EMERGENCY PLANNING

WORKPLACE HEALTH AND SAFETY REGULATION 2011

Aim

This document is intended to assist the person developing the emergency plan so that it is functional. This document also provides guidance about the emergency plan format and the elements of an emergency plan the Queensland Fire & Emergency Services (QFES), will consider when reviewing an emergency plan.

Introduction

An emergency plan is required within the context of the *Work Health and Safety (WHS) Regulation 2011* (Section 43). If the quantity of schedule 11 hazardous chemicals used, handled or stored at the workplace exceeds the manifest quantity for that hazardous chemical, then Section 361 also applies. A person conducting a business or undertaking at the workplace must give a copy of the emergency plan prepared under part 3.2, division 4 for the workplace to the primary emergency service organization.

An Emergency Plan is a written document detailing how a workplace and its occupants deal with or manage an emergency. An effective emergency plan consists of the preparedness, response and recovery activities and includes the agreed emergency management roles, responsibilities, strategies and system arrangements for the site. The level of detail in the emergency plan will depend on the complexity of the activities at the workplace involved, how much and what types of hazardous materials are stored or used at the site.

There are a number of guidance documents available to assist in planning for emergencies and writing the emergency plan. An example is *Emergency Planning: A Guideline for Hazardous Industry* and should be used and supplemented with the additional information relevant to your workplace.

Definitions

Emergency

Sudden unforeseen happening which requires actions to correct and protect lives or property and the environment. It may include fire, explosion or toxic material release, an electrical failure, security breach or a natural event.

Emergency Planning

Preparing to manage an emergency which aims to prepare for and mitigate the effects of the emergency.

Emergency Plan

Written document detailing how a site or facility and its occupants deal or manage emergency events that may occur. It describes the emergency management system. The emergency plan defines the emergencies it all to and typical emergencies include:

- Fire;
- Security;
- Medical;
- Electrical outage;
- Mechanical or process failure;
- Natural events such as storms or cyclones; and
- Hazardous materials releases.

Key points for emergency planning

The emergency plan is prepared to respond to and manage emergencies. The plan should be simple and link to your business continuity plan and other business plans. The following points summarise key items to assist preparing an effective emergency plan:

- types of emergencies including common industry incident data and historical data of site;
- description of the area to be covered by the emergency plan with respect to people, locations, environment, boundaries, systems, and plant and equipment;
- consultation (workers, contractors, product and plant specialists, and emergency services);
- documentation of the process of hazard identification and analysis;
- gap analysis (against established standards);
- description of the emergency management system;
- writing the plan using an established format and listing areas to be addressed and schematics/maps required;
- description as to how the emergency plan is activated and terminated;
- describe how the emergency plan is managed including documentation, record keeping and exercises;
- documented training and exercises; and
- monitoring and reviewing (checklists, exercise debriefs).

For effective emergency planning, a comprehensive hazard identification and risk assessment process must be undertaken for the site to identify credible scenarios for which emergency plans must be developed. This must address the hazards presented by the hazardous materials, associated plant and equipment (storage and handling systems) and related activities (operation, maintenance, repair and decommissioning).

Once the emergency types are identified, the scale needs to be addressed. Scale refers to the level of escalation required to manage an incident. Scale is best determined according to whether the impacts (consequences) are expected to:

- have a localised impact (local work area), or
- have site-wide impacts; or
- have an impact both within the facility and beyond the boundary of the facility.

The planning should also address the likely impact on the local community and identify:

- who your at risk neighbours are and their location;
- how they can be contacted; and
- crisis communication arrangements.

Clearly identify when the emergency services should be notified during an emergency. Triggers may be:

- Incident scale has potential to spread beyond the boundary of the installation;
- it is beyond the resources of the facility to manage the incident;
- Safety equipment is inadequate for dealing with a specific situation;
- Staff levels and expertise is inadequate to deal with a situation; and
- staff and the public are, or could potentially be placed at risk.

