



Plan
LPG-PBY-EMM-PLA-0001

Emergency Response Plan

Port Botany LPG Terminal - 47 Friendship Road, Port Botany NSW

Geocode -33.97556,
151.218948

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*Please see Document control section for more information

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Modified for security requirements

Contact Details

Emergency Contact Details

In the event of an emergency the following personnel should be contacted immediately.

Origin Emergency response Number:	133 574
A/H Number:	0438 458 251
Terminal Manager :	02 9316 3800
Area Operations Manager:	02 9765 6475

Personnel Contact

Relevant personnel contacts are provided in the table below. All numbers (02) STD unless noted otherwise.

Removed personal details due to privacy requirements

External Contact

Relevant external contacts are provided in the table below. All numbers (02) STD unless noted otherwise. Also refer to the Regulatory Reporting Guide (LPG-BUS-HSE-GUI-0019).

Emergency Services	Business Hours	After Hours
Origin Emergency response Number	133 574	133 574
Fire Brigade - Police - Ambulance (Life threatening)	000	000
Police (Botany)	8338 7399	8338 7399
Fire Brigade (Matraville)	9694 1146	9694 1146
Fire Duty Superintendent South Matraville Fire Brigade	9588 6230	9588 6230
Hospital (Prince of Wales)	9382 2222	9382 2222
Neighbours		
Vopak Site A (Trent Martin)		
Vopak Site B (Glen Davenport)		
Terminals Pty Ltd (Brad Crockett)		

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ORICA - Hydrocarbons (Paul Sullivan)		
DP World (Operations Supervisor)		
LGAS CAVERN (Aldo Costabile)		
Government Authorities		
Work Cover Authority - Dangerous Goods	13 10 50	13 10 50
EPA Duty Hazmat Co-ordinator	0418 445 035	0418 445 035
Environment Protection Authority NSW	13 15 55	13 15 55
Ministry of Health	9391 9000	
Fire and Rescue	1300 729 579	
City of Botany Bay Council	9366 3666	
Randwick City Council	9963 1665	
Bulk Liquids Berth	9316 4467	9666 4906
SPC Harbour Control	9296 4000	9296 4000
Sydney Airport	9667 9111	
Pacific National	8484 8000	
Qube Logistics	9316 3306	
Services and Equipment		
SNP Security	8762 6641	0410 542 910
POLLUTION INCIDENT REORTING (Immediately following reporting)		
EPA Environment Line	13 15 55	13 15 55
Safework NSW	13 10 50	13 10 50
Fire and Rescue NSW	1300 729 579	1300 729 579
Medical		
InjuryNET	1300 307 418	1300 307 418
Designated doctor	9352 9800	

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1 Introduction

1.1 Purpose

This Emergency Response Plan (ERP) outlines the procedures that are required to be followed in emergency situations and also used for training to meet different emergency scenarios. It complies with the requirements of Origin's Crisis and Emergency Management Directive, Australian Standard AS 3745 Planning for Emergencies in Facilities and Work Health and Safety Regulations (the WHS Regulations).

This plan provides guidance on actions required to address physical emergency incidents either at or outside the terminal, such as:

- Fire and explosion
- Security threats
- Spills and emissions
- Natural disasters

1.2 Application

The reporting of accidents, incidents and unsafe conditions is a vital part of minimising the potential emergency situation. Statutory publications and procedures must be used in conjunction with these procedures to ensure the potential for emergency situations is minimised, e.g.:

- Origin Energy Ltd LPG Operations Procedures
- Origin Energy Ltd Inspection and Test Procedures
- Origin Energy Ltd Hot Work, Confined Space and Special Work permits
- Origin Energy Ltd Accident, First Aid and Incident Reporting Systems
- Workplace Health and Safety Act and Regulations.

In any emergency situation that arises, clear and explicit communications are essential to maintain control. It is essential that all communications equipment is fully maintained and that all telephone numbers listed are maintained up to date. A list of key holders and emergency contact numbers must be maintained with the Fire Brigade and Security Company and this list must be at all times up to date.

ALL SITE PERSONNEL HAVE THE RESPONSIBILITY TO IMMEDIATELY REPORT AN ACTUAL OR POTENTIAL EMERGENCY SITUATION AND IMPLEMENT ACTIONS TO CONTAIN OR PREVENT THE EMERGENCY SITUATION. ACTIONS TO BE TAKEN MAY INCLUDE ACTIVATING THE EMERGENCY SHUT-DOWN SYSTEM, OR THE REMOTE SHUT-DOWN SYSTEM.

Terminal personnel must be fully trained in their role in an emergency. It is an essential requirement that when a person is absent, their role is delegated to another fully trained person. Training must be carried out on a regular basis and records maintained of such training. Where possible some training should involve the emergency services.

The Chief Warden is to ensure the ERP is kept in a prominent position and that all personnel in their areas of responsibility are made aware of the contents. All personnel are to make themselves aware of the location of all emergency alarms, exits and fire fighting equipment within or near their work area and the location of the emergency assembly areas.

1.3 Definition of an Emergency

An emergency at the terminal is defined as:

A hazardous situation that could potentially harms or threatens to harm people, property or the environment. The emergency incident requires urgent action to control, correct and return the situation to a safe condition.

Some examples of emergency situations at the terminal are:

- Fire that cannot be extinguished
- Explosion (BLEVE)
- Uncontrolled release of LPG
- Structural failure
- Natural events (earthquake, fire etc)

These types of emergencies should be considered for:

- an incident within the facility;
- an incident occurring outside the facility where a hazardous material is under the responsibility of the facility (e.g. off-site pipeline, transport); and
- secondary events or knock-on effects arising within or outside the facility (e.g. a flood, a bushfire, or an explosion, which causes a nearby vessel to fail).

The emergency plan is activated in the event of an emergency (Section 10.2).

In the event of a Major Incident (see Section 5.2), the Fire Service will take charge of the incident and liaise with Origin and other emergency services.

2 Aims and Objectives of the Plan

2.1 Aims

The aim of this plan is to ensure all personnel are capable of handling any emergency that may arise in connection with operation of the facility. Systems and resources should be provided to deal with emergencies to protect people, property and the environment.

The intent of this plan is to lay down responsibilities and functions of on-site personnel. It defines methods for the early detection and combating of an emergency, notifying Emergency Services, other authorities and neighbours and details the procedures for specific emergency situations.

2.2 Objectives

The objectives of the plan are to:

- Minimise adverse effects on people, property and the environment
- Control or limit any effect that an emergency or potential emergency may have on site or on neighbouring areas
- Facilitate emergency response and to provide such assistance on site as is appropriate to the occasion
- Support emergency services with information, knowledge, skills and equipment
- Ensure communication of vital information as soon as and as effectively as possible
- Facilitate procedures so that normal operations can be resumed
- Provide for competency based training so that a high level of preparedness can be continually maintained
- Provide a basis for updating and reviewing emergency procedures.

The risk of a significant situation occurring can be minimised by:

- A high standard of design criteria
- Stringent supervision and testing during construction and commissioning of plant
- Training of terminal personnel and observance of operations and operational safety
- Strict observation of safety procedures by all personnel, contractors and visitors
- Effective servicing and maintenance of terminal equipment
- Provision of automatic and manual systems for shutting down the terminal and containing the product in the event of an emergency
- Provision of equipment to combat a minor emergency
- Use of an inspection and test system to ensure compliance with appropriate standards
- The Management of Change procedure to control any changes to terminal equipment or procedures that may significantly increase the risk.

3 Roles and Responsibilities of Emergency Services, Industry and Community

3.1 Ambulance Service of NSW

CONTROLLER: General Manager, Operational Services
Ambulance Service of NSW

ROLES:

- 1) Provide pre-hospital care and transport for the sick and injured.
- 2) Establish command and control infrastructure utilising ICS principles.
- 3) Provide and/or assume responsibility for transport of Health Service teams and their equipment to the sites of incidents or emergencies, receiving hospitals or emergency medical facilities when so requested by the Health Services Functional Area Coordinator.
- 4) Provide coordinated communications for all health systems involved in emergency responses.
- 5) Provide specialist Special Casualty Access Team (SCAT) and Urban Search and Rescue (USAR) paramedics as required
- 6) Provide fixed and rotary wing pre-hospital and aero-medical retrieval services across New South Wales.

3.2 NSW Fire Brigades

CONTROLLER: Commissioner
NSW Fire Brigades

ROLES:

- 1) In relation to Fire Districts, prescribed in the New South Wales Fire Brigades Act, 1989 (as amended), is the designated Combat Agency for taking all practicable measures for preventing and extinguishing fires and protecting and saving life and property in case of fire in any fire district.
- 2) Is the designated Combat Agency for land based hazardous materials incidents and emergencies within New South Wales, specifically for taking all practicable measures:
 - a) for protecting and saving life and property endangered by hazardous material incidents;
 - b) for confining or ending such an incident; and
 - c) for rendering the site of such an incident safe.

OTHER ROLES:

- 1) Provide fire control services by:
 - a) dealing with outbreaks of fire and the rescue of persons in fire endangered areas;
 - b) taking such measures as may be practicable to prevent the outbreak of fires; and
 - c) on land, dealing with the escape of hazardous materials or a situation which involves the imminent danger of such an escape.
- 2) As determined by the State Rescue Board, provide accredited "rescue units".

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- 3) Assist in any other response or recovery operations for which the Fire Brigades' training and equipment is suitable, for example, the provision of emergency water supplies and pumping equipment.

3.3 NSW Police

CONTROLLER: Deputy Commissioner, Operations
NSW Police

ROLES:

- 1) Is the agency responsible for law enforcement
- 2) Is the agency responsible for search and rescue
- 3) As necessary, control and coordinate the evacuation of victims from the area affected by the emergency
- 4) Is the combat agency for terrorist acts

OTHER RESPONSIBILITIES:

- 1) Maintain law and order, protect life and property, and provide assistance and support to a Combat Agency, Functional Areas, and other Organisations as required. This may include:
 - a) reconnaissance of the area affected by the emergency;
 - b) traffic control, and crowd control;
 - c) access and egress route security and control;
 - d) identifying the dead and injured, and notifying next of kin;
 - e) establishing body holding areas;
 - f) maintaining the security of property;
 - g) statutory investigative requirements; and
 - h) operation of a public enquiry centre capable of providing general information on incidents and emergencies to members of the public.
- 2) Respond accredited "rescue units" to general and specialist rescue incidents, and control and coordinate rescue operations.
- 3) As determined by the State Rescue Board, provide accredited "rescue units"
- 4) Manage Disaster Victim Registration, and a disaster victim enquiry system capable of:
 - a) Providing a Disaster Victim Registration system for victims of emergencies;
 - b) Managing a disaster victim enquiry centre capable of providing relatives and close friends with basic details on the location and safety of victims of emergencies occurring within New South Wales; and
 - c) Managing a similar disaster victim enquiry service when the National Registration and Inquiry System (NRIS) are activated in relation to emergencies in other States and Territories.

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3.4 NSW Health

CONTROLLER: State Health Service Functional Area Coordinator (State HSFAC).
The State HSFAC is responsible to the Minister for Health, through the Director-General of NSW Health.

RESPONSIBILITIES:

- 1) Representing health services on the SEMC;
- 2) Preparing the Health Services Functional Area Supporting Plan (HEALTHPLAN) to the State Disaster Plan (Displan);
- 3) Maintaining NSW HEALTHPLAN in a state of readiness for major incidents and disasters;
- 4) Monitoring the responses to major incidents or disasters;
- 5) Notifying senior health services office holders;
- 6) Coordinating health resources necessary for response and recovery from major incidents or disasters;
- 7) Coordinating the executive level of Health Emergency Management arrangements;
- 8) Activating Participating and Supporting Organisations to NSW HEALTHPLAN, as required;
- 9) Controlling and directing health volunteers;
- 10) Activating the State Health Services Emergency Operations Centre (HSEOC).

3.5 Sydney Port Corporation

Emergency Response

- 1) SPC must respond to port-related emergencies, in accordance with the role in the relevant NSW emergency management plans - (ie NSW State Waters Marine Oil and Chemical Spill Contingency Plan and Fire Brigades Act 89).

The Port Corporation in its capacity as Combat Agency (when responding to incidents as described NSW State Waters Marine Oil and Chemical Spill Contingency Plan or Fire Brigades Act 89):

- 1) Notify the appropriate agencies and higher level control within the agency of an incident/emergency;
- 2) Provide an Incident Controller;
- 3) Provide trained emergency response staff to fill OSRICS positions to control the incident/emergency response;
- 4) Provide trained equipment operators;
- 5) Make available emergency response equipment under its control; and
- 6) Establish an incident control centre from which the incident/emergency will be controlled.

Response Time

- 1) SPC must respond to a port related emergency within 30 minutes of notification. Such response means the initiation of an assessment and the activation of the relevant emergency response plan as necessary.
- 2) SPC must respond to an out of port marine incident (in NSW State Waters Marine Oil and Chemical Spill Contingency Plan) within one hour of notification. Such response means the initiation of an assessment and the activation of the relevant emergency response plan as necessary.

