

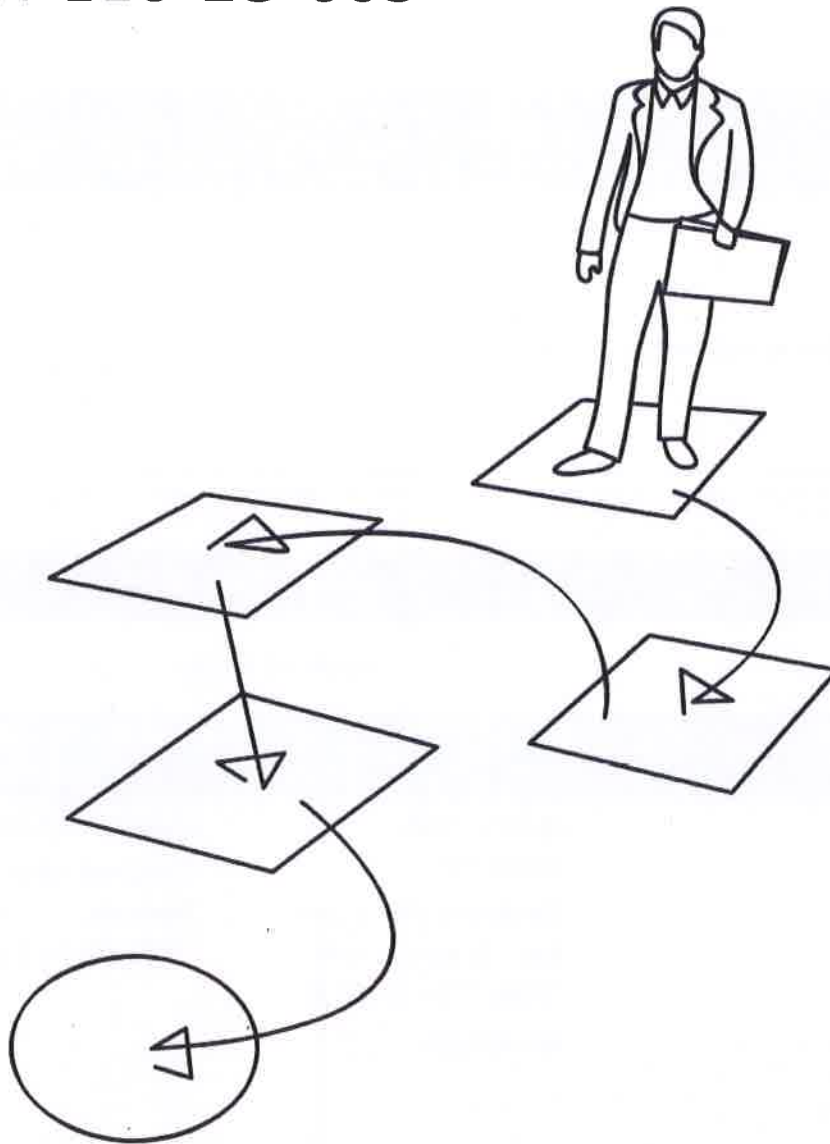
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# Local Operating Instruction

## LIVERPOOL BAY ASSET

Point of Ayr Terminal: Onshore First  
Response Philosophy

Ref: H-110-LG-005



REFERENCE MSG:  
HSE



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# Point of Ayr Terminal: Onshore First Response Philosophy Documents

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# Definitions and Abbreviations

## Definitions and Abbreviations

Abbreviations	Definitions
BA	Breathing Apparatus
CCR	Central Control Room
COMAH	Control of Major Accident Hazards Regulations 1999
CQ	Connah's Quay
Crisis	Loss of Management Control resulting in actual or potential threat to eni LBOC's long term ability to do business due to the impact on the operability, image, reputation and liabilities of the company
Emergency	A physical incident that threatens life, the environment or property, but which on its own does not affect eni LBOC's long term ability to do business
ERP	Emergency Response Procedures
Event	An incident, accident or something with potential to cause an incident, accident or undesired occurrence.
First/Initial Response	Action(s) taken to stop, contain, retrieve, monitor or report events.
FMP	Forward Muster Point
FRP	First Response Philosophy
IC	Incident Commander
IMT	Incident Management Team
Incident	A non-conforming event with the potential of threatening life, the environment or assets, which if not controlled can escalate to an emergency and /or crisis
LBA	Liverpool Bay Asset
MAPP	Major Accident Prevention Policy

NWAS	North Wales Ambulance Service
NWFS	North Wales Fire Service
NWPS	North Wales Police Service
OSC	On Scene Commander
SMS	Safety Management System
TCT	Terminal Control Team
TFT	Terminal Field Team
TRT	Terminal Response Team. Consists of the TCT plus the TFT.

# 1. Purpose and Objectives

## 1. Purpose and Objectives

eni Liverpool Bay Operating Company (eni LBOC) Ltd is committed to achieving the highest health, safety and environmental performance with the aim of creating and maintaining a safe and healthy workforce, as well as protecting the environment and the local community.

### 1.1. Overview

Much of the legislation that exists today, in order to prevent incidents, communicate risks and prepare for possible emergencies, has been drafted using the experience of past problems, not only in the UK but also increasingly throughout Europe. The introduction of the Control of Major Accident Hazards Regulations (COMAH) 1999 has produced major changes in safety and emergency responsibilities throughout industry. Companies are increasingly encouraged to ensure that employees with an emergency response function are competent in the performance of that function.