Depending on your location, nature of your workplace activities and storage (such as volume of ammonia stored), and the nature of the local community you might need to engage the local disaster management group about public protection strategies such as evacuation. The emergency plan includes crisis communications arrangements.

Emergency management systems including roles and responsibilities

AS3745: Planning for Emergencies in Facilities provides guidance on the development of procedures for the controlled evacuation of buildings and workplaces during emergencies. This standard provides guidance for building evacuation procedures, assembly areas and warden systems. However, applying the standard will only form part of the requirements to deal with emergencies involving hazardous materials.

The organisation structure and emergency functions describe the emergency functions identified and incident management system (IMS), such as Australian Interagency Incident Management System (AIIMS) applied. For larger workplaces with potential for more significant consequences, established emergency management structures used by QFES, Queensland Ambulance Service and Queensland Police Service should be adopted. The Incident Management System (IMS), such as Australian Interagency Incident Management System (AIIMS) needs to be resourced and sustainable. It also needs to be compatible with the facility's routine organisational structure.

Personnel involved in coordinating the response to or combating the emergency require specialist emergency management and response training for activities such as incident management, donning SCBA/chemical protective clothing, and manipulating critical valves in adverse conditions. Hence the roles and responsibilities for those involved in managing an emergency must be identified for the scale and types of emergencies applicable to a particular workplace.

The roles and responsibilities of the workplace personnel should be articulated and practiced to reflect the agreed emergency response approaches. After hour responses may need to be also considered with the staff levels available on site. Roles and responsibilities should be nominated after the consideration of the required expertise, authority, training and equipment involved. Setting up a training matrix is a useful way to track and manage training requirements for staff.

Site plans

The site layout must be available as part of the emergency services manifest and the site plan should also include:

- inventory of all hazardous chemicals on site and their location;
- land use and occupancy surrounding the workplace such as sensitive populations and environmental features;
- street address of the main entrance with its location geo-coded in Decimal Degrees (4 or 5 decimal places) Latitude and Longitude;
- resources and their location; and
- site process diagrams such as the location of critical items like isolation valves.

To facilitate emergency management, all pipework & instrument diagrams (P&IDs), showing location of isolation valves must be up-to-date and accurately reflect the 'as-installed' system and be readily available and identifiable (i.e. clearly marked).

Resources and equipment

Resources and equipment refers to items required to respond to an emergency and assist in the recovery. Specialist items may be required to resolve the emergency such as:

- Electronic resources (system information, P&IDs, MSDS);
- Technical expertise;
- Gas detection equipment;
- Mitigation equipment;
- Neutralising agents such as citric acid;
- Pipe repair equipment;
- Product transfer equipment; and
- sand/soil to isolate, control flow of contaminated water run-off;
- recovery/waste management equipment or arrangements; and
- Respiratory and skin protection.

Arrangements must be in place to obtain the required resources in a timely manner. These arrangements (including recovery) may also include obtaining resources from off-site. These arrangements must be practiced and tested to ensure their effectiveness.

A risk assessment must be conducted to determine the level of personal protective equipment likely to be needed for various activities including access and rescue to contaminated areas. People undertaking such duties must be properly trained and equipped. The response time of the local Emergency Services must be considered in cases where a rescue would be required.

A robust maintenance program should be established to ensure the nominated resources are serviceable (e.g. SCBA, fire extinguisher, gas detectors, product transfer pump and hoses).

The resources must match the plan and be available at all times including the arrangements for additional resources and expertise to assist.

Emergency procedures

Emergency procedures will describe the approaches applied to resolve specific situations. Procedures will detail precise duties of all staff and the arrangements for evacuation, rescue, first aid, resuscitation and plant isolation. During an emergency, people need to have clear, simple, practical instructions to follow.

Emergency procedures need to be in place to address:

- situation assessment to provided initial information on type and scale of leak;
- raising the alarm to alert others;
- responding to a sounding alarm including its acknowledgement (e.g. SCADA system) and actioning;
- evacuation taking into account the location of incident any plume;
- detection of gas escape, utilising both fixed-type and portable or hand-held type detectors;
- evacuation taking into account the location of released gas;
- safe work procedures to conduct anticipated emergency response actions;
- containment of releases;
- fixed fire protection equipment and its operation;
- emergency venting of plant (ventilation);
- emergency shutdown processes:
    - closing valves to isolate the system into smaller sections and to prevent further escape;
    - equipment shutdown; and
    - dealing with power outages;
- system start-up after an emergency shutdown;
- isolation of electrical appliances where required;
- tables of the safe operating conditions for critical valves and components;
- diagram/s of the current as-fitted operating system showing integral parts and critical valves and their locations at the facility; and
- coordination with local emergency responders.

Environmental considerations

The Workplace Health & Safety Regulation relating to the emergency plan does not specifically consider protecting the environment since its focus is on human safety. However, emergency plans will need to address potential environmental impacts such as a large fire involving environmentally hazardous materials. For example, fire water run-off may be directed into existing catchment ponds, bunded areas, or traps on site.

Training

Occupiers need to ensure that those with a role in responding to an emergency are trained and appropriately resourced. The training should be commensurate with the role and responsibilities of those to be involved, using recognised standards and practiced on a regular basis. Examples of tailoring specific training to specific roles are provided below for illustrative purposes:

- **New Staff and Visitors**- site safety induction;
- **Machinery Operators (Engine Drivers)**- safe work procedures, use of PPE, use of gas detectors, emergency shutdown and start-up procedures;
- **Process Workers**- evacuation;
- **Selected Operational Staff**- first aid and fire extinguisher;
- **Emergency Response Team**- incident management training, SCBA, use of gas detectors and emergency shutdown; and
- **Senior Management**- incident management training and media training.

Training is a key part of the emergency management process and helps to develop a resilient workforce. Appropriate training records (who, when and what) must be kept. Verification of understanding of the training is an important aspect of the management of training. It may include observation of performance, written testing and/or oral testing. Training documentation should show how understanding was measured or verified.

Drills and exercises

It is essential the emergency plan be tested to ensure the plan works as intended, persons know their roles and resources identified are serviceable and available.

Testing and reviewing of the emergency plan should be conducted at suitable intervals to enable deficiencies to be identified and corrected. Two usual methods of testing are desktop simulations and practical exercises or drills such as realistic response exercises or 'mock' drills with their local emergency services.

A Major Hazard Facility (MHF) has more specific emergency plan testing requirements as outlined in the *Workplace, Health & Safety Regulation 2011*.

Emergency plan

The Emergency Plan describes the emergency management system intended to manage emergencies at the workplace. A documented emergency plan is required under the *Workplace, Health & Safety Act 2011* if the workplace uses stores or handles hazardous chemicals at quantities exceeding the manifest threshold outlined in schedule 11 of the *Workplace, Health & Safety Regulation 2011*. If the workplace is a Major Hazard Facility (MHF) the *Workplace, Health & Safety Regulation*, schedule 16, prescribes the details required to be addressed in the emergency plans and procedures.

A summary of the outputs of the emergency planning process summarised above needs to be documented in the 'Emergency Plan'. Suggested sections in the documented plan are itemised below:

- objectives and scope;
- contacts;
- activation and deactivation;
- organisational structure;
- emergency functions;
- roles and responsibilities of various personnel;
- emergency response approaches and procedures;
- protective Actions;
- facility resources or resource acquisition arrangements – quantity/location and contacts;
- community engagement/media;
- site map;
- plan testing and review; and
- Emergency assistance arrangements.

Smaller, more isolated workplaces for which an emergency would have minimal impact beyond their boundary often requires less detailed emergency plans compared with more complex, larger workplaces. The proximity to built up areas will also influence the relative complexity of the plan due to the need for additional mitigation measures.