

Kooragang Island EMERGENCY PLAN

OEL: 1972391

MAJOR HAZARD FACILITY NUMBER: 10037

SAFEWORK NSW HAZARDOUS CHEMICALS NOTIFICATION: NDG015329



Street Address	75 Greenleaf Road, Kooragang Island
Geocode Location	32°53'46.1"S 151°46'45.9"E (Main Gate Entrance)
Site phone number (24 hrs)	+61 2 4908 9300 or 1800 789 044
Emergency Contact List	In an emergency, the permanently occupied control rooms may also be contacted directly: Orica Security 02 4908 9344 Ammonia Plant Control Room 02 4908 9329 Nitrates Plant Control Room 02 4908 9395 Orica Emergency Number 1800 033 111 (E.R.S Offsite)



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1 INTRODUCTION

1.1 AIM OF THE PLAN

The aim of the Site Emergency Plan is to provide a system to manage any emergency arising at the Orica Kooragang Island site by:

- providing a system and resources to deal with emergencies to protect people, property and the environment; and
- to minimise adverse impacts on people, property and the environment both on site and off site.

1.2 OBJECTIVE OF THE PLAN

The objective of the Site Emergency Plan is to provide a system to manage any emergency arising at the Orica Kooragang Island site by:

- identifying emergency situations, raising the alarm and initiating the emergency response procedures
- rapidly accounting for all personnel on site, initiating search and rescue and providing first aid to personnel affected by the emergency
- to respond quickly and efficiently to limit the impacts of an emergency on people, property and the environment
- immediately commence the containment and control of the effects of a hazardous materials emergency
- calling the emergency services and supporting emergency services with appropriate information, knowledge, skills and equipment
- communicating vital information in emergency management to all relevant persons as soon as possible
- providing for competency-based training so that a high level of preparedness can be continually maintained
- providing a basis for updating and reviewing this emergency plan

1.3 SCOPE AND PARAMETERS OF THE PLAN

The plan is specific to the actions to be taken by site personnel to limit the consequences of an emergency which may develop at the site and result in impacts on site and/or off site. Impacts may include damage to people, property and environment.

The plan applies to the various work activities including (but not limited to) operations, manufacturing, maintenance, construction, projects, transport and logistics activities that may be undertaken at the K.I facility.

It includes events that are initiated off site, in neighbouring areas, which impact, or have the potential to impact on the site.

The plan covers situations where assistance is requested from an external agency, for example, Fire and Rescue NSW (FRNSW), NSW Police Force (NSWPF), NSW State Emergency Service (NSWSES) or the Ambulance Service NSW (ASNSW).

It specifically excludes response to incidents that occur off site through transportation, storage and use of the products manufactured on the site. These incidents are handled under separate Orica emergency plans.

1.4 NATURE OF OPERATIONS

Orica Kooragang Island site is an industrial chemical manufacturing facility that produces ammonia, nitric acid and ammonium nitrate. The processes involve a wide range of chemicals with various toxic, flammability and explosion properties. [ESIP Section 3 Hazardous Chemical Information](#) contains the site's Hazardous Chemicals Inventory and storage locations.

The plant areas include:

- An ammonia plant which uses natural gas, steam and air to produce anhydrous ammonia
- 3 nitric acid plants which use ammonia, air and water to produce nitric acid of approximately 60% concentration
- 2 ammonium nitrate plants which combine ammonia and nitric acid to produce solid ammonium nitrate (prilled), and hot ammonium nitrate solution
- A liquefied gas bottling plant
- Ammonia storage and loading
- Nitric acid storage and loading
- Ammonium nitrate storage and loading

The site also includes associated infrastructure such as electrical substations, a demineralised water plant, a gas fired boiler house, flares for ammonia destruction, effluent treatment systems, workshops, equipment storage and administration buildings.

The site operates 24 hours per day, 365 days per year. It is usually manned by approximately 170 workers during business hours and 15 workers after hours. At times, such as during a plant turnaround, the on-site population can rise to greater than 500 people.

The site has 24-hour security guard coverage in the Greenleaf Road Gatehouse.

The site is part of the Kooragang Industrial precinct and has industrial neighbours on all sides. Residential populations on the Stockton peninsula are approximately 800 metres from the site. The nearest Major Hazard Facility to the site is the Origin Energy LPG Terminal located on Egret Street Kooragang Island.

[ESIP Section 1: Site Location & Evacuation Map](#) shows closely located hazardous Chemical Storage and Major Hazard Facilities within 2.5 km of the site, potential off-site staging point locations for emergency services, and the evacuation points for the Orica site.

[ESIP Section 1: Kooragang Island Site Layout Map](#) is a site layout map showing site roads and the approximate location of each area of the site and plant control rooms.

[ESIP Section 1: Neighbour & Vulnerable Facilities Map](#) contains a map with the details of the surrounding industrial neighbours and vulnerable facilities at Kooragang Island, Carrington and Mayfield East.

1.5 SIGNIFICANT INFRASTRUCTURE

The Orica Kooragang Island site is located near the following significant infrastructure:

- Greenleaf Road
- Heron Road
- Kooragang Island Industrial Precinct
- Cormorant Road/Stockton Bridge (main road link between Newcastle and Newcastle Airport)
- Newcastle Harbour (Kooragang, Carrington and Mayfield berths).

With the existing preventative controls and emergency response systems in place, it is extremely unlikely that an emergency at Orica would impact this infrastructure. However, the worst-case major hazard scenarios (large volume toxic gas releases or decomposition of large quantities of AN) could affect use of the roads and the harbour for the duration of the emergency.

Refer to the Kooragang Precinct Emergency Sub Plan for emergency management of this infrastructure.

1.6 EMERGENCY PLANNING ASSUMPTIONS

The following assumptions have been used in developing this plan:

- The continuous shift teams have the capability to manage the initial onsite response for up to one hour for any potential local, site or offsite incident consistent with the incident management objectives and strategy.
- Emergency services (FRNSW, NSWPF and the ASNSW) are available to attend the site, if required.

- The typical time for emergency services to arrive at the site is 15 minutes.
- The role of the incident management team is sufficiently flexible to permit offsite / remote response to a site or offsite emergency.
- Orica is not responsible for evacuating or managing neighbouring sites during an emergency.
- Emergency services will direct evacuations of neighbouring sites and/or local communities if required.

1.7 PRIORITIES, STRATEGIES AND TACTICS OF RESPONSE

The **priorities** of a response to any site emergency incident will be:

- to minimise the health and safety effects to local, site and offsite populations arising from the incident
- to minimise the damage to the environment arising from the incident
- to minimise the damage to property arising from the incident
- to minimise the disruption to site operations arising from the incident.
- to minimise damage to Orica's reputation

The **strategies** to be employed to meet the incident objectives are:

- prompt notification of emergency services to mitigate against event escalation and the requirement for additional resources
- prompt alarm notification and direction of the potentially affected populations to a safe location (e.g., safe house)
- prompt deployment of the site emergency response resources to combat the incident
- prompt rollcall of potentially affected site personnel to identify 'missing persons' and subsequent tasking of search and rescue activities

The **tactics** to be employed by a Plant Incident Commander will vary dependent upon the circumstances of the incident. Tactics will be contained in the specific operational plan developed by the Plant Incident Commander.

1.8 PLAN AUTHORITY

The plan is issued on the authority of the Site Manufacturing Centre Manager, Orica Kooragang Island.

The contact person who can clarify the content of this plan is the Orica Kooragang Island Security and Emergency Response Superintendent, who can be contacted via the site phone numbers below.

Initially the persons at the facility responsible for liaising with emergency service organisations are the Plant Incident Commander (PIC) for the location where the incident has occurred.

Orica Kooragang Island Gatehouse Security Guards are the 24-hour emergency contacts.

1.9 SITE CONTACT DETAILS

Street Address	75 Greenleaf Road, Kooragang Island
Mailing Address	PO Box 80 Mayfield, NSW 2304
Site phone number (24 hrs)	+61 2 4908 9300 or 1800 789 044
Control Rooms	In an emergency, the permanently occupied control rooms may also be contacted directly: Ammonia Plant Control Room: +61 2 4908 9329 Nitrates Plant Control Room: +61 2 4908 9395

2 ROLES AND RESPONSIBILITIES

2.1 ORICA EMPLOYEES AND CONTRACTORS

2.1.1 Manufacturing Centre Manager

- The overall responsibility for adequacy of the KI Emergency Plan.
- The implementation of the Emergency Plan and the individual procedures and associated responses.
- Notify Orica Senior Management of the emergency event and keep them informed of the status and assistance required.
- Ensure the notification to the NSW Police Force, SafeWork NSW and relevant organisations of any death or serious injury to persons at the site.
- Ensure the notification to appropriate statutory agencies in the event of a notifiable incident as prescribed by legislation.
- Undertake role of Orica Incident Controller as required.

2.1.2 Security and Emergency Response Superintendent

- Facilitate the review and update of the Orica Kooragang Island Emergency Plan and appendices as required.
- Ensure audits and reviews of the Emergency Plan are completed as required.
- Maintain up-to-date copies of the Emergency Plan.
- Ensure electronic distribution of the Emergency Plan to external stakeholders and agencies.
- Organise and participate in desk top exercises and mock emergencies / exercises.
- Ensure training in the system is undertaken at all levels, and that the learning outcomes and competency-based assessments reflect industry standards.
- Arrange for the names, roles and contact numbers for all employees and persons who have responsibilities under the system to be reviewed and updated.

2.1.3 Orica Incident Controller (O.I.C)

- Coordinate the overall response to the emergency and ensure that the emergency is managed consistent with the response objectives.
- The Orica Incident Controller remains the command authority for the emergency, unless relieved by the emergency services.
- As requested, the Orica Incident Controller will either provide or act as an Orica Liaison Officer in accordance with the requirements of the Kooragang Precinct Emergency Sub Plan to support emergency services.

2.1.4 Site Incident Management Team (IMT)

- Carry out duties as per assigned role cards.
- Allocate duties as per the role card.
- Participate in emergency / desk top exercises.
- Keep a record of all communications and ensure those under your control do likewise.

2.1.5 Plant Incident Commander (PIC)

- Lead the operational response to the incident on their plant.
- Command authority for the emergency until the Orica Incident Controller is in place.
- Remain in control of all operational response activities at the scene, unless relieved by the emergency services,
- Provide and coordinate resources capable of responding to an emergency including, performing the initial SIZEUP of the incident, develop appropriate tactics, radio for support from support team leaders, coordinate Incident Response Team response, and initiate the action plan consistent with priorities.
- Provide adequate communications/ direction to control facility personnel with respect to emergency and recovery operations.

- Coordinate emergency response including interaction with external agencies.
- Participate in training and emergency exercises / desktop exercises as required.

2.1.6 Incident Response Team (IRT)

- Undertake roles to respond to the emergency in accordance with directions of the Plant Incident Commander. Roles may include:
 - communications
 - emergency shutdown of plant
 - search and rescue
 - first aid
 - isolations and venting of plant sections
 - firefighting and/or toxic gas suppression
- Participate in training and emergency exercises / desktop exercises as required.

2.1.7 Incident Support Team

- Perform specific tasks as directed by the Plant Incident Commander, e.g., meet and direct emergency services, contact IMT members, provide first aid care to casualties, source additional equipment.

2.1.8 Safe House Wardens

- Responsible for communications between the Orica Incident Controller and the personnel in their safe house.
- Ensuring that the personnel in the safe house follow the instructions of the Orica Incident Controller.
- Ensure the requirements of the safe house wardens role card for their safe house is followed.

2.1.9 Managers, Team Leaders and Contract Supervisors

- Must understand this Plan
- Responsible for the wellbeing of their team or work group members during an emergency.

2.1.10 Security Officers

- Security Officers perform communication activities as directed by either the Plant Incident Commander or the Site Incident Management Team. Including contacting appropriate emergency services and, after hours, contacting the on-call manager and incident management team.
- After hours, the Security Officers monitor the site headcount system.
- Undertake duties in accordance with the Security Officer role card in [Incident Management Team Role Cards](#)
- Take appropriate actions as detailed in this Plan.
- May be required to escort emergency services to a location on site to meet the Plant Incident Controller

2.1.11 All Personnel

- Must be familiar with this Plan and respond to all directions given by the Manager/Team Leader, Plant Incident Commander, Orica Incident Controller, Safe House Warden or emergency services.
- Must carry security swipe cards at all times whilst on site.
- Report any conditions that could initiate or contribute to an emergency.
- Participate in emergency training.
- Participate in emergency exercises / drills

2.2 EXTERNAL AGENCIES AND THE COMMUNITY

2.2.1 Fire and Rescue NSW

FRNSW is the designated combat agency for fires and land based hazardous materials incidents both on and off site.

2.2.2 NSW Police Force

The NSWPF is the designated agency for law enforcement, rescue, counter terrorism and evacuation of persons in the surrounding industrial neighbourhood and community.

2.2.3 Ambulance Service of NSW

The ASNSW is the designated agency for pre-hospital care and transport for sick and injured persons, as well as coordination of all health systems involved in emergency response.

2.2.4 State Emergency Services

The SES is the designated combat authority dealing with flood, storm and tempest and aiding, as required, the Fire, Police and Ambulance services.

2.2.5 City of Newcastle

City of Newcastle is also responsible for establishing and maintaining the Newcastle Emergency Management Plan. This plan details the roles of local government, community-based organisations and other agencies and individuals.

