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**ORICA AUSTRALIA PTY LTD.
NOISE MANAGEMENT PLAN**

21.6696.NMP:GA/DT/2021

Prepared for: Orica Australia Pty Ltd
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1. Introduction

Orica's Kooragang Island site is located approximately 3 kilometres north of Newcastle CBD, with the closest residential area in relation to the site being Stockton, approximately 800m to the east of the site, across the North Arm of the Hunter River. Other residential areas are located across the southern arm of the Hunter River, and include Carrington and Mayfield, approximately 1.5 kilometres and 2 kilometres, respectively. The Stockton residential properties were identified as likely to be the most exposed to noise emitted from *Orica*. The *Orica* site currently operates twenty-four (24) hours a day, seven (7) days a week.

The NSW Minister for Planning granted Orica Australia Pty Ltd (*Orica*) approval for the expansion of the ammonium nitrate manufacturing site located on Kooragang Island 1 December 2009 (08_0129) (*the Approval*). The expansion (*the Project*) involves

- The construction and operation of a fourth nitric acid plant (NAP 4) and ammonium nitrate solution plant;
- The construction and operation of an ammonium nitrate prilling plant (ANP3);
- An uprate to the existing Ammonia Plant; and
- An uprate to existing infrastructure including onsite storage, cooling towers, a gas fired boiler, a compressor and electrical systems.

Subsequent modifications to 08_0129 have also been approved for:

- Amendments to the layout of the Site, approved in July 2012; (MOD1)
- Changes to the size and location of the proposed nitric acid storage tank and the addition of ammonia flares, approved in December 2014 (MOD2);
- Administrative modification to increase the allowable annual production limit of ammonia at the site from 360,000t to 385,000t (MOD3), approved in December 2015; and
- Replacement of the existing Nitrates Effluent Pond with an above ground bunded tank (MOD4)

It should be noted that NAP4 and ANP3 have not been constructed

The Department of Planning, Industry and Environment (*Department*) in assessing the merits of the proposal, determined that noise generated through the inclusion of additional operating plants and infrastructure, should not increase the noise impacts from the existing operations. To ensure no discernible increase in noise levels at the Stockton residential receivers from *Orica*, the *Department* concluded that any additional noise emitted from *the Project* must achieve a noise contribution at least 10dBA below current noise levels. To support this condition a noise verification program was implemented to determine baseline noise levels and to establish appropriate noise monitoring points. Noise data obtained during the noise verification process was to provide the basis for the Noise Management Plan, as required under *Orica's* Development Consent. This plan was to be developed prior to the commencement of operations.

1.1. The Site

Currently Orica's Kooragang Island site manufactures ammonia, nitric acid, and ammonium nitrate in both solution and solid forms. The existing facilities include an ammonia plant, three nitric acid plants (NAP 1, 2 and 3), two ammonium nitrate plants (AN 1 and 2). The site also includes storage and infrastructure services, including compressed air, demineralised water system, steam and cooling water and a liquid ammonia bottling plant.

The Project includes;

- the construction and operation of a fourth nitric acid plant (NAP 4) and ammonium nitrate solution plant;
- the construction and operation of an ammonium nitrate prilling plant (ANP3);
- An uprate to the existing Ammonia Plant; and
- An uprate to existing infrastructure including onsite storage, cooling towers, a gas fired boiler, a compressor and electrical systems.

Subsequent modifications to 08_0129 have also been approved for:

- Amendments to the layout of the Site, approved in July 2012; (MOD1)
- Changes to the size and location of the proposed nitric acid storage tank and the addition of ammonia flares, approved in December 2014 (MOD2);
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- Replacement of the existing Nitrates Effluent Pond with an above ground bunded tank (MOD4)

The project is being carried out in multiple phases. The construction, commissioning, and operation also follow this phased approach as outlined in Appendix A.

