THE LINDE GROUP

BOC Newport Eastman Hydrogen Plant Site Emergency Plan

Purpose 2
Scope 2
Overview 2
Organisation 3
- Major hazards Identified on the BOC Hydrogen Plant 3
- Eastman Events Which May Require BOC Assistance 3
- Sources of Major Hazards 3
- Location of Emergency Equipment 4
- Authorised Access to BOC Hydrogen Facility, Eastman 4
- Bomb Threats and Suspicious Packages 4
- Telephone Threats 4
  - Talking to the Bomber 4
  - Reporting the Threat 5
- Written Threat 5
- Suspicious Package 6
- Bomb Threat Evacuation 6
- Bomb Threat Incident Team 6
- Bomb Search 7

Responsibilities of the BOC Incident Controller 7
- Contacting Key Personnel 7

Responsibilities of the BOC Site Main Controller 7
Emergency Control Centre 8
Procedures 8
- Raising the Alarm 8
- Site Evacuation Procedure 9
- Assessing the Extent of Gas Contamination 10

BOC Incident/Main Controller 10
- Notification of Other Parties 11
- Incident Log 11
- Accounting for Personnel 11

Search and Rescue Procedure 11
- Handling Casualties 12
- Media Statement 12
  - Communications Team - Briefing 12

All Clear and Re-Entry Procedure 12
- Investigation 13

Document Information 14
- About this Document 14
- Change History 14
- Change History - Attachments 14

Learning and Assessment Guide 15

Attachments:

- Incident Controller Checklist
- Key Personnel Telephone Numbers
- Product Information
- Production and Storage
- Site Emergency Team
- Site Main Controller Checklist

Purpose

Purpose

The purpose of this document is to describe the actions to be carried out during an emergency at the Newport Eastman BOC site. These actions aim to:

- make sure all staff are safely evacuated if necessary
- control or limit the effects of the incident on the site, neighbouring sites and the surrounding community
- make sure all vital information is passed to the correct internal and external parties as soon as possible.

Scope

Scope

This document applies to the Newport Eastman hydrogen plant.

Audience

The intended audience is site management, foreman, supervisors and all other staff who need training in emergency procedures.

Personnel who have a direct involvement with an on-site emergency **must** keep a diary of events as they occur. This will assist any incident investigation that may follow.

Review period

The review period for this document is 1 year from the date of last issue.

Overview

This plan is intended to supplement the Newport Eastman Site Emergency Plan.

This emergency plan outlines the procedures to be followed by nominated BOC key personnel if an uncontrolled event occurs at BOC Gases Limited Hydrochem Hydrogen Plant, c/o Eastman Limited, that would impact on the Eastman site, general public, cause serious injury to site personnel, serious damage to the site or to the environment.

It has been written with particular reference to COMAH 'Emergency Planning for Major Accidents' with regard to the BOC Eastman Facility.

As BOC Newport HYDROCHEM Hydrogen Plant is a normally unmanned, stand-alone plant, owned and operated by BOC, within Eastman, Newport, a number of key actions require the involvement of Eastman personnel in the event of an incident.

The emergency plan is flexible so that it can deal with emergencies that are foreseeable on site. The plan **must** be reviewed regularly, at least annually. This is coordinated by the Facilities Team Manager, assisted by the BOC Margam SHEQ Manager and in consultation with the Facility Engineers and Eastman HSE department.

Organisation

Major hazards Identified on the BOC Hydrogen Plant

Major hazards identified on site

There are a number of situations that could produce a hazard at the BOC Hydrogen Plant:

- A large or rapidly escalating fire or explosion involving:
  - hydrogen
  - general fire
  - high pressure natural gas pipe rupture.
- A large-scale release of gases, with resulting hazardous conditions:
  - crude hydrogen - asphyxiant and toxic (carbon monoxide)
  - natural gas
  - nitrogen - inert asphyxiant.

General:

- bomb threat, see: *Bomb Threats and Suspicious Packages (page 4)*
- adjacent transformer failures
- asphyxiation/toxic
- boiler water treatment chemicals.