The Point of Ayr Terminal processes natural gas received from the Liverpool Bay offshore installations, producing gas of a quality suitable for transmission to the customer (EON). The process contains materials, which are potentially flammable, explosive or toxic, if accidentally released during an emergency incident. The maximum inventory of flammable gases that might be present on site at any given moment (including pipelines, propane refrigerant and fuel) is approximately 100 tonnes. For this reason the terminal is classed as a lower tier COMAH site. Nevertheless, as a responsible operator, LBOC recognises the benefits of producing formal safety documentation for its activities

COMAH is not the only legislation requiring emergency planning to be carried out. There are many other activities, not subject to top tier COMAH requirements, that could conceivably cause a major incident, which require the preparation of emergency management procedures. The roles and responsibilities of companies and individuals in accident prevention and emergency response are also set out in legislation covering health and safety at work, transport of dangerous goods and protection of the environment.

Under such regulations, eni LBOC personnel are required to rehearse their emergency roles regularly, both on an individual basis and as members of a formulated team. Consequently, staff at the Point of Ayr Terminal can respond to and undertake their emergency functions in an effective manner.

### 1.2. Purpose

This document will detail eni LBOC's Point of Ayr Terminal's First Response Philosophy, with regard to:

- The development of emergency drills and exercises.
- Initial command and control of an emergency
- The management of emergencies.
- The competencies required for personnel involved in emergency response, how they are to be achieved and managed.
- The review and audit procedures for emergency response.

The Point of Ayr First Response Philosophy (FRP) should be read in conjunction with the Terminal's specific Emergency Procedures Manual, document number H-100-WP-001. These procedures are intended to provide guidance on the handling of emergencies both on-site and off-site. They are intended for use during training exercises, as well as in actual emergencies. These procedures also form part of Liverpool Bay's overall Major Accident Prevention Policy (MAPP). This document, therefore, in more detail defines

- The operational limits of the Terminal Response Team (TRT) to an emergency both onshore (on-site & off-site) plus offshore incidents managed by Point of Ayr personnel.
- The interface between the TRT and the emergency services, when called to attend an event at the POA Terminal or its associated facilities (the gas reception facility at Connah's Quay, all pipelines and the Dunes Valve).
- The roles and responsibilities of individuals within the Company's emergency response strategy.

### 1.3. Objectives

eni LBOC will be responsible for ensuring that suitable measures have been implemented to ensure the health and safety of all its employees, together with any others who may be affected by its activities. Therefore, as an initial measure, eni LBOC will make every effort to reduce the possibility of an emergency by pursuing the following objectives:

- The prevention of fires and explosions, or of any event that might necessitate evacuation.
- The protection of personnel from the effects of fire, explosion or any other emergency incident.
- The reduction of harmful consequences to personnel by minimizing their exposure to hazardous areas or activities.
- The creation of an effective emergency response to incidents affecting personnel on site, or in any other area associated with the Terminal's activities.

The Point of Ayr FRP, along with the Terminal's specific Emergency Response Procedures (ERP), provides the key details of how eni LBOC prepares for and manages emergency response onshore

## 2. Scope

### 2. Scope

This document outlines the basic FRP at the Point of Ayr Terminal and its associated facilities. It also describes the expected actions of POA based workers. For the purpose of this document, events are divided into two categories: -

- First Category Response / Tier 1 - The Terminal Response
- Team responds to an incident at POA and its associated onshore facilities (includes pipelines offsite)
- Second Category Response / Tier 2 - The Terminal Control
- Team responds in support of an offshore or other Production Unit site incident.

This philosophy specifically considers: -

- The potential for major accidents, defined as unplanned incidents involving hazardous materials, where there is the possibility of injury to people on or off-site.
- The potential for other types of accidents, involving the rescue of injured personnel from a non-process hazard situation.

Depending upon which type of incident occurs, an appropriate first response can be established.

## 3. Roles and Responsibilities

### 3. Roles and Responsibilities

There are three specific terms relating to the emergency response team at POA. These are:

**Terminal Response Team (TRT).** All personnel within the shift operational teams.

**Terminal Control Team (TCT).** Personnel nominated into the emergency management positions identified in the CCR at the beginning of the shift, or their nominated deputies.

**Terminal Field Team (TFT).** On scene personnel controlled and directed by the Incident Commander (IC) and On Scene Commander.

There shall be a general requirement for all individuals, concerning roles and responsibilities, to:

- Understand and support the emergency plans.
- Aid team working.
- Work outside their normal occupational role.
- Perform in a competent manner in emergency response duties.
- Attend regular training exercises.

The training and exercising of the teams will include an internal assessment of competence.

#### 3.1. Emergency Response Categories

The roles and responsibilities for all emergency response personnel are split into two categories - Tier 1 and Tier 2.

#### 3.2. First Category Response (Tier 1)

The Terminal Response Team will: -

- Provide a first response, to minimise the impact of the incident, using fixed systems where possible and with due consideration of minimising the risks to themselves.
- Co-ordinate the attendance of emergency services where required.

- At all times operate under the direction of the IC. Only the IC can commit the TFT. They will only be committed where the IC considers the possibility of risk to be minimal.

### **Second Category Response (Tier 2)**

The Terminal Control Team will: -

- Respond in support of an offshore incident.
- Act as the IMT until that team is formed.
- Act in support of the IMT after they are formed, as required.

### **3.3. Implementation and Custody of the Procedure**

This section details the responsibilities of various personnel, regarding the ownership and implementation of the Terminal's emergency response philosophy.

#### **3.3.1. *eni LBOB Managing Director***

- Communicates support of this philosophy to Team Leaders as appropriate.
- Ensures that Team Leaders give the necessary priority to implementing this philosophy.