2. Noise Verification and the Noise Management Plan

In 2008, Orica undertook a program to assess noise emissions from the Kooragang Island facility. This program involved both onsite and ambient monitoring, and the development of a noise model to predict Orica’s contribution to ambient noise levels. Prior to the completion of the site expansion project additional monitoring was undertaken to assist in the determination of the following:

- Confirm the noise emissions from the facility prior to the operation of the first stage of the expansion project;
- Assess the impact of seasonal meteorological conditions on ambient noise levels at local receptors; and
- Establish noise monitoring reference points to act as a baseline for comparison in future compliance monitoring.

The program was undertaken in accordance with the requirements of Orica’s Development Condition 30-32 as detailed in *Table 1*.

Table 1. Development Consent Noise Conditions of Approval

| |
|--|
| <p>Condition 30:</p> <p>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.</p> |
| <p>Condition 31:</p> <p>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:</p> <ul style="list-style-type: none"> (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. <p>3. Note: <i>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 the Director-General.</i></p> |
| <p>Condition 32:</p> <p>Prior to the commencement of operations of the Project, the Proponent shall prepare and implement a Noise Management Plan in consultation with DECCW and to the satisfaction of the Director-General. The Plan shall:</p> <ul style="list-style-type: none"> (c) include a detailed monitoring program for reporting on ongoing compliance. The monitoring program shall: <ul style="list-style-type: none"> • 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; |

This *NMP* addresses requirements as detailed in Condition 32 of Orica's Development Consent in regards to how noise associated with *the Project* will be managed. The *NMP* includes:

- An overview of *the Project* and its phasing;
- Project noise assessment criteria;
- Identification of sensitive noise receptors and assessment monitoring locations;
- Measured and predicted noise levels from existing operations;
- Predicted noise contributions from this phase of *the Project*;
- Compliance monitoring and reporting procedures; and
- Response procedures to address reported noise incidents.

The objectives of the *NMP* are to:

- To minimise and control noise from *the Project*;
- Satisfy relevant noise conditions;
- Maintain an effective monitoring program to minimise noise exposure for residents;
- Maintain an effective monitoring program to evaluate trends in environmental noise levels;
- Manage impacts from *Project* generated noise, and
- Implement effective response procedures to address reported noise incidents.

Noise assessment criteria for *the Project* were documented in Schedule 3 'Specific Environmental Conditions' of the *Department* Project Approval (08_0129) dated 1 December 2009.

2.1 Agency Consultation with Regulatory Authorities

In consultation since the issuing of the *Projects* Approval conditions EPA (formerly *OEH*) advised *Orica* that they do not review *NMP* documents as their responsibility is to set environmental objectives for environmental management, not to be directly involved in the development of strategies to achieve those objectives. A copy of the original *NMP* was provided to EPA.

3. Noise Monitoring

The *Department* recognised that, as a result of weather effects and noise from other industries including extraneous sources, direct noise measurement at Stockton was not reliable for assessing *Orica's* noise compliance status. To provide a more reliable means of determining noise emissions generated directly from the *Orica* facility, it was proposed that a noise model be developed to assess the contribution of site noise emissions at Stockton.

For the purposes of the undertaking compliance noise monitoring, six reference locations were selected, comprising of three noise monitoring locations at Stockton and three noise monitoring location on Kooragang Island (*Figure 2*).). The Stockton locations on the western side of the peninsular were selected to represent residential properties most likely to be exposed to noise from *the Project*. In contrast noise monitoring undertaken closer to the *Orica* facility, located on Kooragang Island, was likely to be less influenced by surrounding industrial noise sources, extraneous noise and variable weather effects, and more accurately represent noise directly attributable to the site operations.

In addition to the selection criteria outlined above, noise monitoring locations on Kooragang Island and Stockton have been selected to ensure reliable, ongoing site access for future noise monitoring events. The monitoring locations are identified below and shown on *Figure 1*.

Figure 1- Compliance Noise Monitoring Locations



- R1 - 284 Fullerton Street, Stockton.
- R2 - 218 Fullerton Street, Stockton.
- R3 - 184 Fullerton Street, Stockton.
- R4 - Roadside (south) opposite Ammonium Nitrate Area
- R5 - Riverside (central) opposite Administration Building.
- R6 - Roadside (north) north of Ammonia Plant.