2.2.6 NSW Environment Protection Authority

The NSW Environment Protection Authority (EPA) is the designated authority for protecting the environment during emergency response and recovery.

2.2.7 SafeWork NSW

SafeWork NSW is the workplace health and safety regulator which will be notified for any workplace injury or dangerous occurrence.

2.2.8 NSW Health

NSW Health Environmental Health Unit will become involved if there are any potential toxic or carcinogenic impacts on the community.

2.2.9 Port Authority of NSW / Port of Newcastle

Port Authority of NSW is the designated agency for responding to emergencies that originate or impact on shipping and operations on the Hunter River, to the east and west of Kooragang Island. The Port Authority operates the Vehicle Traffic and Information Centre (VTIC) which is the emergency contact for the port.

Port of Newcastle is the leaseholder of the port and manages day to day operations such as those at the K2 Wharf.

In an emergency, Orica contacts VTIC who then contact other port users following their emergency response procedures.

2.2.10 Industrial Neighbours

Adjacent industrial neighbours may be required to activate their own emergency plans in response to an emergency at Orica Kooragang Island.

The closest industrial neighbours have been provided with an Orica managed radio to allow communication with the Orica Incident Controller during an emergency and the Emergency Radio role card contains specific prompts to provide advice to those neighbours during an emergency.

These industrial neighbours have been provided with advice and assistance to incorporate into their own emergency response scenarios, taking into consideration the nature of potential events at the site.

A decision to commence evacuations of Industrial Neighbours Facility would be made by the emergency services based on technical advice from Orica.

Orica is not a party to any formal mutual aid arrangements within the Kooragang Island industrial precinct.

2.2.11 Vulnerable and Sensitive Facilities

Vulnerable / Sensitive facilities within 2.5kms of the site have been identified in consultation with Newcastle City Council.

Sensitive / Vulnerable facilities are encouraged to:

- Participate in Sensitive Neighbour briefings
- Ensure they understand the potential emergency scenarios associated with Orica's operations
- Ensure their Emergency Plans incorporate procedures for Orica-related emergencies.

The Neighbour Liaison role provides emergency advice over the phone to sensitive facilities [Emergency Stakeholder Notification Procedure](#) if they are judged to be potentially in the line of fire.

A decision to commence evacuations of a Sensitive or Vulnerable Facility would be made by the emergency services based on technical advice from Orica.

2.2.12 Community Reference Group / Residential Neighbours

The remit of the Orica Kooragang Island Community Reference Group includes consultation on emergency planning, and as a forum for discussion and feedback on the effectiveness of emergency plans, or response in an actual event.

A key initiative supported by the Community Reference Group is the provision of emergency response information in a community calendar, distributed annually to all residents in the Stockton and Fern Bay community. This information provides details for handling emergencies that impact or have the potential to impact on residential areas on the Stockton Peninsula and other nearby suburbs. This information is also available on the site's website and is shown in [Emergency Stakeholder Notification Procedure](#).

A decision to warn other residents of an emergency or commence evacuations would be made by the emergency services based on technical advice from Orica.

3 ORICA EMERGENCY AND CRISIS MANAGEMENT SYSTEM

Orica's Group Standard 30: SHES Management requires that plans and resources are in place and practiced to effectively respond to emergencies and maximise business resilience. This includes having in place an emergency plan and a crisis management plan.

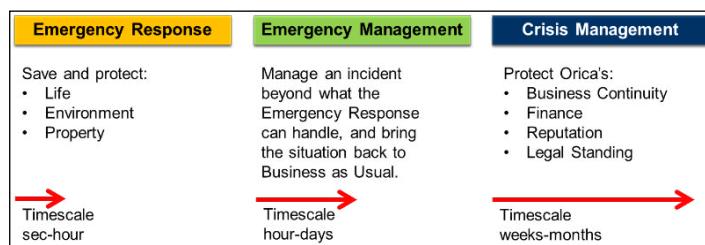
The Group Procedure: SHES Emergency Management provides further details on the requirements for emergency management at a site level and a crisis management plan at a regional or group level.

3.1 ORICA CRISIS MANAGEMENT FRAMEWORK

The group standard requires that the region and the group develop and maintain crisis management plans. For the Kooragang Island Site, the relevant regional Crisis Management Plan is developed and maintained by Orica's Australia Pacific business.

A basic principle of Crisis and Emergency Management (CEM) within Orica is to utilise the company's capabilities in the optimal way, to ensure that a situation is brought under control, and the organisation is returned to a normal state. All responses to an event, emergency or a crisis shall be based on the following priorities:

P	Protection of people;
E	Protection of the environment;
A	Protection/minimisation of damage to financial/material assets; and
R	Protection of Orica's reputation.



The organisational structure of Orica's CEM framework operates at three core levels:

- Crisis Management.
- Emergency Management; and
- Emergency Response.



3.2 ORICA KOORAGANG ISLAND EMERGENCY MANAGEMENT SYSTEM

Emergency management system at Orica Kooragang Island involves a comprehensive approach to emergency management in four phases (PPRR):

- **Prevention** - regulatory and physical measures to prevent emergencies or mitigate their impact.
- **Preparedness** - arrangements to mobilise and deploy all necessary resources and services.
- **Response** - actions taken during and immediately after an emergency to minimise the impact; and
- **Recovery** - arrangements to restore the facility to normal as quickly and efficiently as possible and to assist the community to recover.

The emergency management system at Orica Kooragang Island complements existing management systems including Safety, Health, Environment, Security (SHES) Management System, and the Risk Management System.

3.2.1 Kooragang Island Emergency Plan

The Orica group standard requires the development of an Emergency Plan for the Orica Kooragang Island site. The group procedure includes the requirement to identify emergency events and response strategies, undertake consultation and communication, undertake emergency response drills, have available and maintain emergency equipment and review and update emergency response plans.

3.2.2 Kooragang Island Emergency System Structure

The Orica Kooragang Island Emergency Plan is the highest-level Emergency document within the Orica Kooragang Island Emergency Management System, the emergency plan details the “what” is in place to support emergency operations at Orica’s KI facility.

The emergency plan is support by a number of “how” documents including the Emergency Response and Incident Management Procedure, Emergency Services Information Package, Emergency Stakeholder Notification Procedure, and Site Evacuation Procedure, which have specific details on the requirements and actions to be taken in the event of an emergency. *Diagram 3.2.2* Below outlines the main components of the Orica K.I Emergency Management System.

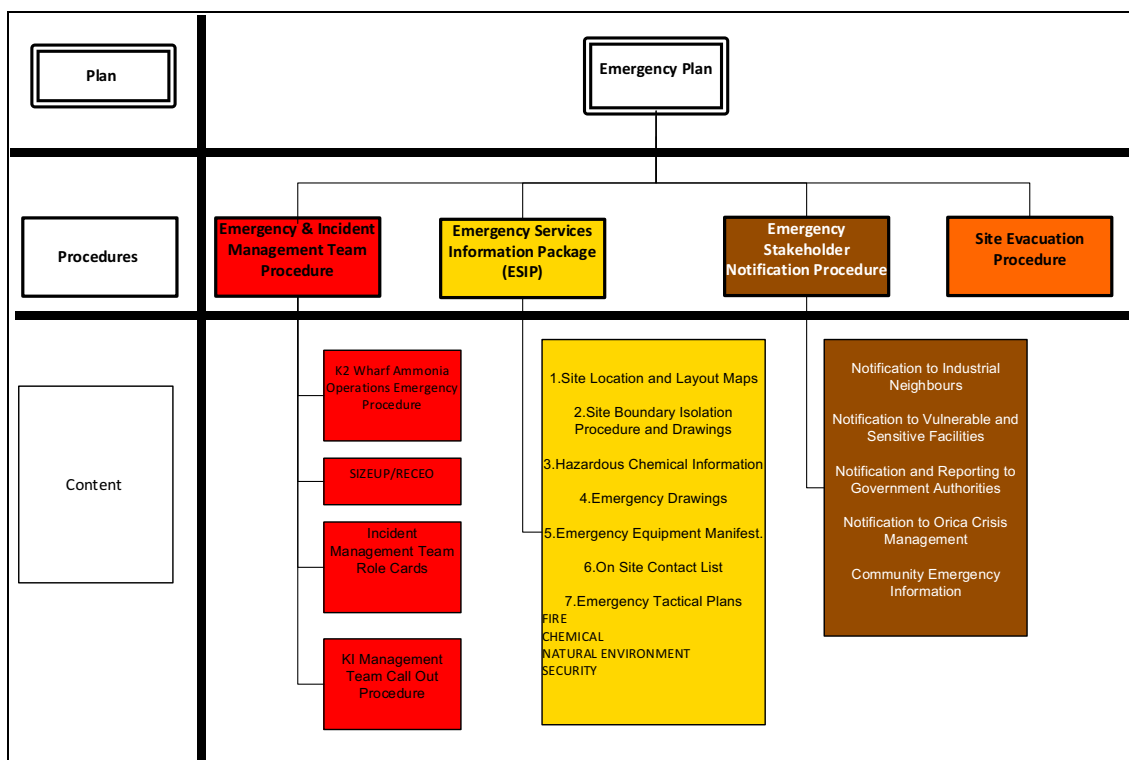


Diagram 3.2.2 Main components of the Orica K.I Emergency Management System.

4 HAZARDS

Identification of the hazards associated with the facility is done using “HAZID” methodology, as described in Orica’s risk management procedures.

The following information on hazards is a summary of the key hazards identified by this process. Further details are contained in the Site’s Risk Register. Emergency Response Tactical Plans for each type of emergency are contained in [ESIP Section 7: Emergency Tactical Plans](#).

For any events that occur that have not been previously identified as scenarios relevant to this Site, this Emergency Plan should be enacted either as a site or offsite emergency and emergency services should be contacted.

4.1 MATERIAL HAZARDS

A full register of hazardous chemicals (including description, UN No., DG Classification and HAZCHEM Code) is contained [ESIP Section 3: Hazardous Chemical Information](#)

This list is reproduced in the site Emergency Services Information Package (ESIP) and incorporates location details. Copies of the ESIP are kept in the red HAZMAT boxes at Gate 1 (Greenleaf Road), Gate 3 (Heron Road) and also inside the Main Gatehouse.

Copies of Safety Data Sheets for key substances may be found in the site ESIP. Copies of SDS’ for all hazardous materials on site are filed in the electronic chemical register, ChemAlert, that can be accessed on any Orica KI computer using the following URL: <https://chemicalert.rmt.com.au/oricaki/index.html#/> and the username/password NOLOGON.

A summary of the key materials likely to play a role in an emergency include:

- Natural gas – used as a feedstock, flammable gas
- Hydrogen – generated as an intermediate in the ammonia plant, flammable gas
- Ammonia – anhydrous liquid with boiling point of -33°C, stored in quantities of up to 12,000 tonnes on the site. Will rapidly evaporate when released, producing a toxic gas cloud.
- Ammonia – toxic gas, in process piping and vessels
- MDEA – methyl di-ethanol amine – used for carbon dioxide removal in the ammonia plant – corrosive and flammable liquid
- Nitric acid – 50-60% strength corrosive liquid stored in quantities up to 1000 tonnes
- NOx gas – toxic gas in process piping and vessels
- Ammonium nitrate solution – 60-98% strength oxidiser and corrosive liquid, under some conditions can thermally decompose generating NOx gas, and when heated and confined, can explode.
- Ammonium nitrate solid – strong oxidiser, under some conditions can thermally decompose generating NOx gas and when heated and confined, can explode.
- Chlorine – cooling tower treatment chemical with typically 4 to 8 by 920kg drums used on site – corrosive and toxic gas
- LPG – liquefied petroleum gas used as back-up fuel for the ammonia flares

4.2 OTHER PROCESS RELATED HAZARDS

- Corrosive materials e.g., sulphuric acid, sodium hydroxide (liquid and solid), hydrochloric acid, hypochlorite, acidified aluminium sulphate – are stored in quantities from 1 tonne to 30 tonnes at various locations around site
- Electricity – high voltage network including substations, transformers, switchgear, cables, and equipment are present on the site
- High pressure steam – generated in the boiler on the site
- Chromium, arsenic, vanadium, cobalt – exist in trace amounts in catalysts, cooling towers and some vessels.

4.3 NATURAL HAZARDS

The following natural events are considered credible for the site:

- Storm – involving gale force wind, torrential rain, thunder and lightning
- Storm Surge / tsunami / flood – involving inundation of the site
- Earthquake

The key issue for natural hazards is the potential to cause or escalate an emergency involving one (or more) of the material hazards above.

4.4 OTHER HAZARDS

The following other non-material hazards are considered credible for the site:

- Electricity supply failure
- Towns water supply failure
- Bomb threat / Suspicious Package
- Anti-social activity / trespass / protest
- Security breach / theft
- Emergency occurring with persons at height e.g. Elevated Work Platforms, Scaffolding, Workboxes, dropped objects
- Emergency occurring with persons in confined space
- Health related medical emergencies
- Vehicle incident
- Combustible materials fire – vegetation, pallets, workshops, stores, lab, offices etc.
- Craneage / lifting operations

4.5 HAZARDS FROM NEIGHBOURING INDUSTRY

This Plan was developed in consultation with neighbouring facilities, including Major Hazard Facilities.

The neighbouring facilities with the most significant storage of hazardous chemicals are Incitec Pivot (sulphuric acid, fertilisers), Park Fuels (diesel fuel) and Origin Energy (closest MHF – stores compressed flammable gases).