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Assistance to Other Agencies

- 1) SPC must, wherever possible, assist in a response to a marine incident in other NSW ports and NSW State waters at the request of another NSW Port Corporation, Roads and Maritime Services or Transport for NSW.
- 2) SPC must, wherever possible, participate in a national response to a major marine incident by providing personnel and resources when requested to do so by the Marine Pollution Controller in accordance with National Plan arrangements.
- 3) SPC should, wherever possible, assist other NSW Government agencies as described in Sub Plans to the NSW State Emergency Management Plan and Functional Area Plans when requested to do so.

3.6 Botany City Council and Randwick City Council

ROLES:

- 1) Assist with the identification of schools, day care centres and similar vulnerable facilities within the Area;
- 2) Assist with the identification of vulnerable facilities and communities;
- 3) Assist in warning residents that an evacuation is required if requested;
- 4) Assist in managing evacuation centres if requested to do so by the Welfare Services Functional Area Coordinator;
- 5) Provide a liaison officer as required.

3.7 Port Botany Major Hazard Facilities Operators (Neighbouring Facilities)

ROLES:

- 1) Notify Fire and Rescue NSW of any accidents where there is a loss of product with the potential to impact on the facility or public;
- 2) Assist with the assessment of the decision to evacuate;
- 3) Provide ongoing advice on the nature and impact of any product release
- 4) Assist in the clean-up of any contamination due to the incident and implement an environmental monitoring program, if necessary.
- 5) Provide a liaison officer as required.

4 Site Information, Facilities & Equipment

4.1 Emergency Assembly Areas

Emergency Assembly Area 1: Inside Property in Just inside Car park gate North West

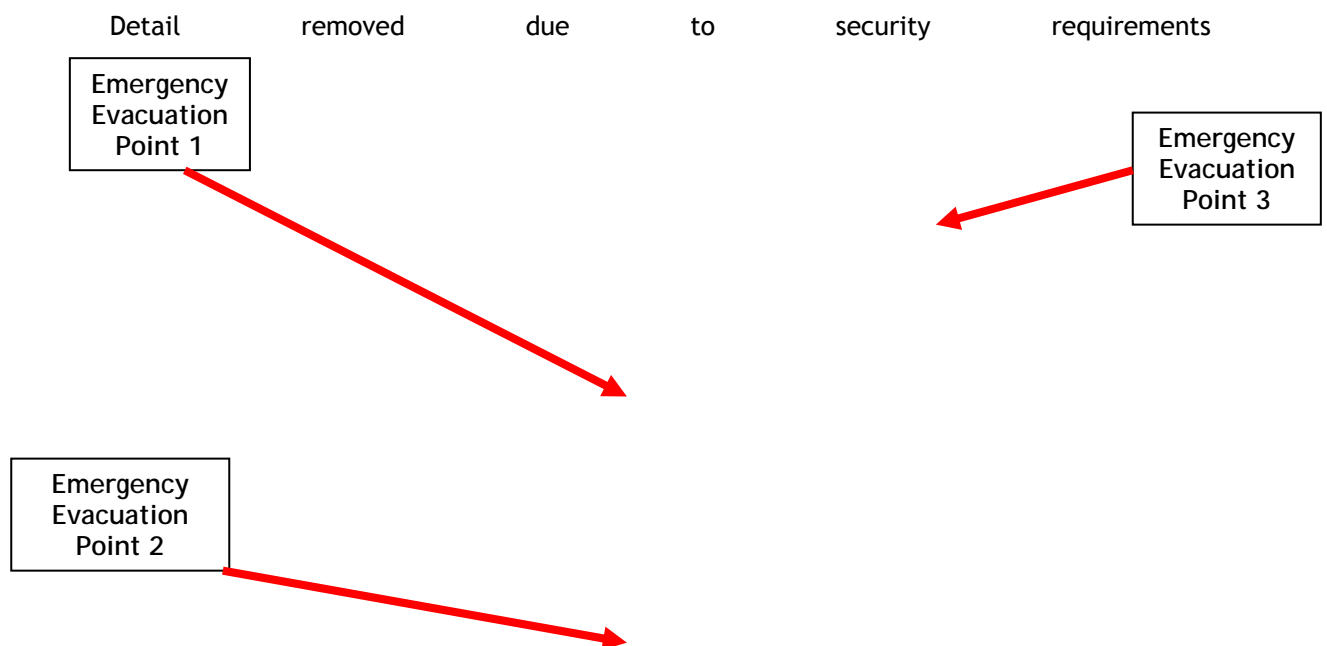
Emergency Assembly Area 2: Outside Property in front of Back Block Exit Gate - East

Secondary Emergency Assembly Area 3: Outside Property on the Corner of Bumborah Point Road and Friendship Road Port Botany - North West

IF POSSIBLE, AVOID CROSSING A ROAD AND MOVE BY THE SAFEST ROUTE TO AN EMERGENCY ASSEMBLY AREA

In the event of a large LPG release or an impinging fire, emergency services or Origin personnel may request you to evacuate further than the assembly areas (up to 1km).

Figure 1: Aerial Site Plan Showing Emergency Assembly Points



4.2 Evacuation Control Points

1. The Main Control Point is located in the Terminal Car Park gate.
2. In the event the Main Control Point is threatened and evacuation ordered, the Alternative Main Control Point is located at the Corner of Friendship Road and Bumborah Point road which is in a North Westerly direction from the car Park gate.

4.3 Location and Occupation Plans

Figure 2 and Figure 3 show the location of Origin LPG terminal and the occupants surrounding the terminal. Origin LPG terminal is located in an industrial area owned and managed by Sydney Ports Corporation (SPC). The following land users are adjacent to the LPG terminal:

- Terminals Pty Ltd - provides bulk liquid storage, handling and repackaging services, import and export shipping of hazardous and non-hazardous liquid chemicals
- Vopak terminals - provides storage and handling facilities for liquid chemicals and petroleum products.

Contact numbers for the neighbouring facilities are provided at the start of this ERP.

There are several rail networks within Sydney Ports. The train operators currently servicing the port include Pacific National and Qube Logistics. The rail line terminates at Friendship Road, approximately 500 m away from the Origin LPG terminals. Sydney airport lies North East to Port Botany with the closest runway approximately 2 km from the LPG terminal. SPC boundaries are shown in Figure 4.

The Port Area of Port Botany could be classified as significant infrastructure. There is no registered population living within the Port area. The working population density of this area would not vary significantly from day to day. The presence of one or more ships at the wharves would have no significant impact on the population density.

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Figure 2 Occupants Surrounding Origin LPG

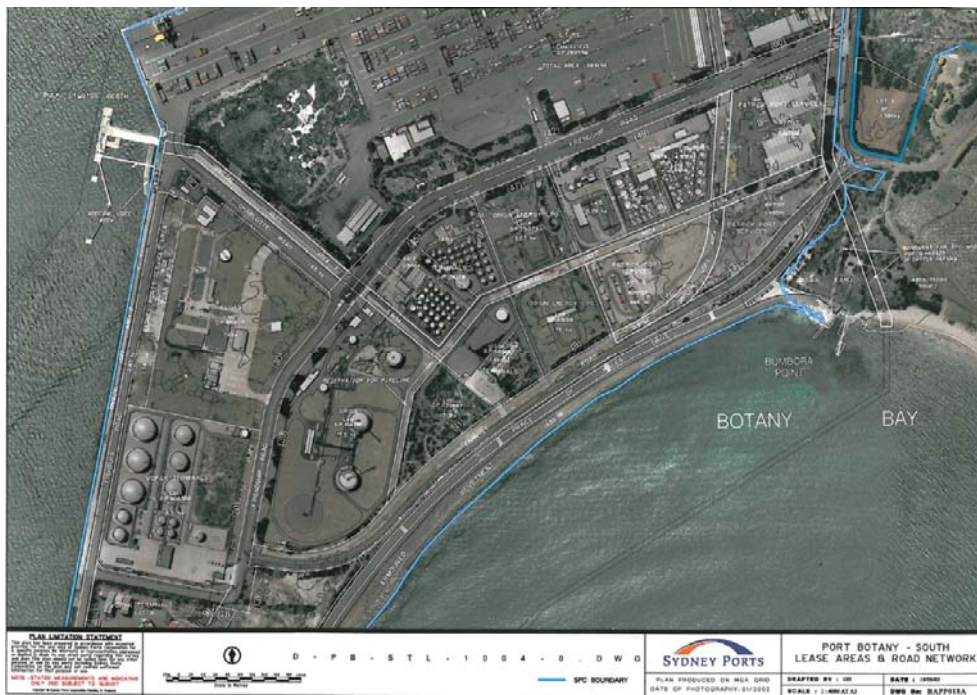
Detail removed due to security requirements

Figure 3 Location and Occupation Plans

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Figure 4 Sydney Port Corporation Boundaries

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4.4 Offsite Risk - Heat Radiation Injury Risk Map

The risk of injury to the public or the risk of property damage outside the site boundaries is generally expressed as risk contours for heat radiation from fires or overpressures from explosions.

A heat radiation level of 4.7 kW/m^2 is considered to lead to injury for those who cannot escape or seek shelter. This level of heat radiation will cause injury after 30 seconds. As per NSW guidelines on land-use safety planning (HIPAP 4), incident heat flux at residential areas should not exceed 4.7 kW/m^2 at frequencies of more than 50 chances in a million years.

The Port Botany Terminal off-site fatality risk contours are shown in Figure 5.

It was found that the risk of fire radiation of 4.7 kW/m^2 at 50 chances in a million per year is limited to onsite areas only and does not extend beyond the site boundary. Therefore the risk arising from identified major incidents associated with the current operation of the Port Botany Terminal satisfies the NSW risk guidelines in relation to land use safety for residential, commercial and industrial, and other “sensitive” land uses (e.g. schools, residential).

Please refer to Port Botany 2012 Safety Case for more information on offsite risk. For consequence information on BLEVE, Flash Fire and Jet Fire, please refer to Appendix F - General Consequence Information of this ERP.

4.5 Emergency Services Access Map

The Emergency Services access is a one way road system as shown in Figure 6, with main entrance off Friendship Road. Simblist Road entrances are usually kept locked.

4.6 Site Plan / Location Maps

The site plan for this terminal is shown in Figure 7.

Site plans are located at the entrance to the terminal, on notice boards, at the Main Control Point, in the terminal Control Room (Primary Facility Emergency Control Centre) and at the Secondary Emergency Control Centre (Sydney Ports Corporation Office) and accessible to each Area Warden. The site plans show the location of emergency shut-down, deluge activation and alarm points, and emergency assembly areas.

The site plan and location map is also provided to the appropriate emergency services.

Figure 5 Port Botany LPG Terminal Heat Radiation Injury Risk Profile

Detail removed due to security requirements

Figure 6 Emergency Services Access

Detail removed due to security requirements



Figure 7: Site Plan

Detail removed due to security requirements

4.7 Maximum / Minimum Number of Persons

Personnel at the facility may vary greatly due to business hours. Typical variations range from one person after hours (Security Guard) to maximum of 30 personnel during business hours (when all personnel may be present on site).

4.8 HAZMAT Box

A number of HAZMAT boxes can be found at various entry points to the site; these boxes contain

- ESIP (Emergency Service Information Pack)
- ERPs
- Manifests

In addition, the entry next to the office has a large board which contains locations of hazardous goods, fire equipment etc. for ready reference.

4.9 Site Equipment

The terminal LPG infrastructure consists of the following:

- 18 x 250 Tonne mounded LPG tanks;
- 2 x Molecular sieve towers;
- 1.25 Tonne evacuation tank;
- 1 x product heater;
- 2,000 kl water storage tank;
- 6 x (4 x 3 inch) Corken product pumps;
- 1 x (3 x 3 inch) Blackmer product pump;
- 2 x R10 Ebsray aerosol pumps;
- 1 x Electrical fire pump;
- 1 x Diesel fire pump;
- 1 x diesel generator;
- 2 x air compressors;
- 2 x Corken gas compressors;
- 3 x truck loading bays;
- 3 x Scully systems in loading bays;
- 1 x marine loading arm at Wharf.

Loss of containment of product may occur at pipelines, tank, pump, and unloading bay from cylinders or at a tanker. The most likely loss of containment scenario is during transfer of product is through flexible hoses.

The terminal has been designed to minimise the risk of a major LPG release by containing the product within the vessel.

4.9.1 LPG Tank

All outlets on the storage tank are fitted with a primary shut off, either an excess flow or a back check valve, and a secondary shut off, pneumatically operated ball valve which fails safe in case of an air failure and a loss of power. In addition the tank is fitted with safety relief valves designed to open in the event that pressure in the tank approaches its design pressure.