For the purpose of noise compliance monitoring at Stockton, unmanned noise monitoring is undertaken on the properties between the street boundaries and the building facades; attended monitoring is conducted at the street frontage to represent property boundaries.

4. Determination of Project Noise Criteria

To minimise the effects from other noise sources and meteorological conditions, attended audits were undertaken at night between 10.00pm and midnight in accordance with the requirements of the *NSW EPA Noise Policy for Industry (NPfI) (2017)*. Night-time noise measurements reported for the three Kooragang Island monitoring locations for the existing operations confirmed that there is minimal influence or effect from both other industrial sources and the prevailing meteorological conditions.

Attended and unattended measurements at the Reference Monitoring locations on Kooragang Island has shown that there is minimal variation between the L_{A90} and L_{Aeq} levels, and that the existing noise from Orica would be described as “steady state”. As described in Section 5 above, the use of a noise model plus verification monitoring at three locations on Kooragang Island was selected to assess compliance with the Project Approval Conditions.

Measurements have shown that the L_{A90} or L_{Aeq} descriptors are reliable for assessing noise from *Orica*; noise trends and status with the Project Approval Conditions.

In Table 6 of the “Noise Verification Assessment Report” the noise results for existing operations, as determined from the three monitoring sites located on Kooragang Island (R4-R6) were determined.

As a result of changes to monitoring location access and instrumentation security nit was necessary to move locations R4 and R6 to the Orica onsite boundaries. As a consequence the baseline noise assessment level for R4 of 62dBA has not changed. For monitoring location R6 the baseline noise assessment level increased 56dBA to 62dBA.

The revised baseline RBL’s and L_{A90} levels reported for Kooragang Island and Stockton and adopted for assessing future noise trends are summarised in *Table 2* and *Table 3*.

Table 2. Revised Baseline Nighttime Noise Measurements for Kooragang Island.

| Reference Measurement Location | Baseline Rating Background Assessment Levels RBL | Rating Background Noise Level Trends | |
|--------------------------------|--|--------------------------------------|------------|
| | | Median Range RBL | Median RBL |
| R4 – Orica Onsite (South) | 62 | 55.6 to 63.0 | 59.4 |
| R5 - Riverside (Central) | 57 | 49.3 to 60.7 | 55.8 |
| R6 - Orica Onsite (North) | 62 | 60.1 to 65.4 | 62.7 |

Table 3. Nighttime Background Noise Measurements for Stockton.

| Reference Monitoring Locations | Ambient Background LA90 Sound Pressure Levels | | |
|---------------------------------|---|------|------|
| | R1 | R2 | R3 |
| February - March 2010 | | | |
| Median | 48.0 | 49.0 | 46.0 |
| Max | 57.4 | 55.6 | 53.1 |
| Min | 38.7 | 38.6 | 37.0 |
| June 2010 | | | |
| Median | 51.0 | 51.0 | 53.0 |
| Max | 58.6 | 56.3 | 57.8 |
| Min | 41.0 | 47.5 | 36.8 |
| September - October 2010 | | | |
| Median | 48.0 | 48.0 | 45.0 |
| Max | 50.8 | 51.8 | 53.3 |
| Min | 39.4 | 41.8 | 39.3 |
| February 2011 | | | |
| Median | - | 50.0 | 48.0 |
| Max | - | 58 | 58.7 |
| Min | - | 42 | 40.4 |

Referring to the *Departments* Development Conditions for assessing noise trends and compliance status, operational noise resulting from *the Project* should be at least 10dBA below levels from *Orica's* existing plant. For compliance purposes *Table 4* presents the measured/predicted noise criteria for *the Project* for monitoring sites R4-R6 located on Kooragang Island.

Table 4. Project Noise Criteria

| Location | Project Noise Criteria RBL |
|----------|----------------------------|
| R4 | 52 |
| R5 | 47 |
| R6 | 52 |

5. Noise Management Strategy

5.1. Noise Assessment

Noise modelling for *the Project* is reported in the *Atkins Acoustics* report titled '*Orica Australia Pty Ltd. Kooragang Island. Noise Impact Assessment. Numbered 39.6357R1:GACD03, Rev 03 dated February 2009*'.