Prolonged exposure to high temperatures can cause breakdown and release of flammable vapours. However, all types of extinguishers are suitable for use with these chemicals. Vapours released from a fire **must not** be inhaled.

For production and storage information, see: *Production and Storage (see attachment)*.

For product information, see: *Product Information (see attachment)*.

Eastman Events Which May Require BOC Assistance

In addition to the hydrogen plant major accident hazards listed above, Eastman may require BOC assistance for the following events:

- Eastman site event that could seriously impact on the BOC Hydrogen Plant.
- Failure of Eastman owned hydrogen pipeline.

Sources of Major Hazards

A site plan is available, marked with the location of materials and equipment that have been identified as having the potential for a Major Hazard Accident on the Newport site.

Copies of the Eastman site emergency plan are kept at the Emergency Control Centre (building 137), Backup Emergency Control Centre (CUE- 146) and the incident control vehicle.

Location of Emergency Equipment

Emergency equipment kept on site to be used by nominated personnel are:

- Hydrogen, oxygen and carbon monoxide portable analysers - BOC Facility Control Room, (Building 114).

The locations of the following equipment are marked on an Eastman hydrogen emergency site plan. Copies are kept at the Emergency Control Centre (building 137), Backup Emergency Control Centre (CUE- 146) and the incident control vehicle.

- fire extinguishers
- fire hydrants
- first aid facilities
- fire monitors
- call points

Authorised Access to BOC Hydrogen Facility, Eastman

The hydrogen SMR plant area (not the tanker bay) is fenced and access gates are locked. Keys will be kept on the Eastman Incident Controller Vehicle and in the Gatehouse.

Eastman personnel may access the Hydrogen Plant to deal with an incident. Eastman may need advice from BOC before entering the plant area.

Bomb Threats and Suspicious Packages

Take it seriously

All threats whether written or oral, by persons known or unknown, **must** be treated as genuine.

All suspicious packages **must** be taken seriously. Do not open a package if for any reason you feel unhappy about it (unknown source, unusually heavy, protruding wires).

Telephone Threats

Bomb threat checklist

A checklist is supplied and **must** be used the moment such a call is received.

See: *Bomb Threat Checklist (see attachment in IMs-25-16-RUK)*.

This checklist **must** be issued to all relevant personnel and be kept at hand at all times

Most likely recipients

During normal office hours (08:30 – 17:00), telephone threats are most likely to be received by office staff.

Outside normal hours (17:00 – 08:30) and at weekends, telephone threats are most likely to be received by the Security Gateman.

Talking to the Bomber

Preparation

A bomb threat could occur at any time and on any telephone (including mobiles). Clearly it is an advantage to have the bomb threat check list ready, but if not, the following required information and questions **must** be memorised:

About the bomb

Ask questions, and get as much information as possible:

- What time is the device due to go off?
- Where is the device?
- What does it look like?
- How much damage will it cause?

About the bomber

- Who are you?
- Why are you doing this?

Voice on the phone

Note the following details:

- Young or old?
- Male or female?
- Any dialect?
- Any background noise?

Important: Do not hang up after the call has finished.

Reporting the Threat

Reporting a telephone bomb threat

At the end of the call, sound the fire alarm and carry on as during a fire drill. Then report the bomb threat to the site Incident Controller or the senior person present.

The manager or senior person will:

- call the Police and Fire Service with a 999 call
- evacuate all or part of the site, depending on the location of the bomb.

Outside normal working hours

If the threat happens outside of normal working hours, it **must** be reported to the most senior member of staff on site, or the security staff, who will call the Emergency Services and begin the evacuation.

It **must** then be reported to a member of the Management Team at home, who will come on site to coordinate the next events.

Written Threat

Receipt of a written threat

The recipient of the threat or the person who opened the mail **must** immediately tell a senior member of management on site. He/she will decide on suitable action.

For forensic purposes, handle the item as little as possible.

Suspicious Package

What to do with a suspicious package

When it has been decided that a package is suspicious, the recipient **must**:

- evacuate the immediate area
- sound the fire alarm, but only if the package is **NOT** in the vicinity of the evacuation area
- tell a member of management of the problem, and the location of the package. The manager will decide on suitable action to be taken.