An incident occurring in a neighbouring facility may cause an emergency situation to arise on the Site through one of the following mechanisms:

- An explosion which causes knock on damage to plant and equipment on this Site and causes the types of emergencies described in *Section 5*.
- A major fire which causes knock on damage to plant and equipment on the site or provides a source of ignition for a subsequent incident on the site causing an emergency as described in *Section 5*.
- The release of toxic or carcinogenic materials, including combustion products from a fire which requires the evacuation of non-essential personnel from the Site and shelter-in-place of essential personnel who are required to maintain operations and prevent a knock-on incident on this Site.
- Establishment by the emergency services of an evacuation and exclusion zone that prevents essential personnel attending the Site and could lead to an emergency.

5 TYPES OF EMERGENCY

[ESIP Section 7: Emergency Tactical Plans](#) lists the types of emergencies, potential onsite and off-site effects, and specific Emergency Plans for each of the major hazard scenarios.

SIZEUP/ RECEO to be used by the Plant Incident Commander and Site Incident Management Team as prompts for emergencies of any nature is available [SIZEUP/ RECEO](#)

A summary of types of emergencies that this plan addresses are as follows:

5.1 AMMONIUM NITRATE

5.1.1 Fire Involving or Near to Ammonium Nitrate

The site maintains stockpiles of ammonium nitrate solid in bulk as well as bagged stockpiles. The site has dedicated storage areas for solid product which are subject to SSAN security measures as well as being fitted with fire suppression equipment. In addition, there are quantities of ammonium nitrate within the manufacturing areas, e.g., present in dryers, conveyor belts etc. Ammonium nitrate is also stored at the site in liquid form.

A fire involving, or in the vicinity of, AN present a number of risks:

1. Liberation of toxic gases as the AN is heated
2. Risk of explosion
3. Difficulty of extinguishing the fire.

Ammonium nitrate does not burn, however, being an oxidising agent, it readily supports combustion by contributing oxygen. Where ammonium nitrate is participating in the fire, toxic fumes of nitrogen oxides will be driven off and present a significant hazard to site personnel as well as combatant personnel. The toxic fumes will generally present as yellow / brown in colour. A darkening in colour indicates that the temperature of the product is escalating rapidly, and that detonation may be possible.

In a molten state ammonium nitrate can detonate resulting in significant risk of injury / fatality and also significant damage to plant. In favourable circumstances molten AN may release energy generally considered to be ~one third as powerful as an equivalent mass of TNT. This is especially the case if the AN is heated and confined (e.g., in drains) or contaminated with organics (e.g., oil, grease, asphalt, rubber) or other catalytic agents.

Ammonium nitrate fires can be controlled with copious amounts of water. Coarse sprays are recommended, as jets of water will penetrate the molten material and may provide sufficient energy to spread the ammonium nitrate melt. Steps should also be taken to ensure that internal pressure from the products of combustion are allowed to escape, e.g., by venting buildings.

Explosion events have the potential to knock-on to other events, most likely further fires and toxic gas releases from failure of vessels, pipelines or structures.

A key aspect of managing an emergency involving AN fire is the transition to AN Decomposition which may be indicated by increasing amounts of rich NO_x fume, which is an indication that the thermal decomposition is approaching run-away. At this point evacuation of all personnel may become necessary.

Fire from external sources impacting on vessels that contain liquid ammonium nitrate solution can also cause uncontrolled thermal decomposition (*see 5.1.2 below*).

For further information see [ESIP Section 7: Emergency Tactical Plans. Ammonium Nitrate Fire](#)

5.1.2 Uncontrolled Thermal Decomposition of AN Solutions

Quantities of ammonium nitrate solution are present in the AN manufacturing process and the ANS storage tanks. When heated, ammonium nitrate solutions decompose via a series of chemical reactions. In

favourable combinations of conditions such as high concentration, high temperature, low pH, confinement and/or contamination, the decomposition reactions can accelerate to the point of thermal explosion.

The response to an uncontrolled thermal decomposition of ANS is to dilute and cool the liquid. In addition, raising the pH and reducing confinement will assist in preventing the decomposition.

Process equipment is fitted with instruments to detect and prevent the conditions that lead to thermal decomposition. A number of vessels are also fitted with emergency water quench systems to rapidly dilute and cool the contents.

A key aspect of managing an emergency involving decomposition of AN solution is to identify the point where evacuation of all personnel becomes necessary. This is indicated by the solution generating increasing amounts of rich NO_x fume, which is an indication that the thermal decomposition is approaching run-away.

For further information see *ESIP Section 7: Emergency Tactical Plans*. [Ammonium Nitrate Decomposition](#)

5.2 FLAMMABLE GAS FIRES

The main flammable gases onsite are natural gas, hydrogen (in process gas mixtures), ammonia, LPG and acetylene. Flammable gases in large quantities (e.g., ammonia plant) have the potential for vapour cloud explosions if leaks occur and are not ignited for some period of time. As well as the potential for injury to personnel from heat radiation and blast overpressure / projectiles there is also potential for secondary effects including ammonia leaks due to collapse of plant structure etc. Typical response to flammable gas fires to mitigate the risk of vapour cloud explosion will be to seek the means to isolate / depressurize and reduce the inventory, utilise water fog to protect adjacent structures and once isolated extinguish with available fixed, portable monitors and firefighting equipment.

Natural gas is a feed for the ammonia plant as well as fuel for furnaces, boilers and flares across the site. It is flammable in the range of 5% to 15% in air with an auto ignition temperature of 540°C.

Hydrogen is an intermediate product of the ammonia process as well as an ignition fuel for NAP2 and NAP3 catalysts. In the ammonia plant it is processed at extremely high pressures of around 15MPa. It is flammable in the range 4% to 75% in air with an auto-ignition temperature of 571°C.

Ammonia can be found in most areas of the site. While its major hazard is toxicity, ammonia gas is flammable in the range 15.5% to 25% in air with an auto ignition temperature of 651°C.

LPG in cylinders is a back-up fuel for the ammonia flares at Nitrates, the ammonia plant and the ammonia storage area. Additional cylinders are kept in the Main Cylinder Store. LPG is flammable in the range 1.5% to 9.5% in air with an auto ignition temperature of 460°C.

Acetylene is used in oxy-acetylene kits used by tradespeople on the site. Cylinders of acetylene will normally be found in workshops and the Main Cylinder Store. Acetylene is flammable in the range of 2.5% to 85% in air with an auto ignition temperature of 305°C.

For further information see *ESIP Section 7: Emergency Tactical Plans*. [Flammable Gas Fires](#) .

5.3 FLAMMABLE LIQUID FIRES

Both the ammonia plant and the nitrates plant areas have inventories of flammable liquids. These flammable liquids include fuel oil, transformer oil, methyl-di-ethanol amine (MDEA) and coating agent. Stocks of foam are available at site for combating flammable liquid fires (see fire systems drawing in *ESIP Section 4 Drawings*: [Fire System and Equipment Drawing](#) for storage locations).

For further information see *ESIP Section 7: Emergency Tactical Plans*. [Flammable Liquids Fires](#)

5.4 TOXIC LIQUID / GAS RELEASE

5.4.1 Ammonia

The site has significant inventories of liquid ammonia storage. These include:

1. 12,000 tonnes of anhydrous liquid ammonia stored in an atmospheric tank with bund at -33°C and atmospheric pressure.
2. One ammonia feed tank containing up to 15 tonnes of liquid ammonia at atmospheric temperature.
3. numerous items of equipment and piping within plant areas which contain minor inventories of liquid ammonia.
4. the site also bottles liquid ammonia into small containers of 25kg to 2 tonnes capacity. There may be a significant stockpile of such containers on the site at the Triella Plant.

Liquid ammonia expands rapidly to form a toxic gas cloud at atmospheric pressure and temperature. Depending upon the vapour temperature and the amount of liquid ammonia entrained with the vapour the gas cloud may slump and appear heavier than air (high proportion of entrainment) or readily disperse (high temperature, nil entrainment).

The site has the potential to release ammonia in such quantities as to present a significant hazard for offsite persons.

The site also stores and handles aqueous ammonia in varying concentrations. At concentrations over approximately 16%, aqueous ammonia can evolve ammonia vapour at a detectable level. Generally, the ammonia vapour is in concentrations in the irritant range rather than the health effect range and is less likely to cause an offsite impact than a liquid release.

Typical response to an ammonia leak will be to seek the means to isolate / plug the leak, depressurize and reduce the inventory, and reduce the escape of vapours via the deployment of fixed, portable monitors and spray curtains.

A Steam ring is installed on V101 which can be used to assist in dispersing ammonia vapours from a leak within the tank bund.

For further information see [*ESIP Section 7: Emergency Tactical Plans. Toxic Liquid / Gas Release- Ammonia*](#)

5.4.1.1 Ammonia K2 Wharf Shipping Import / Export Operations

In the event of an incident during Ammonia Shipping Import / Export operations the incident will be managed in accordance with the [*K2 Wharf Ammonia Operations Emergency Procedure*](#).

5.4.2 Chlorine

Chlorine is used in cooling water treatment in the Ammonia Plant Cooling Tower and is stored in 920kg drums. When released to atmosphere chlorine gas presents a significant toxic hazard to personnel, responders and offsite industrial neighbours.

Chlorine is a strong oxidising agent and can violently react with combustible materials. The products of these reactions can be hazardous (e.g., it will react with ammonia and forms explosive nitrogen tetrachloride). It should therefore be treated with caution and any clean-up undertaken by experienced personnel.

The most likely escape scenario on the site would be a damaged drum, leaking valve or line failure, allowing gas to escape to atmosphere.

Typical response to a chlorine leak will be to seek the means to isolate / plug the leak, depressurize and reduce the inventory, and reduce the escape of vapours via the deployment of portable monitors and spray curtains.

For further information see [*ESIP Section 7: Emergency Tactical Plans; Toxic Liquid / Gas Release- Chlorine*](#)

5.4.3 Nitrogen Oxide / Dioxide (NOx) Leaks

Nitrogen oxide and nitrogen dioxide are produced as intermediates in the manufacture of nitric acid. When released to atmosphere nitrogen dioxide gas presents a significant toxic gas hazard to personnel and responders. NOx can also evolve during a fire involving AN, decomposition of AN solutions and as a result of spillage of unbleached nitric acid (acid with a high concentration of dissolved NOx).

Typical response to a NOx leak will be to seek the means to isolate / plug the leak, depressurize and reduce the inventory, and reduce the escape of vapours via the deployment of fixed, portable monitors and spray curtains.

For further information see *ESIP Section 7: Emergency Tactical Plans: [Toxic Gas Release- Nitrogen Oxide / Dioxide \(NOx\) Leaks](#)*

5.5 CORROSIVE LIQUID LEAKS

For further information see *ESIP Section 7: Emergency Tactical Plans: [Corrosive Substance Leaks](#)* emergency scenario.

5.5.1 Nitric Acid

The site maintains significant storages of nitric acid. Spillage of nitric acid from pipelines and tanks results in a significant potential for injury or environmental damage due to the acidic nature of the liquid as well as the acid mist / vapours released to the immediate atmosphere. Nitric acid when in contact with metal can also liberate hydrogen gas which can be explosive. NOx can also be released when the acid contacts organic materials.

5.5.2 Other Corrosive Liquids

Smaller quantities of other corrosive liquids, such as sulphuric acid, hydrochloric acid and sodium hydroxide, are also stored and used on the site, mainly in cooling water treatment and the demineralised water treatment plant. Spillage from pipelines and tanks has the potential for injury and environmental damage.

5.6 OTHER TOXIC, CARCINOGENIC OR CORROSIVE MATERIALS RELEASE

A range of materials that may be toxic, carcinogenic or corrosive are used and stored onsite. Some exist in significant quantity (e.g., MDEA), some only exist during specific operations or maintenance work (e.g., chemical cleaning), and some exist in only trace amounts in catalysts (e.g., chromium, nickel carbonyl), or as trace amounts of historical contamination (e.g., arsenic). These materials may be released to the atmosphere (possibly at height) or to ground. Where possible, attempts to contain the release of these materials should be implemented due to potential health effects to people or environmental impacts.

For further information see *ESIP Section 7: Emergency Tactical Plans: [Other Toxic, Carcinogenic Materials Release](#)* emergency scenario.