The modelling (Atkins Acoustics Feb '09) undertaken specifically for Phase 1 of *the Project* predicted that noise would satisfy the noise criteria, as levels would be 10dBA below the existing noise levels emitted by *Orica*. *Table 5* below presents a summary of noise levels predicted from the noise modelling for the existing plant and for Phase 1 of *the Project* for the Stockton reference locations.

Table 5. Predicted Existing and Projected Noise Contributions (Phase 1)

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

5.2. Noise Management

Orica is committed to the ongoing management of noise from the existing plant and *the Project*. In accordance with this commitment specific activities and controls that will be implemented to manage noise from site activities, include:

- monitor noise in accordance with the *NMP*;
- ensure that all equipment used onsite is effectively maintained; and
- identify and manage modifications to plant and equipment that could potentially increase noise from the site (short term and long term).

5.3. Noise Reduction Management

Site investigation and ranking of *Orica's* sources contributing to environmental noise identified the following sources and noise control options for consideration in a site Noise Control Plan (NCP) that was submitted to the EPA. *Orica* has since implemented the following noise reduction activities:

- Designed and manufactured of an acoustic enclosure for the No. 2 Nitric Acid Plant Process air compressor;
- Designed an acoustic treatment for the No. 1 Nitric Acid Plant Compressor Building;
- Designed and installed an acoustic treated building for the new Ammonia Plant Process air compressor;

- Designed and installed a new converter quench valve station to reduce high frequency valve/pipe noise on the Ammonia Plant; and
- Decommissioned two Ammonia Process Air Compressors (101J and 102J).
- Installation of an acoustic enclosure on the No. 2 Nitric Acid Plant Process Air Compressor;
- Installation of the acoustic treatment measures for the No. 1 Nitric Acid Plant Compressor Building;
- Manage venting of surplus low pressure steam on the Ammonia Plant;
- Verification of noise levels from Phase 1 of *the Project* and the existing plant;
- Reassessment of contributors to plant noise emissions and development of action plans to address key contributors

Orica is committed to the control of environmental noise emissions and investigations to assess the feasibility and reasonableness of treatments available to minimise noise impacts.

5.4. Managing Short-term Noise Exceedances

In addition to controlling normal operational noise, managing noise at the source may be required from time to time to address short-term exceedances of the Approval Consent Conditions. These situations may include:

- commissioning of plant and equipment, and
- safety related testing of equipment and emergency systems such as valves
- abnormal operations due to unscheduled plant and equipment breakdowns or maintenance requirements.

During these situations noise mitigation strategies are often impractical and not feasible. In these situations, the *Senior Specialist - Environment* will be informed of the likely noise risk and procedures to minimise noise exposure for Stockton residents will be undertaken.

In addition, if the *Senior Specialist - Environment* is satisfied that the short-term noise is likely to give rise to impacts, communications will be undertaken with potentially affected residents.

5.5. Managing Noise Impacts

Annual noise monitoring, as detailed in Section 6 is undertaken to assess compliance of *the Project* with the Project Approval requirements. If the measurement and assessment of noise levels at R4, R5 and R6 identifies that the Baseline noise levels, as detailed in *Table 1*, are consistently being exceeded then *Orica* will update the site noise model to identify the contributing sources and identify options to reduce the noise levels. Any identified measures would be incorporated into noise reduction projects.

6. Noise Monitoring and Review

The Noise Monitoring Program (*NMP*) has been prepared to assess compliance status with the Project Approval Noise Conditions i.e. to assess compliance of the *Project* with the CoA, that noise levels from the *Project* be 10dB(A) less than the Baseline levels.