#### **3.3.2. *Plant Manager***

- Approves and supports this document.
- Ensures that the philosophy is correctly implemented.
- Ensures that all personnel with a role in emergency response are competent to fulfil that role.
- Ensures that this document is reviewed and updated at appropriate intervals by competent persons.
- Is the custodian of this document.
- Acts as the IC when the Production Supervisor is not available.

#### **3.3.3. *HSE Manager***

- Provides timely advice, support and assistance to the Plant Manager and Production Supervisors on the implementation of this strategy.
- Ensures that this document is included in HSE audits.

- Disseminates relevant lessons learned with regard to emergency response procedures from within and outside of eni LBOC.

#### *3.3.4. HSE Specialist*

- Provides assistance and support to the Plant Manager and Production Supervisors in their correct implementation of this philosophy.
- Ensures exercise debrief forms are fed back to the HSE team, in order to facilitate any necessary modification of the ERP's.
- Assesses and monitors the competency and coaching requirements of personnel with specific emergency response duties and arranges appropriate training for them.

#### *3.3.5. Production Supervisor*

- Acts as the Incident Commander.
- Hands over his CRT duties as required allowing him/her to focus on IC duties.
- The IC's position may be delegated to a CRT if he is trained and competent and the circumstances dictate it to be necessary.
- Acts as the main link between the OSC and the IMT, once this team has been established.
- Leads and directs with other members of the TRT in order to provide resources to the OSC and advice to the IMT leader.
- Initiates the appropriate emergency response actions.
- Ensures that all relevant information is captured
- Is fully versed in the contents of this procedure.
- Is to be fully aware of the offsite emergency plan and should familiarise the TRT with its contents.
- Ensures that his/her team implement the procedure correctly.
- Ensures that all team personnel are competent to fulfil the required emergency response roles.

- Ensures that regular safety exercises are held, at least once per month, and that team members can cover various emergency response roles.

#### ***3.3.6. Maintenance Supervisor***

- Acts as the Muster Captain and is fully versed in this role.
- Designates a deputy Muster Captain each day.
- Is aware of the contents of this procedure.
- Supports the Incident Commander with resources as requested during a scenario.
- Ensures accurate Muster information is delivered to the CCR on request or when relevant updates occur.
- Gathers information at the muster station which may assist with locating any missing personnel and relays this information to the CCR.

#### ***3.3.7. On Scene Commander***

- Remains in the CCR until committed elsewhere by the IC.
- Leads the TFT.
- Acts as the designated representative in initial charge at the scene of an incident if committed by IC.
- Is responsible for co-ordinating and guiding the activities of the emergency services within the overall strategic and tactical requirements of the IC, by providing accurate information and advice.

#### ***3.3.8. Incident Management Team (IMT)***

Responsibilities shall include, but not be limited to: -

- Examining the broader implications of the incident with regard to the interests of the company.
- Providing support in order to deal with the media, relatives' response and stakeholder enquiries.
- Liaising with external agencies as required.

Support for the team should come from groups of specialists, possessing skills in administration, HR, legal affairs, finance and insurance matters. The IMT should itself have expertise in technical and operational support, as well as in matters concerning health, safety and the environment. The team will liaise with external agencies. It will ensure that the incident is being correctly addressed in relation to the assessment of possible risk, the protection of lives and the environment, the handling of community issues, the response to media enquiries and the provision of information to the emergency services and to the public.

## 4. Performance Standard

### 4. Performance Standard

#### 4.1. Drills and Muster

##### 4.1.1. *On-site Drills Performance Measurement:*

There will be a minimum of one drill per shift team every month. This will be documented on the Exercise Report Form.

##### 4.1.2. *Muster Performance Measurement:*

Musters and emergency exercises shall be held regularly to ensure that all personnel are practised in the duties assigned to them. Those required to operate emergency equipment will be instructed in the correct use, handling and operation of that equipment.

Musters shall be carried out at least four times a year, ideally once per quarter. All persons at the Terminal shall be made aware of the muster alarm and their required response to it. Once the alarm sounds, all personnel will proceed to their designated muster point, or alternative muster, and will remain there until authorised to leave by a competent authority. This authority will be the IC or nominated representative. On arrival at the emergency muster point, each person will report to the person in charge of that muster point.

#### 4.2. Recording, Auditing and Review

##### 4.2.1 *Recording*

The Production Supervisor shall ensure records are kept of all musters and emergency exercises, specifying the time, date, nature, extent and participation of personnel in the muster or emergency exercise, equipment, systems tested and outcome of the muster or exercise, level of success and any problems that might have arisen. Remedial actions taken to correct any deficiencies shall be recorded via the HSE Action Tracking system if they cannot be rectified immediately.

#### 4.2.2 Audits

Audits are co-ordinated and implemented by the HSE Analyst Onshore. External bodies may be involved in the audit process where appropriate.

#### 4.2.3 Review

A range of review processes is used to reflect performance and to identify areas for improvement. Procedural reviews are undertaken based on:

- Emergency exercises completed on-site **without** observation from a third party
- Emergency exercises completed on-site **with** observation from a third party
- Suggestions or concerns raised by personnel
- Significant operational or organisational change.
- Issues arising from formal safety meetings

Where appropriate, eni LBOC reviews its own performance against industry norms and, when required, acts on industry experience.