Do not touch

Do not tamper with or move the package under any circumstances before it is inspected by trained personnel from the Emergency or Armed Services.

Bomb Threat Evacuation

Bomb outside evacuation area

Follow the procedure below if the bomb is **NOT** in the vicinity of the evacuation area:

- Sound the fire alarm:
  - In the case of a bomb threat, the manager who receives the report **must** sound the alarm.
  - In the case of a suspicious package, the person receiving the package **must** sound the alarm.
- Evacuate the site, as in the fire drill.

Bomb in evacuation area

If the bomb is in the vicinity of the evacuation area, **DO NOT** sound the fire alarm, as this would result in personnel moving into the danger area.

Instead, do as follows:

- Evacuate the immediate area.
- Tell the Site Incident Controller.

Make sure that all site personnel are evacuated well away from the danger area.

Bomb Threat Incident Team

Incident team

A Site Incident Controller will be appointed, in accordance with the site seniority list. The Site Incident Controller will appoint other members of the Incident Team in the usual way.

Call the Police first

Due to the nature of the incident, call the Police first, then the Fire Service.

No radios

Do not use radios in the event of a bomb threat. Use messengers instead.

Outside normal working hours

If the incident happens outside of working hours, the most senior BOC person on site will take on the role of BOC Site Incident Controller until a member of the Management Team arrives, when they will take on responsibility.

Bomb Search

Searching for a bomb is a specialist activity that **must** be done by the Police or Armed Services. The objectives are:

- to find the bomb, and if possible make it safe
- to carry out forensic tests for investigation purposes.

The site Incident Controller will co-ordinate with the Police or Armed Services during the search.

Members of staff **must not** try to search for the bomb. Leave it to the experts.

Responsibilities of the BOC Incident Controller

Action of BOC personnel on site at time of possible emergency:

BOC Key Personnel (see: *Site Emergency Team (see attachment)*) have the experience and knowledge to enable them to assist with emergencies on the Newport Eastman site. BOC personnel will take appropriate immediate action, locally or remotely, if required (e.g. shut the plant down).

BOC key personnel are known as 'Facility Engineers' and will act as BOC Site Incident Controllers and are responsible for assisting with the Newport Site Emergency Plan.

When an emergency happens on site the BOC Site Incident Controller will, based on the available evidence, assess the size of the incident to decide whether a major emergency exists or is likely. If an emergency exists the BOC Site Incident Controller will activate the on Newport site emergency plan via the normal procedures (e.g. break glass or 4333). The BOC Site Incident Controller will assist the Eastman Incident Controller and Emergency Response Team in dealing with the incident.

When the BOC Main Controller arrives they will report to the Eastman ECC and assist the Eastman Main Controller in dealing with the incident.

There is a checklist for the BOC Incident Controller, see: *Incident Controller Checklist (see attachment)*.

The BOC Incident Controller remains in control of the BOC Hydrogen Plant until the BOC Site Main Controller takes responsibility. The BOC Site Main Controller will attend the Newport Emergency Control Centre to assist the Eastman Site Main Controller.

Action when the site is unmanned:

In the event of an emergency during periods when the site is unmanned by BOC, Eastman **must** contact the BOC Remote Operating Centre (ROC) Shift Manager as soon as practical. The ROC shift manager will advise as necessary. The BOC Incident Controller or BOC Site Main Controller will arrive and provide support as above.

Contacting Key Personnel

The BOC Key Personnel for the Hydrogen Plant can be contacted at the telephone numbers in *Key Personnel Telephone Numbers (see attachment)*.

Responsibilities of the BOC Site Main Controller

When the BOC Site Main Controller arrives on site he takes responsibility for the overall control of the Hydrogen Plant from the BOC Site Incident Controller.

The BOC Site Main Controller will speak with the Eastman Site Incident Controller or Main Controller and help with directing operations from the Emergency Control Centre.

There is a checklist for the BOC Site Main Controller see: *Site Main Controller Checklist (see attachment)*.