Note: Safety Relief Valves (SRVs) used on LPG tanks are of the “pop action” type that are designed to lift, to relieve excess pressure, and then to reseal. The pressure at which they reseal is variable depending on why the SRV operated initially and it is possible that the SRV may remain open for prolonged periods if the tank is being heated or the vapour space is connected to other tanks or sources of high pressure.

Do not assume that the SRV will quickly reseal and if this has not occurred within 30 seconds of lifting, it should be treated as an emergency and the ESD should be activated.

4.9.2 Diesel Tanks

Distillate is stored in a 1000 litre tank that is not bunded (bunding is not required for minor as per AS 1940). A 200 litre drum of diesel on a bunded pallet is located next to this tank.

4.9.3 Ethyl Mercaptan Tanks

Ethyl Mercaptan is stored in a totally sealed pressure vessel of maximum 210 litres capacity. The Mercaptan injection unit is installed inside a corrugated iron shed on a concrete bunded area. There is no drain point in the bund as it is protected from the elements by the shed.

4.9.4 Road Tanker Unloading

- All loading bays are fitted with a Scully earthing system which will not allow loading until it is connected.
- All loading points are fitted with an excess flow valve, and air actuated emergency shutdown valve interlocked to the road tanker and a manual valve;
- Road tankers are fitted with a device that locks the brakes until the hoses are removed to prevent accidental drive-away whilst still connected. The tanker has an over-ride that allows the tanker to be driven away in an emergency whilst the driver holds down the over-ride button;
- Road tankers are also fitted with a terminal/tanker interface which closes the emergency shutdown valves on the tanker and on the breakaway stanchion should the tanker drive-away (with the hoses connected), and
- The loading points are fitted with a breakaway stanchion, which allows the loading point to break, while maintaining the operability of the excess flow valves and emergency shutdown valves. This shear point will only be broken in an emergency drive away situation and has been designed to minimise damage to other components as the weakest point.
- Loading bays and fitted with Boom gates which are activated by the loading hoses being lifted from their storage cradle. The boom gates block existing from loading bay until the hose is replaced correctly in its cradle and the Scully plug is disconnected.

4.9.5 Wharf

The unloading manifold is fitted with a back check valve or excess flow valve and there is an air actuated valve at the shore end of the Marine Loading Arm. The ship and the wharf controllers exchange ESD controllers, i.e. a wharf ESD control is placed on board the ship and a ship ESD control is placed on the wharf. ESD points are strategically located on the wharf and on the ship.

4.9.6 Cylinder Platform

The terminal does not have a cylinder platform as all sales from the terminal are bulk deliveries and there is no filling or storing of cylinders on site.

4.9.7 Gates

In an emergency in the front block; the car park, the Terminal Entry & Exit gates will all open automatically, however in the event of a power failure occurring during an emergency, the exit and B-Double gates are manually opened by any operator on site under direction of Chief Warden. The rear gates to Simblist Road are kept locked except during specific access.

The "Emergency No Entry" signs are to be placed across the entry and exit gates to the terminal when the emergency signal sounds. They comprise of a plastic chain with a sign affixed. The chain is permanently fixed to a post at both the entry and exit gates and can be strung across the entry/exit points in the event of an emergency.

4.10 Fire Protection System

The fire protection system comprises:

- 1) 2,000 kl water storage tank with towns water supply top-up
- 2) Electric and diesel fire pumps
- 3) Jacking pump
- 4) Deluge systems are installed over the loading bays, Sieve Towers, vapour recovery tank and all product pumps and gas compressors and all liquid valves.
- 5) Fire Brigade booster points located at entrance to car parking gate
- 6) Hose reels and hydrants. There are six fire hydrants and one high pressure fire hose within the terminal
- 7) Fire monitors. There are four fire monitors located at the site
- 8) Fire extinguishers. There are 23 fire extinguishers located around the site

Fire extinguishers, fire hose reels and hydrants with hoses are installed to combat small fires. The location of this equipment is shown on the terminal site emergency plan at the terminal gates. Regular testing is undertaken for this equipment in line with Australian Standards. The locations of this equipment are shown on the terminal site manifest at the terminal gates.

4.10.1 Deluge System

The site deluge system is activated in one of the following ways:

- 1) Loss of air pressure. Thermal tubing is installed around the main bulk tank. The tubing melts in the event of a fire and leads to a drop in air pressure triggering a fire pump start. Fire pump start pressure is 430kPa (pressure switch setting). Other scenarios are the failure of the main air compressor through an extended power cut or a mechanical fault
- 2) Heat sensors (frangible bulbs) in all the areas covered by deluge sprays
- 3) Local push button fire pump start
- 4) Activation of emergency stop buttons (ESD) strategically placed around the terminal as shown on the site plan and on the terminal emergency site plan at the terminal gates.

The deluge system is designed to temporarily protect aboveground LPG vessels and equipment from the radiation effects of a fire in compliance with Australian Standard AS 1596. The deluge system covers:

1. Road tanker bays
2. Vapour tank
3. Sieve Towers
4. LPG pumps and compressors.

The Fire System is checked and tested on a weekly basis, monthly, six monthly and annually. This includes a documented checklist that records the results of the tests including water pressure. Maintenance of the system is performed by qualified people. The checklists can be found on Source in the LPG Document Centre. The system and associated documentation - checklists, tests, and maintenance - is also audited via Origin LPG compliance programme (OPAL).

4.11 Emergency Protection Systems

4.11.1 Emergency Shutdown System (ESD)

There are two tiers of Emergency Shutdown systems at the terminal;

- Local Shutdown Buttons
- Emergency Shutdown Buttons

The LPG Emergency Shut Down (ESD) buttons cause the following to occur:

- Activation of deluge system
- All pneumatic shut down valves
- Electric power is switched off to the LPG pumps and compressors.
- Audible and visual fire alarms activate.
- Alerts the Fire Brigade and the security company who in turn contact the appropriate Origin Energy personnel.

Gas cannot flow without the air system being initiated. Should there be a rupture in the pipework only the gas within the enclose valve lengths can escape.

4.11.2 ESD Buttons

The locations of the ESD Buttons are found on the Site Plan (Figure 7).

4.11.3 Gas Detectors

A gas detection system is provided to monitor the levels of LPG in the atmosphere. Detectors are located at specific locations around the terminal and include infrared beams.

Activation by gas at 25% of Lower Explosive Limit (LEL) causes:

- Operation of audible and visual alarms on the control panel and audible alarms in the terminal.
- Operation of an auto dialler to alert Origin Energy personnel after hours.

Activation by gas at 50% of Lower Explosive Limit (LEL) will:

- Operation an audible alarm in the terminal and shut down and close mechanical equipment and close pneumatic operated valves.
- Open the automatic security gates in the new terminal.
- Operate an auto dialler to alert Origin Energy personnel after hours.
- Operation of deluge systems.

Gas detection is installed on each pump and compressor and on filling points at the road tanker loading points. The gas detectors send a signal to the control room and activate an alarm. Portable gas detectors are held in the control room.

4.11.4 Heat and Smoke Detectors

The office is protected by heat and smoke detectors connected to the fire alarm panel that activate the audible and visual alarms and transponds with the Fire Brigade and Security. These heat and smoke detectors do not activate the deluge system or shut down the terminal.

4.12 First Aid

Trained first aid personnel are on site during normal working hours and are identified by signage on front notice board and near the first aid kits.

4.13 Portable Equipment and Location

The table below shows a list of portable equipment and their respective locations within the terminal.

Table 1: Portable Equipment

Portable Equipment	Location
First Aid Box	Control room
Portable trauma first aid kit	Control room
Portable RCD	Workshop
Gas Detectors	Control Room
Safety Harness and life lines	Workshop
Portable Breathing Apparatus	Outside terminal access door from control room

4.14 Site Security

Security personnel are on site when the terminal is closed (site manned 24 x 7). Perimeter security beams are installed to detect intruders at the terminal. In the event of an intrusion, the security monitoring company is advised and a guard is despatched to investigate. Arming and disarming of the system is by switches on the Enunciator panel in the control room.

MHFs are required to have a Security Plan/Report as a separate document. This is a comprehensive document that identifies all aspects covering the security of the terminal and is a requirement under the national Work Health and Safety Act.

4.15 Safety Critical Controls

An Origin LPG Safety Critical Control is defined as:

"A specific, measurable control that is effective at preventing or mitigating a major incident."

The Safety Critical Controls at the terminal are listed below:

1. Emergency shutdown devices
2. Fire protection systems
3. Gas detectors
4. Excess flow valves and non-return valves
5. Bulk LPG overfill protection / level gauging systems
6. Safety relief valves
7. Tanker drive-away prevention devices
8. Cathodic protection
9. Emergency response plans
10. Ignition prevention controls
11. Bulk LPG loading / unloading and transfer process
12. Process pressure equipment inspection programmes
13. Permit to work system
14. Management of change

Where applicable, Safety Critical Controls are tagged in the eAMS Asset Register. Safety Critical Controls have a Preventative Maintenance program. They are maintained with a higher priority than non-critical controls. The Safety Critical Control list is used to determine priorities in terms of training, procedures and verification activities (e.g. emergency response training is more important than Microsoft Word skill competency). Further information can be obtained from the Standard - Safety Critical Elements (LPG-BUS-OPE-STA-0001).

5 Hazards

5.1 Hazardous Materials

The hazardous materials stored on site are presented in the table below.

The Safety Data Sheets are held in the following locations:

- Terminal Control Room in the filing shelves
- G: Drive /terminal/eAMS/ PBY-T-FL/PBY-T-AB/MSDS.

Table 2: Hazardous Materials

Description	HAZCHEM Code	UN Number	Storage Inventory	
			Maximum	Average
Detail removed due to security requirements				

5.2 Major Incidents

The Port Botany Terminal has been classified as a Major Hazard Facility (MHF). MHF legislation requires the identification and analysis of all the hazards that may be associated with the operation of the terminal and any potential Major Incidents (MIs) that may result if all of the controls in place should fail. A list of these potential Major Incidents is presented in the table below. The table also indicates the relevant sections of this ERP that deal with the results of the potential Major Incident. The Major Incident Register for the terminal may be found in the Systematic Risk Assessment Report / Safety Assessment held at the terminal or by contacting the Process Safety Team.

Table 3: Summary of "Potential" Major Incidents

MI No.	Location	Description	Emergency Response Reference
PB-00	Wharf	Release of product during storage vessel loading (at wharf)	Sections 11.1, 11.2.2
PB-01	Storage	Release of product from storage vessel during filling	Sections 11.1, 11.2.1
PB-02	Storage	Release of product from storage vessel and piping	Sections 11.1, 11.2.1 11.5

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MI No.	Location	Description	Emergency Response Reference
PB-03	Storage	Release of product from LPG compressor/pumps	Sections 11.1, 11.2.1 11.5
PB-04	Fill Point	Release of product during road tanker loading	Sections 11.1, 11.2.1, 11.3.2
PB-05	Fill Point	Road tanker drive-away whilst still connected	Sections 11.1, 11.2.1
PB-06	Parking Areas	Fire at laden road tanker	Sections 11.1, 11.2.1, 11.3.2
PB-09	Site Wide	Deliberate loss of product	Sections 11.1 - 11.5, 11.7, 11.8, 11.9
PB-12	Fill Point	Release of product during tanker unloading	Sections 11.1, 11.2.1

NOTE: Major Incidents PBs 7, 8, 10 and 11 do not appear for numerical consistency between sites (for 2008 Safety Case Assessments).

6 Emergency Resources

6.1 Emergency Control Staff

Table 4: Emergency Control Staff

Emergency Control Staff	Role
Chief Warden	Terminal Manager
Deputy	Terminal Operator
Communications Officer	Terminal Operator
Deputy	Terminal Operator
Area Warden	Terminal Operator
Deputy	Terminal Operator
First Aider	All Terminal Operators and Supervisor/manager are certified
Emergency Executive	Regional Operations Manager NSW

Note: Australian Standard AS3745 states that Emergency Control Staff should wear colour coded hats, vests or helmets. The Chief Warden and Communications Officer identified by a white helmet or vest. The Area Warden identified by a yellow helmet or vest. The First Aid Officer identified by a green helmet or vest with a white cross.

NOTE: Relevant personnel contacts, external contacts (authorities, neighbours etc) and emergency contact details are found in Appendix A of this ERP.

6.2 Facility Emergency Control Centre

The terminal control room is assigned as the primary Facility Emergency Control Centre (FECC). It has the following resources to manage an emergency situation:

- Intrinsically safe radios. These are also available to the Chief Warden, the Communications Officer and both Area Wardens. The radio located with the Communications Officer must not be removed from the control point except when that area is to be evacuated. A total of ten (10) radios are available at the terminal control room
- Safety Data Sheets
- Emergency Response Plan
- Location maps and site layout (also available in the ERP)
- Procedures - Management of Change procedure, Port Botany Operations Procedures

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Where applicable, the resources above should be distributed to emergency services.

