Department of Planning, Industry and Environment
Via: Major Projects Portal and shaun.williams@planning.nsw.gov.au

Attention: Mr Shaun Williams

Notice Number	1609993
Date	24-Jun-2021

Orica Kooragang Island - Ammonia Storage Improvement Project (Mod 6, Project Approval 08-0129) - Proposed new ammonia storage tank

Reference is made to your request for the Environment Protection Authority's (EPA) advice in regard to the above proposal received by EPA on 3 June 2021.

The EPA understands the proposal is to construct and commission: a new tank to store 30,000 tonnes of ammonia; ancillary services; an upgraded ammonia storage flare; and upgraded ammonia import/export infrastructure. The proposal by Orica Australia Limited, is in addition to an existing 12,000 tonne ammonia storage tank on the site at 15 Greenleaf Road Kooragang. No increase in production capacity is proposed.

The EPA has considered the details of the proposal as provided by the applicant and has identified in Attachment A the information it requires to properly assess the proposal. In summary, the EPA's key information requirements for the proposal include an adequate assessment of:

- risks and hazards; and
- appropriate storage and handling of ammonia under Australian Standard 2022.

The EPA has concerns that the proposal does not adequately scope the risks of leaks, spills, or a catastrophic failure associated with the proposed ammonia storage tank, which may result in a release of toxic ammonia gas, not simply odour. The proponent should also include assessment of risk of an incident involving the proposed tank as a consequence of other potential incidents on the Premises e.g. related to manufacture and storage of ammonium nitrate, fire or explosion.

Based on the information presented to date, the EPA's view does not align with the proponent's determination that the proposal presents a "medium" risk rating for "Hazards and Risks" and "Air Quality". The assessment of "consequence" and "likelihood of adverse impact" may be understated. The proponent should include adequate assessment of the proposal against Planning's Hazardous Industry Planning Advice Paper 4 (HIPAP 4) and State Environmental Planning Policy 33 (SEPP 33).

The applicant should include consideration of both onsite and offsite environmental and human health impacts of all levels of potential incidents associated with the proposal. The proponent is advised to carefully consider risk posed by the proposal and acceptability of the risk in the justification for the additional ammonia storage tank.

In carrying out the assessment, the proponent should refer to the relevant guidelines as listed in Attachment B and any relevant industry codes of practice and best practice management guidelines.

The Proponent should be made aware that any commitments made in the Environmental Assessment may be formalised as approval conditions and may also be included as formal environment protection licence conditions.

Yours sincerely

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Peter Jamieson

Head Regional Operations Unit

Environment Protection Authority

(by Delegation)

ATTACHMENT A: EIS REQUIREMENTS FOR

Orica Kooragang Island - Ammonia Storage Improvement (Mod 6 DA 08-129)

How to use these requirements

The EPA requirements have been structured in accordance with EIS Guidelines, as follows. It is suggested that the EIS follow the same structure:

A. Executive summary

B. The proposal

C. The location

D. Identification and prioritisation of issues

E. The environmental issues

F. List of approvals and licences

G. Compilation of mitigation measures

H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

The proposal should be clearly described and refer to:

a) the size and type of the modification to site, objectives and nature of the processes and the products, by-products and wastes produced;

b) the anticipated level of performance in meeting required environmental standards and cleaner production principles;

c) the staging and timing of the proposal, interaction with existing plant and infrastructure, and any plans for future expansion;

d) the proposal's relationship to any other industry, facility and the community;

e) the staging and timing of the proposal, including any construction works and the proposed construction and operational hours, including and heavy vehicle movements;

f) assessment and acceptability of any environmental risks or uncertainties;

g) reliability of proposed environmental impact mitigation measures;

h) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points;

i) Identify sources or potential sources of air emissions from the proposal and mitigation controls; and

j) assessment and acceptability of any environmental risks and hazards of the proposal; and

k) assessment of alternatives and justification of the proposal.