Emergency Control Centre

Location

The Emergency Control Centre is situated at the Engineering, Operation and Lab building (137) and is shown on the site plan. The backup Emergency Control Centre is located at the CUE building (146). It will be brought into use if the Main Control Room becomes unsuitable.

The Emergency Control Centre is the place from which the operations to handle the emergency are directed and co-ordinated. The BOC Site Incident Controller or the BOC Site Main Controller will attend the Eastman Emergency Control Centre and speak with the Eastman Incident Controller and the Emergency Services.

The Eastman Emergency Control Centre contains the following:

- Two Eastman internal telephones.
- Two external telephones, independent of the Eastman system.
- A plan of the works showing:
  - major hazard areas (for example, natural gas incomer, H2 crates)
  - sources of safety equipment
  - site entrance and road systems
  - parking areas for trailers
  - assembly points
  - casualty treatment point.
- A list of key personnel addresses, internal and home telephone numbers.
- A log for keeping details during time of emergency.

Note: The backup Emergency Control Centre has a duplicate set of plans.

Procedures

Raising the Alarm

How to raise the alarm

Any person finding a situation that they believe to be an emergency **must** immediately raise the alarm using the Eastman Fire Alarm System. This can be operated manually via the emergency break glass points located around the plant.

The alarm can also be raised by radio contact with the main gatehouse or, by using the internal emergency telephone number 4333 which connects with the main gatehouse. This fire alarm system is a part of, and belongs to, the Eastman site system and as such forms a key element of their emergency procedures.

Any call point will activate the Eastman plant alarm system.

Tackle the incident

If practical, and safe to do so, the incident **must** be tackled by the persons present.

Note: Any attempt to extinguish a fire **must** be done by isolating the relevant gas supply. Extinguishing flammable gas fires with water will present a further hazard, that of a flammable atmosphere with the potential for explosion if an ignition source is present. Water drenching **must** only be used for cooling purposes.

BOC personnel not on site

If an incident has occurred on the Hydrogen Plant, Eastman's first response will be to activate the Emergency Shutdown (ESD) system. If any doubt exists, Eastman will shutdown the Hydrogen plant via the ESD system. BOC Remote Operating Centre will then be contacted as soon as practicable after hitting the ESD.

If necessary, the ROC shift manager will activate the plant stop button from the remote screen and ask the Eastman Incident Controller to activate the local plant ESD.

Further information on the H2 plant ESD system is contained in the following document: *HYDSMR-02-19 : Emergency ShutDown System*.

Different causes of plant trip and suggested actions to take in the event of a trip are given in the following document: *HYDSMR-02-07 : Hydrogen Plant Trip*.

As a result of the ESD, the Natural Gas Emergency shut-off valve at battery limits closes (fails to safety). Eastman can isolate the Natural Gas supply upstream, at the natural gas site inlet, if required.

On arrival at Eastman

On receiving an emergency call from Eastman, the ROC Shift Manager will then immediately contact the duty BOC Site Main Controller and the duty BOC Facility Engineer. On arrival at the Eastman site, BOC personnel will check in at the main gatehouse.

Plant shut Down

If it becomes necessary to shut the plant down to make the situation safer, before BOC personnel arrive on site, the plant will be shut down by either Eastman or the ROC shift personnel, by activating the ESD. Depending on the incident, the decision to shut down the hydrogen plant by Eastman may require advice from the ROC Shift Manager.

Shut Down action will be automatically taken by the Plant control system. The result of this action may not be enough to reduce the effects of the incident. Further isolation may be required.

Note: The Hydrogen Plant systems are designed to fail towards safety.

If required, Eastman can isolate the Natural Gas supply upstream, at the natural gas site inlet and this will shut the gas off to the whole site.

In the unlikely event that the Emergency Shutdown System does not operate then Eastman personnel will make sure that General Power Supplies to the site are isolated, thus making sure the plant shuts down safely.

Who tells whom

The Eastman Incident Controller tells Fire, Police and Ambulance, as shown in the Eastman Emergency Plan. The emergency services may require further details from BOC.