If the hazard zone envelops the primary FECC, control operations should proceed to a secondary FECC which is located at the Sydney Port Corporation Office (Level 4, 20 Windmill Street, Walsh Bay) shown in figure below. The above resources are stored in a portable carry case at primary FECC, ready to be taken to the SPC Office when required.

Detail removed due to security requirements

Whereby the terminal is to be closed and manned by a representative of SNP (security company), an operator will conduct a hand over process with the security guard. This will include beam activation to rear yard and keys to all locks/gates on the premises, in the event emergency personal require access before any Origin personal can be onsite.

For out of hours arrangement, please refer to refer 10.3.

Emergency Response Plan - Port Botany LPG Terminal Plan

7 Types and Levels of Emergency

There are three levels of emergencies at this terminal - Internal (local and site) and external.

The requirement of emergency services at the local level may or may not be required. If the Chief Warden determines the emergency as an external alert, security or Police (if necessary) will advise neighbouring facilities and community of the current status, protection methods and potential evacuation requirements. The table below shows the types and levels of emergency at this terminal and examples of incident/emergencies at each level.

Table 5: Types and Levels of Emergency

LOCAL	SITE	EXTERNAL
<p>An emergency where the impacts on people, property and the environment:</p> <ul style="list-style-type: none"> are expected to be confined to a specific location within the facility and no escalation is expected <p>Emergency Services MAY BE REQUIRED</p>	<p>An emergency where the impacts on people, property and the environment:</p> <ul style="list-style-type: none"> are expected to spread to or affect all parts of the facility, but not offsite <p>Emergency Services SHOULD BE REQUIRED</p>	<p>An emergency where the impacts on people, property and the environment:</p> <ul style="list-style-type: none"> are expected to impact both within the facility and beyond the boundary of the facility <p>Emergency Services WILL BE REQUIRED</p>
<p>Examples:</p> <ul style="list-style-type: none"> leaking flange or seal small fire first aid or medical emergency 	<p>Examples:</p> <ul style="list-style-type: none"> Uncontrolled release of LPG tank or bund fire pipe rupture Explosion - BLEVE of large liquefied gas storage 	<p>Examples:</p> <ul style="list-style-type: none"> A vehicle accident involving an LPG tanker (see Origin LPG Transport Emergency Response Plan (TERP) (LPG-BUS-EMM-PLA-0002)). An incident involving loading or unloading an LP Gas ship at the wharf (see Port Authority ERP) An incident involving the LP Gas shipping line/s An emergency such as fire, which starts at a neighbouring facility but threatens the terminal. A fire or spill which spreads outside the terminal's boundary. A criminal attack on company staff or property outside the facility Natural events

Chapters 10 and 11 of this plan describe the key actions to be taken to address internal and external emergencies.

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8 Overall Crisis and Emergency Structure

While emergency incidents may be limited to local sites they can escalate to a crisis situation where there are broad implications for Origin Energy as a whole, and all aspects cannot be effectively managed at the scene of the incident.

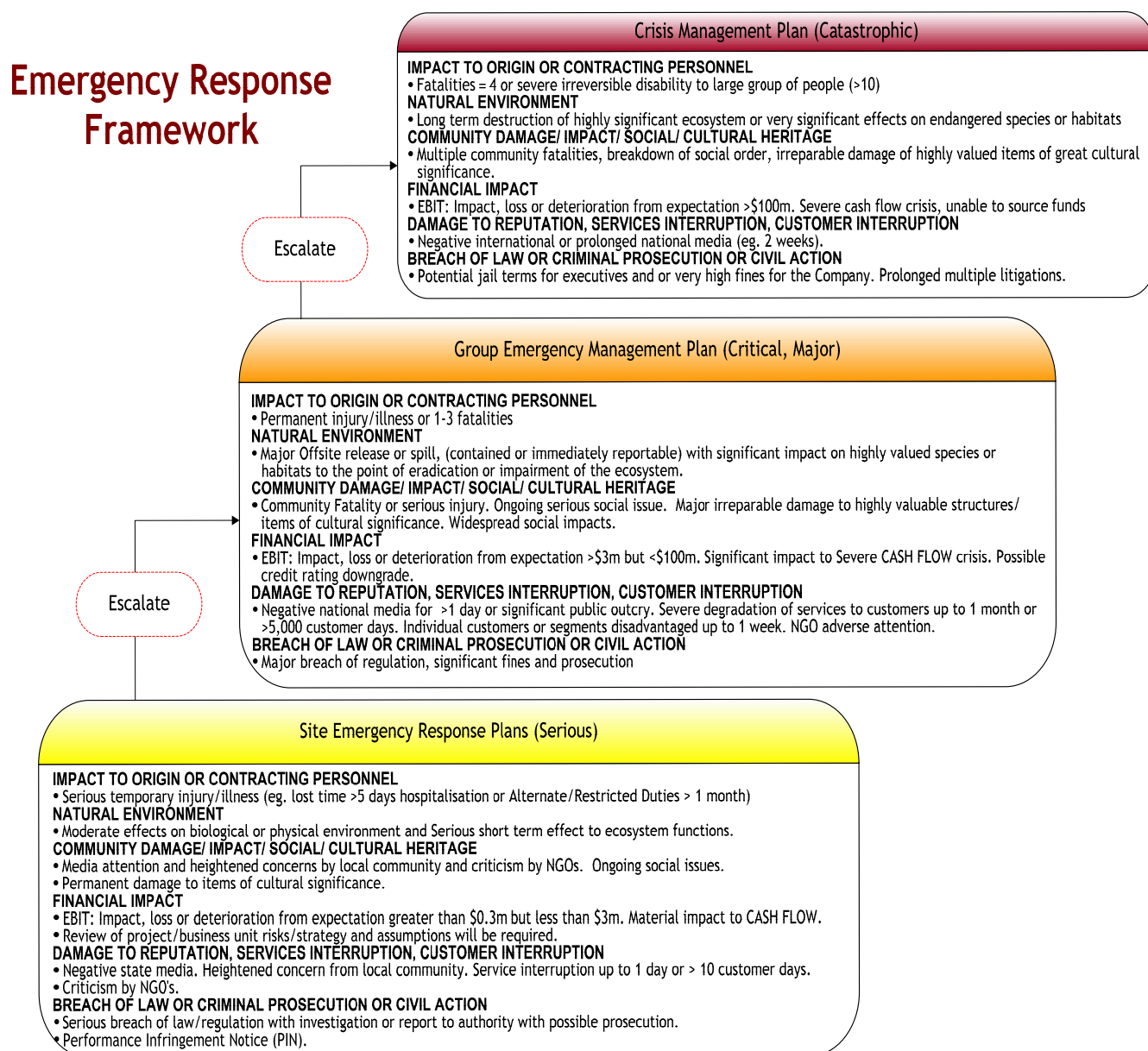
It is therefore imperative that the local response is part of an integrated overall framework, with clearly defined roles, responsibilities and actions at each level in the organisation, and an effective interface between these levels.

In Origin this framework involves a three tier response structure, including:

- Site Emergency Response Plans - covering direct and immediate actions required at the scene, to restore control
- Group Emergency Management Plans - covering the wide variety of management actions required, if a site-based incident escalates to the point where senior management input is required
- Corporate Crisis Management Plan - Covering corporate actions required when there is need for high level of corporate or specialist support.

The trigger points and responsibilities for escalating from site to group are set out in Figure 8 (extracted from the Group Emergency Management Plan).

Figure 8: Overall Crisis and Emergency Structure Framework



9 Emergency Organisational Structure and Responsibilities

9.1 Emergency Organisational Structure and Staffing

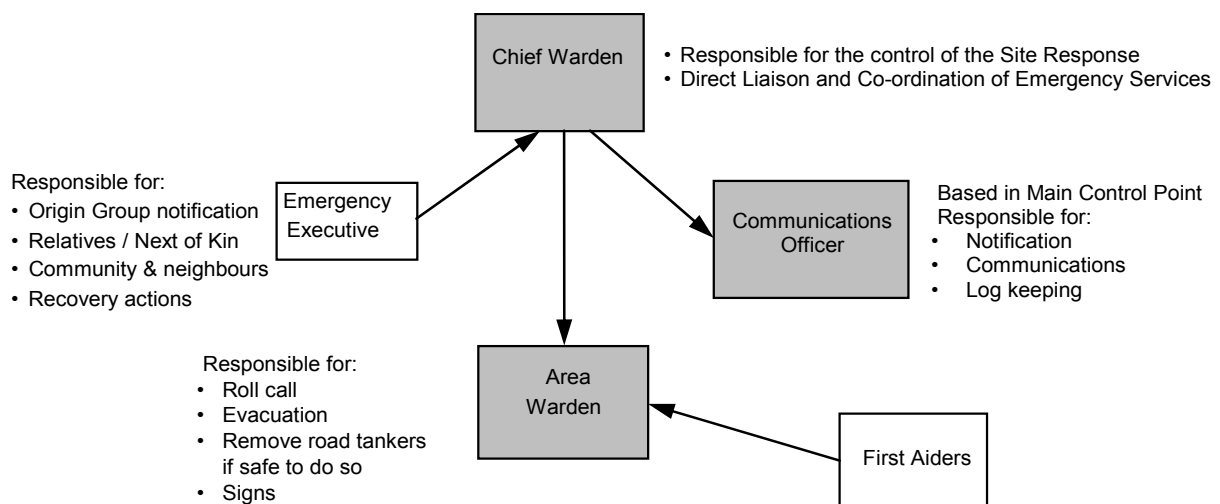
The key personnel in the terminal's Emergency Response are the Chief Warden, Emergency Executive, Area Warden / Wardens, Communications Officer and other specialist support e.g. qualified first aiders (see Figure 9 below).

9.1.1 Emergency Organisation Structure

IMPORTANT NOTES

- When any appointment listed in the preceding pages is absent the next senior or nominated person present is to take over responsibilities. All members of the control organisation must arrange stand-ins during any absence.
- There is no guarantee that all areas/rooms will be unoccupied when an emergency occurs. It is important that any area/room is searched to ensure all persons are moved to safety and accounted for. The Chief Warden will advise areas to be searched in addition to areas of responsibility.
- It is imperative that all staff are aware of the immediate actions they must take in a major LPG Escape, Fire/Smoke Emergency and Cardiac Arrest/Medical Emergency.

Figure 9: Emergency Organisation Structure



The responsibilities of the Area Warden, Communications Officer, Chief Warden and Emergency Executive for before, during and after an emergency are listed in the following tables.

Table 6: Area Warden Responsibilities

BEFORE EMERGENCY	DURING EMERGENCY	AFTER EMERGENCY
<p>Familiarisation with the terminal, equipment, and the Emergency Response Plan.</p> <p>Radio is carried and left "ON" at all times when in the area. When absent or leaving premises, ensure availability of Deputy.</p> <p>Keys to rear security gates are carried at all times.</p> <p>Visitors and contractors are given briefing.</p> <p>"NO ENTRY" signs are correctly located and maintained in good condition</p>	<p>Organise evacuation in your area if threatened or when instructed and commence searching and accounting for people.</p> <p>Check that everyone is accounted for and advise the Chief Warden</p> <p>Take responsibility for site access and control, including the posting of "NO ENTRY" signs at the Main gate entry.</p> <p>Prevent the start-up/movement of vehicles in the terminal and in the car park assembly area, If safe to do so, remove road tankers from the terminal except if coupled to a fill point.</p> <p>Assist and update the Chief Warden as required.</p>	<p>Pass "ALL CLEAR" instructions to personnel.</p> <p>Conduct debriefing of Personnel.</p> <p>Attend Chief Warden debriefing session.</p> <p>Retrieve and store "NO ENTRY" signs.</p> <p>Refurbish first aid equipment and 'Evacuation Check List' sheets.</p>

Table 7: Communications Officer Responsibilities

BEFORE EMERGENCY	DURING EMERGENCY	AFTER EMERGENCY
<p>Familiarisation with all communications systems and specific duties as outlined in this manual.</p> <p>Ensure radio, phones, security keys and ERP are readily available and able to be taken to the Main Control Point (these are the minimum requirements).</p> <p>Radio is switched “ON” at all times.</p> <p>Deputy is available when absent.</p> <p>All emergency phone numbers are kept up to date, and are accessible for easy reference.</p> <p>Bomb threat and other checklists, and message log are readily available.</p>	<p>Under instruction from the Chief Warden ensure that the Emergency Services have been alerted and given details.</p> <p>Make radio and all stations intercom announcement of emergency and its location.</p> <p>Ensure relevant terminal gates are locked open.</p> <p>Assist the Emergency Executive to advise other external parties e.g. neighbours and authorities</p> <p>Set up the Main Control Point and, commence the message log.</p> <p>Await further instruction from the Chief Warden.</p> <p>Be prepared to evacuate when directed by the Area Warden/Chief Warden.</p>	<p>Refurbish equipment/documents/stationery in Main Control Point.</p> <p>Prepare report using completed message log.</p> <p>Attend Chief Warden debriefing session.</p>

Table 8: Chief Warden Responsibilities

BEFORE EMERGENCY	DURING EMERGENCY	AFTER EMERGENCY
<p>Detailed understanding of the terminal, the operating equipment, processes and materials used, the potential effects of emergencies on people, property and the environment, waste control and the application of the Emergency Response Plans.</p> <p>Radio is carried and left switched “ON” when in area. When absent or leaving premises, ensure availability of Deputy.</p> <p>That all personnel are inducted and trained in the procedures, and amendments are provided to persons or organisations listed in this ERP so that their manual can be updated.</p> <p>That 6 monthly emergency exercises are conducted to prove the validity of the procedures and maintain the competency of all personnel.</p> <p>Weekly testing of all equipment is carried out and recorded, that all equipment is kept fully operational.</p>	<p>Proceed to the danger area, if safe to do so, and assess the situation.</p> <p>Confirm all persons have been (or are being) moved to safety and accounted for.</p> <p>Activate additional control measures as required (e.g. deluge).</p> <p>Establish communications with the Main Control Point and check whether the Emergency Services have been notified.</p> <p>Co-ordinate the response actions of other Emergency Control staff.</p> <p>Provide regular situation reports to the Emergency Executive.</p> <p>Meet, brief and assist the Emergency Services on their arrival.</p> <p>Respond to out of hours contact by security/Emergency Services.</p>	<p>Pass “ALL CLEAR” instructions, and if possible re-establish terminal operations.</p> <p>Conduct debriefing of Emergency Control Staff.</p> <p>Responsible to Emergency Executive to ensure:</p> <ul style="list-style-type: none"> • Refurbishment of emergency and other equipment. • Evaluation of procedures. • Preparation of reports.