Demonstration of compliance with the *Project* noise criteria will be difficult to confirm by monitoring alone due to the variability of the background noise levels. Therefore, to assess compliance with the *Project* noise criteria it is proposed to undertake the following:

- Updating of the site noise model following the commencement of operation of the *Project* to determine the contribution of the *Project* plant and equipment to the predicted noise contributions at Kooragang Island and Stockton reference monitoring locations.
- Unattended and attended monitoring at the reference locations to assess long term changes in the noise levels at the locations to assess long term trends in noise emissions

6.1. Noise Model Updating

The site noise model, as detailed in the *Kooragang Island Noise Assessment (Report Number 39.6357.R1:GACD03 Rev 3, Atkins Acoustics, 2009)* is updated following the commencement of operation of each phase of the *Project* to determine the contribution of the plant and equipment associated with the *Project*. The updating of the noise model, which has been developed in the program *Environmental Noise Model*, will involve near field onsite measurement of the noise emissions from *Project* related plant and equipment.

Ongoing compliance of the *Project* with the Project Approval noise requirement is assessed against the Existing Facility noise levels detailed in Table 6 at the completion of the relevant phase.

6.2. Noise Audits

Attended and unattended monitoring is undertaken at both Kooragang Island and Stockton to validate the findings of the noise model updating. The monitoring is used to assess long-term trends in the site noise profile.

6.2.1. Frequency of Noise Audits

Attended monitoring is undertaken at the current residential reference locations identified as R1, R2 and R3 (R1 - 284 Fullerton Street, Stockton, R2 - 218 Fullerton Street, Stockton, R3 – 184 Fullerton Street, Stockton) and on Kooragang Island at R4, R5 and R6. The monitoring is undertaken annually.

6.2.2. Noise Audits Conditions

Noise audits using attended noise monitoring are undertaken during the night-time period (10.00pm and 7.00am) in accordance with the Noise Policy for Industry (NPfI). Noise measurements at each assessment location are undertaken over a fifteen (15) minute period. The measurement results reported include the L_{Amax} , L_{A1} , L_{A10} , L_{A50} , L_{Aeq} , and L_{A90} levels.

When direct measurement is not feasible to verify *the Project* noise contributions, modelling is undertaken to confirm the contribution. The measured or calculated noise contributed level will be assessed against the Project Approval criteria of 10dB(A) less than the Baseline levels.

During or following the attended noise monitoring, contact will be made with the relevant *Orica* nominated Plant Managers to confirm the status of operating plants and will be reported in the audit reports.

6.2.3. Noise Measurement Procedures

Noise measurements will be undertaken and assessed in accordance with the Australian Standards AS1055-1997 '*Acoustics - Description and Measurement of Environmental Noise*' and the EPA, Noise Policy for Industry (2017) (NPfI).

6.2.4. Noise Measurement Instrumentation

Noise measurements for assessing the compliance status will be undertaken with instrumentation calibrated by a NATA Certified Laboratory. Instrumentation calibration levels will be checked with a portable calibrator before and after the audit measurements to verify that any variation in calibration levels does not exceed ± 0.5 dB. Copies of the meter calibration certificates will be attached to the compliance noise audit report.

6.2.5. Meteorological Conditions

Meteorological conditions during the measurements will be determined from *Orica's* onsite weather station installed in accordance with the relevant Australian Standards for a licensed monitoring point. The reported parameters will include wind speed, wind direction, temperature, humidity and rainfall.

In the event the *Orica* weather station data is not available, data from the Port Waratah Coal Services (*PWCS*) Kooragang Island Coal Terminal (*KCT*) or suitable alternative meteorological station will be used.

6.2.6. Site Operating Conditions

To assist with the identification of site operating conditions during attended noise audits, the relevant Orica Shift *Team Leaders* telephone contact details will be provided to the person(s) undertaking the audit. Site operating conditions will be established for the period during the site audit and reported in the noise compliance report.

6.3. Assessing Non-Compliance's

Referring to *INP* assessment guidelines, a development is deemed to be non-compliant with a noise consent or licence condition, if the noise contribution is more than 2dB above the limit specified in the consent or licence condition. The *INP* guideline will be referred to for assessing noise compliance status with the criteria that the contribution of the new plant and equipment must be 10dB(A) less than the baseline levels.

6.4. Community Noise Related Inquiries

The *Orica* community incident reporting and inquiry telephone number, which is manned 24 hours per day, 7 days per week is 1800 789 044.