The BOC Site Main Controller (Eastman Incident Controller if no BOC personnel present) **must** then tell the ROC Shift Manager of the extent of the situation.

BOC Shift Manager then tells BOC Margam Duty Manager.

BOC Duty Manager tells additional key personnel, Director Plant Operations and Engineering at his discretion.

Site Evacuation Procedure

Siren

On hearing the sirens all personnel (with the exception of personnel manning the Emergency Control Centre, provided it is safe to do so), will, as far as it is reasonably practical, leave their area in a safe condition and go in an organised manner to their emergency assembly point (EAP).

Muster point

The BOC control room (within building 114) is an EAP for BOC use only. The area contains a radio. The BOC Facility Engineer, or deputy, will conduct a roll-call and report back to the Eastman Incident Controller.

If BOC personnel are not close to the Hydrogen Plant, or the BOC EAP is not accessible, BOC controlled personnel **must** go to the nearest safe EAP and await instructions by the Eastman area warden.

Eastman will inform the EAP representatives if further action, such as evacuation, is necessary.

Notes:

1) BOC Vehicles **must** not be used during evacuation as they are a possible source of ignition.
2) The personnel shown in Key personnel telephone numbers (see attachment) are responsible for making sure that all plant, except those items required by the Emergency Services, are safely shut Down before evacuating the site.

The preservation of human life is the first priority, with plant safety next.

Assessing the Extent of Gas Contamination

If necessary, atmosphere analysis **must** be carried out to decide the full extent of contamination. Extreme care **must** be taken to make sure of the safety of the person/s carrying out the analysis. The results of the analysis will decide the necessary action to be taken.

Eastman Emergency Control Centre **must** only be evacuated if personnel are at risk from oxygen deficiency, toxic or flammable atmosphere or explosion.

BOC Incident/Main Controller

The BOC Incident Controller will be the Facility Engineer.

The BOC Main Controller according to availability will be:

- Facility Manager, or
- Plant Manager, or
- Area Operations Manager, or
- SHEQ Manager, or
- Assistant Plant Manager.

During an emergency a reflective jacket will identify the Controller with the words BOC INCIDENT CONTROLLER printed on it. This will be located in the BOC Hydrogen Facility control room.

Note: A spare jacket will be kept in the Eastman main gatehouse

BOC personnel not on site

The Eastman Site Incident Controller takes responsibility for any emergency actions required to prevent the escalation of an incident until the BOC Site Main Controller or senior member of BOC Management arrives on site.

At all times the Eastman Incident Controller will stay in overall charge of Eastman Site Safety and emergency procedures, being advised by BOC Site Incident Controller or Site Main Controller.

Notification of Other Parties

When the nature of the emergency is known, the BOC Main Controller (Incident Controller in the absence of the Main Controller) will make sure the following are notified as applicable:

Head of Tonnage Operations	01642 343571 (Office) 07778 136924 (Mobile)
RBU Head of SHEQ	01483 244772 (Office) 07990 606306 (Mobile)
Health & Safety Executive	02920 263072
Emergency Support Centre - Brinsworth	01709 842107

Incident Log

Eastman will log the incident details as per the Newport emergency plan.

The BOC Main Controller (Incident Controller in the absence of the Site Main Controller) will also nominate one of the BOC key personnel to keep an accurate log of the details of the incident.

Accounting for Personnel

Records of plant personnel on duty are kept in the BOC site log book. BOC site contractors and visitors are identified in the BOC site log book.

BOC personnel, including BOC contractors and visitors will also be logged on site at the Eastman gatehouse via card access (regular visitors) or the visitor books.

All BOC personnel and BOC controlled personnel **must** tag in at the BOC tag in point before they enter the BOC control room or Hydrogen Plant area.

If applicable, Eastman will organise a search for casualties as described in the Newport Emergency Plan.

BOC tanker drivers will comply with the standard procedures for tanker drivers on site.

Search and Rescue Procedure

Priority

The priority is to safeguard personnel and prevent escalation of the incident. Search and rescue can be attempted by Eastman emergency response team (ERT), **only if it is safe to do so**. Eastman ERT **must** be called in to do any search and rescue required. The following is a guide for the Incident Controller and the Emergency Services.