5.7 OTHER EMERGENCIES

The following events also have the potential to constitute an emergency, either on their own, or by causing or escalating into the type of emergency described in *Sections 4.1. to 4.5:*

- Storm – involving gale force wind, torrential rain, thunder and lightning, with potential injury to personnel, damage to plant, leaks of toxic, corrosive or flammable materials and fires.
- Storm surge / tsunami/ flood – involving inundation of the site, with potential injury to personnel, damage to plant, leaks of toxic, corrosive or flammable materials, and fires see *ESIP Section 7: Emergency Tactical Plans: [Storm surge / tsunami / flood](#)*
- Earthquake – involving ground movement, abnormal stress loads on structures, pipes and vessels,

and potential disruption to services such as water and power, potential injury to personnel, damage to plant, leaks of toxic, corrosive or flammable materials, and fires see [ESIP Section 7: Emergency Tactical Plans: Earthquake](#)

- Electricity supply failure – involving arc flash, electrical fire and explosion, with injury to personnel and fires.
- Bomb threat/ Suspicious Package – requiring locating the threat, evacuating areas of the site and removal of the threat see [ESIP Section 7: Emergency Tactical Plans: Bomb Threat](#) and [Suspicious Package](#)
- Anti-social activity / trespass / protest – requiring protection of on-site personnel and the personal safety of the offenders until removed from the site see [ESIP Section 7: Emergency Tactical Plans: Anti-social activity / trespass / protest](#).
- Security breach / theft – including loss of ammonium nitrate, which is classified as a security sensitive dangerous substance, requiring notification and investigation by the relevant authorities. Theft of know illicit drug making or explosive making precursors.
- Health related medical emergencies- cardiac arrest, anaphylaxis, stroke, asthma etc.
- Vehicle incident– with potential injury to personnel, damage to plant, leaks and fire
- Combustible materials fires – e.g. vegetation, pallets, workshops, stores, lab, offices etc. – with potential injury to personnel, evacuation of affected area and firefighting see [ESIP Section 7: Emergency Tactical Plans: Combustible Material Fires](#)
- Emergency occurring with persons at height – requiring rescue and provision of first aid
- Emergency occurring with persons in confined space – requiring rescue and provision of first aid

Note: A site requirement for any work carried out in confined spaces or at heights is that the people undertaking the work will identify how people will be rescued as part of their initial risk assessment. The people carrying out the work will be responsible for carrying out the initial response, and if required supported by the Incident Response Team, and must have all necessary equipment and resources to achieve this.

6 LEVELS OF EMERGENCY

Where insufficient information exists to adequately identify the level of emergency, this Plan requires that the emergency be treated as an Offsite Emergency and the response strategy will be developed on that basis, including notifying the emergency services.

If there is any doubt that the incident is an emergency, the protocol will be followed, and an emergency will be declared.

Incidents can occur at any location on the site. The person discovering the incident will make a rapid assessment of the response requirements (e.g., immediate, needs assistance) and the likely consequences (e.g., injury, fatality, equipment damage, offsite effects).

If the response requirements and likely consequences are assessed to require evacuation of personnel onsite to safe houses, and/or the marshalling of all potential emergency response resources available to the Site, the incident is a site emergency.

In considering the likely consequences of an emergency, personnel will consider:

- Immediate danger to personnel
- Immediate danger to people offsite
- Whether assistance from emergency services is required
- Environmental damage

If the response requirements and likely consequences are assessed to not require declaration of a Site Emergency, or there is uncertainty, the person reports the incident to the relevant Plant Team Leader. The Team Leader will also assess the incident as above, using the SIZEUP assessment, as outlined in [SIZEUP/ RECEO](#). Based on this SIZEUP, the Team Leader may confirm that the incident is a Local Emergency or may declare a Site Emergency and/or an Offsite Emergency.

The site induction covers the initial response for all personnel onsite to an incident. and how all personnel can initiate an emergency response. Completion of the site induction is a requirement for all personnel, both

contractors and employees. Visitors are provided with a Visitor Induction and are always accompanied by an inducted contractor or employee

A Site Emergency is declared, and this Emergency Plan is activated in one of two ways:

1. Sounding of the Site emergency siren – if there is **an immediate threat** for personnel onsite to report to safe houses.
2. Requesting emergency assistance from a member of the Site Management Team – if there is **no immediate threat** onsite but the full capability of the Site's emergency response resources are required.

If the Site emergency siren is not sounded, the protocol for anyone to declare an emergency is:

1. Contact a member of the Site Management Team as soon as possible (or request the Gatehouse Security Guard to do so).
2. Report incident.
3. Request emergency assistance.
4. Nominate Plant Incident Commander.
5. The Manager will then contact the rest of the Site Management Team to form the Incident Management Team.

This plan is based on using SIZEUP techniques to classify an emergency at three levels:

1. Level 1: Local Emergency
2. Level 2: Site Emergency
3. Level 3: Offsite Emergency

If the emergency occurs outside of normal business hours, [KI Management Team Call Out Procedure](#) should be followed to contact the On-Call Manager and Incident Management Team.

6.1 EMERGENCY CLASSIFICATION MODEL

6.1.1 Level 1: Local Emergency

A Level 1- Local Emergency is characterised by:

- An emergency where the impacts on people, property and the environment are expected to be confined to a specific location within the facility and no escalation is expected.
- Incident is usually able to be resolved through the use of local or initial response resources only and reported as required by the Incident Reporting procedures.
- Assistance of emergency services may be required.

Examples of Level 1 Incidents include:

- Small fires that can be extinguished with a fire extinguisher or hose reel without danger to the person using the firefighting equipment.
- Minor plant issues that aren't likely to escalate.
- Minor spills of chemicals involving small quantities that do not affect surrounding areas or personnel and do not require breathing apparatus or chemical splash suits.
- Minor injuries that do not require the initiation of the Emergency Plan and where the person can be treated locally or transported to the Medical Centre for additional treatment

6.1.2 Level 2: Site Emergency

A Level 2- Site Emergency Incident is characterised by:

- An emergency where the impacts on people, property and the environment are expected to spread to or affect all parts of the facility, but not offsite
- May be more complex either in size, resources or risk. They may require the delegation of functional responsibilities and hence a small IMT structure. They are characterised by the need for either:
 - Deployment of resources beyond the initial response.
 - Sectorisation of the incident which may involve different work areas.

- The establishment of functional groups due to the level of complexity; or
- A combination of the above.
- Assistance will be required from emergency services (i.e., Fire and Rescue NSW, NSW Police or NSW Ambulance Service), or other emergency response organisations external to the site.

6.1.3 Level 3: Offsite Emergency

A Level 3- Offsite Emergency is characterised by:

- An emergency where the impacts on people, property and the environment are expected to impact both within the facility and beyond the boundary of the facility.
- The size or degree of complexity and consequences that may require the establishment of significant resources and structure for the effective management of the situation.
- Declaration of a Level 3- Offsite Emergency will always prompt the assistance of emergency services and may also require assistance from organisations such as the EPA, NSW Health and disaster relief organisations.

Examples of an Offsite Emergency are:

- significant leak/spill of chlorine gas (possibly >100kg), ammonia (possibly > 300kg) or large ground level release of NOx
- large fire in an AN Plant area containing AN inventory >1000 kg.

6.1.4 Emergency Siren Use

The Site emergency siren is to be sounded for **any** uncontrolled release of a toxic gas/liquid (e.g., ammonia, NOx). Each Site emergency siren is to be treated as a toxic gas release by site personnel until otherwise advised - that is, personnel are to move to safe houses, shut down air conditioning and close all external windows and doors. This is covered in the site induction.

Typical examples of a site emergency where the Site emergency siren would be sounded are:

- fire, with potential for explosion, in an AN area
- fire, with potential for explosion, in the ammonia plant area
- escape of hazardous gases or liquids in quantity, e.g., ammonia, chlorine

6.2 MAJOR HAZARD FACILITY- MAJOR INCIDENT

The declaration of certain Level-2 Site Emergency or Level 3- Offsite Emergency may meet the requirements of the Work Health and Safety regulation definition of a **"major incident"** at a major hazard facility which is an occurrence that:

- a) results from an uncontrolled event at the major hazard facility involving, or potentially involving, Schedule 15 chemicals, and
- b) exposes a person to a serious risk to health or safety emanating from an immediate or imminent exposure to the occurrence.

Note: "occurrence" includes any of the following: escape, spillage or leakage, implosion, explosion or fire.

Orica Kooragang Island will immediately implement the Emergency Plan and notify emergency services via 000 if:

- a major incident occurs in the course of the operation of the Kooragang Island Major Hazard Facility
- an event occurs that could reasonably be expected to lead to a major incident at the Kooragang Island Major Hazard Facility

Potential Major Hazard Facility Major Incident Hazards include (but not limited to):

- Fire involving or near to ammonium nitrate
- Uncontrolled thermal decomposition of AN solutions

- Toxic liquid / gas release- ammonia
- Toxic liquid / gas release- chlorine

6.3 KOORAGANG PRECINCT EMERGENCY SUB PLAN

In accordance with the Kooragang Precinct Emergency Sub Plan, as required, Orica Kooragang Island will:

- a) Notify NSW Police and/or FRNSW (depending on the nature of the incident) of any accidents where there is a loss of product with the potential to impact on the facility or public.
- b) Assist with the assessment of the decision to evacuate
- c) Provide ongoing advice on the nature and impact of any product release
- d) Assist in the clean-up of any contamination due to the incident and implement an environmental monitoring program, if necessary; and
- e) Provide, if requested, a Liaison Officer.

7 EMERGENCY FUNCTIONS AND ORGANISATIONAL STRUCTURE

7.1 SITE EMERGENCY RESPONSE ORGANISATION STRUCTURE

The Kooragang Island site emergency response organisation for all levels of site emergency requires the formation of some, or all of the following, 3 response teams:

1. Incident Management Team
2. Incident Response Team
3. Incident Support Team

7.2 COMMAND AUTHORITY

In summary:

- The Plant Incident Commander is the command authority for the emergency, until the Orica Incident Controller is in place.
- Once the Orica Incident Controller is in place, they become the command authority for the emergency. The Plant Incident Commander remains in control of all operational response activities at the scene, unless relieved by the emergency services,
- The Orica Incident Controller remains the command authority for the emergency, unless relieved by the emergency services.
- Note: During an afterhours incident, the Plant Incident Commander assumes the role of Orica Incident Controller until relieved by the Orica on Call Manager

7.3 INCIDENT MANAGEMENT TEAM (IMT)

The site Incident Management Team comprises various people in management and technical roles at the site capable of fulfilling a variety of emergency management roles.

The structure of the Incident Management Team is based on the same system (AIIMS) used by a number of New South Wales Emergency Services/ Agencies. It enables the integration of activities and resources from multiple agencies when responding to and resolving an incident. This system provides for interoperability between the K.I Operations and any external emergency service agency, if needed. It also delivers a structured, scalable and flexible emergency management approach.

Members of the IMT have been trained in Incident Control Systems, consistent with AIIMS, so as to efficiently integrate with the emergency service's organisational structure for a significant Site or External Emergency.

The Site Manufacturing Centre Manager, or their nominated delegate, shall perform the role of Orica Incident Controller.

The Orica Incident Controller (OIC) is the leader of the Incident Management Team (IMT) and is responsible for ensuring competent personnel are engaged in the key emergency response roles.

As requested, the Orica Incident Controller will either provide or act as an Orica Liaison Officer in accordance with the requirements of the Kooragang Precinct Emergency Sub Plan to support emergency services.

The IMT has been structured so that 7 key roles report directly to the OIC. All other IMT roles report to one of these key roles (see *Figure 7.3*).

All communication within the IMT is along the reporting lines.

The *Orica K.I IMT Structure* includes up to four functional sections reporting to the *Incident Controller*, as shown in **Figure 7.3**. The functional sections include:

- Operations Section
- Planning Section
- Logistics Section
- Public Information Section

Further details of the team's roles are contained in [Emergency Response and Incident Management Procedure Section 5.5](#) and in the role cards in [Incident Management Team Role Cards](#)

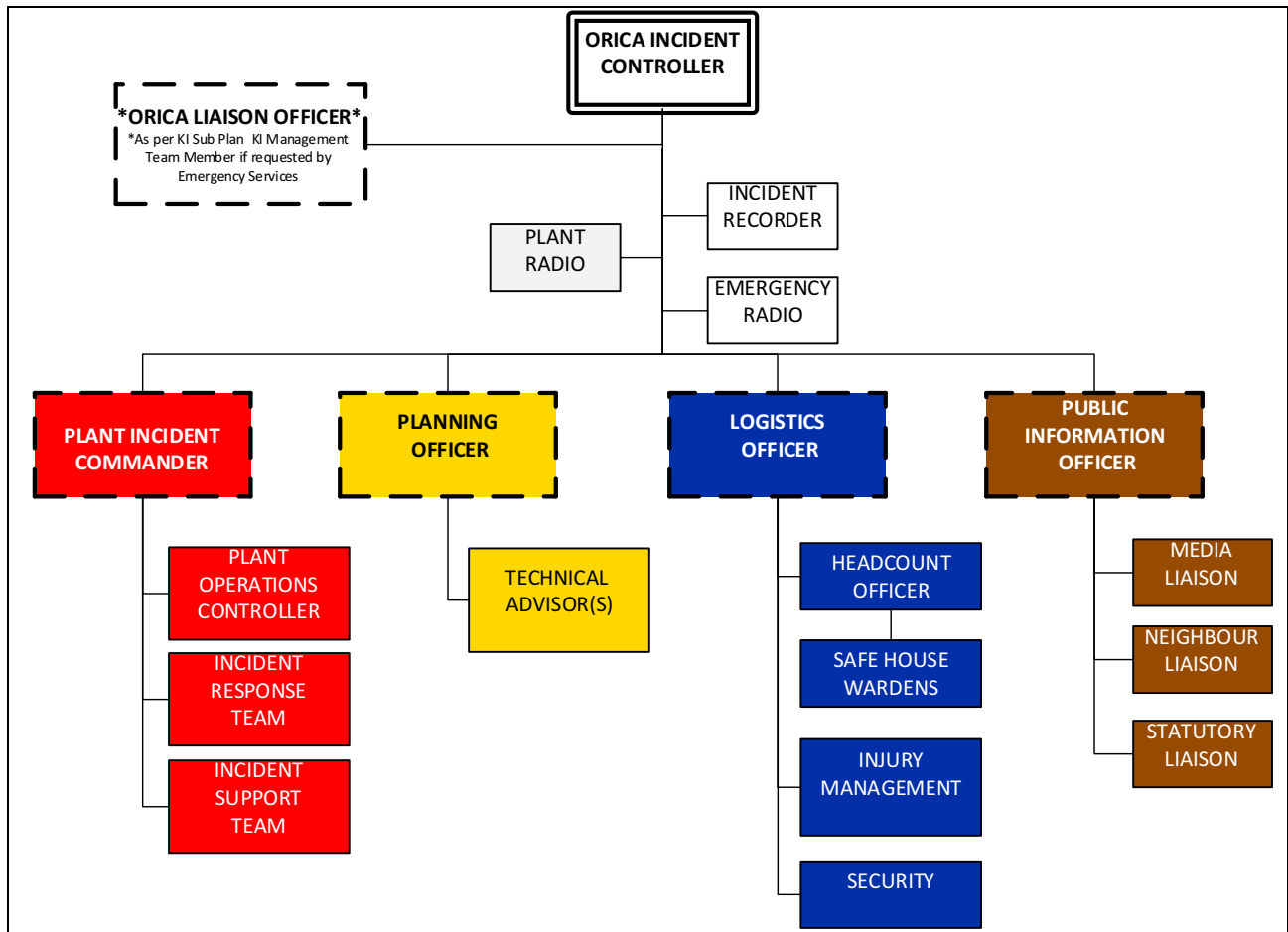


Figure 7.3: Incident Management Team Structure

7.4 INCIDENT CONTROL

7.4.1 Orica Incident Controller

Typically, the Site Manufacturing Centre Manager or nominated delegate. This role is to lead the Orica Incident Management team, coordinate the overall response to the emergency and ensure that the emergency is managed consistent with the response objectives.