Table 9: Emergency Executive Responsibilities

BEFORE EMERGENCY	DURING EMERGENCY	AFTER EMERGENCY
<p>To be aware of and have access to:</p> <p>Organisation, policies, and General Manager LPG and Origin Insurance contact details.</p> <p>Security Threats Analysis and Assessment Criteria.</p> <p>Actions required in emergencies.</p> <p>Recovery/Special Plans including the Group Emergency Management Plan.</p> <p>Knowledge of Energy Markets - HSE Contractor Management Procedure (EM-BUS-HSE-PRO-0024) and the Regulatory Reporting Guide (LPG-BUS-HSE-GUI-0019).</p>	<p>Proceed to Main Control Point or other centre as advised by the Chief Warden.</p> <p>Assist and advise the Chief Warden as required.</p> <p>Advise external parties as appropriate e.g. neighbours and all applicable external authorities</p> <p>Handle media/relatives/public enquiries and in consultation with senior management and police, (Refer Origin Media Relations Section of this plan for guidelines).</p> <p>Advise the General Manager LPG and Origin Insurance and maintain liaison. If emergency has been escalated to Group Emergency level, continuously liaise with the Group Emergency Operations Officer</p> <p>Continuously monitor the situation and advise the General Manager LPG whether it should be escalated to GEMT level.</p> <p>Respond to out of hours contact by security/Emergency Services.</p>	<p>Assess situation and initiate recovery and special plans if necessary.</p> <p>Arrange trauma counselling for staff if required.</p> <p>Attend debriefing.</p> <p>Evaluate emergency procedures.</p> <p>Prepare report with Chief Warden providing an analysis of investigations of the incident together with conclusions and recommendations.</p>

9.1.2 First Aiders

RESPONSIBILITIES FIRST AIDERS - AVAILABLE
--

ALL EMERGENCIES

- Maintain a current first aid certificate and refresh skills during emergency training.
- Collect First Aid Kit as appropriate.
- Report to Area Warden.
- Act under instructions of Area Warden.
- Be prepared to render First Aid as requested by Area Warden/Chief Warden or as required.

9.1.3 Group Emergency Management Team

RESPONSIBILITIES GROUP EMERGENCY MANAGEMENT TEAM (GEMT)
--

- In the event of a terminal emergency escalating to a point where the Group Emergency Management Team is activated.
- The team will initially form under the direction of the General Manager LPG or his delegate.
- Other members of the team will include:
 - Media Support
 - Operations Support
 - Legal Support
 - People and Culture Support
 - Commercial Support
 - HSE Support
 - Communications Support
- They will assess the overall/strategic implications of the incident and assist the site through the Operations Lead
- Their key responsibilities will include:
 - Provision of specialist support and advice to the terminal.
 - Handling external communications such as State Government departments, national media, major customers etc.
 - Co-ordinating and advising the site, on the response to media, relatives and public enquiries as well as corporate matters such as legal, insurance, etc.
 - Notifying the Managing Director of Energy markets.

Emergency Response Plan - Port Botany LPG Terminal Plan

9.2 Escalation to Group Emergency Management Plan (GEMP)

The General Manager LPG will determine if the GEMT will be mobilised. The following will be considered:

- Any fatalities, multiple, serious injuries, or threats to life.
- There is major damage to the environment, such as significant gaseous emissions noticeable to the public.
- Significant damage is or may be caused to Origin plant or property e.g. which disrupts production for over one day or results in repair costs of over \$100,000.
- The site response teams with the aid of emergency services, cannot cope with the situation and require additional or specialist support e.g. spill cleanup teams, public relations advisers etc.
- Major concern or interest is being shown by media (other than simply the local press), authorities, or the general public / community, which could also harm the reputation of the company as a whole.
- The incident is not related to a specific site or operation and there is therefore no obvious response team e.g. an extortion threat involving product tampering, a transport incident in which the LP Gas business is perceived to be implicated, or an incident at another company's property which disrupts Origin's ability to supply, such as a pipeline incident.

The Group Emergency Management Plan (GEMP) has been developed to ensure that LPG can respond effectively to support emergency situations that effects Origin LPG owned sites (including those operated by contractors), Origin transport, and shipping and customer sites.

The GEMP links into the Site Emergency Response Plans (SERP) and the Origin Crisis Management Plan (CMP) and is part of the overall framework for Origin Emergency Response. The GEMP includes details of key processes of notification, escalation, mobilisation and recovery.

The Group Emergency Management Plan (LPG-BUS-EMM-PLA-0001) can be found on Source in the LPG Document Centre.

9.3 Escalation to Crisis Emergency Management Plan (CMP)

If the GEMT is mobilised, the GEMT Leader is required to notify the Managing Director of Energy Markets. This can lead to the mobilisation of the Crisis Management Plan (CMP) at an Origin Corporate level.

The Crisis Management Plan (ORG-RMS-PLA-001) can be found on Source.
[Origin - Crisis Management Plan](#)

9.4 Interaction with the Community

The terminal has a process where there is consultation with neighbouring facilities and community in the preparation and review of the site Emergency Response Plan (ERP). This community interaction is done via a quarterly Port Botany Liaison meeting held at the Sydney Ports control centre in Penhyn road Port Botany.

For external emergency, security or Police (if necessary) will advise neighbouring facilities and community of the current status, protection methods and potential evacuation requirements.

The Emergency Executive or security will also arrange to advise the community and neighbouring facilities when the emergency is under control.

10 Emergency Response

10.1 Immediate Actions / General Guidelines

While the immediate and ongoing response actions in an emergency will depend on the nature of the incident, there are several short-term actions that will generally be required irrespective of the specific incident details i.e.:

- On noticing a potential or actual emergency, activate the Emergency Shut Down system (ESD), remove people from danger, notify the Area Warden, and then await instructions.
- Evacuate / assist in the evacuation of and accounting for staff and visitors from danger areas.
- Assess the situation and activate the response procedures and resources (Chief Warden) and notify the Emergency Services (Communications Officer).
- Under instruction from the Chief Warden / Emergency Executive assist in:
 - Accounting for staff / visitors.
 - Erecting signs / making security arrangements to restrict entry.
 - Minimising danger e.g. by turning off equipment (not lights), moving tankers away from the danger, if safe to do so, or taking direct action (e.g. to address small fires if safe to do so), using hand-held extinguishers or fire hoses.
 - Notifying other parties, e.g. neighbours, community, authorities, Origin management etc.
- If able, keep notes of any events that may prove valuable in the post-incident investigation.
- Liaise with Emergency Services.

On no account should any attempt be made to fight an LPG fire or disperse an LPG vapour cloud.

The activation of the ESD system provides the main action in dealing with such events.

10.2 Activation of the Plan

The Chief Warden has the authority to activate the Emergency Response Plan.

On hearing the alarm (either operator detection / activation or sensor / equipment detection), or by being advised verbally, the Chief Warden goes to assess the danger and assesses the level of emergency, and if necessary activates the emergency plan and mobilises the emergency organisation.

Emergency Response Plan - Port Botany LPG Terminal Plan

The following tasks are carried out by the Chief Warden to activate the plan:

- Respond to out of hours contact by security/Emergency Services
- Meet, brief and assist the Emergency Services on their arrival
- Confirm all persons have been (or are being) moved to safety and accounted for
- Activate additional control measures as required (e.g. deluge)
- Establish communications with the Main Control Point and check whether the Emergency Services have been notified
- Co-ordinate the response actions of other Emergency Control staff
- Provide regular situation reports Origin Group via the Emergency Executive of the current and potential risks to personnel, plant, environment and the local community
- Proceed to the danger area, if safe to do so, and assess the situation

If the terminal is unmanned, the arrangements for activation is described in the Emergency Service Information Package (ESIP) located in the Hazmat box.

10.3 Out of Hours

Should a terminal incident occur out of hours, the security guard on duty contacts the Terminal Manager/Supervisor and if instructed to activate the emergency alarms which:

- The Fire Brigade, and Security, to be notified through the alarm system.
- Security to call the Origin Emergency response number 133 574 to advise key members of the Origin Energy emergency organisation.
- The Sydney Ports (BLB) radio is used to notify neighbours of the emergency
- The Chief Warden or Emergency Executive to notify the Government Petroleum and Gas Inspector and the relevant neighbours.

Should the terminal be in danger from a neighbouring site out of hours, the Emergency Services will contact the terminal emergency organisation, after referring to their copy of this plan, the terminal manifest or the Site Emergency Plan located adjacent to the terminal access gate. In such circumstances, the person contacted will proceed immediately to the terminal, assess the situation, and mobilise additional resources as appropriate.

10.4 Evacuation Procedure

10.4.1 Evacuation

THE FIRST RESPONSIBILITY OF ALL PERSONS IS TO IMMEDIATELY MOVE PERSONS IN IMMEDIATE DANGER TO SAFETY AND BE ACCOUNTED FOR TO YOUR AREA WARDEN

ASSESSMENT

Factors that must be immediately considered to determine stage and priorities are:

- Location and extent of emergency
- Proximity of flammable gases, liquids and other flammable materials or suspect items (in case of bomb threat).
- If unignited LP Gas release, evacuation must be away from direction of emission and wind.
- The nature and type of injured person in the danger area and whether those present are capable of evacuating all persons in danger.
- The nearest safe exit route.
- All persons are to evacuate by the nearest and safest exit to an emergency assembly area under control of an Area Warden.
- If further evacuation is ordered or necessary act under control of your Area Warden/Chief Warden.

WHEN IN DOUBT, EVACUATE

10.5 Emergency Assembly and Roll-Call

The locations of emergency assembly areas will depend on the type and severity of the emergency - follow instructions of your warden/area warden.

If possible, avoid crossing a road and move by the safest route to an emergency assembly area. The location of Emergency Assembly Areas is detailed in Section 4 - Emergency Information, Facilities and Equipment.

ACCOUNTING FOR PERSONS

All persons must be accounted for before evacuating the terminal and after arrival at an emergency assembly area. Use the attached Evacuation Checklist (refer Appendix 0) and Visitors Book as a guide, to ensure a comprehensive roll call and identification of missing persons.

As each area is evacuated it must be searched, if safe to do so, to ensure no person remains in danger. If this is dangerous, search and rescue must be left to the Emergency Services who will be properly equipped to do so.

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ALL CLEAR

Entry or re-entry is strictly forbidden until authorised by the Emergency Commander of the attending emergency authority.

NOTE: If you arrive at the premises during an emergency, you must report to the senior person at the nearest nominated emergency assembly area.

10.6 Training and Exercises

10.6.1 Training and Education

All persons on site are to be provided with induction, education and ongoing training so that they fully understand their role and responsibilities in the event of an emergency. The training provided should be “competency-based” to ensure that the terminal staff has both the knowledge and skills required to carry out their duties. The training is to be documented for each member of staff using the computer based training system.

10.6.2 Exercises and Testing of Plan

The effectiveness of the ERP and procedures are evaluated by simulated exercises carried out under the direction of the Chief Warden and periodically involving the Emergency Services.

It is an Origin Energy requirement that at least two emergency exercises are held each year and where possible at least one of these should involve the Emergency Services. Most terminals are also required to complete one Transport Emergency Plan (TERP) per year.