## 5. References

### 5. References

- Petroleum HSE Management System August 2009

#### 5.1. eni LBOC Documentation

- Point of Ayr Terminal - Major Accident Prevention Policy H 110 LR 034
- Point of Ayr Terminal - COMAH Tier Justification H 110 GR 201
- Point of Ayr Terminal - Major Hazard Safety Report H 100 LR 018
- Point of Ayr/Connah's Quay- Emergency Procedures Manual H100 WP 001
- LBA – Incident Management Team Plan H 000 LG 13
- BPA – Emergency Procedures Manual: MAN O 02
- eLBOC-00-MS Petroleum HSEC Management System Framework

## 6. Procedure

### 6. Procedure

#### 6.1. The Terminal Control Team and the Terminal Field Team

The TRT is organised into two teams – the TCT and TFT.

The TCT is based in the CCR; it is under the control of the designated incident commander. The Production Supervisor will be the IC. As a minimum the TCT comprises of the following personnel: IC, CRT.

The TFT also assembles in the CCR. This team comprises of a designated OSC plus one other. NOTE: If for any reason the OSC does not have a buddy then the OSC should remain in the CCR until additional support can be obtained.

#### 6.2. Emergency Response Preparedness

At the commencement of each shift, the Production Supervisor will nominate individuals for each of the various roles given in section 4.

#### 6.3. Roles in and Emergency

##### 6.3.1 *Plant Manager Role*

The Plant Manager will have been trained in Emergency Management. They will:

- Act as Incident Commander (IC) when Production Supervisor is not available

##### 6.3.2 *Production Supervisor Role*

- Act as the Incident Commander
- Key-starts the Video/Audio/Telephone Recording System to act as log backup.
- Hands over his CRT duties as required allowing him/her to focus on IC duties
- When necessary, commit the TFT to carry out search and rescue activities, plant and equipment isolation, first aid and support to the emergency services only if safe to do so.
- Mobilise the emergency services and inform local authorities to respond

- Initiate the call out of the IMT.
- Command and control the emergency until the incident is over or they are relieved.
- Designate personnel to perform duties as in section 4.
- Maintain the key events log and assists in the completion of the Emergency Checklist.
- Delegate's duties as required to balance work load with skill sets.
- Maintain a clear pictorial overview of the emergency incident and is responsible for maintaining radio communications with the OSC and other on-scene personnel.

### *6.3.3 Control Room Technician (CRT) Role*

The CRT will:

- Initiate site external alarm and muster
- Make an initial public address and radio announcement to site personnel, requesting them to go to their muster stations, together with relevant information and instructions
- Inform the Production Supervisor & Plant Manager of the situation.
- Carry out process control as directed
- Liaise with Douglas platform and E.on
- Initiate & maintain the CRT Checklist
- Liaise with Security noting response times for emergency services.

### *6.3.4 Security Role during emergency*

- One security officer will man the lodge working the switchboard – updating emergency message (as directed by IC). As a priority when directed by IC, will call out the emergency services and IMT. ETA's will be recorded and passed onto IC / CRT.

- Place warning sign / barrier across access road to the granaries stopping access from the granaries to the terminal. Must carry a mobile and radio plus spare batteries.
- Establish RVP by taking security vehicle to RVP point (park up facing terminal with hazards and side lights on).
- Liaise with emergency services and IMT members as they arrive directing as required.
- Note: If one Security Officer is offsite during an incident then the RVP will not be manned unless other resources are available.
- The remaining officer will man the lodge and request his/her buddy to return to POA.
- Contact relevant outside agencies, as directed by the IC.

#### 6.3.5 *On-Scene Commander (OSC) Role*

The OSC is appointed by the Production Supervisor at the start of each shift. The OSC will be a competent and experienced member of the TRT who has taken part in emergency exercises.

The OSC shall manage his/ her resources to ensure:

- Monitor the muster and maintain communications with all muster stations
- Identify the likely location of missing personnel
- Track the movements and condition of casualties
- Maintain the logistics / personnel status board
- Control of the TFT, according to the wishes of the IC
- An assessment of the incident situation only as and when directed by the IC
- As instructed by the IC, direction of the on-scene response, in support of the emergency services
- Guidance and liaison with senior emergency services personnel as directed by the IC

- A report of the incident from a safe forward control point, identifying risks and possible restorative measures if committed by the IC
- Deployment to scene of the incident as directed by the IC, for the purpose of search & rescue and support of the emergency services without compromising their own safety, or safety of others.

NOTE: If the OSC is committed to a forward control point his internal duties will be handed over the available personnel (CRT / IC / Etc)

#### 6.3.6 Muster Captain Role (*Mon to Sun day shift only*)

The Muster Captain will ensure that all personnel without emergency duties will assemble in a safe area. There are two designated muster locations and the one to be utilised will be identified by the IC.

- Primary Muster Point - Dining Room
- Alternative Muster Point - Warehouse Apron

The Muster Captain will ensure that all designated personnel muster by use of their swipe-card. The Muster Captain, or his nominated deputy, will record and monitor muster numbers on a designated PC, located at each muster point. This system will be backed up by the taking of a manual headcount, the result of which will be passed to the CCR by telephone or by runner.

#### 6.4. Training

Training for eni LBOC staff and contract personnel is based on a structured training programme. This training provides duty personnel with the basic skills required to respond effectively during the initial stages of an incident. The eni LBOC human resources department and/or line management, or the HR Departments of core crew contract companies retains training records.

The shift teams will train and exercise onsite on a regular basis. The scenarios will be limited to those which the TRT's are expected to perform during an emergency.

The shift teams will train and exercise as a team, or as individuals, onsite at POA.