The Incident Controller will decide the most suitable size and composition of the Incident Management Team, based on the incident and available information

The Incident Controller Coordinate the overall response to the emergency and ensure that the emergency is managed consistent with the response objectives.

The Orica Incident Controller remains the command authority for the emergency, unless relieved by the emergency services.

As requested, the Orica Incident Controller will either provide or act as an Orica Liaison Officer in

accordance with the requirements of the Kooragang Precinct Emergency Sub Plan to support emergency services.

7.4.2 Orica Liaison Officer

The Orica Liaison Officer if requested is responsible for, representing and providing a link between Orica K.I and external emergency services (e.g., LEOCON, Combat Agency Incident Commander, Emergency Operations Centre) in accordance with the KI Sub Plan.

The Orica Liaison Officer maintains communications with and conveys directions/requests to Orica from external emergency services and provides advice on the status, capabilities, actions and requirements of Orica in response to an emergency incident.

The Orica Liaison Officer role involves providing Orica-specific advice, access to resources and contributing to decision making. It is imperative that personnel undertaking this role have the authority to act on behalf of Orica and are authorised to commit organisational resources.

The Orica Incident Controller will either provide (as a nominated delegate) or act as an Orica Liaison Officer in accordance with the requirements of the Kooragang Precinct Emergency Sub Plan to support emergency services.

7.4.3 Incident Recorder

The Incident Recorder reports to the Orica Incident Controller they monitor all communications (radio, verbal, phone) and record times and details of key events. The Incident Recorder provides a direct support and assistance role to maintain an accurate record of all actions, directives and communications in a permanent chronological record of the incident.

7.4.4 Emergency and Plant Radio

The communications on behalf of Incident Controller with PIC, IRT, Safe House Wardens and Industrial Neighbours.

7.5 OPERATIONS SECTION

7.5.1 Operations Section Overview

The Operations Section is led by the Plant Incident Commander and reports directly to the Incident Controller and is responsible for:

- Implementing strategies, identified through the Incident Action Plan, to resolve the incident.
- Managing all the resources that have been allocated by the Incident Controller to resolve the incident.
- Providing specialist technical guidance on control and remediation of the incident, for example, plant isolations.
- Commanding and coordinating all field operations including fire and first aid response
- Coordinating and managing staging areas.
- Managing plant operations.

7.5.2 Plant Incident Commander

Typically, the plant area Team Leader, or senior operator. This role is to lead the operational response to the incident on their plant. They are trained to perform the initial SIZEUP of the incident, develop appropriate tactics, radio for support from support teams, coordinate IRT response, and initiate the action plan consistent with priorities.

The Plant Incident Commander is the command authority for the emergency, until the Orica Incident Controller is in place.

7.5.3 Incident Response Team (I.R.T)

The relevant plant operations team, they are led by the Plant Incident Commander.

Roles may include:

- communications
- emergency shutdown of plant
- search and rescue
- first aid
- isolations and venting of plant sections
- firefighting and/or toxic gas suppression

Further details of the team's role are contained in [Emergency Response and Incident Management Procedure Section 5.3.](#)

7.5.4 IRT Operational Control / Response Areas

The Incident Response Team will derive from the plant where the incident is occurring, i.e., either Ammonia or Nitrates teams, unless that team has suffered a significant impact (e.g., injuries) that prevents the team from responding. Each team will have a designated leader. The team leader will identify and appoint available personnel to the various roles required in the team.

See [ESIP Section 1: Kooragang Island Plant Incident Response Areas Map.](#)

7.5.5 Incident Support Teams

Incident support teams comprise suitably skilled personnel who can render appropriate assistance to the Plant Incident Commander in responding to the emergency.

These will be members of other teams (e.g., maintenance teams, SHES, Technical or plant operations teams not directly involved in the incident Ammonia, Nitrates, despatch or Triella) who will be tasked to undertake specific activities by the Plant Incident Commander such as meet and direct emergency services, contact IMT members, provide first aid care to casualties, source additional equipment.

Security Officers perform communication activities as directed by either the Plant Incident Commander or the Incident Management Team. This will typically include contacting appropriate emergency services and, after hours, contacting the on-call manager and incident management team. After hours, the Security Officers also monitor the site headcount system. The Security Officer role card is in [Incident Management Team Role Cards](#)

Further details of the team's role are contained in [Emergency Response and Incident Management Procedure Section 5.4.](#)

7.6 PLANNING SECTION

7.6.1 Planning Section Overview

The Planning Section is led by the Planning Officer who is identified by wearing the yellow tabard. The

Planning Officer reports directly to the Incident Controller and is responsible for:

- Preparing and delivering plans and strategies required to help control the incident.
- Establishing and maintaining a resource management system for all of the resources that have been allocated to the incident.
- Assembling, maintaining and providing incident information for the formulation and implementation of Incident Action Plans.
- Establishing, managing and communicating with a planning sub-group, if necessary, given the size and complexity of the incident.

- Developing and documenting Incident Action Plans, in conjunction with other Incident Management Team members.

The Planning Section will be supported by Technical Advisors reporting to the Planning Officer to assist in the implementation of the above requirements.

7.7 LOGISTICS SECTION

7.7.1 Logistics Section Overview

The Logistics Section is led by the Logistics Officer who is identified by wearing the blue tabard. The

Logistics Officer reports directly to the Incident Controller and is responsible for:

- Rapidly accounting for all personnel on site, via facilitating the efficient and effective headcount of personnel via the Headcount Officer, and use of site Security Systems.
- Liaising with on behalf of the Incident Controller Safehouse wardens.
- Providing / Supporting Injury Management activities.
- Ensuring physical security of the site and site security postering is maintained.
- Acquiring and distributing equipment and materials to support the incident response.
- Obtaining, managing and maintaining facilities, including permanent or temporary facilities, to support operations and incident control.
- Providing transport for personnel and distribution of equipment, supplies and food.

7.7.2 Headcount Officer

The Headcount Officer reviews the site muster reporting system to determine missing personnel and take action to locate these unaccounted-for people.

In the event that part, or all, of the site muster reporting system fails, a back-up headcount procedure is managed by the Headcount Officer and the safe house wardens and is outlined in their role cards [Incident Management Team Role Cards](#). The backup headcount procedure is a paper-based procedure with all required supplies stored in each safe house emergency response kit.

7.7.3 Safe House Wardens

Safe house wardens are responsible for communications between the Site Incident Management Team and the personnel in their safe house and ensuring that the personnel in the safe house follow the instructions of the Orica Incident Controller. Safe house wardens' role cards are located in each safe house and are specific to their area. Electronic copies are in procedure [Safehouse and Fire Warden Role Cards \(OEL No. 1959133\)](#).

7.7.4 Injury Management

The Injury Management role focuses on management of onsite casualties, their families and their workmates. The Injury Management role coordinates all necessary arrangements for family members of personnel involved in the incident. The Injury Management role may require multiple people to assist by accompanying people to hospital.

The Injury Management role will assist with the coordinating and arranging employee assistance and counselling in response to the incident and other duties as outlined in their role cards [Incident Management Team Role Cards](#).

7.7.5 Security Officers

Security Officers perform communication activities as directed by either the Plant Incident Commander, Orica Incident Controller or the Logistics Officer. This will typically include contacting appropriate emergency services and, after hours, contacting the on-call manager and incident management team. After hours, the Security Officers also monitor the site headcount system. The Security Officer role card is in [Incident Management Team Role Cards](#).

7.8 PUBLIC INFORMATION SECTION

7.8.1 Public Information Section Overview

The Public Information Section is led by the Public Information Officer who is identified by wearing the brown tabard. The Public Information Officer reports directly to the Incident Controller and is responsible for:

- Provide liaison and communications between the facility and relevant external organisations and stakeholders.
- Provide liaison and communications between Orica K.I and Regional Crisis Management Team.
- Development of Incident Communications plan.
- Coordinating and arranging on site media requests.
- Draft releases in consultation with IMT for Corporate Affairs approval.
- Direct & manage all media that turn up to site.

7.8.2 Neighbour Liaison

The Neighbour Liaison role focuses on communicating information that may be required by Orica's industrial Neighbours and Vulnerable / Sensitive Facilities.

7.8.3 Statutory Liaison

The Statutory Authority Liaison role focuses on providing information and other support to Regulatory Authorities and Government Departments.

7.8.4 Media Liaison

The Media Liaison role focuses on information that may be needed by the surrounding community as well as managing the impact of the media during the incident.

Members of the Incident Management Team or site management are not to release public statements on behalf of Orica unless authorised.

Where needed, release of public information or warnings relating to an incident is to be coordinated by the *Public Information Officer* in conjunction with the relevant Emergency Service agency and Orica.

7.9 IDENTIFICATION OF IMT MEMBERS

The following table outlines the means of identifying the key roles during an emergency.

Role	Identifying Feature
Orica Incident Controller	White safety vest with "Orica Incident Controller" in lettering on front and back
Plant Incident Commander	Fluorescent red safety vest with "Plant Incident Commander" in lettering on front and back
Logistics Officer	Blue Vest with Logistics on Front and Back
Planning Officer	Yellow Vest with Planning on Front and Back
Public Information Officer	Brown Vest with Public Information Officer on Front and Back

Safe House Wardens	Fluorescent green safety vest with "Safe House Warden" in lettering on front and back
Orica Liaison Officer	Blue safety vest with "Site Liaison" in lettering on front and back
Observers (used for training exercises only)	Fluorescent yellow safety vests with "Observer" in lettering on front and back

7.10 INTERACTION WITH EMERGENCY SERVICES

A concept of operations for the interaction with emergency services is included in the [Emergency Response and Incident Management Procedure Section 5.7](#).

8 REPORTING AND ACTIVATION OF THE EMERGENCY PROCEDURES

The [Emergency Response and Incident Management Procedure Section 2](#) describes how to report and immediately respond to an emergency and raise the alarm, in order to activate the Site Emergency Plan this includes actions to be taken when:

- Discovering a Toxic, Flammable or Hazardous Gas or Liquid Release
- Discovering a Fire
- Discovering a Casualty or Injury
- During a Bomb Threat
- During all other Emergencies
- Initial advice to be provided to Emergency Services
- Actions to be taken when reporting an emergency by phone or radio.

If an incident occurs that does not fit within the criteria of the above scenarios but poses an actual or potential threat to onsite personnel, people offsite, or the environment, then the Emergency Plan should also be activated.

9 EMERGENCY PROCEDURES

The [Emergency Response and Incident Management Procedure Section 3](#) describes how site personnel and stakeholders should respond to an incident including procedures for:

- Response to Alarm- All Personnel
- Response to Alarm- Plant Incident Commander
- Scenario specific responses
- Headcount procedure
- Evacuation procedure
- Industrial Neighbour response
- Residential Neighbour response.

10 EVACUATION PROCEDURE

The [Site Evacuation Procedure](#) describes the site evacuation processes and procedures.

11 EMERGENCY RESOURCES

A summary of emergency resources is outlined below a register of available equipment is included in the *Emergency Services Information Package*: [ESIP Section 5: Emergency Equipment Manifest](#)

11.1 EMERGENCY CONTROL CENTRE

The Emergency Control Centre (ECC) is the Conference Room in the Administration Building.

If the Administration Building is affected by the emergency, the Orica Incident Controller will nominate an alternate location and advise the Incident Management Team accordingly. Alternate locations include:

- The Operations Control Room building of the unaffected plant
- Alternate off-site locations depending on time of day and nature of the emergency (e.g., the emergency services staging point or the Orica Kurri Kurri Office)

The ECC is equipped with the following:

- Base station radio to communicate on emergency radio channel
- 4 x portable radios
- Orica Incident Controller and emergency services escort tabards
- 1x SCBA
- A1 and A3 laminated Maps
- Full set of engineering line diagrams for the site
- Hardcopy of this plan, and all appendices, including some safety data sheets
- Hardcopy of ERP Folder 1 (Emergency Plan)
- Electronic whiteboard
- Emergency Whiteboard with laminated role cards
- Markers, pens, paper etc.
- Gas detector
- Emergency laptop with security muster system and security cameras installed
- Evacuation kit

Additional computers for IMT emergency response use are located in the PA's office and at the Reception Desk.