The procedure *Community Complaint Response Procedure (KIW0811/OEL1956969)* details the site response in the event of a complaint. This includes contacting plant operating personnel as well as a member of the site Environment Team to ensure that the appropriate response is implemented. Records of community complaints are maintained in the Orica SHES Incident Management System (Enablon) and reported in the site annual license return and compliance report.

6.5. Review of Incident Reports

As part of the quarterly noise audit and reporting, inquiries will be made with the *Senior Specialist - Environment* or representative to evaluate reported noise incidents and actions undertaken to investigate and address the reported incidents. Incident action and investigative measures are to be undertaken as per guidelines detailed in the *Community Complaint Response Procedure (KIW0811/OEL1956969)*. Details of the nature of the incident, including the date, time, nature of the incident and *Orica's* responses are reported in the noise audit report.

7. Roles and Responsibilities

Specific responsibilities for the operation plant and site under this *NMP* include:

Orica Site Manager

Provide direction for environmental management in accordance with *Orica* Environmental Policy;

Kooragang Island Senior Specialist - Environment or Delegate

- Ensure that the *NMP* is relevant for current site activities;
- Co-ordinate scheduled noise monitoring and investigate reported noise incidents in accordance with the *NMP*;
- Maintain protocols for evaluating compliance with relevant noise criteria;
- Maintain procedures for investigating and reporting incidents, including those related to noise;
- Maintain protocols to investigate and evaluate the effectiveness of installed noise mitigation;
- Liaise with local landowners as required and follow-up reported noise incidents;
- Undertake periodic reviews of the effectiveness of the *NMP*;
- Co-ordinate investigations to maintain and evaluate feasible and reasonable options to control and reduce noise from *Orica*;

Operational Site Shift Team Leaders

- Record noise incidents in Orica's Safety, Health and Environmental Records Management (Enablon) system;
- Assist with preliminary investigations to assess reported noise incidents; and
- Assist the Senior Specialist - Environment to investigate reported noise incidents where required.

8. Reporting and Review

The results and findings of all scheduled noise monitoring and incident investigations will be reported in the audit reports and/or incident reports, and documented in the Annual Environmental Management Report.

8.1. Reporting of Attended Noise Monitoring Results

The attended noise audit reports will include the following:

- dates and time of the audit.
- details and qualifications of person(s) who conducted the audit.
- a map identifying noise measurement locations.
- details of meteorological conditions.
- confirmation of site operating conditions.
- measured $L_{Amax, 15min}$, $L_{A1, 15min}$, $L_{A10, 15min}$, $L_{A50, 15min}$, $L_{A90, 15min}$ and $L_{Aeq, 15min}$ levels.
- measured/calculated $L_{Aeq, 15min}$ contribution from plant associated with *the Project*.
- description of noise sources identified during the audit.
- verification of noise compliance/non-compliance status, and
- summary of noise incidents reported at *Orica* for the period following the previous report.

8.2. Reporting Noise Complaints

Noise complaints are managed in accordance with *Orica's Community Complaint Response Procedure (KIW0811/OEL1956969)*. This procedure includes the requirements for the recording of the complaint, the complainant's details, notification of plant and environmental personnel, the outcomes of the investigation and follow-up with the complainant.

The number of complaints received by *Orica* is reported to EPA in the Annual Environmental Return and in the Annual Environmental Management Report that is submitted to the *Department*.

8.3. Reporting Non-Compliance's

In the event of an exceedance of *the Project Consent Conditions*, the *Senior Specialist - Environment* will initiate further investigation into the cause of the exceedance and the requirements for noise control actions, with the information recorded in Enablon, the incident management and investigation database.

The Site and Plant Managers shall be advised of the exceedance.

Any exceedances will be reported and summarised on annual basis in the Annual Environmental Management Report.

8.4. Review

The *NMP* will be reviewed periodically or as directed by the Secretary of the *Department*. The review will reflect changes to site operating conditions and assessment guidelines.

As required or directed by the Secretary of the *Department*, the *NMP* will be updated and actions undertaken to improve the effectiveness of monitoring and follow-up investigations and management practices.