10.6.3 Training Schedule

Terminal Management is responsible for ensuring that appropriate training schedules and programmes are implemented for all staff within their areas as appropriate using the following guidelines.

The personnel below should participate in the listed training activities.

Table 10: Training and Exercise Requirements

	Operations Personnel	Key Personnel	All Personnel	Origin Group Personnel	Emergency Services & Other Agencies
Basic Fire Fighting	✓	✓	✓		
First Aid	✓	✓			
Evacuation Drills (6 monthly)	✓	✓	✓		
Major (Live) Exercise (at least annually within the Group)	✓	✓	✓	✓	✓
Emergency Management Training (includes Warden Training)		✓			

10.7 Mutual Aid between Adjacent Facilities

No mutual aid between facilities has been agreed to.

10.8 Pollution Incident Response Management Plan (PIRMP)

The Port Botany LPG Terminal holds an Environment Protection License (EPL) issued by the EPA. Therefore this terminal is required to prepare, keep, test and implement a Pollution Incident Response Management Plan (PIRMP), as prescribed by the Protection of the Environment Operations (General) Regulations 2009 and the Protection of the Environment Operations Act 2011.

The PIRMP is embedded in this ERP, and the references of the applicable legislative requirements to the ERP are presented in the following table.

Table 11: Summary of Legislative Requirements for PIRMP

Legislative Requirements for Contents of PIRMP	Referred to in this ERP
Description and likelihood of hazards	A summary of Potential Major Incidents is listed in Table 3: Summary of “Potential” Major Incidents For further details of consequence and likelihood for potential LPG release, please refer to the Port Botany Safety Case.
Pre-emptive actions to be taken	Please refer to the Port Botany Safety Case. for preventative control measures.
Inventory of pollutants	Section 5.1
Safety equipment	Sections 4.10, 4.11, 4.15
Contact details	Front Section of ERP.
Communicating with neighbours and the local community (notification requirements)	Chapter 3, and Section 9.4. Guidance for the external reporting of safety and environmental incidents for Origin LPG operations are also documented in LPG-BUS-HSE-GDE-0019.
Minimising harm to persons on the premises	Chapters 8, 9, 10, 11
Maps	Section 4.4
Actions to be taken during or immediately after a pollution incident	Section 10.1
Staff training	Sections 10.6
Testing plan	Sections 10.6.2

11 Specific Emergency Actions

11.1 Fire and Explosion

Staff should only attempt to fight small fires that can safely be put out by fire extinguishers or fire hose reels. All other fire fighting should be left to the Emergency Services. In particular, no attempt should be made to fight LPG fires, for which the ESD system provides the prime response:

1. IN THE DANGER AREA

(Person discovering)	Move persons in danger to safety, activate alarms/ESD system, and notify Area Warden.
(Chief Warden)	Proceed to the danger area, assess the overall situation, consider additional short term measures required (e.g. deluge), and formally activate the emergency organisation.
(Communications Officer)	Ensure that Emergency Services have been alerted and issue radio/intercom announcement. Ensure relevant terminal gates are open.
(Area Warden)	Arrange evacuation, roll-call, and search for missing persons if safe to do so: guide visitors to the assembly area.
(Area Warden)	Report missing persons to Chief Warden.
(Area Warden)	Take mitigating action if safe to do so (shut down operations, cease vehicle movements, block smoke, extinguish small fires etc).
(Chief Warden)	Set up communications with the main control point, and monitor the actions being taken by team members.
(Communications Officer)	Obtain and log incident details.
(Area Warden)	Erect "No Entry" signs and secure the area until the all clear is given.
(Chief Warden)	Brief the Emergency Services when they arrive and hand over control to the Chief Fire Officer. Ensure that Emergency Services are aware of the danger of a BLEVE. A Boiling Liquid Expanding Vapour Explosion can occur when there is a fire impinging on or heating a LPG vessel. A BLEVE may happen within 10 minutes despite application of cooling water.
(Emergency Executive)	Commence notification process (e.g. GM-LPG, Origin Energy Insurance, authorities) and liaise with Police/security to handle public, neighbours and community, relatives, media etc, notifications and enquiries.
(Chief Warden)	After termination of the emergency, re-assume control and initiate the investigation, reporting and recovery processes.

2. STAFF LOCATED IN A NON-DANGER AREA:

On hearing the alarm:-

- Remain in the area and contact the Area Warden.
- Account for staff, make safe present activities, and prepare for evacuation if necessary.
- Await instructions.
- Evacuate and assemble as instructed by the Area Warden

11.2 Major LPG Escape

11.2.1 In-Terminal Escape

The ESD systems provide the main control mechanism for all LPG escapes: no attempt should be made to disperse or extinguish an LPG cloud or fire.

1. IN THE DANGER AREA

(Person discovering)	Activate Fire Emergency (ESD) system, move persons in danger to safety and notify Area Warden.
(Chief Warden)	Proceed to the danger area, assess the overall situation, consider additional short term measures required, and formally activate the emergency organisation if appropriate.
(Comm's Officer)	Ensure that Emergency Services have been alerted and issue radio/intercom announcement. Ensure relevant terminal gates are open.
(Area Warden)	Arrange evacuation, roll call, and search for missing persons if safe to do so: guide visitors to the assembly area.
(Area Warden)	Report missing persons to Chief Warden.
(Area Warden)	Take mitigating action if safe to do so (shut down operations, cease vehicle movements, etc).
(Chief Warden)	Set up communications with the main control point, and monitor the actions being taken by team members.
(Comm's Officer)	Obtain and log incident details.
(Area Warden)	Erect "No Entry" signs and secure the area until the all clear is given.
(Chief Warden)	Brief the Emergency Services when they arrive and hand over control to the Chief Fire Officer. Ensure that Emergency Services are aware of the danger of a BLEVE. A Boiling Liquid Expanding Vapour Explosion can occur when there is a fire impinging on or heating a LPG vessel. A BLEVE may happen within 10 minutes despite application of cooling water.
(Emergency Executive)	Commence notification process (e.g. GM-LPG, Origin Energy Insurance, authorities) and liaise with Police/security to handle public, neighbours and community, relatives, media etc, notifications and enquiries.
(Chief Warden)	After termination of the emergency, re-assume control and initiate the investigation, reporting and recovery processes .

11.2.2 Escape During a Ship or Hydrocarbons Transfer

1. Escape from a shipping or transfer line:

(Chief Warden)	Stop terminal operations.
(Chief Warden)	Instruct ship to stop pumping and close the wharf/terminal shipping line ESD.
(Comm's Officer)	Ensure that neighbours along the route of the pipeline are informed, as well as any specialist authorities.

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2. Escape onboard the ship:

(NB: the responsibility for shipboard incidents rests with the ship's master, who will not be an Origin employee and who has the sole authority to activate the ship's emergency systems)

(Area Warden)	Ensure the wharf ESD system is activated.
(Emergency Executive/ Chief Warden)	Assist the Ship's Master in notifying authorities and emergency services, or as requested by him.
(Emergency Exec.)	Inform the General Manager LPG and Head Office Shipping Department .

The above actions should be coordinated in conjunction with the relevant local Port Authority.

11.3 Major Spill

11.3.1 Ethyl Mercaptan Odorant

(Person discovering)	Close storage vessel valves to prevent further spillage, assist in moving persons in danger to safety and notify Area Warden.
	If product spilt on clothing or skin: <ul style="list-style-type: none"> • remove contaminated clothing and boots • wash affected areas with water for 15 minutes; use emergency shower • seek medical assistance and attend hospital without delay.
(Chief Warden)	Proceed to the spill incident, assess the overall situation, ensure the spill source has been stopped, consider additional short term measures required (e.g. ceasing terminal operations), and formally activate the emergency organisation, if appropriate.
(Chief Warden)	Ensure all persons are safe and accounted for, and moved indoors: shut down air conditioning and close doors and windows. Be prepared to evacuate.
(Communications Officer)	Ensure that Emergency Services have been alerted, when instructed by the Chief Warden.
(Area Warden / Chief Warden)	Take mitigating action if safe to do so e.g. ensure spill is contained and bund drain cock is closed; absorb spill with sand; neutralise the spilled Mercaptan by adding diluted household bleach.
(Area Warden)	Erect "No Entry" signs and secure the area until the all clear is given
(Chief Warden)	Set up communications with the main control point, and monitor the actions being taken by team members.
(Communications Officer)	Obtain and log incident details, and commence internal / external notifications.
(Emergency Executive)	Assist in notification process (e.g. General Manager LPG, Origin Insurance, authorities) and liaise with Police/security to handle enquiries from public, neighbours and community, relatives, media etc.
(Chief Warden)	Brief the Emergency Services when they arrive and hand over control to the Chief Fire Officer.
(Area Warden / Chief Warden)	When the odour is reduced to an acceptable level, place the contaminated sand in a closed container, and dispose of as advised by the Local Council Pollution Prevention Unit.
(Chief Warden)	After termination of the emergency, re-assume control and initiate the investigation, reporting and recovery processes.

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11.3.2 Automotive Distillate Spillage

Personnel operating the filling of the fire pump fuel storage must understand the importance of immediately containing a distillate spill to reduce the fire threat and prevent contamination of the storm water system.

In addition to the general actions noted above:

(Person discovering)	Shut down the distillate dispenser, and cover the spill with absorbent blankets/booms or sand: block the flow to the storm water drain and advise Chief Warden.
(Chief Warden)	Ensure distillate flow to storm water does not occur.
(Chief Warden)	Arrange clean up operations as soon as possible to minimise hazardous fire threat. Dispose of distillate soaked blankets/booms or sand according to Local Council guidelines.

11.4 Vehicle Accident

The prime tasks that may be required in the event of an LP Gas tanker or B-Double accident include:

- Arranging an alternative tanker and emergency trailer to offload cargo, if safe to do so.
- Dealing with other parties involved in the accident.
- Cleaning up the site if product or fuel has been spilled, to prevent contamination of stormwater.
- Liaising with the contractor if a contract hauler is involved.
- Arranging vehicle recovery and repair.
- Liaising with local police and advise relevant authorities.
- Handling media or relatives enquiries.

These actions should be undertaken by the Emergency Executive, in conjunction with other Origin groups and corporate functions such as safety, environment and public relations. Please refer to the Origin LPG Transport Emergency Response Plan (TERP) (LPG-BUS-EMM-PLA-0002) which provides guidelines for responding to vehicle accident.

11.5 Major Structural Damage (Plant, Equipment, Pipelines etc)

In the event of structural or equipment failure at the terminal which threatens the safety of staff or the facility, the general actions set out in Section 11.1 (Fire and Explosion) will apply, i.e.:

- Alarms and notification
- Evacuation
- Liaison with emergency services etc.

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11.6 Urgent Medical Emergency

The aim is to ensure treatment as quickly as possible, but the first person at the scene may not be qualified in first aid. Qualified personnel or the Ambulance Service should be summoned immediately either through a direct “000” call or via the Communications Officer.

(Person discovering)	Notify wardens / summon assistance
	If trained and qualified in first aid techniques (e.g. CPR) initiate action
	If not trained, stay with victim until medical assistance arrives
(Chief Warden)	Ensure qualified assistance is on its way and, if applicable, meet and direct the ambulance when it arrives

11.7 Third Party Emergency

The terminal and staff may be affected by incidents occurring at neighbouring plants e.g. where there is a risk of fire spreading, smoke or toxic fumes blowing across the site, a shipboard incident at the wharf etc. While the prime responsibility will rest with the site owner, the terminal’s emergency organisation may be required to take action to:

- Protect the terminal and staff.
- Provide assistance to the neighbouring facility.

(Person discovering)	Notify Area Warden when danger spotted
(Chief Warden)	Assess the risk and obtain details from the owner of the affected site
(Communications Officer)	If instructed by the Chief Warden, notify staff via radios, the alarm or intercom system, and call the Emergency Services
(Chief Warden)	If necessary, cease terminal operations, and activate the emergency response procedures, and evacuate the danger area. Follow the general guidelines as per Fire and Explosion (Section 11.1)
(Chief Warden)	If applicable ensure all persons are safe and accounted for, and moved indoors: if smoke or fumes are present, close doors and windows and turn off air conditioning. Be prepared to evacuate to an upwind assembly area
(Emergency Executive)	Arrange provision of assistance if requested

11.8 Natural Disasters

These may include incidents such as earthquake, flood, fire, but most commonly, cyclone or severe storm. In such circumstances control will generally be assumed by the Emergency Services, following activation of Local Government or State Counter Disaster Organisation.