11.2 PLANT CONTROL ROOMS

There are three permanent plant control rooms on the site located at the ammonia plant, nitrates plant and ammonia storage. As well as the standard equipment for a safe house, the control rooms are equipped with additional emergency response equipment including:

- Base station for plant radio channel
- Base station for emergency radio channel
- DCS control system interface
- SCBA equipment
- Escape sets
- Fully encapsulated chemical suits
- Fire-fighting clothing
- Gas detectors
- Hard copy of this Emergency Plan
- Laminated SIZEUP/RECEO response cards
- Access to the site public address system
- First aid kits
- Bodily fluid clean up kits
- Defibrillator unit (ammonia and nitrates control room only)

The nitrates control room also has air bottles that could be used to positively pressure the building in case of toxic gas release.

There is one temporary control room at the K2 wharf used when ammonia is exported to or imported from a ship. It has the following emergency equipment:

- Radios (used on plant or emergency channel)
- DCS control system interface
- SCBA equipment
- Escape sets
- Gas detectors
- Safety shower
- Portable monitor and fire hoses
- Emergency stop button for ammonia export

11.3 SAFE HOUSES

There are designated safe houses at various locations on the site (refer to [ESIP Section 4: 10-20000-05 Safehouse Drawing](#) for a location map). Whilst they do not provide complete toxic gas refuge, they allow for some level of protection whilst personnel muster in them and await further instruction from the Orica Incident Controller. All permanent safe houses are equipped with an electronic muster point, a radio on the emergency channel, emergency phone, and a safe house emergency kit. Each safe house has a green safe house warden tabard to be worn to identify the warden as well as a safe house warden role card.

The safe house emergency kits contain sign in sheets for back-up headcount procedure, evacuation maps, rolls of duct tape, scissors, and a bag of rags that can be wetted down to provide additional sealing from toxic gas ingress.

If a project or turnaround has numbers exceeding that which can be handled by the permanent safe houses, a building may be designated as a temporary safe house if approved under the plant modification process. A temporary safe house must contain, as a minimum a safe house emergency kit and an emergency radio. The requirement for a telephone and electronic muster point can be waived if:

- the alternate appropriate safe house warden role card is used
- approved under the plant modification process.

11.4 MAIN GATEHOUSE

As well as the standard equipment for a safe house, the Main Gatehouse located at Gate 1, the main Greenleaf Road site entrance, is equipped with additional emergency response equipment including:

- Base station for emergency radio channel
- SCBA equipment
- Hard copy of this Emergency Plan
- Hard copy of the Emergency Services Information Package
- Access to the site muster system
- Access to the site public address system
- First aid kit
- Defibrillator unit

11.5 MEDICAL CENTRE/EMERGENCY VAN

As well as the standard equipment for a safe house, the Medical Centre contains first aid materials, oxygen therapy equipment and standard medical equipment such as blood pressure monitors. Access to the Medical Centre is available 24 hours a day.

The Emergency Van is located at the Medical Centre and is equipped with stretchers, portable oxygen therapy equipment and SCBAs. Keys for the van are kept / located in the van.

11.6 SAFETY STORE/AIR COMPRESSOR

The Safety Store is located on the eastern side of the site, to the north of the turnstiles. A key for access is held by Security at the Main Gatehouse. The Safety Store is also used as a work area for the contractors who inspect and maintain the safety equipment. An air compressor for refilling SCBA air bottles is located to the south of the safety store. This is maintained by Orica but operated by the safety equipment maintenance contractors.

The Safety Store contains:

- spare air cylinders for SCBA use
- SCBA sets for confined space entry
- spare escape sets
- spare fire extinguishers
- covers to prevent spills entering drains.

11.7 SITE EMERGENCY ALARM SYSTEM

A site emergency is indicated by a siren which is audible throughout the site. Once activated, the siren sounds continuously for 5 minutes and is then silenced. There are 6 siren units at various locations around the site. The siren is also used to sound the All Clear when an emergency has concluded, an all clear siren sounds for 10 seconds and is accompanied by a radio announcement as directed by the Orica Incident Controller.

The siren is tested every Wednesday at 10am when it is sounded for 15 seconds. The location that initiates the siren is rotated each week. If the siren sounds for longer than 15 seconds at 10am on a Wednesday, it is assumed that there is an actual emergency.

Initiation of the alarm is via manual push buttons, at the following locations:

1. Ammonia Plant Control Room
2. Nitrates Control Room
3. Main Gatehouse (Greenleaf Road)
4. Ammonia Storage Control Room
5. Ammonia Truck Loading
6. Ammonium Nitrate Bag Store - Loading Bay Entrance
7. Industrial Ammonia Plant (Triella)
8. Weighbridge Office

An emergency may also be initiated by phoning the Greenleaf Road gatehouse on **(02) 4908 9111** or **x9111**.

The alarm system is intended for on-site personnel only. Other arrangements exist for notifying neighbours or the community if they can be potentially impacted by an emergency.

11.8 ADDITIONAL INDICATORS

Flashing lights are located at the Main Gate (Greenleaf Road) site entrance and Weighbridge Gate (Greenleaf Road) to inform vehicles and people approaching the site of a site emergency.

11.9 EMERGENCY COMMUNICATION SYSTEMS

This section describes the communication systems which are used once the alarm state has been declared.

11.9.1 Radio Network and Emergency Radios

Emergency radios are installed in each of the command centres, control rooms, safehouses and Security Guardhouses at the Orica site, as well as with immediately adjacent neighbours. Each radio is supplied via a battery pack to ensure continued operation in the event of a site power outage.

Nominated radio channels are:

- Channel 1: Ammonia Operations (including Wharf Operations)
- Channel 2: Emergency Communications
- Channel 3: AN Operations
- Channel 4: Maintenance/Back up for Channel 3
- Channel 5: Security

Emergency radios are tested each Wednesday as part of the emergency alarm testing.

In the event of a site emergency the emergency radios are used for the following emergency communications on Channel 2:

- initial communication between the Plant Incident Commander and Orica Incident Controller (via Emergency Radio operator)
- communication between the PIC and Incident Support Team.
- communication between the Orica Incident Controller and Incident Support Team.
- communication from the PIC or OIC to safe house wardens
- promptly conveying important/urgent information from safe house wardens to the OIC or PIC.
- Communication from known hazardous areas within the emergency location.

To minimise communication load on the incident responders, plant radio channels are used for the following emergency communications:

- subsequent communication between the Orica Incident Controller (OIC) and Plant Incident Commander (via Plant Radio operator)
- communication between the Plant Incident Commander (PIC) and incident response team members

In an emergency, it is important to minimise radio traffic to essential communication only.

Areas with emergency radios are identified on the [ESIP Section 4: 10-20000-05 Safehouse Drawing](#) and on the neighbours map in [ESIP Section 1: Neighbour & Vulnerable Facilities Map](#)

11.9.2 Site Telephone System

The site telephone system is used to communicate with safe houses or control rooms in the following circumstances:

- Radio is not being answered
- Confidential information is being communicated (e.g., name of casualty)
- To reduce radio traffic (e.g., informing the IMT of number and names of personnel in safe houses).
- Communication of arrangements for evacuation to safe house wardens

Specific telephone numbers have been nominated to contact each of the safe houses. These are listed on the warden's role cards for each area and on the safe house location map [ESIP Section 4: 10-20000-05 Safehouse Drawing](#)

The site telephone system is also used for communication to external parties (emergency services, government agencies for notifications of the incident, industrial neighbours, Emergency Response Service).

The site telephone system is powered by backup generator; however, handsets that require 240V power (i.e., plug-in "walk around" handsets) will not work during a power outage unless connected to an emergency generator supply. Handsets on Control Room operating panels and in the Emergency Command Centre are supplied with emergency power.

Emergency contact telephone numbers are contained in the below documents and are updated at least annually:

- site personnel: [ESIP Section 6: On Site Contact List](#)
- external agencies: [Emergency Stakeholder Notification Procedure](#)
- neighbours: [Emergency Stakeholder Notification Procedure](#)

11.9.3 Plant Public Address Systems

The public address system operates in plant, workshop and administration areas. It can be used as an alternate means to communicate progress reports on the incident response. Access to the public address system is available from the Main Gatehouse and each of the control rooms.

11.10 FIRE DETECTION AND ALARM SYSTEMS

Some of the buildings and operational areas of the site have fire detectors installed and are monitored by a fire alarm system. All fire alarms go to a fire alarm panel. Some fire alarm panels are installed in control rooms and others are installed in site buildings. All fire alarms repeat to the Main Gatehouse fire alarm panel. Once a fire alarm has been activated, and a fire has been confirmed, consideration should be given to sounding the site emergency alarm to initiate emergency response.

Fire alarms for buildings that are not staffed 24 hours a day are automatically relayed to Fire and Rescue NSW via ADT Monitoring. These areas are equipped with an audible (and some cases, visual) alarm system and are listed in the table below.

Area	Fire alarm is initiated from:
Admin Building	– Smoke detectors – Thermal detectors – One manual call point
Drawing Office	– Smoke detectors – Thermal detectors – One manual call point
Stores Building	– Smoke detectors – Three manual call points
Laboratory Building	– Smoke detectors – Thermal detectors – One manual call point
Catalyst Manufacturing Building	– Thermal detectors
Canteen	– One manual call point
Ammonia Operations Office	– Smoke detectors – Thermal detectors – Two manual call points
Medical Centre	– Smoke detectors
Programme Office and Workshop	– Smoke detectors

Areas equipped with fire alarms that repeat to the Main Gatehouse but not FRNSW are:

- No 1 and 2 substations
- Switch Room 12 – Bottling plant
- Switch Room 23 – Canteen
- Ammonia Control Room
- Nitrates Control Room
- Nitrates Bulk Bin – Upper and Lower
- Nitrates distribution sprinklers and deluge system
- Despatch Workshop – manual call point.

Other areas/equipment that have detection systems connected to the fire alarm panels are:

- All MCCs. They alarm to either the Ammonia Plant Control Room fire alarm panel, or the Nitrates Control Room fire alarm panel depending upon location.
- 103H (Ammonia Plant Air Compressor Building) fire detection system alarms to the Ammonia Plant Control Room fire alarm panel.
- Sprinkler systems on AN conveyor belts alarm to the Nitrates Control Room fire alarm panel or the AN Despatch Offices fire alarm panel. These fire alarm panels repeat to each other.
- Deluge systems on AN areas alarm to the Nitrates Control Room fire alarm panel or the AN Despatch Offices fire alarm panel.

The deluge system at the Ammonia Truck Loading area alarms to the Ammonia Storage Control Room DCS as there are no fire panels in the area.

Fire detection and alarm systems are routinely tested. Routine tests, preventative maintenance and break down repair work are managed in the SAP maintenance system.

11.11 FIRE WATER SYSTEM

The site has a fire water system capable of providing approximately 13000L/min at 800kPa. The pumps provide pressures up to 1200kPa at lower flows. The fire system consists of (see [ESIP Section 4: Fire System and Equipment Drawing 10-20000-13](#) for location drawing):

- Fire water tank (lower third of site towns water tank (known as the Million Gallon tank))
- Two sustaining pumps (20 m³/min at 1000kPa)
- One emergency pump with electric motor
- One emergency pump with diesel motor
- Diesel tank to supply motor (and emergency generator)
- Fire water ring main with three independent feeds from the pumps
- An extensive network of fixed fire hydrants with fire boxes containing related equipment such as nozzles, fire hoses, hydrant tools etc.
- A network foam stores at fire hydrants with foam nozzles and eductors in the corresponding fire boxes
- Three fixed fire monitors
- Portable fire monitors in trolleys
- Fire hose reels in some plant areas
- Deluge systems
- Sprinkler systems.

The components of the fire water system are routinely tested as per AS1851. Routine tests, preventative maintenance and break down repair work are managed in the SAP maintenance system.

11.12 OTHER EMERGENCY RESPONSE EQUIPMENT

Additional emergency response equipment that does not fall into the categories above are:

- Steam ring on V101 – which can be used to assist in dispersing ammonia vapours from a leak within the tank bund
- The site weather station located to the west of the Main Gatehouse that measures atmospheric data such as wind speed, wind direction and ambient temperature at the site. The data is displayed through the emergency visual display, or the Control Room DCS displays. The emergency visual display is available on any PC on the site network (URL <http://10.20.57.10:8085/>) and overlays wind speed and direction information on a site layout map.
- Portable fire extinguishers located in most buildings and plant areas.

11.13 EMERGENCY SHUTDOWN AND ISOLATION

The plants are designed with emergency shutdown (ESD) systems that can be remotely operated from control rooms. These systems initiate trips of main plant items in a manner designed to render the plant in a safe condition.

