a comprehensive water management plan for the proposal to identify ways in which process water can be recycled. 	<ul style="list-style-type: none"> The Department has recommended conditions that require Orica to prepare and implement a Water Efficiency Program for the overall site (existing operations and the Project). The Water Efficiency Program should include a report on the progress of investigations to receive recycled water from the Hunter Water Scheme.
Traffic, access and parking	<ul style="list-style-type: none"> While the project may use shipping and rail for product dispatch, a worse case traffic scenario was considered in the traffic impact assessment where all material would be transported by road; The project would result in 48 additional car movements per day, making a total of 266 per day from the site and 63 additional truck movements per day, making a total of 196 truck movements per day; Increased traffic movements from both construction and operation would have little, if any impact on the surrounding road network; Two new site access points would be constructed, an entry point from Greenleaf Road and an exit point onto Heron Road. The existing operations access on Greenleaf Road would also be retained for light vehicles; There are currently 150 car parking spaces on site; The proposed expansion would increase employee numbers from 210 to 250 on site at any one time; The Newcastle Development Control Plan for Car Parking requires 1 space per 2 employees, thereby requiring 125 spaces for the expanded facility; Whilst the existing car park provision on site complies with the DCP, Newcastle Port Corporation raised concerns regarding parking on Greenleaf Road by Orica employees; Therefore, Orica has committed to providing an additional 40 car parking spaces on site to cater for additional demand; and The Department is satisfied that there would be minimal impacts on the road network. 	<ul style="list-style-type: none"> The Department requires that the new site access points and additional car parking be designed and installed in accordance with relevant Australian Standards. The Department has recommended a condition that requires Orica to ensure that project vehicles do not impede traffic flow on Greenleaf Road and Heron Road.

Contamination	<ul style="list-style-type: none"> • The existing operations is subject to a Voluntary Remediation Agreement for arsenic and ammonia contamination in soil and groundwater. On-going remediation activities would not be affected by the proposed Project; • Works associated with the Project would not be undertaken in areas of <i>identified</i> contamination; • The site contains potential acid sulphate soils (PASS) in the natural underlying soils. There is potential to disturb ASS during excavation of foundations. 	<ul style="list-style-type: none"> • The Department has recommended conditions that require Orica to provide a detailed site plan showing the location of known soil and groundwater contamination areas in order to clearly demonstrate that construction activities would not impact on these areas. • If construction activities are likely to impact on known contamination areas, the Department recommends that Orica prepare a Remedial Action Plan (RAP), or update the existing RAP to manage contaminated material. • The Department recommends the preparation of an Acid Sulphate Soil Management Plan prior to construction.
Stormwater and effluent management	<p>Stormwater</p> <ul style="list-style-type: none"> • The existing stormwater management system involves first-flush capture of stormwater during rainfall events, testing and subsequent discharge to the Hunter River or transfer to the site effluent system; • Some additional stormwater infrastructure will be required within the southern part of the site to capture stormwater generated from additional impervious areas; • NPC indicated that they are the owner of stormwater infrastructure in the vicinity of the site and Orica would need to obtain consent from NPC to connect to this system. <p>Effluent</p> <ul style="list-style-type: none"> • Approximately 2 ML per day of effluent is discharged from existing operations to the Hunter River. Discharge quantity and quality is regulated by the existing EPL, with approval to discharge up to 4.5ML/day of effluent; • Three effluent ponds on site hold effluent that does not meet discharge requirements. Water from these ponds is treated; • Effluent from the expanded facility will be in the order of 841kL/day and will be managed in accordance with the existing system and EPL limits; 	<p>The Department has recommended conditions that require Orica to:</p> <ul style="list-style-type: none"> • obtain approval from NPC to connect to the stormwater management system outside of the site. • ensure that the Project meets existing EPL limits for stormwater and effluent discharge to the Hunter River.
Visual	<ul style="list-style-type: none"> • Existing stacks and columns on site range from 48 to 84m. • The proposed infrastructure includes 3 main stacks with a maximum height of 65 metres. These stacks and the associated air emissions would be visible from Stockton; • The Department considers that the Project would intensify the industrial appearance of the southern end of Kooragang Island from Stockton; however it would be consistent with the industrial character of the area, which includes other industry, heavy vehicles and freight ships on the Hunter River between Stockton and Kooragang Island; 	<ul style="list-style-type: none"> • The Department is satisfied that there would be minimal visual impacts from the development on Stockton residents. • The Department recommends that Orica investigate options for screening the site from Stockton using endemic vegetation, without compromising the security

	<ul style="list-style-type: none"> • Council raised concerns that the visual impact assessment in the EA relies on the 'existing industrial landscape as a basis of acceptance'. • The industrial landscape is intensified as a result of the project; however, the Department considers that the proposal would not result in a significant loss of visual amenity from Stockton. • Notwithstanding, the Department considers that the planting native vegetation to partially screen the site would improve the view of the site from Stockton. Orica has committed to investigating the planting of vegetation along the site boundary adjacent to Greenleaf Road. 	<p>of the site.</p> <ul style="list-style-type: none"> • The Department recommends that any new lighting on site is installed in accordance with <i>Australian Standards</i>, and that it is mounted/directed so that it does cause nuisance to surrounding properties or the public road network.
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5. RECOMMENDED CONDITIONS

The Department has prepared recommended conditions of approval for the project (see Appendix B) and summarised these conditions in Appendix A. These conditions are required to:

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

Orica has reviewed and accepts the recommended conditions.