11.8.1 Earthquake

During any violent earthquake all persons should:

- Stay indoors
- Keep calm
- Keep away from windows and heavy objects
- Take cover in a doorway or under a strong table or other support

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- If evacuation order is given, proceed to assembly area as directed by Area Warden.
- Chief Warden Responsibilities

- After any earthquake immediately shutdown the plant (if this could not be done beforehand).
- Check with all staff to ensure that no one has been injured, rendering any assistance as required.
- Co-opt whatever staff are available and make an immediate inspection of the plant looking for any signs of leakage or other malfunctions.
- Notify the emergency services as required.
- Respond to any leakage.
- Check the integrity of the plant and buildings. Safety and Engineering are required to give approval before any restart of Operations.
- Check computer systems to ensure that they are still functioning correctly.
- On all clear restart the plant following approval as above.

11.8.2 Neighbouring Fires

The terminal is not prone to bush fire but may be exposed to fires from adjacent neighbouring facilities. In the event of a large fire from adjacent facilities, all persons at the terminal will be instructed to evacuate. The steps taken by the following emergency control staff to deploy the emergency plan are as follow:

(Chief Warden)	Before the fire approaches the terminal - Immediately shutdown the plant.
(Comm's Officer)	Ensure that Emergency Services have been alerted if appropriate.
(Area Warden)	Arrange evacuation, complete roll call, and search for missing persons if safe to do so: guide visitors to the assembly area.
(Area Warden)	Report missing persons to Chief Warden.
(Area Warden)	Take mitigating action if safe to do so (shut down operations, cease vehicle movements, etc).
(Comm's Officer)	Obtain and log incident details, monitor media.
(Chief Warden)	Monitor media and evacuate when directed by Emergency Services or media.
(Emergency Executive)	Commence notification process (e.g. GM-LPG, Origin Energy Insurance, authorities) and liaise with emergency services as required.
(Chief Warden)	After termination of the emergency, re-assume control and initiate recovery processes. Check the integrity of the plant and buildings. Safety and Engineering are required to give approval before any restart of Operations if there have been damages.

11.8.3 Storm/Flash Flooding

Port Botany may be subjected to flash flooding in the event of a major storm. In the event of a flash flooding, all persons at the terminal will be instructed to evacuate. The steps taken by the following emergency control staff to deploy the emergency plan are as follow:

(Chief Warden)	Before the storm/floods approaches the terminal - Immediately shutdown the plant.
(Comm's Officer)	Ensure that Emergency Services have been alerted if appropriate.
(Area Warden)	Arrange evacuation, complete roll call, and search for missing

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	persons if safe to do so: guide visitors to the assembly area.
(Area Warden)	Report missing persons to Chief Warden.
(Area Warden)	Take mitigating action if safe to do so (shut down operations, cease vehicle movements, etc).
(Comm's Officer)	Obtain and log incident details, monitor media.
(Chief Warden)	Monitor media and evacuate when directed by Emergency Services or media.
(Emergency Executive)	Commence notification process (e.g. GM-LPG, Origin Energy Insurance, authorities) and liaise with emergency services as required.
(Chief Warden)	After termination of the emergency, re-assume control and initiate recovery processes. Check the integrity of the plant and buildings. Safety and Engineering are required to give approval before any restart of operations if there have been damages.

11.9 Security Threats

11.9.1 Bomb Threats

The following guidelines set out the actions to be taken by the recipient of a bomb-threat by telephone, mail or person.

1. Telephone Threat - (Person receiving)

- DO NOT INTERRUPT - OR HANG UP
- Record all information on nearest paper
- Let caller finish message, do not interrupt
- If asked for a response, keep your answer to one or two words
- Try to attract the attention of persons near you
- Be sympathetic (do not abuse caller)
- Claim you cannot hear the caller
- Ask for repeats of conversation
- If given the opportunity tell caller there would not be time to evacuate all persons and stress to caller that if an explosion occurs, innocent persons would be hurt or killed
- Refer to the attached checklist for key questions to ask.

2. Immediately the Caller Hangs Up

- Do not hang up or do not touch phone again until authorised
- Report threat to Area Warden/Chief Warden, who will notify the Police
- Complete the Bomb Threat Checklist and remain with Area Warden/Chief Warden for interview by Emergency Executive and Police
- Do not discuss details of threat with media or any other person not authorised to receive such details
- Await further instructions

11.9.2 Mail Threat - Person Handling

- Take careful note of the time and method of receipt
- Retain item but limit handling to a minimum and handle by edges only
- Notify Area Warden/Chief Warden and give details

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- Complete Bomb Threat Checklist and remain with Area Warden/Chief Warden for interview by Emergency Executive and Police
- Do not discuss details of threat with media or any other persons not authorised to receive such details
- Await further instructions.

Suspect Letter and Parcel Recognition Points

Physical signs

- Unusual odour
- Oily stains or discolouration
- Excessive weight
- Rigid envelope
- Lopsided or uneven envelope
- Protruding wires/tin foil
- Excessive securing material e.g. tape/string
- Visual Distractions
- No return address

Addressing

- Foreign mail, air mail or special delivery
- Restrictive marking such as confidential, personal
- Excessive postage
- Handwritten or poorly typed address
- Incorrect titles
- Titles but not names
- Misspelling of common words

11.9.3 Personal Threat

- Evaluate the person making the threat:
- Has the person a complaint against your organisation?
- Under the influence of alcohol or drugs?
- Was the threat made in a facetious or joking manner?
- Take note of the appearance and other characteristics of the person(s) making the threat
- When the person has departed report threat to Area Warden/Chief Warden then complete the Bomb Threat Checklist
- Remain with the Area Warden/Chief Warden for interview by Emergency Executive and Police
- Do not discuss details of threat with media or any other person not authorised to receive such details
- Await further instructions.

11.9.4 Armed Intrusion / Hold Up

General awareness:

- Notify any suspicious persons(s) to your Area Warden
- Keep cash/vital records/information and valuables secured and to a minimum workable level
- Do not discuss activities, vital records, and amounts of cash or security procedures in public.

Immediate actions if confronted:

- Try to remain or appear to be calm
- Do not make any sudden movement or take any action to excite intruder(s)
- Be courteous, converse with and answer questions asked by the intruder(s)
- Obey all instructions given by the intruder(s)

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- Hand over valuables - cash - drugs on request
- Take a mental note of appearance, character, and items on person etc.

11.9.5 Public Disorder

Although riot or siege situations may be unlikely, the terminal could be faced with similar situations in the event of a major demonstration. In such circumstances the police must be called to control the situation, and to advise on communications with the demonstrators. Maintaining security of the terminal is of paramount importance, but access may be limited or blocked.

(Person discovering)	Notify Area Warden when incident spotted.
(All staff)	Remain in the area in which you are located: do not confront or speak with the demonstrators.
(Chief Warden / Communications Officer)	Assess the situation and notify police.
(Chief Warden)	Liaise with police when they arrive.
(Emergency Executive)	Notify the General Manager - LPG and prepare to handle media enquiries.

11.9.6 Analysis of Threats

In addition to the above actions, it will be necessary to:

(Emergency Executive)	Analyse / assess the threat and interview the recipient of the threat, in conjunction with the police.
(Chief Warden)	Shut down terminal operations and if necessary commence evacuation - which must be completed at least 30 minutes before the detonation time stated in the threat.
(Area Warden)	Position "No Entry" signs and keep all persons away from site until the all clear is given.

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(Area Warden)	Search for suspect items, firstly in external areas and from the ground upwards. Report findings to the Chief Warden.
(Area Warden)	If a suspect item is found: <ul style="list-style-type: none">- do not touch, move, or disturb it- move all persons to safety- if safe to do so, open doors and windows, turn off equipment, air conditioning etc, but leave lights on
(Area Warden)	Remove flammable materials if safe to do so, and open doors and windows.
(Area Warden)	Ensure completion of the bomb-threat checklist and availability of the recipient for interview.
(Emergency Executive)	Notify the General Manager LPG, and be prepared to handle enquiries as per police advice.

NB: Use line telephone only - switch off and do not use radios, cellular or mobile phones, pagers, or other radio transmitting devices.

Refer to Appendix D - Bomb Threat Check List for a Bomb Threat Checklist that should be completed.

11.9.7 Terrorist Threats

Where there may be a possibility of terrorist action Origin can be instructed by the Police and National Security to heighten staff security. A High-Level threat may require staff to limit work to within the Terminal and consider ceasing product movement. An Extreme-Level threat may require staff to close the Terminal.

12 Communications and External Relations

12.1 General Guidelines

One of the most important aspects of effective emergency management is communications. This may be required with a wide range of different internal and external parties. The timing, content, and style of such communications will generally have a major impact on the perceptions about how the Company has responded, and therefore need to be closely co-ordinated.

Communications of two main types are required:

- Notification to appropriate external and internal groups
- Response to enquiries, e.g. from relatives, the media, local community, and general public.

Guidelines are set out below regarding the range of potential contacts and how they should be handled.

12.2 Notifications

12.2.1 Internal

All incidents requiring activation of the Emergency Response Plan must be reported by the Emergency Executive who may in turn notify the General Manager LPG and mobilise the Group Emergency Management Team.

Local staff should also be notified. This may be done via the alarm or intercom system, but in instances where staff are not directly affected (e.g. a vehicle accident off-site) details should be provided through a notice from the Regional Operations Manager.

This is particularly important in cases where a colleague has been seriously injured, or where the incident (and the Company's reputation) is being publicly debated, and staff should know the facts.

12.2.2 External

A wide variety of external parties may need to be notified of an incident - starting of course with the Emergency Services, but also covering such groups as:

- Government departments
- Specialist authorities
- Neighbours and community groups
- Contractors, customers, suppliers etc.

Responsibility for notifying all such relevant parties rests with the Emergency Executive. Depending on the nature and scale of the incident, the Emergency Executive may obtain assistance both at the site (e.g. security or the communications officer), or via the Group Emergency Management Team.

A checklist to notify the authorities, external and internal groups can be found in the Regulatory Reporting Guide (LPG-BUS-HSE-GUI-0019).

For any incident, there is potential for external investigations to be conducted by relevant authorities. However statutory requirements are to be followed to preserve evidence.

12.3 Media Relations

Detail removed due to security requirements

12.4 Relatives, Next of Kin and Trauma Counseling

In the event of a local terminal emergency, responsibility for dealing with enquiries from relatives of employees (who may or may not be injured) rests with the Emergency Executive.

In the event of a crisis involving fatalities or multiple serious injuries, the GEMP Team will be activated and the GEMP People and Culture Leader will assume responsibility for co-ordinating communications with relatives and next of kin.

13 Termination of Emergency

13.1 Return of Control from Emergency Services

When an emergency is of such proportions that the Emergency Services are involved, the formal incident control will be assumed by a senior member of the Emergency Services. They will formally declare the emergency to be over, and hand back control of the facility to the Chief Warden. The Chief Warden will complete an incident report and initiate an investigation/risk assessment (see Section 13.3), and communicate to staff and other parties involved (e.g. contractors, neighbours etc) of the termination, and resumption of normal activities.

Note: FRNSW has a handover Book that should be filled in & handed to the Origin responsible person at the conclusion of the incident.

13.2 Recovery and Restoration

Emergencies can result in harm or damage - to people, plant, property, environment, or company image - and remedial action will be required. The responsibility for planning and implementing such action rests with the Emergency Executive, and may include:

1. Rehabilitation of staff.
2. Repair of damaged facilities.
3. Environmental remediation.
4. Replenishment of emergency facilities, e.g. fire extinguishers, first aid kits, control room equipment and documents.

In addition, harm may have been caused to the company's image or business / customer relations. Actions to restore image and business should be planned in conjunction with the Sales and Marketing Department.

In the event of an emergency that cause damage to the facility there may be a need to seek Technical Assistance for repairs and replacements. As a minimum the following should be completed before returning to normal Terminal operations:

1. Opening and closing an LPG Terminal Operating Instruction
2. Terminal Weekly Inspection Checklist
3. Weekly Fire Protection Checklist

13.3 Internal Reporting and Investigation

Following termination of the emergency and restoration of normal activities, the Chief Warden will complete an incident report and initiate a formal investigation, considering such aspects as:

1. Cause of the incident, and other contributing factors.
2. Mitigating actions taken.
3. Effectiveness of the response procedures.
4. Preventive actions required in future.

As per the Energy Markets HSE Contractor Management Procedure (EM-BUS-HSE-PRO-0024), a formal independent investigation maybe initiated.

13.4 Debrief

Within one week of an emergency, the Chief Warden will convene a debrief meeting of members of the emergency organisation to:

1. Present and discuss findings and learning's.
2. Consider the use and effectiveness of the emergency response procedures.
3. Finalise recommendations for improvements.

In Australia, OCIS (Origin Collective Intelligence System) should be used to track the recommendations. The Pacific terminals should use their HSE meeting minutes to track recommendations.

14 Emergency Plan Assumptions

The development of this ERP is based upon the assumptions listed below.

14.1 Fire Service Approach

It is assumed that the emergency services will respond within 5 to 20 minutes of being alerted. The Origin site is on a one way road system which would involve fire tenders possibly having to drive through a contour of a typical major accident. To this end we assume that fire tenders approaching the site would identify the most suitable route which may require accessing Friendship Road against normal traffic flow (the road has sufficient width to allow this without becoming an undue hazard).