There is push-button remote isolation/shutdown of the following:

- Each ammonia plant compressor (natural gas, air, syngas, refrigeration)
- Ammonia export from storage
- Natural gas supply to the ammonia plant
- Each natural gas user in the ammonia plant (reformer feed, pre-reformer furnace fuel, reformer furnace fuel, pre-heater fuel, auxiliary boiler fuel, start-up heater fuel)
- Natural gas supply to the OSBH (new and old)
- NAP1 reactor ammonia feed
- NAP1 compressor train
- NAP3 ammonia supply
- NAP3 compressor train
- AN1 Neutraliser trip and drench tank
- AN2 pipe reactor trip
- AN2 92% tank drench
- AN2 Process Steam Separator drench
- Nitrates Ammonia Feed Tank Supply
- Nitrates Ammonia Feed Pumps (Tank Discharge)

Drawing [ESIP Section 2: 10-20000-07](#) in shows the site boundary isolation points for electricity, gas, towns water and reclaimed water.

[ESIP Section 2: Site Boundary Services Isolation Procedure](#) contains a summary of the isolation procedures for each of these services.

11.14 EMERGENCY POWER SUPPLY

Diesel powered emergency generators located at Ammonia Storage, Main Gatehouse and Nitrates provide emergency electrical power to safety critical equipment, including plant control systems and control rooms, emergency lighting, Main Gatehouse safety and security systems, the site data network, radio transmitters, site effluent pH control and the ammonia storage tank refrigeration system. The Ammonia Plant has a steam powered electric generator that will also provide power if electrical power is lost, and the Ammonia Plant is online.

DCS control systems, the emergency alarm system and radio transmitters also have uninterruptable power supplies (UPS) that can provide power for approximately 20 minutes.

Emergency generators and UPS are routinely tested. Routine tests, preventative maintenance and break down repair work are managed in the SAP maintenance system

11.15 SITE SECURITY AND MUSTER REPORTING SYSTEM

The site muster reporting system is used to rapidly account for personnel and to determine if there are people unaccounted for.

On activation of the site emergency alarm, the system automatically tracks the swipe card readers located in each of the safe houses and records each person's details as they enter a safe house. Security at the Main Gatehouse, and the Site Incident Management team have access to the lists and can determine the name of anyone who is swiped into the site, but not yet in a safe house.

The Headcount Officer in the IMT (or the Security Officer after hours) reviews the site muster report and seeks confirmation of the location of people who are unaccounted for. This will typically require broadcasting

the names of unaccounted for people via emergency radio and requesting safe house wardens to inform the IMT via telephone if those persons are present and accounted for.

11.16 EMERGENCY CONTAINMENT OF EFFLUENT AND STORMWATER

A site emergency may require containment of a released hazardous substance, or the fire water used to combat the incident. Effluent created by an emergency would go to at least one of the following three places:

1. The effluent system
2. The stormwater system
3. To ground

In some areas of site, the effluent from an emergency could go to ground. As far as possible this will be prevented using the environmental spill kits located around the site. Spare materials for the kits are carried in the Main Store. If some contamination occurs, this will be assessed as part of the clean-up [Emergency Response and Incident Management Procedure Section 7](#) and remediation carried out if appropriate.

11.16.1 Site Effluent System

The effluent system consists of a network of effluent drains, pits, oil separation pits, the Demineralisation Effluent Tanks, the Nitrates Effluent Pond, the Final Effluent pit and pumps, and the Diversion Pond (500m³). Levels in the Demineralisation Effluent Tanks and Nitrates Effluent Pond fluctuate with the process effluent produced. The Diversion Pond is normally empty with Ammonia Plant operators able to divert the effluent flow into the pond on their DCS. The normal flow of in-specification effluent is to the Hunter River. The overflow from the Diversion Pond also flows to the Hunter River.

Contaminated effluent from an emergency would be held in one of the ponds or effluent tanks until it was tested. The options for disposing of the effluent would be treat and release or removal by an approved waste contractor.

11.16.2 Site Stormwater System

The site stormwater system consists of a network of stormwater drains and six discharge points from the site into the Hunter River for Catchment areas 1 to 6 (refer drawing [ESIP Section 4:10-20000-20](#)). Each discharge point has an isolation valve on the discharge pit from the catchment area to the river. The isolation valves can be closed remotely from the plant control rooms in the event of a spill or firewater runoff into the stormwater system. However, if the site stormwater drains reach capacity, the valve pits will fill and overflow to the river. Some overflow from site stormwater drains may also occur.

Catchment areas 4, 5 and 6 each have a dedicated 110m³ first flush stormwater tank. The tanks automatically fill with the first flush of water from their catchment areas. The tanks normally empty automatically based on tank level but when the isolation valves are closed the automatic pump-out capability is disabled. Contaminated water from an emergency would be recovered from the tanks by an approved waste contractor.

11.17 MAINTENANCE OF EMERGENCY RESOURCES

Orica Kooragang Island is committed to ensuring that all emergency equipment and resources are available, fully maintained and is in a state of operational readiness at all times. The maintenance and testing of emergency equipment is covered by a number of systems:

- Emergency notification and communication systems are tested weekly.
- Fire systems infrastructure is maintained under contract with the designated fire services contractor. This includes weekly checks of automatic sprinklers and deluge systems, monthly checks of fire alarms and fire detection systems, and yearly checks of hydrants and hoses.
- Fire water pumps are maintained by Orica maintenance teams. This includes routine maintenance performed at quarterly, 6 monthly and yearly intervals.
- Emergency equipment, including fire extinguishers and SCBA are maintained under contract with designated contractors. This includes 6 monthly inspection of fire extinguishers and maintenance of other emergency equipment as identified by the weekly inspections of the equipment by the relevant

- operations team.
- First aid equipment is maintained by a designated contractor and is inspected every 6 months. The equipment within the emergency vehicle is maintained by the service providers detailed above by the SHES team.

The effectiveness of maintenance of emergency equipment is assessed as part of critical control audits.

12 TERMINATION OF AN EMERGENCY

The [*Emergency Response and Incident Management Procedure Section 7*](#) describes the process to be followed to effectively terminate an emergency and return the facility to normal operations, these include the processes for:

- Handback of site to Orica by External Emergency Services
- Risk Assessment
- Declaring All Clear on the radio network.
- Decontamination procedures
- Overhaul activities including post incident Health, Environmental and Communication Management
- Post Emergency Debrief processes

13 MANAGEMENT OF THE EMERGENCY PLAN

13.1 TRAINING AND EDUCATION

The site training matrix is located in the Orica Learning Management System specifies the training requirements for ensuring that all personnel on site can undertake their roles in the Emergency Plan.

Orica K.I has determined the following emergency training requirements including:

- **Site induction** – all personnel complete a site induction prior to commencing on the site, which covers details of emergency arrangements, including nature of emergencies, emergency alarm, safe house location, muster point operation etc.
- **Incident response** – specific training programs for incident responders cover aspects including SIZEUP, RECEO, incident command and communications and use of emergency equipment, including firefighting and breathing apparatus.
- **Incident Management Team** – specific training programs for personnel with incident management team roles covering aspects such as AIIMS, ESIP requirements, Stakeholder Notification, emergency communications etc.
- **Visitors:** All visitors will be instructed in the actions they should take if the emergency plan is implemented while the person is on-site during the Visitor induction.

Emergency training records will be managed by Orica within the Orica Learning Management System.

13.2 EXERCISES AND TESTING OF THE PLAN

A schedule of emergency exercises will be developed by the Security and Emergency Response Superintendent, scenarios will be chosen to cover a range of possible events identified in this plan.

Emergency exercises will be planned to test particular aspects of the plan and key performance criteria will be established for each exercise (e.g., accuracy of initial SIZEUP, time taken to call emergency services, time taken to account for all personnel onsite etc).

A range of emergency exercises such as evacuation drills, desktop emergency scenarios, emergency simulations, emergency services site visits will be conducted to be undertaken by Incident Management Team, Plant Incident Response Teams and site personnel. These exercises allow for targeted emergency

training of these emergency team members, these emergency exercises will be chosen to cover a range of possible events identified in this plan.

The site will hold at least 1 major emergency exercise per annum, involving sounding of the emergency alarm, activation of the emergency plan and on-site response the simulated scenario, and participation of external emergency services (where available).

A full debrief (After Action Review) of each exercise (and incident) will be undertaken, a copy of the After-Action Review report and associated actions will be managed within the Orica K.I Risk Register.

13.3 RECORD KEEPING

Records and relevant information relating to the incident response are critical for post-incident evaluation and investigation. Event logs and records are developed in a range of formats, suitable for the incident. This may include electronic records, CCTV, voice recordings, hand-written notes or photographs of status boards.

All Incident Management Team members are to maintain personal chronological logs. They should detail discussions, actions, decisions and reasons for decisions.

Issue of written reports to governmental agencies will typically require review by Orica legal counsel.

13.4 SUPPORT ACTION

13.4.1 Development of the Plan

Kooragang Island site has had an emergency plan in place since its inception in 1969. The plan has been updated and revised numerous times to take in to account changes and developments on the site, change of site ownership, change in best practise in hazardous industry emergency planning and changes to regulations.

Many guidelines were used to prepare the Emergency Plan including:

- Guide for Major Hazard Facilities: Emergency Plans. Safe Work Australia.
- Hazardous Industry Planning Advisory Paper No. 1: Emergency Planning
- NSW Work Health and Safety Regulation 2017 - Schedule 16.

The Australian Fire and Emergency Services Authorities Council (AFAC) has developed the Australasian Inter-service Incident Management System (AIIMS). This provides the basis for the Orica Kooragang Island Emergency Plan.

This system provides for interoperability between the operation and any emergency service agency, if needed and delivers a structured, scalable and flexible emergency management approach.

The plan also incorporates the requirements of Group Standard 30: SHES Risk Management and Group Procedure SHES Emergency Management.

This version of the plan also links to the risk management processes in place on the site as required by Orica Group Procedures SHES Risk Management on Operating Sites and SHES Hazard Studies. As such, it directly relates to the hazard scenarios that have been identified for the site and forms a critical mitigating control for many of these scenarios.

13.5 CONSULTATION

Over the life of the Kooragang Island Emergency Plan extensive consultation has been undertaken with the various State and local agencies, neighbouring facilities including Major Hazard Facilities, community and Orica Kooragang Island employees, and further consultation will be undertaken whenever there is:

- significant change to the nature of the hazards and therefore the emergency scenarios in the plan
- significant change in the emergency management systems and structure on the site
- during debrief from actual or simulated emergencies where the agency, neighbour or community was

involved.

13.5.1 Consultation with External Agencies

In preparing and updating the emergency plan Orica K.I will consult with the below External Agency stakeholders via the following personnel as required:

Fire and Rescue NSW:

- SafeWork Liaison to Major Hazard Facility Team
- FRNSW Zone Commander (or delegate)

NSW Police Force:

- SafeWork Liaison to Major Hazard Facility Team
- Local Area Commander Newcastle Police District (or delegate).
- Hunter / Central Coast Regional Emergency Management Officer.

NSW Health:

- NSW Ambulance Commander (or delegate)
- Hunter New England Local Health District – Environmental Health Unit

13.6 COMMUNICATION

13.6.1 Site Workers

Updates to the Kooragang Island Emergency Plan will be communicated within the Site by means of a Factory Notice. In addition, where required a plan will be developed to ensure that key personnel such as the PIC, OIC, IRT and IMT are made aware of any changes and receive training, as required.

This emergency plan forms part of the Kooragang Island Safety, Health, Environment and Security Management System and is available on the Orica Enterprise Library.

13.6.2 Industrial Neighbours

Orica Kooragang Island holds an annual meeting with the geographically closest industrial neighbours to review emergency arrangements. Updates to the site Emergency Plan would be communicated at this annual meeting.

13.6.3 Vulnerable / Sensitive Neighbour Briefings

Orica Kooragang Island undertakes a series of vulnerable / sensitive neighbour briefings the purpose of the sensitive neighbour briefings allows for sensitive neighbours to:

- Answer any questions they might have about the Orica Kooragang Island site, operations or Emergency Plan
- Ensure sensitive neighbours understand the potential emergency scenarios associated with Orica's operations
- Encourage sensitive neighbours to ensure their Emergency Plans incorporate procedures for Orica-related emergencies.
- Update sensitive neighbours on projects to reduce the likelihood of an emergency with off-site impacts.

13.6.4 Newcastle City Council Local Emergency Management Committee

On invitation or request Orica Kooragang Island will undertake a briefing of the Newcastle City Council Local Emergency Management Committee (LEMC) to allow the LEMC to:

- Provide an overview of Orica's Emergency Management processes.
- Answer any questions they might have about the Orica Kooragang Island site, operations or

- Emergency Plan.
- Provide awareness of the vulnerable facilities / sensitive neighbours that could be impacted by an Offsite Emergency from Orica's operations.
- Ensure the LEMC is aware of the response procedures for Orica-related emergencies.
- Ensure all LEMC members are aware that they have access to the Orica K.I Emergency Plan via the NCC LEMC SharePoint page.

13.7 NOTIFICATION AND REPORTING

Where an emergency occurs that may require notification to a statutory authority or agency, for example SafeWork NSW, the Orica Incident Controller where reasonably practicable will prevent disturbance of the site until permission to undertake restoration activities has been received.

The OIC shall ensure that there is no interference with evidence and that any cleaning up, movement of bodies, repairs etc. apart from that necessary to bring the emergency under control does not occur without approval of the external agency.

Government agencies (e.g., EPA, SafeWork NSW, NSW Health) also have reporting requirements for incidents such as serious injuries, fatalities, dangerous incidents, major hazard events and pollution incidents.