C The location

Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:

a) the location of the proposed facility, its layout, including plant and equipment, and details of the surrounding environment, including land use zoning with appropriate maps/diagrams;
b) meteorological data (e.g. rainfall, temperature and evaporation, wind speed and direction);
c) surrounding land uses (potential synergies and conflicts);
d) ecological information (water system habitat, vegetation, fauna);
e) provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
  a) relevant NSW government guidelines
  b) industry guidelines
  c) EISs for similar projects
  d) relevant research and reference material
  e) relevant preliminary studies or reports for the proposal
  f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
  a) all issues identified including local, regional and global impacts (e.g. increased/ decreased greenhouse emissions)
  b) key issues which will require a full analysis (including comprehensive baseline assessment)
  c) issues not needing full analysis though they may be addressed in the mitigation strategy
  d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.
- The applicant should consider environmental issues for the full scope of the proposal, both on the production site, and off site where ancillary infrastructure and operations are conducted (e.g. shiploading and unloading pipework).

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts e.g. assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a ‘reasonable level of performance’ to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A ‘reasonable level of performance’ involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.

- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented.

2. Chemicals and hazardous materials

The applicant must out:

a) assess the proposal's risks and compliance with the requirements of AS/NZS 2022:2003, and any other relevant standards for the design, construction and operation of the proposed ammonia tank and associated works;

b) adequately scope the risks of leaks, spills, or a catastrophic failure associated with the proposed ammonia storage tank, which may result in a release of toxic ammonia gas, as well as odour;

c) include assessment of risk of an incident involving the proposed tank as a consequence of other potential incidents on the Premises e.g. related to manufacture and storage of ammonium nitrate, fire or explosion.

d) include adequate assessment of the proposal against relevant planning instruments (Planning's Hazardous Industry Planning Advice Paper 4 (HIPAP 4), and State Environmental Planning Policy 33 (SEPP 33));

e) include consideration of on and offsite environmental and human health impacts of all levels of potential incidents associated with the proposal. The proponent is advised to carefully consider risk posed by the proposal and acceptability of the risk in the justification for the additional ammonia storage tank;

f) demonstrate appropriate management and controls for the infrastructure have been identified and will be implemented to manage risks identified in environmental assessment of the proposal;and

g) provide details regarding the transport, handling, storage and use of dangerous goods, chemicals and products, both on site and with ancillary activities and describe the measures proposed to minimise the potential for leakage or the migration of pollutants into the environment (in particular, air) or from the site;

3. Air

Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data; identify/assess impacts; and describe mitigation measures for the propose additional ammonia storage infrastructure and integration with existing infrastructure and operations.

The applicant should:

a) while emissions are not intended, consider in detail any potential emissions resulting in odour and release of toxic gases, both during construction, commissioning and operation;

b) as noted above under the heading "Chemicals', adequately assess the risks of leaks, spills, or a catastrophic failure associated with the proposed ammonia storage tank;

c) identify and describe the effects and significance of potential emissions on the environment, human health, amenity and regional ambient air quality standards or goals. Include leaks or emissions at the smallest to largest envisaged scale which may be possible as an unintended consequence of commissioning or operation;

d) describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations;

e) outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes; and

f) include details of the scrubbing and flaring systems, including any associated environmental aspects and impacts.

4. Noise and vibration

Describe baseline conditions and identify noise and vibration sources and impacts during construction, commissioning and operation. Propose relevant noise monitoring and mitigation measures appropriate to the impacts identified in accordance with the *NSW Noise Policy for Industry*.

5. Water

Describe existing surface and groundwater quality – an assessment should be undertaken for any water resource likely to be affected by the proposal and for all conditions. No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).

The applicant should:

a) provide site drainage details and surface runoff yield.

b) identify impacts and estimate the quantity of all pollutants that may be introduced into surface or groundwater

c) identify impacts associated with the disturbance of acid sulfate soils, potential acid sulfate soils or existing soil contamination;

d) develop an erosion and sediment control plan for the construction phase;

e) provide details of the proposed bund including to demonstrate it will be compliant with relevant standards and design requirements;

f) consider containment of all other spills and leaks shall be in accordance with EPA's guidelines section 'Bunding and Spill Management'. Containment should be designed for no discharge;

g) Determine appropriate management, controls and mitigation measures of impacts to waters during the construction phase of the proposal.

6. Soils and contamination

Provide description of the existing situation in terms of soil types and properties and soil contamination.

The applicant should identify any likely impacts resulting from the construction (or operation) of the proposal, including the likelihood of:

a) disturbing any existing contaminated soil

b) contamination of soil by operation of the activity

c) subsidence or instability

d) soil erosion

e) disturbing acid sulfate or potential acid sulfate soils.

An unexpected finds protocol should be included in the environmental assessment, particularly for the construction phase (excavation) of the proposal.

Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:

a) erosion and sediment control measures;

b) proposals for site remediation and management of soils (including acid sulphate soils).

7. Waste

The applicant should:

a) Identify all waste types that will be generated as a result of the proposed development during both construction and operation (including upgraded flare and scrubbing system), their classification and the ways in which they will be legally handled, stored, transported, reused, recycled or disposed of;

b) ensure wastes are classified in accordance with the EPA's Waste Classification Guidelines (2014) and, disposed or recycled where appropriate, at facilities which are lawfully able to receive those wastes;

c) include sampling/monitoring, record keeping, waste tracking, contingency measures and any other verification practices, in accordance with relevant guidance/standards; and

d) identify options and strategies for waste minimisation; reuse and recycling across all activities and processes during both construction and operational stages.

8. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.

- Identify infrastructure requirements flowing from the proposal (e.g. water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under EPA licences or approvals (e.g. outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental and human health impacts.
- Particular attention should be given to a thorough assessment of risk presented by the proposal, both in isolation and in combination with other incidents, accidents or catastrophic failure of plant, equipment and materials on site.

ATTACHMENT B: GUIDANCE MATERIAL (not exhaustive)

Title	Web address
Relevant Legislation	
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/#/view/act/1997/140
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/#/view/act/1985/14
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/#/view/act/1979/203
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/#/view/act/1997/156
Protection of the Environment Operations (Clean Air) Regulation 2010	https://legislation.nsw.gov.au/#/view/regulation/2010/428
Protection of the Environment Operations (Waste) Regulation 2014	https://legislation.nsw.gov.au/#/view/regulation/2014/666
Water Management Act 2000	http://www.legislation.nsw.gov.au/#/view/act/2000/92
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2016)	http://www.epa.nsw.gov.au/air/appmethods.htm http://www.epa.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2010	http://www.legislation.nsw.gov.au/#/view/regulation/2010/428
Noise and Vibration	
NSW Noise Policy for Industry	http://www.epa.nsw.gov.au/your-environment/noise/industrial-noise/noise-policy-for-industry-(2017)
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
NSW Road Noise Policy (DECCW, 2011)	http://www.epa.nsw.gov.au/your-environment/noise/transport-noise

NSW Rail Infrastructure Noise Guideline (EPA, 2013)	http://www.epa.nsw.gov.au/your-environment/noise/transport-noise
Human Health Risk Assessment	
Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards (enHealth, 2012)	http://www.eh.org.au/documents/item/916
Waste, Chemicals and Hazardous Materials and Radiation	
Waste	http://www.epa.nsw.gov.au/wastestrategy/warr.htm
Environmental Guidelines: Solid Waste Landfills (EPA, 2016)	http://www.epa.nsw.gov.au/waste/landfill-sites.htm
EPA's Waste Classification Guidelines 2014	http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm
Resource recovery orders and exemptions	http://www.epa.nsw.gov.au/wasteregulation/orders-exemptions.htm
NSW Waste Avoidance and Resource Recovery Strategy 2014-2021	http://www.epa.nsw.gov.au/wastestrategy/warr.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	http://www.environment.nsw.gov.au/acidsulfatesoil/ and http://www.epa.nsw.gov.au/mao/acidsulfatesoils.htm
Acid Sulfate Soils Planning Maps	http://www.environment.nsw.gov.au/acidsulfatesoil/riskmaps.htm
Contaminated Sites Assessment and Remediation	
Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.epa.nsw.gov.au/clm/planning.htm

Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.epa.nsw.gov.au/resources/clm/20110650consultantsglines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.epa.nsw.gov.au/resources/clm/auditorglines06121.pdf
Sampling Design Guidelines (EPA, 1995)	http://www.epa.nsw.gov.au/resources/clm/95059sampgdlne.pdf
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.scew.gov.au/nepms/assessment-site-contamination
Soils – general	
Managing land and soil	http://www.environment.nsw.gov.au/soils/landandsoil.htm
Managing urban stormwater for the protection of soils	http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://australiangeomechanics.org/admin/wp-content/uploads/2010/11/LRM2000-Concepts.pdf http://www.australiangeomechanics.org/resources/downloads/
Site Investigations for Urban Salinity (DLWC, 2002)	http://www.environment.nsw.gov.au/resources/salinity/booklet3siteinvestigationsforurbansalinity.pdf
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html
Applying Goals for Ambient Water Quality Guidance for Operations Officers - Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approved methods-water.pdf