6. CONCLUSION

The Department has assessed the merits of the project in accordance with the requirements of the EP&A Act & Regulation.

This assessment has identified the key issues to be: hazards and risk, noise, greenhouse gas and air quality. Other minor issues include water use, traffic, contamination, stormwater, visual impact, rail use and waste.

The Department has assessed these concerns in detail, having regard to the objects of the EP&A Act, and the principles of ecologically sustainable development, and is satisfied that the project would not lead to any unacceptable environmental impacts.

The hazards and risks associated with the project would be adequately managed through design; hazard-related studies prior to construction, commissioning and during operation; and routine monitoring and auditing. Additionally, a hazard reduction program may be required if the Final Hazard Analysis reveals that the future use of adjacent industrial land is limited.

A number of design measures would be incorporated into the new plant, aimed at minimising air emissions such as NO_x and PM₁₀ and ensuring compliance with air quality criteria. A Noise Management Plan would ensure no discernible increase in noise levels at the nearest receivers at Stockton.

The Department is satisfied that despite the increase in production at the site, the environmental impacts of the project can be suitably managed to ensure an acceptable level of environmental performance. In addition, the Department considers that the recommended conditions provide a rigorous framework to ensure that appropriate environmental management and protection occurs at the site.

Overall, the Department believes that the project has been adequately justified on economic, social and environmental grounds; and is in the public interest.

Consequently, it believes the project should be approved subject to conditions.

7. RECOMMENDATION

It is RECOMMENDED that the Minister:

- consider the findings and recommendations of this report;
- approve the Project application, subject to conditions, under section 75J of the Environmental Planning and Assessment Act 1979; and
- sign the attached Project approval (see Appendix B).

Signed 19/11/09

David Kitto
Director

Signed 23/11/09

Richard Pearson
Deputy Director-General

Signed 25/11/09

Sam Haddad
Director-General

APPENDIX A: SUMMARY OF CONDITIONS OF APPROVAL

[illegible]

APPENDIX B: CONDITIONS OF APPROVAL

APPENDIX C: CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS

Section 75(2) of the EP&A Act requires that reference be made to the provisions of any environmental planning instrument that would (but for Part 3A of the Act) substantially govern the carrying out of the project. Consideration of the proposed development in the context of the objectives and provisions of the relevant environmental planning instruments is provided below.

State Environmental Planning Policy (Infrastructure) 2007

SEPP (Infrastructure) 2007 aims to ensure the RTA is made aware of and allowed to comment on projects for developments listed in Schedule 3 of the SEPP. Schedule 3 identifies development including industry with a site area of more than 20,000m², or any purpose with a capacity of 200 or more motor vehicles. The project therefore triggers the Infrastructure SEPP. The project was referred to the RTA for comment in accordance with the Infrastructure SEPP.

State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

SEPP 33 applies to the facility as a potentially hazardous industry. SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and/ or offence (odour, noise etc). A development is defined as potentially hazardous and/ or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/ or offence impact, on off-site receptors.

The existing and proposed facilities are both a “potentially hazardous industry” as defined under the provisions of SEPP 33 and therefore a Preliminary Hazard Analysis (PHA) was prepared to assess the risk to people, property and the environment. In preparing the PHA, Orica has been required to estimate both risks from the proposed Project and from the overall site (the cumulative risk).

The PHA includes a full Quantitative Risk Assessment (QRA) prepared in accordance with the guidance documents issued by the Department. The analysis indicated that the project would comply with the relevant guidelines for hazard and risk. The Department is satisfied with this analysis.

State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 applies to the existing operations due to the presence of contaminated soil. SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application. A contaminated site assessment was not undertaken as part of the assessment as Orica were reasonably sure that no areas of known contamination would be impacted by the Project. The Department has however, required further analysis of contaminated soil in the construction zone in the conditions of approval to identify any further areas for remediation. The Department is satisfied with the consideration of SEPP 55 in the EA.

State Environmental Planning Policy No. 71 – Coastal Protection

SEPP 71 applies to the site. SEPP 71 aims to protect and manage the NSW coast through improving public access, protecting Aboriginal cultural heritage, protecting visual amenity and coastal habitats and managing the scale, bulk and height of development along the coast. The Department is satisfied that the development is generally consistent with the objectives of SEPP 71.

Hunter Regional Environmental Plan

Hunter Regional Environmental Plan (REP) applies to the site. Specifically Part 7 (Division 1 and 4) requires air, noise and water pollution to be minimised; and buildings over 14m in height to be considered in the context of local impact and regional significance. The highest structure on the site is 84 metres. The EA has adequately assessed the project against the provisions of the REP. The Department is satisfied that the project is consistent with the objectives of the REP.

Newcastle Local Environmental Plan 2003

Newcastle Local Environmental Plan 2003 (LEP) provides development controls for development in the Newcastle local government area. The proposed facility is located in land zoned 4(b) Port and Industry. The objectives of the zone are to accommodate port, industrial, maritime industrial and bulk storage activities that require separation from residential areas. The Department is satisfied that the proposed facility is consistent with the objectives of the zone and with the aims and objectives of the LEP.

APPENDIX D: RESPONSE TO SUBMISSIONS

APPENDIX E: SUBMISSIONS

APPENDIX F: ENVIRONMENTAL ASSESSMENT