Actual emergency incidents, occurring both offshore and onshore, also provide testing and practice of the ERP's. The emergency response aspects of such incidents should be recorded, using the Drill / Exercise Report forms, to allow lessons learnt to be used, in order to improve the ERP's.

## 6.5. Assessment of Competence

### 6.5.1 *Incident Commander*

The IC will have attended an emergency management training course. They will regularly practice emergency exercises at the POA Terminal and will coach their teams.

### 6.5.2 *Terminal Response Team*

The TRT members will be locally trained in their role.

### 6.5.3 *Assessing competence using Performance Measurement*

Assessment of competence for personnel will be made by observation of their performance during exercise scenarios. These observations will be made during on-shift exercises, using on-site facilities, at a frequency no less than once every 3 years. These observations will be by the Onshore HSE Analyst or Plant Manager or similarly experienced member of staff

## 6.6. Exercises

It is eni LBOC's policy to ensure that all personnel occupying positions within the TRT are suitably trained and have sufficient experience to perform their duties competently.

ERP's have been developed for the Terminal and onshore pipelines. They should be referred to for more detailed information regarding potential incidents. They are: -

- Emergency Procedures Manual - Point of Ayr/Connah's Quay
- Onshore Pipelines Operating and Emergency Procedures Manual

Once personnel are trained in their emergency roles and responsibilities, their expertise will be maintained and tested by participation in regular drills and exercises, based upon identified possible scenarios. These drills and exercises also aim to practice and test the ERP's.

### 6.6.1 Onsite Drills

Drills are used so that personnel receive training on specific emergency equipment, techniques or procedures. These sessions can be theoretical, practical or a mixture of both. Drills may include:

- Manning and control of the RVP and the securing of alternative access routes
- Guidance and control of emergency services senior personnel
- Advising emergency services of hazards and potential on-site escalation possibilities
- Advising emergency services on location and capabilities of site fixed and portable fire fighting and rescue equipment
- Instruction in stretcher handling techniques
- Instruction in the use of BA
- Muster drills, fire drills, alarm testing or site evacuation
- Instruction regarding specific emergency procedures, including spillage control and recovery

### 6.6.2 Emergency Exercises

ERP's will be tested by regular exercises and will be amended should deficiencies or omissions be subsequently identified. Exercises are important management tools for informing and motivating personnel and for giving confidence to those who may be required to respond to an incident. They facilitate effective teamwork and create the opportunity to appraise performance against established criteria. Exercises should be made as realistic as is practicable. The benefits of holding exercises are:

- Identifying measures to minimise the impact of incidents on personnel, the community and the environment
- Increasing significantly the likelihood of the organisation or business surviving an incident, whatever its cause

- Establishing procedures, which will significantly reduce the possibility of interruptions, caused by incidents, to business operations or service provision
- Preserving and enhancing reputation
- Identifying areas of an organisation's vulnerability
- Training those who may be involved in responding to an emergency
- Identifying areas of improvement

The support and commitment of senior management is crucial to the success of the exercise programme. Exercises must not be seen in isolation but rather as part of a holistic, integrated learning and validation programme. They need not necessarily be major undertakings in size, duration or involvement, but good exercises, whatever their format, can take a considerable amount of preparation and performance analysis. Exercises will differ in type, testing specific functions within the overall framework, and could include:

#### *6.6.3 Walk-through exercises*

These can be used for the training of staff or for the development of emergency plans. The emergency response is literally 'walked through', and might include visiting facilities, such as the main conference room, where IMT equipment will be set-up, according to a pre-prepared plan.

#### *6.6.4 Table-top exercises*

These allow the exchange and dissemination of information between different groups or organisations. Moreover, decision making can be tested. They should be carried out with reference to a model, plan, map or photograph, depicting the physical layout of the site.

#### *6.6.5 Control post exercises*

These test the communications arrangements put in place during an emergency, with participating installations, groups or organisations located where they would be during an actual incident.

### 6.6.6 *Live exercises*

These are the most commonly used form of exercises at the Terminal, and are designed to test some or all aspects of the ERP's for both on-site and off-site incidents.

### 6.6.7 *Actual Incidents*

Actual emergency incidents, occurring both offshore and onshore, also provide testing and practice of the ERP's. The emergency response aspects of such incidents should be recorded to allow lessons learnt to be used, in order to improve the ERP's.

### 6.6.8 *Exercise / incident reporting*

The duty shift Production Supervisor will raise a specific accident/incident report in line with eni LBOC procedure each time the Terminal Response Team is mobilised (including offshore initiated events). The completed report shall be sent to the Plant Manager and POA HSE Analyst.

## 6.7. Establishing Scenarios

Scenarios will vary in complexity, covering a wide range of possible incidents, performed as realistically as the facilities allow. They will include a number of the following:

Elements of command and control

- Rescue, recovery and stretcher handling for non-process hazards
- Ensuring scene of incident security, rather than removing personnel from it
- Initial first-aid and handover procedure to an ambulance team
- Competent fire appliance handling
- Handling rapidly escalating scenarios and progressing to the offsite Plan.
- Command and control of the RVP
- Secure Terminal Access
- Guiding personnel to designated locations

In principle the scenarios being assessed will involve, as appropriate:

- A threat to life
- A threat to the environment
- A threat to the asset and adjacent sites

These scenarios will utilise, as appropriate, fixed systems for protecting life, the environment and the plant.