Appendix A - Project Staging Plan (18 July 2021)

| Phase | Stage | Description of Work | Sub-Stage | Approval Status | Estimated Construction Timing |
|--|-------|--|---|---|-------------------------------|
| Ammonia Plant Uprate | | | | | |
| 1 | 1a | Ammonia Plant Expansion – Plant Air Compressor Building Construction of Plant Air Compressor building shell (compressor installed in Stage 1(b)). | Completed | Construction Complete and Operational | Completed |
| | 1b | Ammonia Plant Expansion - Installation/Modification of Plant Installation of new equipment including new compressor, process vessels pipework and instruments in the Ammonia Plant. | Completed | | |
| Proposed Trident Nitrates Expansion Project Construction Scheduling | | | | | |
| 2 | 2a | OBL 1(a) – Nitrates Infrastructure & ANS Loadout Installation of new site infrastructure including the new site entrances, internal access roads, security and weighbridge facilities, ANS product storage and despatch facilities. | <ol style="list-style-type: none"> Internal access roads and minor civil works. Site entrances, security offices and weighbridges. Major civil works including piling and foundations. New ANS storage vessel loading equipment | Approval for Construction granted / construction yet to commence. | Yet to be determined |
| | 2b | OBL 1(b) – Nitrates Despatch & Support Infrastructure Construction of new AN Bag store, AN Despatch facilities and amenities, demolition of existing AN Bag store and despatch, construction of new AN Bulk Store, modification to existing AN bulk store, construction of WANS, construction of new control room and electrical infrastructure. | | Approval to commence construction not yet granted by DoPI. | Yet to be determined |
| 3 | 3a | NAP4 – Nitric Acid & AN Solution plants and Support Infrastructure Construction of the NAP4/ ANS Plant and tie-ins Construction of Nitrates support infrastructure including new Nitric Acid Storage, Ammonia Storage, Boiler, Cooling Tower, Demin Plant expansion Instrument Air upgrades, new Ammonia pumps, pipebridges & transfer lines. | | Approval to commence construction not yet granted by DoPI. | Yet to be determined |
| | 3b | AN3 – AN Prill Plant Construction of ANP3 Dry Section plant and tie-ins | | Approval to commence construction not yet granted by DoPI. | Yet to be determined |
| Ammonia Management Improvement Program | | | | | |
| 4 | 4 | Ammonia Flares Construction and operation of three ammonia flares. | <ol style="list-style-type: none"> Nitrates Plant Flare Ammonia Storage Flare Ammonia Plant Flare | Approval to commence construction of the flares was granted on 23 June 2015. Ammonia Flares The nitrates flare became operational during February 2016 The ammonia storage flare became operational during April 2016. The ammonia plant flare was commissioned during April 2017. | Completed |

| Phase | Stage | Description of Work | Sub-Stage | Approval Status | Estimated Construction Timing |
|-------------------------------|-------|--|-----------|--|---|
| Nitric Acid Tank | | | | | |
| 5 | 5 | Nitric Acid Tank Construction and Operation of a nitric acid tank and associated scrubber, capable of exporting and importing nitric acid via the site's nitric acid wharf pipeline. | | Approval to commence construction not yet granted by DoPI. | Yet to be determined |
| Boiler | | | | | |
| 6 | 6 | Construction and operation of new Site Boiler Construction and Operation of a new site boiler (to replace the decommissioned original site boiler) | | Approval to commence construction granted on 27 July 2015 | Construction completed 12 December 2019 |
| Nitrates Effluent Tank | | | | | |
| 7 | 7 | Construction and operation of new Nitrates Effluent Tank (MOD4) Construction and Operation of a new Nitrate Effluent Tank (to replace the Nitrates Effluent Pond) | | Approval to commence construction granted on 13 May 2021 | Estimated to be February 2022 |
| Prill Tower Scrubber | | | | | |
| 8 | 8 | Construction and operation of new Prill Tower Scrubber (MOD5) | | Project Scoping review approved. Development application made. | September 2023 |
| Ammonia Tank | | | | | |
| 9 | 9 | Construction and operation of new 30,000 tonne Ammonia Tank (MOD6) | | SEARS issued. Development application yet to be made. | Yet to be determined |