14.2 Failure of Services

14.2.1 Deluge

The site operates a deluge tank which covers:

- The tanker loading bays
- Pumps and compressors
- The above ground Day Tank

The storage tank is refilled from the Council reticulated main serving the Port and the capacity ensures there is sufficient water to cover the above areas for a 2 hour period.

This water is for cooling purposes only.

14.2.2 ESD Operation

The function of the automatic and manual operation systems is to remove air from valves. This response allows:

- Activation of deluge system
- All pneumatic shut down valves
- Electric power is switched off to the LPG pumps and compressors
- Audible and visual fire alarms activate
- Alerts the Fire Brigade and the security company who in turn contact the appropriate Origin Energy personnel

Gas cannot flow without the air system being initiated. Should there be a rupture in the pipework only the gas within the enclose valve lengths can escape

14.3 Inventory

The consequence modeling was based on the worst scenario, i.e full bore/catastrophic rupture of the 20 tonne tanker vessel as all LPG storage vessels at Port Botany are mounded. The catastrophic rupture and subsequent release of tanker vessel inventory may be due to fatigue, overload, external corrosion or impact.

The modeling has been based on a release of the entire inventory and the weather conditions described in the next section.

14.4 Weather Conditions

The local weather conditions used for the fire consequence modelling presented in Appendix F - General Consequence Information were:

Ambient Temperature	25°C
Relative Humidity	70 %
Atmospheric Stability Class	D (Neutral)
Wind Speed	5 m/s (Class D5)
Height of Release from Ground	1.0m
Release Orientation	Horizontal
Height of Reported Radiation Levels	1.5m

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15 Management of the Plan

15.1 Access to Plan

A controlled copy of this ERP is found in the LPG Document Centre in Source. It may be accessed via

<http://source.originenergy.com.au/Business/Energy/Teams/LPG/Centre/Forms/All.aspx>

Details of reference copies printed are shown in Table 12.

Table 12: Printed Reference Copies of the ERP

Copy No	Issued To/Location
1	Detail removed due to security requirements
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

Amendments of this ERP are the responsibility of the Terminal Manager and will be actioned in accordance with Origin document control procedures. Changes to this plan need to be approved by the Process Safety Team to ensure consistency throughout Origin LPG.

15.2 Updating of the Plan

The plan will be tested and reviewed at least annually and revised if necessary. In addition, the plan will be revised when:

- Testing of the plan identifies shortcomings or omissions
- Modifications or alterations occur at the terminal
- Significant changes occur in relation to the type and quantities of hazardous materials on site
- An incident or near miss indicates the need to do so
- Changes to surrounding land use impact upon the emergency plan and
- There are changes in personnel and contact details.

Origin has a process in place to verify site Emergency Response Plan's. Process includes internal verification audits carried out by competent Origin employees at internal audit intervals. Randomly verified by Area Operations Manager and site Manager. Origins internal Document storage centre will trigger an action the procedure is due for review, once the site has reviewed the information is current the document requires a number of approved levels by Process safety department & Senior Management.

Table 13 in Appendix A - ERP Revision History shows the Revision History of this ERP.

15.3 Record Keeping

Records are an integral part of the terminal's Safety Management System and records need to be retained to verify the adequacy of the system.

Examples of circumstances for which records should be kept are:

- All induction programmes, ongoing training and exercises (including dates, personnel involved, and nature of the training or exercise in-house or external training)
- All near-misses and incidents need to be captured in Origin Collective Intelligence System (OCIS)
- Testing of the plan (including the dates of testing, methods, personnel responsible, and the results of testing).

16 Document Control

Detail removed due to security requirements

Emergency Response Plan - Port Botany LPG Terminal Plan

Appendix A - ERP Revision History

Table 13: Revision History of the ERP

Date	Revision	Clause	Issue	Reason for Update
17/05/2006	New Issue			
11/01/2007	Update contacts			Site request
19/04/2007	Update contacts			Site request
01/07/2009	Update contacts/operational changes			Site request
26/10/2010	Update contacts			Site request
25/05/2011	Update contacts			Site request
20/11/2011	Update contacts			Site request
30/05/2012	Update contacts			Site request
05/06/2012	Update link in Document Control section Added Pollution Incident Response Management Plan (PIRMP) and updated contact details to include authorities to notify for pollution incident. Updated Sections 6.3 (Media Relations) and added Section 6.4	0.2 Section 1.1.2, 2.4 & 6.2.2 6.3 & 6.4	6.0	Site Request as per new incident response rules from <i>Protection of the Environment Legislation Amendment Bill 2001</i> (Bill) Corporate requirements
20/08/2012	Update contacts		7.0	Site request
26/06/2013	Update ERP to new template	All	8.0	All ERPs
27/08/2013	Information from Somerton incident and NSW Fire Service updates	All	9.0	General requirements Insert correct Major Incident listings

Emergency Response Plan - Port Botany LPG Terminal Plan

23/09/2013	Table 1 - specific jurisdiction and personnel of police and fire brigade	All	10.0	Update ERP to comply with NSW OH&S 2001 Regs and FRNSW review of the plan requirements.
29/11/2013	<p>General structure update</p> <p>Updates included: Definition of an Emergency</p> <p>Objectives - <i>Support emergency services with information, knowledge, skills and equipment</i></p> <p>Roles of Agencies, Groups, Industry and the Community</p> <p>Location and Occupations Plans</p> <p>Injury Risk Map</p> <p>Emergency Services Access Map</p> <p>ESD Buttons</p> <p>Facility Emergency Control Centre</p> <p>Types and levels of Emergency</p> <p>Activation of the Plan</p> <p>Out of Hours</p> <p>Return of Control from Emergency Services</p> <p>Emergency Planning Assumptions</p> <p>Neighbouring Fires</p> <p>Strom/Flooding</p> <p>Information to be Provided to Emergency Services</p>	<p>All</p> <p>1.3</p> <p>2.2</p> <p>3</p> <p>4.3</p> <p>4.4</p> <p>4.5</p> <p>4.11.2</p> <p>6.2</p> <p>7</p> <p>10.2</p> <p>10.3</p> <p>13.1</p> <p>14</p> <p>11.8.2</p> <p>11.8.3</p>	10.0	Update ERP to comply with WHS Regs and FRNSW review of the plan requirements

Emergency Response Plan - Port Botany LPG Terminal Plan

29/11/2013 continued	Consequence information Contact details have been moved to front of ERP vision history have been moved to the Appendices of the ERP.	App B App F		
28/08/2014	Update contacts		11.0	Management/ Personnel Changes
11/11/2014	Updaters to Contact Details	Contact Details	12.0	Management/ Personnel Changes
01/06/2016	Updated as per FRNSW requirements and updated Site Safety Plan	All	13.0	FRNSW requirements

Appendix B - Information to be Provided to Emergency Services

The presence of Emergency Services is required when there is an emergency where the impacts on people, property and the environment are expected to:

- Spread of affects all parts of the terminal (examples - pipe rupture, vessel fire)
- Impact both within the terminal and beyond the boundary of the terminal (examples - bomb threat, BLEVE of storage vessel, neighbouring facilities fire)

In the event of the above emergencies, the Communications Office will report the emergency to the Emergency Services. The following initial information/advice is to be provided:

- name and location of the terminal (suburb, street, nearest cross street to relevant site entry);
- number of injured persons or casualties and the nature of injuries if applicable;
- the type and scale of emergency including a brief description;
- hazards involved (including details of substances, namely UN Numbers, names of substances, quantities involved);
- telephone contact number (for any return messages);
- name of person making the call; and
- any other useful information (e.g. wind speed and wind direction, etc.).

Appendix C - Message Log



Emergency Response Immediate Actions Checklist

Scenario:	
Time:	
Date:	
Location:	

Immediate Actions Checklist

Check	Action	Notified who?	Time/Date	Initial
<input type="checkbox"/>	Secure visitor book & MSDS register			
<input type="checkbox"/>	Locate First Aid Kit			
<input type="checkbox"/>	Proceed to Muster Point & notify the Site ERT Leader of your position			
<input type="checkbox"/>	Assist in any First Aid required			
<input type="checkbox"/>	Assist Emergency Service when required			
<input type="checkbox"/>	Assist Site ERT Leader when required			

Sequence of events	Time/Date	Initial

Appendix D - Bomb Threat Check List

Origin Bomb Threat Checklist

Questions to Ask:

- 1. When is the bomb going to go off?
- 2. Where did you put the bomb?
- 3. When did you put it there?
- 4. What does the bomb look like?
- 5. What kind of bomb is it?
- 6. What will make the bomb explode?
- 7. Did you place the bomb?
- 8. Why did you place the bomb?
- 9. What is your name?
- 10. Where are you?

Exact wording of threat:

Record details of:

Callers voice (Accent, Impediment, Voice, Speech and Manner)

Background Noise

(Street, Aircraft, Voices, Music, Machinery, House, Local Call, Long Distance, STD)

Threat Language

(Well spoken, Incoherent, Irrational, Taped, Message Read, Abusive)

Other

(Sex, Age)

Date, Time and Duration of Call

Appendix E - Evacuation Checklist Form

EVACUATION CHECKLIST TO BE COMPLETED BY THE AREA WARDEN

EVACUATION CHECK			PERSONNEL CHECK			
AREA	TIMES		PHYSICAL CHECK OF ALL AREAS		ALL PERSONS IN AREA ACCOUNTED FOR BY NAME	
	START	COMPLETE	YES	NO		TICK <input checked="" type="checkbox"/>

NOTES:

- List names of persons who generally work in your area and keep the list up to date.
- Tick off and list all persons present in your area during an emergency including visitors and staff from other areas.

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Appendix F - General Consequence Information

A number of consequence modelling activities have been completed for Origin terminals. This information has been collated and is summarized below. This appendix presents a sample of consequences which could arise at Port Botany LPG facility. The results are approximate and are included to illustrate the potential severity of a process safety incident.

BLEVE Results

BLEVE Scenarios	
Name	Distance (m) to 10% mortality
Road Tanker (20 tonne)	80
Road Tanker (9 tonne)	50
Day Tank (2 tonne)	30
Cylinder (45 kg)	< 15

Jet Fire Results

Jet Fire Scenarios	
Distance (m) to 10% mortality	
10 mm hole size	100 mm hole size
25	< 190

Flash Fire Results

Flash Fire Scenarios		
Name	Distance (m) to 10% mortality	
	10 mm	100 mm
Ship Unloading	70	470
Road Tanker Loading/Unloading	70	250

NOTE:

1. The explosion-overpressure injury risk contours were not generated. The consequence analysis found that the potential for explosion overpressure was negligible, given the relatively open, uncongested nature of the Terminal.
2. All storage tanks at this terminal are mounded and the fire consequences were not generated.

Appendix G - General Frequency Information

The failure frequencies below are based on historical failure frequency data from industry. In general, larger hole sizes occur less often, and the associated consequences (refer to Appendix 0) are greater. Transfer hose releases are the most likely to occur in a typical LPG operation. For transfer hoses, the likelihood of the larger failures is expressed in terms of “per hour of operation”. All other frequencies are the chance of a failure per year (e.g. 5×10^{-2} can be read as five failures in 100 years, 2×10^{-3} can be read as two failures in a thousand years). Excess flow valve historical failure frequency from industry is 0.01 or one failure every 100 times it is called upon to shut.

Process Related Leak Frequencies

Failure Type	Hole Size		
	10mm	50mm	100mm
Ship to plant	1×10^{-4}	5×10^{-5}	1×10^{-6}
Tank to tank loading bay	5×10^{-3}	1×10^{-4}	1×10^{-5}
Tanker loading bay	5×10^{-2}	-	5×10^{-7}
Storage tank and associated fittings	2×10^{-3}	5×10^{-7}	-

Transfer Hose Leak Frequencies

Failure Type	Hole Size	Leak frequency/Probability
Hose split	10mm	5×10^{-2} p.a.
Hose rupture	Full bore	5×10^{-7} per hour of operation
Coupling failure	Full bore	4×10^{-4} per operation

Equipment Failure Leak Frequencies

Failure Type	Equivalent Leak Size (mm)	Leak frequency/Probability
Valve gland external leak	10	7×10^{-4} p.a.
Pump casing catastrophic failure	Full bore	3×10^{-5} p.a.
50mm pipe work: medium	2.5	1×10^{-4} p.a.
major	10	1×10^{-5} p.a.
rupture	50	5×10^{-6} p.a.
100mm pipe work: medium	10	3×10^{-5} p.a.
major	25	6×10^{-6} p.a.
rupture	100	3×10^{-7} p.a.
150mm pipe work: medium	10	2.5×10^{-5} p.a.
major	50	5.25×10^{-6} p.a.
rupture	100	2.5×10^{-7} p.a.
Excess flow valve	-	0.01 per demand