Scenarios should be based around the following potential incidents:

- Explosion
- Fire
- Flood
- Structural collapse
- Contamination of process
- Road traffic accident (within site boundary)
- Spillage or release of material (toxic and/or flammable)
- Machinery malfunction
- Gas cloud
- Bomb threat
- NGOs gaining access to the site
- Electrocution

The range of process accident scenarios should be varied and cover the main areas and inventories detailed below:

- High-pressure gas. Releases from the high-pressure gas pipe work are potentially the most serious of all events that could occur at the Terminal. Releases could occur at any point in the process between the Inlet and Exit Facilities
- Amine Regeneration. Some of the main inventories of hydrogen sulphide are associated with the rich amine and solvent streams in the Gas Sweetening Units and the Tail Gas Unit. Releases of rich amine from the Gas Sweetening Units have been identified as potentially the

most serious due to the higher pressures and higher hydrogen sulphide loadings

- Acid Gas. A release from the acid gas line to the Sulphur Recovery Unit contains the highest percentage of hydrogen sulphide within the process, although the inventory is small. Any release would be limited by the rate at which acid gas is produced by the amine regenerators
- Propane storage, both refrigeration and pilot gas grade
- Hydrocarbon condensate, both at the Dew point Units and Inlet Facilities
- Low-pressure gas. Leaks to be considered should be from systems such as the LP fuel gas system, pilot gas system and flash gas from the amine flash drums
- Methanol, specifically liquid release at the storage facilities

When scenarios are developed, consideration should be given to the general safety measures available on that particular system, and how the scenario could escalate from the failure of one of these. The measures include:

#### Process control systems

- Pressure relief to protect against over pressurisation of the plant
- Incorporation of non-return valves to prevent backflow
- Hazardous area classification and prevention of potential ignition sources in the event of a leak
- Spill containment
- Detection systems for gas releases or fires
- Emergency shutdown and depressurisation systems
- Protection of vessels and structures to withstand exposure to fire
- Fire fighting using fixed systems (foam monitors, deluge etc.)

# List of Scenarios

## List of Scenarios

- A. Scenario 1 - Intruder Alert
- B. Scenario 2 - Bomb Threat
- C. Scenario 3 - Major Gas Leak
- D. Scenario 4 - Explosion & Fire
- E. Scenario 5 - Methanol Release
- F. Scenario 6 - Acid Gas Release
- G. Scenario 7 - Gas Release at Pig Receiver
- H. Scenario 8 - Rich Amine Release

## **A. Intruder Alert**

### Basic Scenario

Security reports an intruder alarm within the perimeter fence, site plan reference Square K2, beyond the propane package. There is no evidence of unauthorised personnel on the CCTV system. During the previous week, there have been two pro-environment protests outside the main entrance, reinforced by a "letters to the editor" campaign in local newspapers.

The CCTV system eventually identifies an intruder in the vicinity of the flare header.

### Considerations

- The possibility of the intrusion being an accidental consequence of routine on-site activity.
- The desirability of a muster.
- The potential of the intrusion - possible sabotage, explosion, terrorism.
- The control of on-site personnel.
- Limitations to the control of the perimeter.
- Control of site entrance.
- Notification of appropriate personnel.
- Precautionary safety measures, such as process shutdown, fixed system operation

### Variations

The basic scenario can be modified by:

- Changing the time of the occurrence - day, night, and holiday period.
- Inserting different permits to work, or on-site activities, which might or might not be relevant to the alarm.
- Changing the security context, from a relaxed period to one of heightened tension.
- Varying the number and experience of on-site personnel.

- Extending the range of the incident, involving contractors, local residents and media interest.

## **B. Bomb Threat**

### Basic Scenario

Security receives an anonymous telephone call, suggesting that an explosive device has been planted on-site. The call is brief, without codeword or detail. No time scale for explosion is stated.

If a muster or evacuation is considered, there will be no response from the two-man crew of a tanker, which is located by CCTV, parked on the junction of Road "B" and Road 4.

### Considerations

- The credibility of the threat.
- The need for a muster.
- The possibility of partial or complete site evacuation.
- The establishment of safe access/egress routes.
- Isolation of affected area(s).
- Securing site access.
- Securing safe muster points.
- Control of personnel.
- Notification of appropriate personnel.
- Precautionary measures, such as process shutdown and fixed system operation.
- Involvement of concerned personnel - contractors, relatives, local residents and the media.

### Variations

- Change the source of the warning - senior management; emergency services; local authority; anonymous telephone call; unannounced, inexplicable explosion.
- Vary time of day or year.
- Be more or less specific with the threat, from the general, to the identification of particular areas or vessels under attack.

- Change the time scale, from a particular time of explosion to a general threat only.
- Vary the number of possible explosive devices.
- Include an explosion, or allow a partial or full evacuation.

## **C. Major Gas leak**

### Basic Scenario

A low level gas leak is recorded in the Control Room, its source being the Tail Gas Unit. The leak quickly spreads, activating other heads and increasing to high gas levels. The gas does not ignite for the duration of the scenario.

Two technicians are known to be in the area, as part of a general inspection survey. They have the use of a maintenance vehicle. One technician, affected by gas, reports that he is attempting to flee the scene. His vehicle crashes into pipe work of the adjacent Gas Sweetening Unit, causing further releases.

### Considerations

- Calling a muster.
- Possible site evacuation.
- Securing the site.
- Notification of appropriate personnel.
- The specific source of the leak and its properties, specifically H2S content.
- Wind direction and speed.
- Warning and notification of potentially affected personnel, off-site and on.
- Personnel in the area.
- Potential casualties.
- Risk of ignition.
- Shutdown and containment measures.
- Protection of adjacent areas.
- Handling interested parties.
- Search and rescue activities.
- Casualty handling and evacuation.