If a roll call identifies missing personnel:

Step	Action
1	Find out the last known location of missing personnel from the relevant supervisor/colleagues.
2	Assess the likely rescue location against the hazard causing the incident.
3	If the search and rescue is likely to expose personnel to the hazard, wait for the arrival of the Emergency Services.

Step	Action
4	If the likely area is considered to be of low hazard, (or the Emergency Services have arrived), consider the risks of personnel in this area. Set up a rescue team of at least two people with radios and the relevant emergency equipment, for example, atmosphere monitors, fire extinguishers, and so on.
5	Plan the search, approach and rescue by reference to a site layout map (located in the Emergency Control Centres). This should involve the Emergency Services leader, if applicable, clearly defining the safety precautions and responsibilities of those in the area.
6	Carry out the plan keeping frequent radio contact between the members of the rescue team and the Incident Controller.

Handling Casualties

Injured personnel will be attended to by Eastman ERT or sent to the local hospital for treatment. Seriously injured **must** be sent to hospital without delay.

Media Statement

Media statement

If approached by the media to give a statement during or after an emergency, say the following statement:

"I can confirm that an incident is in progress/has happened at this site; however, I cannot give any more details at this time."

Refer the media representative to the communications contacts in Guildford, see: *Communications Contacts (http://intranet2.linde.grp/rbu_uk_ireland/getpage.asp?article=/rbu_uk_ireland/articles/communications/about/crisis.asp)*.

Communications Team - Briefing

For this briefing, see: *Communications Team Emergency Briefing (http://intranet2.linde.grp/rbu_uk_ireland/getpage.asp?article=/rbu_uk_ireland/articles/communications/about/crisis.asp)*.

All Clear and Re-Entry Procedure

Eastman and BOC will determine the end of an emergency.

After the all clear has been given, the hydrogen site emergency team will carry out a thorough examination of the area as directed by the BOC Site Main Controller.

Areas of the site which were not affected by the incident **must** be examined by the relevant site personnel and the necessary actions taken to restore normal operations as decided by the Eastman Main Controller. Entry will only be with the agreement of the Emergency Services.

Note: The all clear signal is given by the continuous sounding of the site siren.

Investigation

The scene of the incident will be 'cordoned off' and the nominated key personnel will start the first investigation into the cause of the incident.

In some cases the Health and Safety Executive may take charge of this investigation.

The BOC Site Main Controller or BOC Margam Duty Manager will contact the Business Director and Safety Department, Priestley Centre, Guildford to make sure they are told of the incident.

Document Information

About this Document

Version	Date	Author	Quality Reviewer	Approver
1.0	Feb 15	D Rudd Project Engineer - Eastman Chemical Company P Crossman Technical Writer	R Warren SHEQ Manager	R Warren SHEQ Manager

Change History

Version	Description of Change
1.0	Initial issue.

Change History - Attachments

Incident Controller Checklist (see attachment)			
Version	Date	Approved	Description
1.0	Feb 15	R Warren	Initial issue.

Key Personnel Telephone Numbers (see attachment)			
Version	Date	Approved	Description
1.0	Feb 15	R Warren	Initial issue.

Product Information (see attachment)			
Version	Date	Approved	Description
1.0	Feb 15	R Warren	Initial issue.

Production and Storage (see attachment)			
Version	Date	Approved	Description
1.0	Feb 15	R Warren	Initial issue.

Site Emergency Team (see attachment)			
Version	Date	Approved	Description
1.0	Feb 15	R Warren	Initial issue.

Site Main Controller Checklist (see attachment)			
Version	Date	Approved	Description
1.0	Feb 15	R Warren	Initial issue.

Learning and Assessment Guide

IMS-25-11-NEWE : BOC Newport Eastman Hydrogen Plant Site Emergency Plan

Prerequisites

As a result of training in the content of this document you will be able to:	Learning method:	Assessment method:	Reference:
Describe the actions to be carried out during an emergency at the Newport Eastman BOC site.	Self Study	Traccess Test	Whole Document