Immediate notification procedures for government agencies are detailed in [Emergency Stakeholder Notification Procedure](#) and the following procedures:

- [Notification of Pollution Incidents - 2081031](#) for pollution incidents and
- [Notification of SafeWork NSW- 2001904](#) for fatalities, serious injuries or illnesses, dangerous incidents or major hazard events.
- [Incident Management, Notification and Investigation-1974988](#) for notification under conditions relating to expansion consent to Department of Planning, Industry and Environment

13.8 INVESTIGATIONS

Immediately after termination of any emergency situation, the Site Manufacturing Centre Manager shall nominate an appropriate investigation team leader to commence the investigation and manage the reporting requirements for both Orica and the responsible governmental agency.

Site incident reporting and investigation requirements are detailed in the site procedure [OEL: 1974988 Incident Management, Notification and Investigation](#).

13.9 IMPLEMENTATION OF THE PLAN

In the event of an incident (including major incident as defined in *Section 6.2*) Orica Kooragang Island will implement the Emergency Plan and its supporting procedures immediately.

13.10 AUDITING

This Emergency Plan will be audited annually, based on the requirements of Group Procedure [SHES Emergency Management](#). The audit outcomes and any actions identified will be recorded in Enablon.

13.11 MONITORING AND REVIEW

The Emergency Plan will be reviewed at least annually to ensure its continued suitability and effectiveness. Reviews of the plan may incorporate such elements as.

- changes in legislation
- changes in Orica Standards and Procedures

- advances in technology and equipment
- changes in organisational direction
- changes in products and activities
- lessons from incidents
- findings of audits, reporting and communication.

The following activities may also trigger a review and update of the plan:

- Modifications to existing plant, or new plant
- Changes to staffing
- Changes to neighbourhood populations
- Outcomes of incident investigations
- Outcomes of the periodic hazard study process (including processes that are not SFAIRP)
- Outcomes of consultation with workers and emergency services representatives
- Learning from emergency exercises
- Request of health and safety representatives.

13.12 UPDATING OF THE PLAN

Emergency response changes identified by reviews triggered by the above activities will include:

- Updating emergency tactical plans
- Updating response procedures including this plan
- Updating response resources
- Updating training requirements.

In addition, the key contacts section of the [Emergency Stakeholder Notification Procedure](#) will be updated at least annually to ensure that key contact information remains current.

Once the updated plan is approved it will be the Security and Emergency Response Superintendent's responsibility to ensure as soon as reasonably practicable the update of:

- Controlled hard copies of the plan in accordance with the site distribution list
- Electronic submission of the plan to Fire and Rescue NSW.
- Electronic submission of the plan to SafeWork NSW and other regulators, as required.
- Electronic distribution of the plan to external organisations as per *Section 13.13*.

Where supporting documentation to the plan is updated the Security and Emergency Response Superintendent will ensure the update of hard copies in accordance with the site distribution list as soon as practicable.

13.13 DOCUMENT DISTRIBUTION

The master-controlled copy of the plan is the authorised document held in the Orica Enterprise Library (OEL). Document control, revision, retention and authorisation are managed through the functionality of the OEL. All personnel on site have access to the plan via the OEL.

In addition, controlled hard copy prints of the plan are held in the following locations on site:

Name	Controlled Copy Number
Ammonia Team Co-ordinator's office	1

Nitrates Team Co-ordinator's office	2
Despatch Team Coordinator's office	3
Ammonia Bottling Co-ordinator's office	4
Greenleaf Road (Main) Gatehouse	5
Main Administration Office (Emergency Control Centre)	6
Evacuation Kit (stored in the Conference Room)	7
Orica Emergency Response Service (ERS)	<i>Electronic Submission</i>

An electronic copy of the plan will be provided to the following external organisations for internal distribution:

Organisation
Fire & Rescue NSW - Fire Safety Branch- Community Safety Directorate- Sydney
The following local agencies will be provided access to the Emergency Plan via the Newcastle City Council Local Emergency Committee (Private SharePoint Page)
NSW Police - Local Area Commander- Newcastle City Police District
Fire & Rescue NSW - Zone Commander – Newcastle
NSW Ambulance - Superintendent- Hunter Zone 1
NSW Health / Hunter New England Local Health District (HNELHD) - Environmental Health Unit and Health Services Functional Area
Newcastle City Council - Local Emergency Management Officer
SafeWork NSW Major Hazard Facility Unit
Department of Planning, Industry and Environment

14 REFERENCES

Reference	Document Type
Group Standard GS.30 SHES Management Section 11. Emergency and crisis management	Orica Group Standard
Group Procedure SHES Emergency Management	Orica Group Procedure
APA Crisis Management Plan	Orica Management Plan
Work Health and Safety Act 2011 (NSW)	Act
Work Health and Safety Regulation 2017 (NSW)	Regulation
State Emergency and Rescue Management Act 1989 (NSW)	Act
Explosives Regulation 2013 (NSW)	Regulation
Australasian Inter-Service Incident Management System, Version 5 2017 – AFAC	Incident Management System
AS 3745 Planning for emergencies in facilities	Australian Standard
AS 4326 The Storage and Handling of Oxidising Agents	Australian Standard
Guide for Major Hazard Facilities: Emergency Plans. Safe Work Australia.	Guide
Hazardous Industry Planning Advisory Paper No. 1: Emergency Planning	Guide
Managing the Work Environment and Facilities SafeWork NSW December 2011	Code of Practice
NSW Emergency Plan	Emergency Plan
Kooragang Precinct Emergency Sub Plan	Emergency Plan
Newcastle Emergency Management Plan	Emergency Plan
NSW Hazardous Materials/Chemical, Biological, Radiological Response Sub Plan	Emergency Plan
NSW State Storm Response Plan	Emergency Plan

15 GLOSSARY

Term	Definition
AIIMS	Australian Inter-service Incident Management System
AN1	Ammonium Nitrate Plant 1
AN2	Ammonium Nitrate Plant 2
AS	Australian Standard
DCS	Distributed Control System
Enablon	Electronic incident reporting, investigation and action management system.
EPA	Environment Protection Authority
ERS	Emergency Response Service – a 24-hour emergency response line with contact details for Orica management
ESIP	Emergency Services Information Package
FRNSW	Fire and Rescue NSW
HAZMAT	FRNSW Hazardous Materials Unit
IMT	Incident Management Team
IRT	Incident Response Team
IST	Incident Support Team
KI	Kooragang Island
LEL/UEL	Lower Explosive Limit / Upper Explosive Limit
LEOCON	Local Emergency Operations Controller
LEMO	Local Emergency Management Officer (Newcastle City Council)
LOC	Loss of Containment
MCC	Motor Control Centre
MDEA	Methyl-diethyl-amine – used to absorb carbon dioxide from process gas
MHF	Major Hazard Facility
NAP1	Nitric Acid Plant 1
NAP2	Nitric Acid Plants 2
NAP3	Nitric Acid Plants 3
NH3	Ammonia
NOx	Nitrous Oxide Gases

Term	Definition
NSW	New South Wales
OEL	Orica Enterprise Library
OSBH	Off Sites Boiler House
OSHE Committee	Orica KI Occupational Safety, Health and Environment Committee
PA	Personal Assistant to the Site Manufacturing Centre Manager
PIC	Plant Incident Commander
POEO Act	NSW Protection of the Environment Operation Act 1997
RECEO	Acronym for Rescue, Escalation, Contain, Extinguish, Overhaul used to describe emergency response priorities
SCBA	Self-Contained Breathing Apparatus

16 DEFINITIONS

Term	Definition
Agency	A government agency
Cold Zone	The area surrounding the hot and warm zones established in response to an emergency event where there is no risk to people from the emergency or emergency response activities.
Combat Agency	The external agency primarily responsible for responding to an emergency.
Combat Agency Controller	The statutory head that has operational control of the resources of the combat agency.
Command	The internal direction of the members and resources of an agency or group.
Control	The overall direction of the activities, agencies or individuals concerned across organisations.
Coordination	The bringing together of agencies and individuals to ensure effective incident and/or rescue management but does not include the control of agencies and individuals by direction.
Crisis	A specific, unexpected, and non-routine event or series of events that creates high levels of uncertainty that threaten or create a perceived threat to Orica's high priority goals.
Emergency Alarm	An alarm used to identify an abnormal, dangerous or potentially dangerous situation which requires urgent action to control, correct and return to a safe condition.
Emergency	Any hazardous or potentially hazardous situation that arises which harms (endanger) or threatens to harm people, property or the environment that requires an immediate and co-ordinated response.
Emergency NSW SEARM Act 1989	An emergency due to actual or imminent occurrence (such as fire, flood, storm, earthquake, explosion, epidemic or warlike action) which: (a) endangers, or threatens to endanger, the safety or health of persons or animals in the State; or (b) destroys or damages, or threatens to destroy or damage, any property in the State, being an emergency, which requires a significant and coordinated response. For the purposes of the definition of "Emergency", property in the State includes any part of the environment of the State.
Emergency Response Service (ERS)	A 24-hour emergency response line with contact details for Orica management via a toll-free number – 1800 033 111.
Emergency Services (Agencies)	The NSW Police Service, Fire and Rescue NSW, NSW Rural Fire Service, Ambulance Service of NSW, State Emergency Service NSW or any other external agency which manages or controls an accredited rescue unit.

Term	Definition
Emergency Services Staging Point	A prearranged, strategically placed area where support response personnel, vehicles and other equipment can be held in readiness for use when an emergency evacuation of the K.I facility has occurred.
Event	Any unplanned event resulting in or potential harm (injury, illness, property damage, environmental, non-compliance/breach, community, reputation or business interruption)
Hazardous Materials Incident	Any spillage or escape of gas, liquid, solid or substance during its manufacture, use, handling, transport or storage in sufficient quantity to endanger, or threaten to endanger the health or safety of any person, or damage or destroy, or threaten to damage or destroy any property or the environment.
Hot Zone	The immediate scene of an emergency event. This area is only to be entered by appropriately trained and authorised people undertaking emergency response activities.
LEOCON	A Police Officer appointed by the REOCON, who must, in the opinion of the REOCON have experience in Emergency Management and, who must be stationed within the Region in which the Local Government Area is located.
Major Incident (Major Hazard Facility)	At a major hazard facility is an occurrence that: • results from an uncontrolled event at the major hazard facility involving, or potentially involving, Schedule 15 chemicals • exposes a person to a serious risk to health and safety emanating from an immediate or imminent exposure to the occurrence. An occurrence includes any of the following • escape, spillage or leakage • implosion, explosion or fire
Major Incident Hazard (Major Hazard Facility)	A hazard that could cause, or contribute to causing, a major incident.
Medical Centre	The building within the facility where, the Emergency Van and the bulk of the facilities' first aid equipment is located.
Plant Incident Commander (PIC)	This role is to lead the operational response to the incident on their plant. They are trained to perform the initial SIZEUP of the incident, develop appropriate tactics, radio for support from support team leaders, coordinate IRT response, and initiate the action plan consistent with priorities. Typically, the plant area Team Leader, or senior operator.
Preparedness	In relation to Orica Kooragang Island means arrangements to mobilise and deploy all necessary resources and services.
Prevention	In relation to Orica Kooragang Island means the regulatory and physical measures to prevent emergencies or mitigate their impact.
RECEO	Acronym for Rescue, Escalation, Contain, Extinguish, Overhaul used to describe emergency response priorities
Recovery	In relation to Orica Kooragang Island means the process of returning the facility to its normal level of functioning after an emergency.

Term	Definition
Response	In relation to Orica Kooragang Island means actions taken during and immediately after an emergency to minimise the impact
Rescue	The safe removal of persons from actual or threatened danger of physical harm.
Orica Incident Controller (OIC)	Typically, the Site Manufacturing Centre Manager or nominated deputy. This role is to coordinate the overall response to the emergency and ensure that the emergency is managed consistent with the response objectives.
SIZE-UP	The ongoing evaluation of problems confronted within an emergency.
Warm Zone	The area surrounding the “Hot Zone” established in relation to an emergency event from which the emergency response activities will be undertaken. This will generally include an approach avenue for people entering the “hot zone” and a decontamination avenue for people exiting the “hot zone”. Access is restricted to authorised people participating in the emergency response.

17 DOCUMENT CONTROL

Version and Date	Key changes and Reviewers	Approver
Version 19 November 2022	Updated Site Emergency Response Organisation Structure and Incident Management Team structure to reflect the requirements of AIIMS. Updated Terminology of Site Incident Controller to Orica Incident Controller based on feedback from the LEOCON. Consolidated emergency document structure as per Section 3.2. Tyrone Peck Sherree Woodroffe Belinda Moss Nathan Robinson	Paul Hastie
Version 18 31 October 2019	Included facility operators' obligations as part of Kooragang Precinct Emergency Sub Plan Included MHF definition of major emergency Included roles and responsibilities for Orica employees and contractors. Further alignment of management of the plan elements with reference material. Included requirements for confined space, working at heights and hazardous materials. Aligned levels of emergencies with AIIMS principles. Included a definitions table. Included recommendations from SHES audit regarding triggering of APA CMP, hard copy manual updates and Emergency Plan reviews. Tyrone Peck Sherree Woodroffe Ashley Russell.	Antony Taylor

18 SUPPORTING INFORMATION

[Emergency Response and Incident Management Procedure](#)

[Emergency Services Information Package \(ESIP\)](#)

[Emergency Stakeholder Notification Procedure](#)

[Site Evacuation Procedure](#)