### Variations

- From the control panel, identify various leak sources and gas heads and establish rates of leak.
- Vary wind conditions, from calm to a strong drift.
- Vary wind directions, so changing threat from on-site (musters; Control Room; Security; RVP) to off-site.
- Change numbers of affected personnel.
- Adjust the amount of off-site and media interest.
- Vary the need for site evacuation.

## **D. Explosion and Fire**

### Basic Scenario

Control Room personnel visually identify an explosion at the propane package, resulting in a large fire. The blast damages the flare pipe rack and knockout drum.

Two technicians are known to be working in the vicinity of the fire. One escapes to the area of the Inlet Facility, from where he makes a highly stressed radio call.

### Considerations

The effect of the explosion on the flare system.

- The extent and duration of the fire.
- Wind speed and direction.
- Shutdown and mitigation measures.
- Propane inventory.
- Affected personnel.
- Calling a muster.
- Controlling personnel.
- Securing the site.
- Notifying appropriate personnel.
- Handling off-site interest.
- Search and rescue activities.
- Casualty handling and evacuation.

### Variations

- Combine with intruder/bomb alert.
- Vary amount of off-site interest.
- Possibly damage fixed systems.
- Involve more or less casualties.
- Introduce possibility of snatch rescue.
- Introduce stress and panic.
- Involve trapped personnel.

## **E. Methanol Release**

### Basic Scenario

The outlet flange of the methanol storage tank develops a leak. A technician, who is working in the area, detects this leak and the problem is passed by radio message to the Control Room. He states that he is attempting to fix the problem. Radio contact is subsequently lost.

### Considerations

The need for a muster.

- Control of personnel.
- Securing the site.
- Identification and control of ignition sources.
- Notification of appropriate personnel.
- The use of shutdown, depressurisation and fixed systems.
- The possibility of committing personnel to the scene.
- Search and rescue for missing personnel.
- Casualty handling and evacuation.
- The handling and briefing of the emergency services.

### Variations

- Ignite the leak (invisible flame).
- Vary the number of involved personnel by the use of work permits.
- Maintain radio contact with a stressed person on scene.
- Involve a tanker loading/unloading at the scene.
- Introduce a concerned relative, asking after a missing person.

## **F. Acid Gas Release**

### Basic Scenario

A tanker, crewed by two men, is being prepared in the loading bay alongside the Sulphur Recovery Unit. A work permit for the area has been authorised, involving two technicians. The Sulphur Transfer Pump "A" fails and releases inventory. This release is reported by one of the technicians and is confirmed by Control Room indications.

The on-site technician retreats to a safe area and reports that he has lost contact with the tanker crew and with his colleague.

### Considerations

The need for a muster.

- Control of personnel.
- Securing site entry.
- Notification of appropriate personnel.
- Containment and mitigation of the leak.
- Size of leak and potential for escalation.
- Ignition sources.
- Protection of adjacent areas.
- Shutdown and operation of systems.
- The possibility of committing personnel to the scene.
- Search and rescue for missing persons.
- Casualty handling and evacuation.
- Handling the media and concerned persons.
- Briefing and handling of the emergency services.

### Variations

- The possibility of on-scene stress.
- Nature and extent of the leak.
- Wind direction and strength, threatening off-site areas.
- Survivors requesting assistance.

- The possibility of ignition and toxic smoke.

## **G. Gas Release at the Pyg Receiver**

### Basic Scenario

A two-man team is preparing to receive a pig at the inlet facility. The door seal fails and a major gas leak results. The problem is detected in the Control Room, but no contact is established with the technicians. The gas cloud continues to grow, until corrective measures are taken.

### Considerations

Calling of a muster.

- Control of personnel.
- Control of site access.
- Notification of appropriate personnel.
- Ignition sources.
- Shutdown and mitigating actions.
- Protection of adjacent areas.
- Wind strength and direction.
- Briefing and handling of the emergency services.
- Release of personnel to the scene.
- Search and rescue of missing personnel.
- Casualty handling and evacuation.
- Interest of the media and concerned personnel.

### Variations

- Ignition.
- Wind direction a potential threat to civilians.
- The possibility of a snatch rescue.
- Protests and disruption at the RVP.

## H. Rich Amine Release

### Basic Scenario

Scaffolding work is underway at Gas Sweetening Unit "B". A three-man contract team is involved. A maintenance permit, involving two technicians, is also valid for the area.

Faulty supervision results in a scaffold collapse. Rich Amine Flash Drum "B" is damaged by falling poles and a gas release results. The release ignites and the area is engulfed with flame.

One technician and an injured scaffolder escape to Road "A", South of the utilities area. There they remain, calling for help.

### Considerations

- The need for a muster.
- Control of personnel.
- Control of site entry.
- Notification of appropriate personnel.
- Briefing and handling of emergency services.
- Shutdown and mitigation.
- Protection of adjacent areas.
- Possibility of speedy treatment and recovery of survivors.
- Handling of media and concerned persons.
- Search and rescue of missing personnel.
- Casualty handling and recovery.

### Variations

- No ignition.
- Structural collapse instead of scaffold.
- No injured or missing.
- Failure of shutdown system.

# List of Appendices



## **Appendices**

- A. Shift Exercise Report Form
- B. Emergency Response Exercise Observation Report
- C. Incident Commander Observation Report
- D. On Scene Commander Observation Report
- E. TFT Members Observation Report

**Appendix A: Shift Exercise Report Form**

Installation : P.O.A. Terminal	Date :
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Production Supervisor Name :	Plant Manager Signature :
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**TIME OF ACTIVITY:**

From :	To :
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**TYPE OF ACTIVITY: (Tick Boxes as Appropriate)**

<input type="checkbox"/> Exercise	<input type="checkbox"/> Bomb Scare
<input type="checkbox"/> Search & Rescue	<input type="checkbox"/> B.A. Exercise
<input type="checkbox"/> Major Exercise	<input type="checkbox"/> First Aid
<input type="checkbox"/> Fire & General Alarm Muster	<input type="checkbox"/> Other

**DESCRIPTION OF ACTIVITY:**


**PERSONNEL TAKING PART:**

--

**OTHER INFORMATION: e.g., Weather Conditions - Equipment readiness - Faults**

--

**REVIEW OF ACTIVITY:**


**POINTS FOR DISCUSSION:**

Item	Points for discussion :	Name	Date	Complete
1.				
2.				
3				
4				

## Appendix B: Emergency Response Exercise Observation Report

<b>Date:</b>	<b>Shift:</b>		
<b>Team Members:</b>	<b>Incident Commander:</b>		
	<b>Production Supervisor:</b>		
	<b>CRT:</b>		
	<b>OSC:</b>		
	<b>TFT:</b>		
	<b>Muster Captain:</b>		
	<b>Security Lodge:</b>		
<b>Security RVP:</b>			
Scenario:			
<b>Criteria</b>			
	<b>Y</b>	<b>N</b>	<b>Comment</b>
<b>1.</b>	Team mustered expediently		
<b>2.</b>	Information obtained		
<b>3.</b>	Plan developed		
<b>4.</b>	Information Management System set up and used		
<b>5.</b>	Rapid mobilisation of resources		
<b>6.</b>	Communication within and out with team was effective		
<b>7.</b>	Muster completed within personable time		
<b>8.</b>	Information proved to people at muster		
<b>9.</b>	Team updates held regularly		
<b>10.</b>	Team working as a unit to achieve stated plan		
<b>11.</b>	Brief for Emergency Services effectively achieved		
<b>12.</b>	Handover with I.M.T. Leader provided all appropriate information		
<b>13.</b>	Emergency Procedures utilised and stated plan reflected information from E.R. Procedures		

<b>Date:</b>	<b>Shift:</b>			
Scenario:				
<b>Criteria</b>		<b>Y</b>	<b>N</b>	<b>Comment</b>
<b>14.</b>	O.S.C. and team effective in line with first response procedure requirements			
<b>15.</b>	Team debrief held against a stated set and criteria			
<b>16.</b>	List of improvements developed with completion dates established			
<b>Overall observation and comments:</b>				

Observers Name:

Observers Signature:

Observers Position:

Date:

### Appendix C: Incident Commander Observation Report

<b>Name:</b>		<b>Date:</b>		<b>Shift:</b>	
<b>Scenario:</b>					
Criteria		Y	N	Comment	
1	Available information is obtained				
2.	Clarified information or requested additional information				
3	Initial plan is developed and communicated to I.C.T. and O.S.C.				
4	Incident potential is identified				
5	Response plan is adjusted in line with changing circumstances				
6	Safety of personnel is actively considered				
7	External services are mobilised as necessary: IMT-Emergency Services -Council -Other -				
8.	Situation report provided to I.M.T. at regular intervals				
9.	Information is provided for personnel at muster points				
10	Actions are delegated to the appropriate team member				
11	Is seen to be in command throughout				
12	Addresses the team in a clear authoritative manner				
13	Avoids becoming involved in detail				

<b>Name:</b>		<b>Date:</b>		<b>Shift:</b>	
<b>Scenario:</b>					
	<b>Criteria</b>	<b>Y</b>	<b>N</b>	<b>Comment</b>	
14	Takes time to think and plan ahead				
15	Monitors performance of team members to ensure implementation of his plans				
16	Facilitates an effective brief for emergency services				
17	Monitors on-scene commanders activity progress				
18	Provides adequate information for I.M.T. leader: Pre-Arrival -Handover -Post Arrival -				
19	Monitors team members for stress				
20	Actively works to minimise his personal stress levels				
<b>General Comments:</b>					

Observers Name:

Observers Signature:

Observers Position:

Date:

### Appendix D: On Scene Commander Observation Report

<b>Name:</b>		<b>Date:</b>		<b>Shift:</b>	
<b>Scenario:</b>					
		<b>Y</b>	<b>N</b>	<b>Comment</b>	
<b>1.</b>	Expeditious muster at CCR				
<b>2.</b>	Supervision of TFT members				
<b>3.</b>	Accurate performance of tasks				
<b>4.</b>	Liaising with emergency services				
<b>5.</b>	Linking scene of incident and ERT				
<b>6.</b>	Ensuring authorised, safe activities				
<b>7.</b>	Prioritising safety of personnel				
<b>8.</b>	Accurate recording and tracking of missing and casualties				
<b>General Comments:</b>					

Observers Name:

Observers Signature:

Observers Position:

Date:

### Appendix E: TFT Members Observation Report

Name:		Date:		Shift:	
Scenario:					
		<b>Y</b>	<b>N</b>	<b>Comment</b>	
<b>1.</b>	Expeditious muster at CCR				
<b>2.</b>	Escorting personnel as directed by OSC				
<b>3.</b>	Using appropriate equipment correctly				
<b>4.</b>	Observing safe practices				
<b>5.</b>	Maintaining team discipline				
<b>6.</b>	Performing directed tasks effectively				
General Comments:					

Observers Name:

Observers Signature:

Observers Position:

Date: