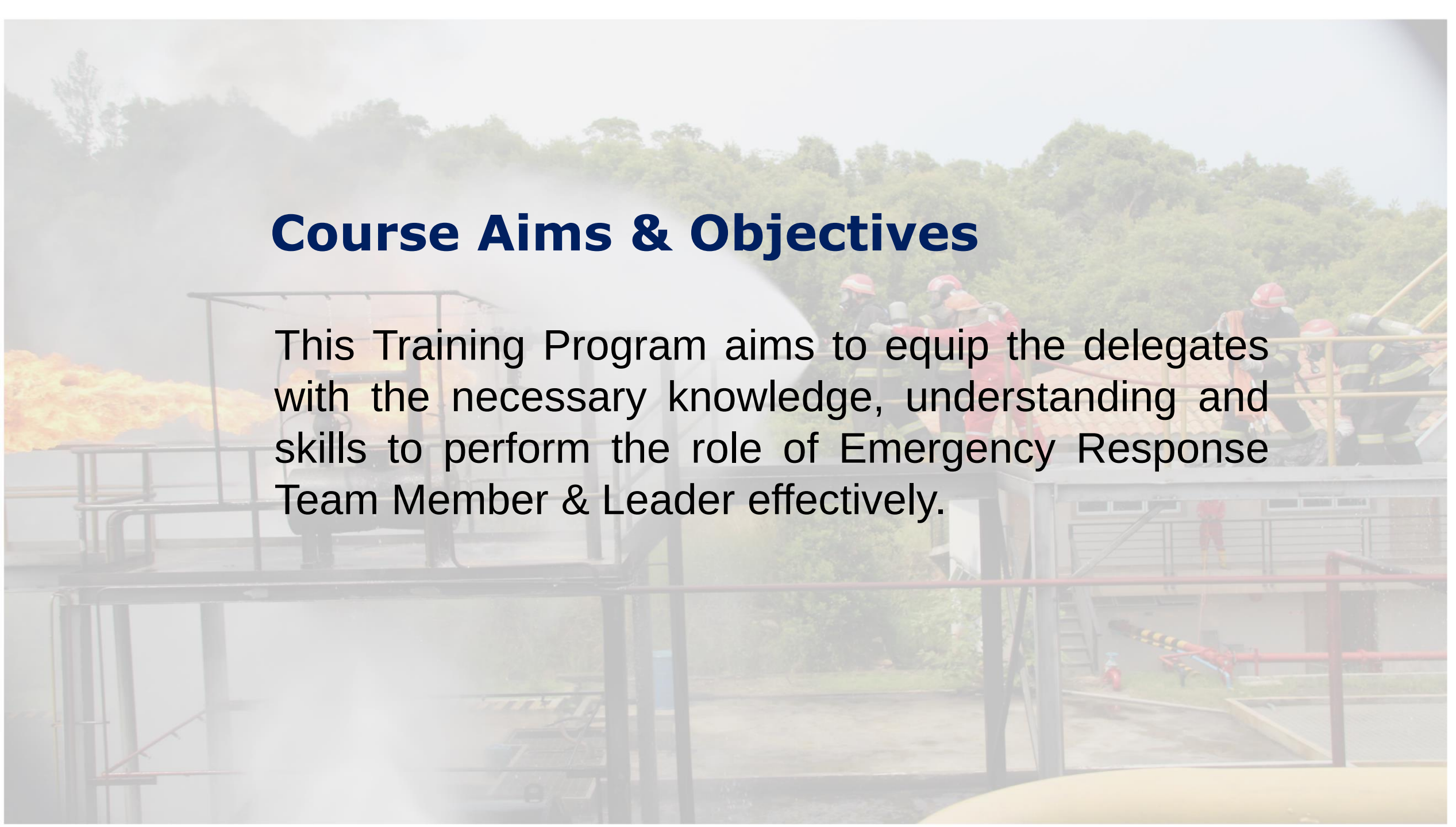
EMERGENCY RESPONSE TEAM

TEAM TRAINING FOR EMERGENCY



Course Aims & Objectives

This Training Program aims to equip the delegates with the necessary knowledge, understanding and skills to perform the role of Emergency Response Team Member & Leader effectively.

Learning Outcomes

Be	Upon completion of this training, delegates must be able to:
Define	Define the role and explain the key responsibilities of the Emergency Response Team Member/Leader
Explain	Explain the purpose of OER arrangement
Explain	Explain the purpose of OER procedures
Identify	Identify hazards and risk mitigation associated with typical offshore fire and non-fire incidents
Explain	Explain the purpose of fixed fire systems offshore
Understand	Understand the performance capability and limitations of typical fixed systems offshore
Identify	Identify the emergency response PPE requirements for the ERT.

Module 1

The Role of the Emergency Response Team

What is the role of an Emergency Response Team

An Emergency Response Team (ERT) is a group of trained professionals who prepare for and respond to emergencies. They can be found in various settings, from workplaces to communities.

Role of Emergency Response Team

Here's a breakdown of their role:

•**Preparation:** ERTs train for different emergencies like fires, hazardous material spills, or natural disasters. They also help create and maintain emergency response plans.

•**Response:** When an emergency happens, ERT members are the first responders on the scene. They take initial steps to mitigate the situation, like evacuating people, providing first aid, or containing hazards.

•**Coordination:** ERTs often work alongside external emergency services like firefighters or paramedics. They help establish communication and ensure a smooth overall response.

In essence, ERTs bridge the gap between the initial emergency and the arrival of external help.

Emergency Response Team Arrangements

Typical emergency response team arrangements

a) Emergency Alarms & Procedures

Types of Alarms

- General Alarm / Fire Alarm
- Abandon Alarm
- Gas Alarm

Emergency Response Team Arrangements

Continued..

Typical emergency response team arrangements

a) Emergency Alarms & Procedures

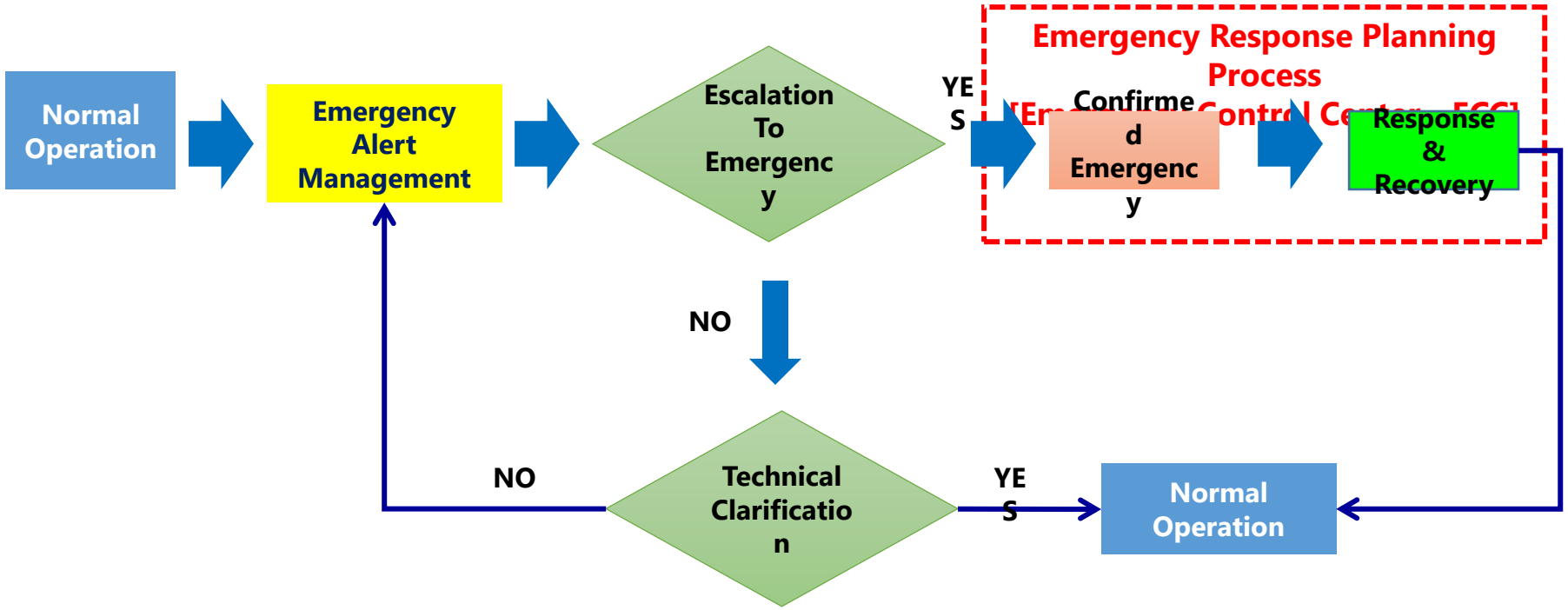
The Initial Response Procedures

- ERT personnel will report to the muster station.
- Fire Team Leader – organize the team
- PA announcement by the head of installation

Emergency Response Team Arrangements

Typical emergency response team arrangements

b) Emergency & Incident Planning Procedures



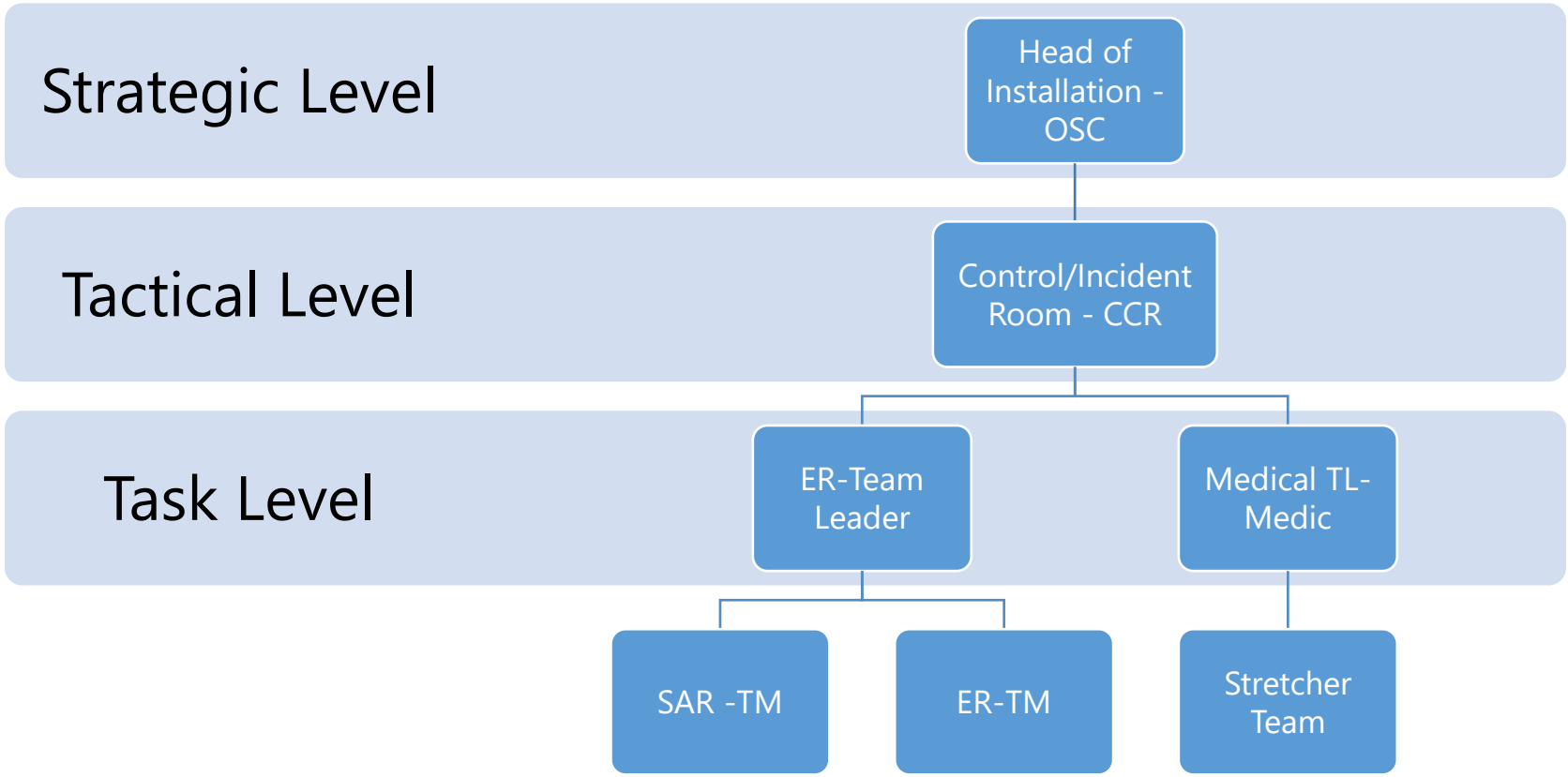
Emergency Response Team Arrangements

Continued..

Typical emergency response team arrangements

b) Emergency & Incident Planning Procedures

Common command structure in offshore



Emergency Response Team Arrangements

Typical emergency response team arrangements

c) Levels of Emergency

Precautionary: Down-manning, Fire & Explosion

- Level 1 - Disaster
- Level 2 - Major Emergency
- Level 3 - Minor Emergency

Emergency Response Team Arrangements

Typical emergency response team arrangements

d) Phases in emergency response to include: Mitigation, Preparedness, Response actions & Recover

Emergency Response Team Arrangements

Typical emergency response team arrangements

e) Emergency Management Roles (individual and team roles)

- ❑ On hearing the alarm, ERT personnel to report to muster
- ❑ Don appropriate PPE
- ❑ Await further instructions from Team Leader
- ❑ Team Leader may be awaiting details of incident from Control Room
- ❑ Team Leader to Adopt Pre-formed plan
- ❑ Team Leader then leads team to location.
- ❑ Team Leader to detail ERT members of tasks

Emergency Response Team Arrangements

Typical offshore emergency response arrangements

f) Incident control centers

- ER Command Center - is a central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, or disaster management functions at a strategic level during an emergency.

Emergency Response Team Arrangements

Typical offshore emergency response arrangements

g) Emergency Communication Protocols

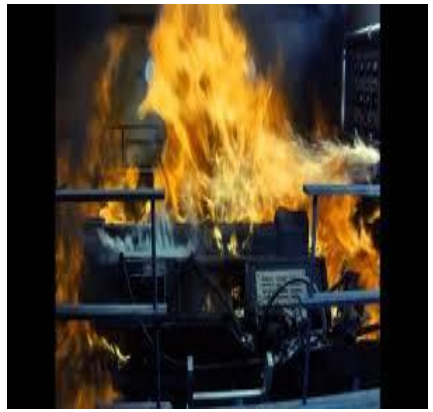
- During an emergency, effective communication is crucial. Methods of communication shall be established & agreed by all teams involved.
- Communication methods include:
  1. Two-way Radio with agreed channel
  2. Paging system
  3. Telephone fire alarm box
  4. Runner
  5. Hand-signals
  6. Verbal - Shout

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents

Fire Incident – Mechanical Fire

Hazard	Risk	Mitigation
• Fire • Smoke • Heat • Bad visibility • Explosion	• Severe burn • Heat stroke • Confined area • Entrapment	• Proper firefighting gears • Use of correct firefighting equipment • Fixed fire protection system

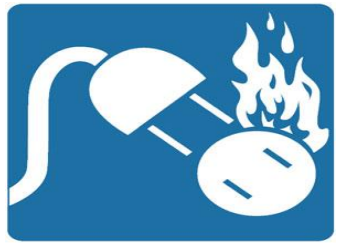


Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Fire Incident – Electrical Fire

Hazard	Risk	Mitigation
• Fire • Smoke • Heat • Bad visibility • Explosion	• Electrocution • Severe burn • Heat stroke • Entrapment	• Proper firefighting gears • Use of correct firefighting equipment • Fixed fire protection system



Cautions the use of water to extinguish electrical fire

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Fire Incident – Galley/Laundry Fire

Hazard	Risk	Mitigation
• Fire • Smoke • Heat • Bad visibility • Hot water or oil • Chemical	• Electrocution • Severe burn • Scald • Heat stroke • Entrapment • Chemical fume inhalation	• Proper firefighting gears • Use of correct firefighting equipment • Fixed fire protection system

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Fire Incident – Process Area Fire

Hazard	Risk	Mitigation
• Fire • Smoke • Heat • Huge explosion	• Abandonment • Major burn • Bodily injuries • Sea condition	• Proper firefighting gears • Use of correct firefighting equipment • Fixed fire protection system

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Fire Incident – Drill Floor / Weld Test Area Fire

Hazard	Risk	Mitigation
• Fire • Smoke • Heat • Huge explosion • Blowout • Chemicals • Radiation	• Burn • Fall from height • Electrocution • Chemical burn, toxic fume inhalation, combustible	• Fixed fire protection system • Standby portable fire fighting equipment • Fire watcher

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Fire Incident – Fabrication Shop (Welding & Grinding) Fire

Hazard	Risk	Mitigation
• Fire • Welding fume • Heat • Sparks • Cylinder explosion	• Burn • Inhalation of welding fume • Heat stroke • Electrocution	• Fixed fire protection system • Standby portable fire fighting equipment • Fire watcher

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Non-Fire Incident – Confined Space Incident

Hazard	Risk	Mitigation
• Toxic gas • Flammable /combustible gas • Poor oxygen level • Physical hazards	• Gas intoxication • Unconsciousness • Death • Fall	• Confined space entry permit • Gas testing • Proper PPE • CS rescue team • CS rescue equipment

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Non-Fire Incident – Working At Height Incident

Hazard	Risk	Mitigatio
• Fall • Falling object	• Fall from height • Bodily injuries • Total disability • Fatality	• WAH permit • Full-bodied safety harness with fall arrester • WAH rescue team • WAH rescue equipment

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Non-Fire Incident – Man Overboard Incident

Hazard	Risk	Mitigation
• Fall from height • Exposure to open sea conditions	• Hypothermia • Near drowning	• MOB retrieving equipment • MOB procedure

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

Non-Fire Incident – Heli-crash and ERT involvement with heli-deck team

Hazard	Risk	Mitigation
• Fire & Explosion • Heat • Smoke	• Helicopter explosion • Heli-deck fire • Injuries	• Helideck firefighting equipment • Coordination between ERT & Heli-deck Team

Emergency Response Team Arrangements

Hazards and risks mitigation associated with typical fire and non-fire incidents – cont.

- Loss of Containment, to include:
  - i. Hydrocarbon liquid spills and releases
  - ii. Unignited and toxic gas releases
  - iii. Chemical and simulated radiation incident

Emergency Response Team Arrangements

Incident planning & progress monitoring

a) Typical Safety Case / ER plans

The safety case provides evidence that operator have management systems to identify hazards with major accident potential, evaluate the risk and put in place measures to comply with the relevant statutory provisions.

PFEER supports SCR by providing the statutory framework for aspects of fire, explosion, evacuation, escape, and rescue required to be addressed in a safety case. PFEER is a primary enforcement tool for inspection, whereas safety case requirements are mainly documentary.

Emergency Response Team Arrangements

Incident planning & progress monitoring

b) The various stage of emergency response

- Pre-incident (Before)
- Action at an incident (During)
- Post incident (After)

Emergency Response Team Arrangements

Incident planning & progress monitoring

c) Key Emergency Assessment Points:

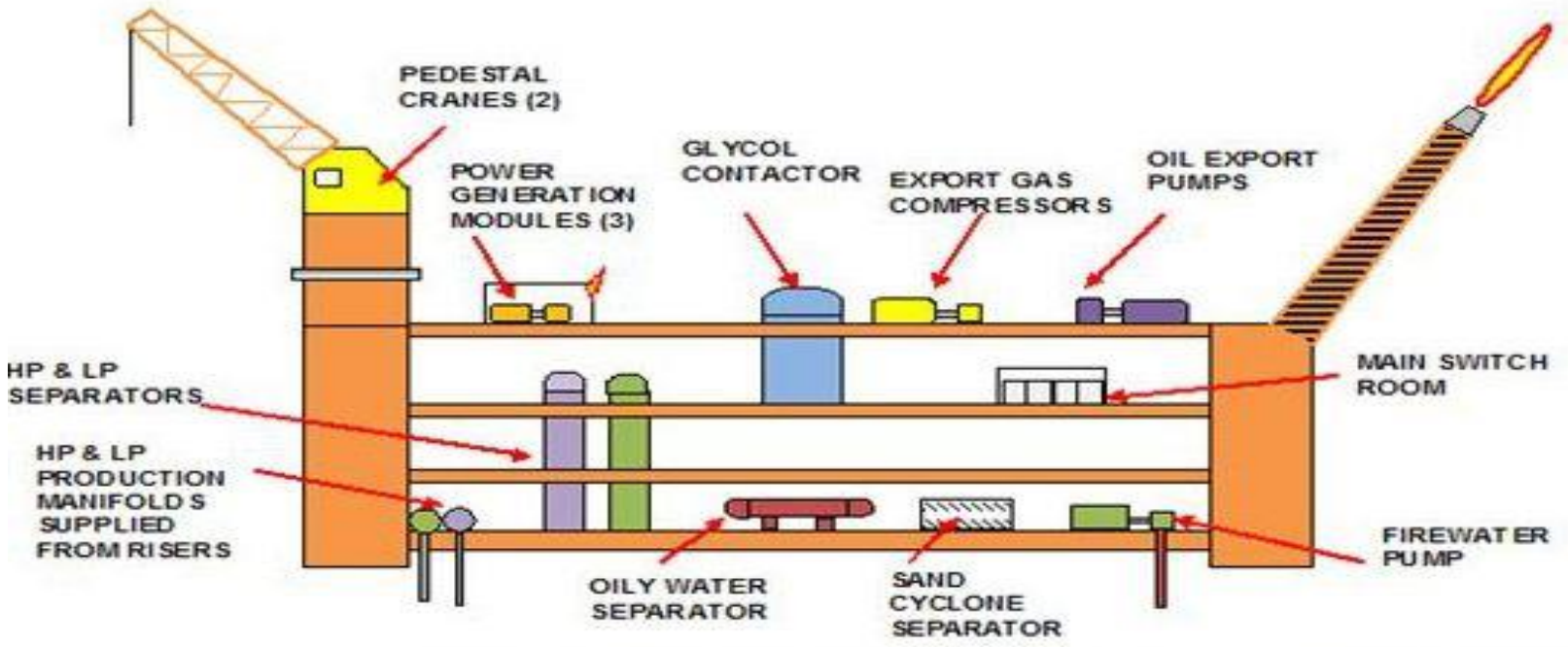
Emergency Assessment is the key to compliance with the major accident hazard requirements in PFEER, and should be given priority. Assessments need not be stand-alone documents. However, they do contain essential information for the decision-making process

1. *Have the appropriate assessments been carried out?*
2. *What measures are used to remove or control the risk?*
3. *What performance standards have been established?*
4. *Are these standards appropriate?*

Emergency Response Team Arrangements

Incident planning & progress monitoring

d) Establishing the layout of the incident area and boundaries



Emergency Response Team Arrangements

Incident planning & progress monitoring

e) Location of fire & emergency equipment

air release valve

fire alarm

fire hose box

Fire-Hydrant-Valve

Fire Hose
Delivery Coupling

Fire Hose

monitor foam
branch pipe

Fire-Sprinkler

Two Way Breeching
Inlet Breaching

Four Way Inlet
Breaching

Hose Pipe Reel

pipe-nozzle

Stand Post Type
Water Monitor

Emergency Response Team Arrangements

The Operation, Performance & Limitations of Typical Fixed Systems Offshore:

Deluge System

A Deluge System is a fixed fire-protection system which totally floods an area with pressurized water through a system of piping and open nozzles or sprinklers. The system piping is empty until the Deluge Valve is activated by a hydraulic, pneumatic, electric or manual release system.

Emergency Response Team Arrangements

The Operation, Performance & Limitations of Typical Fixed Systems Offshore:

Automatic Sprinkler Systems

- Discharge water after the release of the cap or plug that is activated by some heat responsive element.
- Commonly identified by the temperature at which they are designed to operate.
- The temperature is identified by color coding the sprinkler frame arms, colored liquid in bulb-type sprinklers, or by stamping onto the head.

Emergency Response Team Arrangements

The Operation, Performance & Limitations of Typical Fixed Systems Offshore:

Water Spray Fixed Systems

- ❑ Fixed piping network with specialized spray nozzles.
- ❑ Designed to:
  - Protect specific equipment
  - Protect structural members surrounding equipment
  - Function as part of an overall fire protection installation
- ❑ System delivers concentrated, directed water spray pattern onto surface of the hazard.

Emergency Response Team Arrangements

The Operation, Performance & Limitations of Typical Fixed Systems Offshore:

Carbon Dioxide (CO2) Suppressed Systems

- Carbon dioxide (CO_2) is a colorless, odorless, and chemically inert gas.
- It extinguishes fire primarily by lowering the level of oxygen
- CO_2 fire suppression systems are used for:
  - Power Generation
  - Shipboard or Offshore installation
- Benefits of CO_2 Fire Suppression Systems:
  - Fast
  - Environmentally Friendly
  - Non-damaging
  - Non-conductive
  - Adaptive

Emergency Response Team Arrangements

The Operation, Performance & Limitations of Typical Fixed Systems Offshore:

Foam Systems

- Extinguishment of class B flammable & combustible liquids
- Appropriate for prevention, control & exposure protection.
- Commonly installed at Helideck and at class B liquid fuel storage area.

Emergency Response Team Arrangements

The Operation, Performance & Limitations of Typical Fixed Systems Offshore:

Water Mist Systems

- Cooling system.
- Prevention spread of fire.
- Commonly installed at highly hazardous area.

Emergency Response Team Arrangements

ER team familiarization of significant changes to structural layout of installation / vessel e.g. during commissioning or decommissioning

On arrival offshore, personnel will undergo a briefing & site visits/tour.

- Location of FF system
- Muster Stations
- Fixed Detection Systems
- Portable FFE
- Exits & Openings

Module 2

Role of Team Leader and Team Member

Team Work & Communication

The difference between the role of emergency team member and emergency team leader

Emergency Team Member:

Follows instructions and carries out assigned tasks during an emergency.

May have specific skills like first aid or firefighting but operates within a defined role.

Emergency Team Leader:

Oversees the entire team and makes critical decisions in response to the emergency.

Responsible for the safety and effectiveness of the team's actions.

Has strong leadership and communication skills to coordinate the team and liaise with external responders.

Teamwork & Communication

The elements of teamwork and their application to emergency response teams:

a) The role and responsibilities of the ERTM

- ❑ Understand basic causes & effects of types of fire & method of extinction.
- ❑ Understand & able to use Fire-Fighting & Rescue Equipment.
- ❑ Techniques of controlling & extinguishing fires.
- ❑ Techniques of SAR & casualty handling & teamwork.

Teamwork & Communication

The elements of teamwork and their application to emergency response teams:

b) The role and responsibilities of the ERTL

- Understand, assess, implement actions, command & control.
- Selection & operation of fire-fighting & rescue equipment.
- Communication methods.
- Regular training & drill exercise.

Teamwork & Communication

The elements of teamwork and their application to emergency response teams:

c) Human factors that may affect the safety of the ERTM, to include:

- ❑ Safety of the ERTM
- ❑ Job / Task
- ❑ The individual
- ❑ The organization

Teamwork & Communication

The elements of teamwork and their application to emergency response teams:

d) Discipline, Confidence & Team spirit

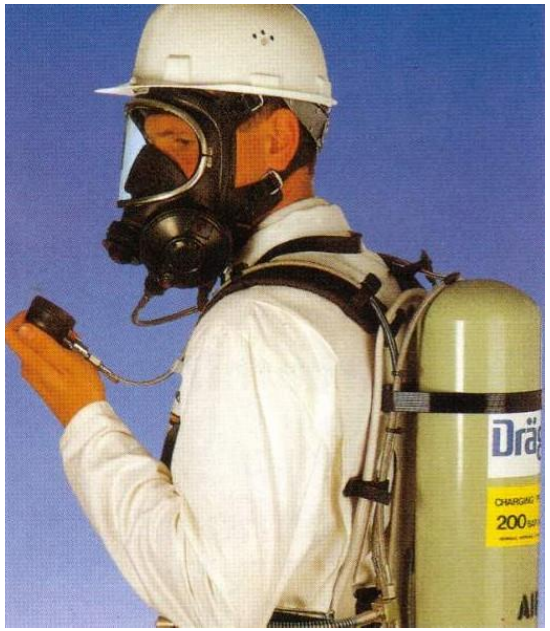
- ❑ Discipline of ERT
- ❑ Confidence in self ability
- ❑ Team spirit is critical during an emergency

Teamwork & Communication

The elements of teamwork and their application to emergency response teams:

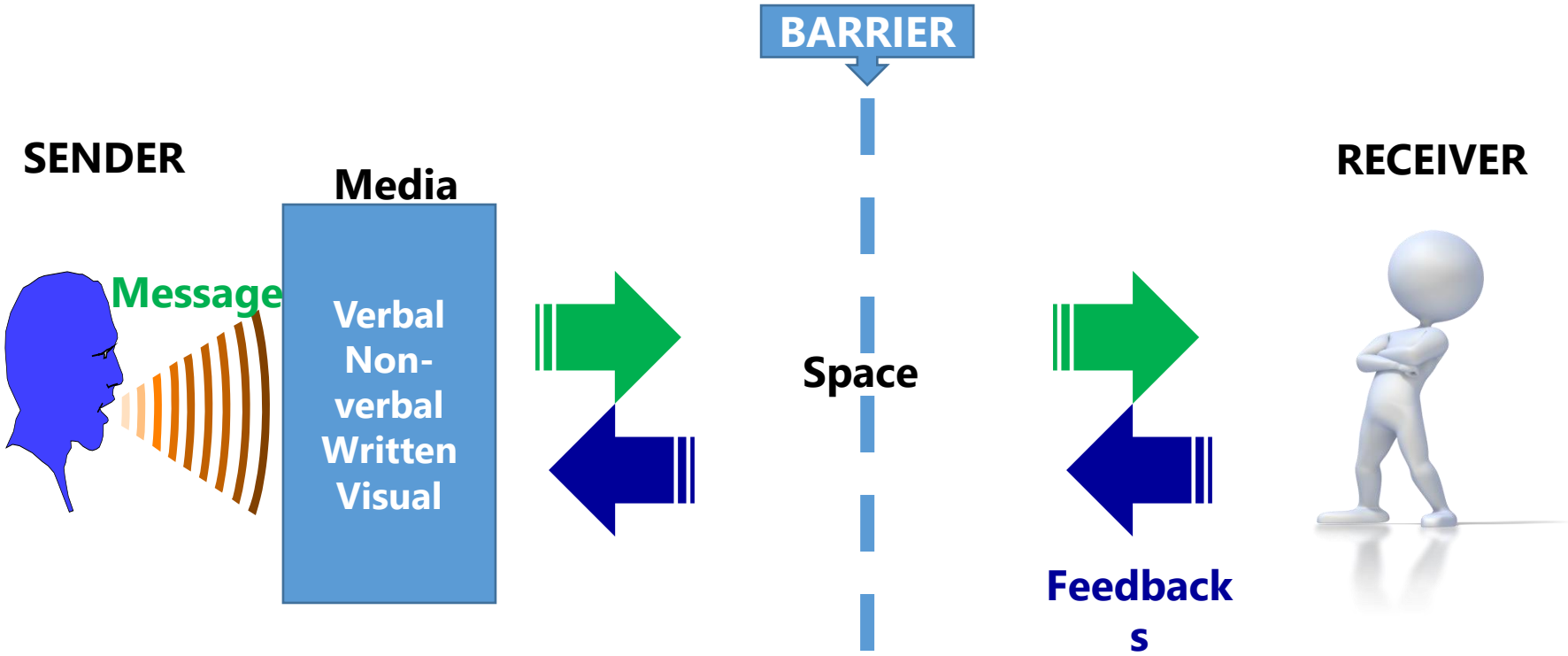
e) Team Safety

- ❑ Importance of BA team monitoring & controlling
- ❑ Sub-leadership



Teamwork & Communication

The elements of effective communication:



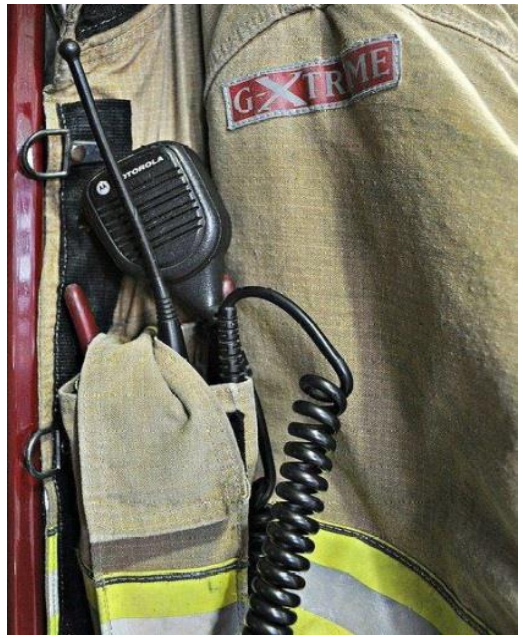
Communication Process

Teamwork & Communication

The elements of effective communication:

a) Benefits & limitations of various communication methods:

i. Runners
ii. Hand signals
iii. Radios – walkie-talkie
iv. Telephone / paging
v. Vocal / shout



Teamwork & Communication

The elements of effective communication:

b) Control requirements to include designated ER radio channels:

- Communication is a tool
- To pass information
  - Understood
  - Believed
  - Accepted
  - Brief
  - Concise
  - Relevant

Teamwork & Communication

The elements of effective communication:

c) Barriers to communication to include:

- Background noise or echo
- Communication equipment function – battery level
- Location
  - Metallic structures
  - Radio transmissions
  - Surrounding noise

Continued..

Teamwork & Communication

The elements of effective communication:

- **Verbal**
  - Confusion/excitement
  - Terminology used
  - Accents/dialects
  - Rushing
  - Person receiving the message (understanding)
  - Finding the right words

Module 3

Incident Response

Element 3.1 – Entering the Incident Area

3.1.1 – Considerations and actions prior to entry and whilst entering the incident area:

a) **Establishing layout and relevant structures and systems of incident area:**

i. Access and egress points

ii. Weather exposure

iii. Structures

iv. Confined spaces

v. Scaffolding

vi. Live machinery

vii. Live process

Element 3.1 – Entering the Incident Area

3.1.1 – Considerations and actions prior to entry and whilst entering the incident area:

b) Typical Emergency Operating Procedures:

i. Installation
ii. Fire-fighting
iii. Personal protection
iv. Personnel protection
v. Structural protection

Element 3.1 – Entering the Incident Area

3.1.1 – Considerations and actions prior to entry and whilst entering the incident area:

c) The dangers posed by closed containers exposed to fire e.g. drums, tanks, separators, etc.) and how to respond to these types of incidents:

- Dangers posed by closed containers – flying
- Precautions
  - Immediate action required - Cooling
  - Importance of effective cooling (Avoid localize cooling)
  - Keep safe distance (Never stand at both ends)
- How to respond if fire impinged on vessel:
  - Isolate, if possible
  - Otherwise, do flame bending & cooling

Element 3.1 – Entering the Incident Area

3.1.1 – Considerations and actions prior to entry and whilst entering the incident area:

d) Movement through the incident area:

i) Upright (BA shuffle)

ii) Crawl

iii) Descend/ascend stairs and ladders

Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

a) Effective communications

- Alarm systems
- Fixed telephones
- Radios
- P.A. System
- B.A. communication

To pass information from one person to another

Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

b) Types and donning of PPE for different incidents:

Two types of PPE (Fire & Chemical)

- Fire (Ignited & Un-ignited gas) – Full Fire PPE
- Chemical Incidents – Full Chemical PPE

Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

c) Chemical PPE

Chemical PPE

1. Level A

Element 3.1 – Entering the Incident Area

Continued..

3.1.2 – Safe emergency response practices to be used in the incident area:

c) Chemical PPE

Chemical PPE

1. Level A
2. **Level B**

Element 3.1 – Entering the Incident Area

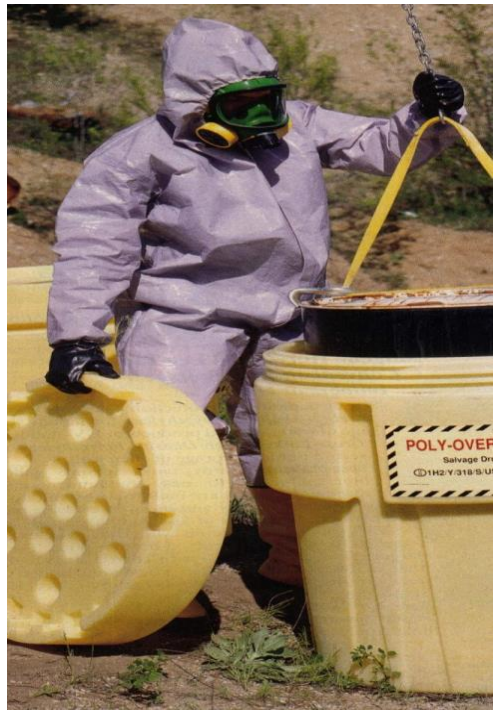
Continued..

3.1.2 – Safe emergency response practices to be used in the incident area:

c) Chemical PPE

Chemical PPE

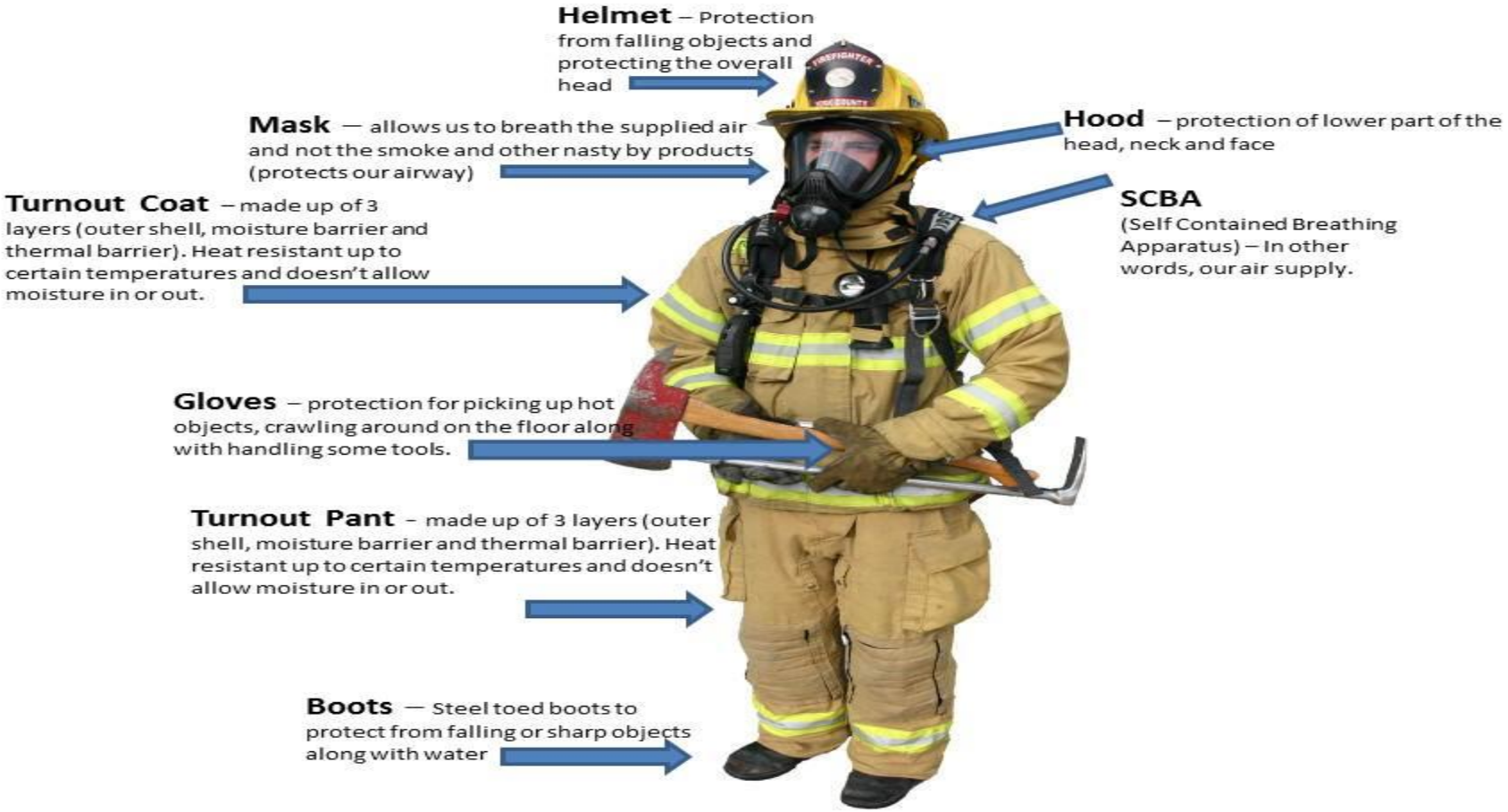
1. Level A
2. Level B
3. **Level C**



Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

c) Fire PPE



Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

d) Effects of heat and humidity

- Excessive sweat – electrolyte imbalance
- Effects of humidity - sweating
- Heat Exhaustion
- Heat Stroke
- Effects on Fire Fighters

Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

e) Dynamic risk assessment, to include team safety

- Evaluate the situation
- Tactical mode
- Select system of work
- Risk assessment
- Tactical control
- Additional/alternative control measures
- Review

Element 3.1 – Entering the Incident Area

3.1.2 – Safe emergency response practices to be used in the incident area:

f) Emergency response practices involving non-fire incidents:

- Team muster at fire station
- Teams in full PPE (if needed – HAZCHEM Suit)
- Wait for further instructions from the Team Leader
- Team Leader is in charge

Element 3.1 – Entering the Incident Area

Continued..

3.1.2 – Safe emergency response practices to be used in the incident area:

i) Hydrocarbon liquid spills and releases

- Can result in 3 types of fire:
  - A pool or spill fire from a considerable leak
  - A ‘running’ or 3 dimensional fire from discharge onto the deck for a prolong period
  - Ignition of a high pressure liquid leak

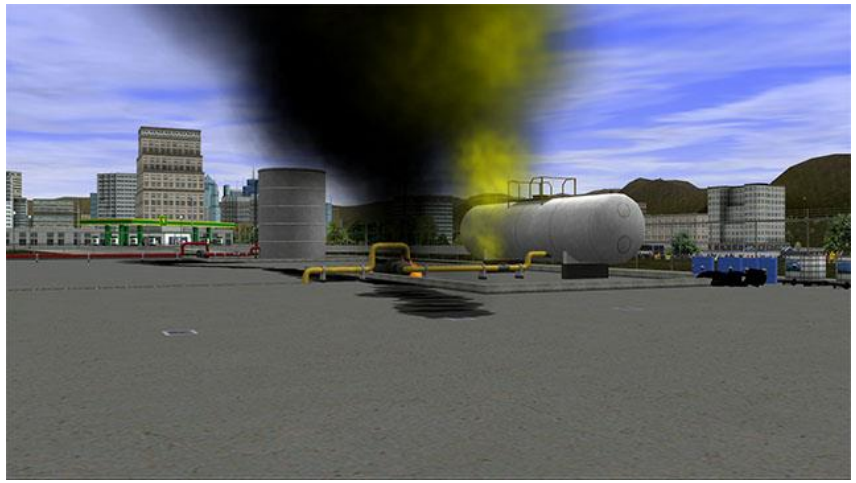
Element 3.1 – Entering the Incident Area

Continued..

3.1.2 – Safe emergency response practices to be used in the incident area:

ii) Un-ignited and toxic gas releases

- Type of gas release
- Toxicity



Element 3.1 – Entering the Incident Area

Continued..

3.1.2 – Safe emergency response practices to be used in the incident area:

iii) Chemical incidents

- Type of chemical

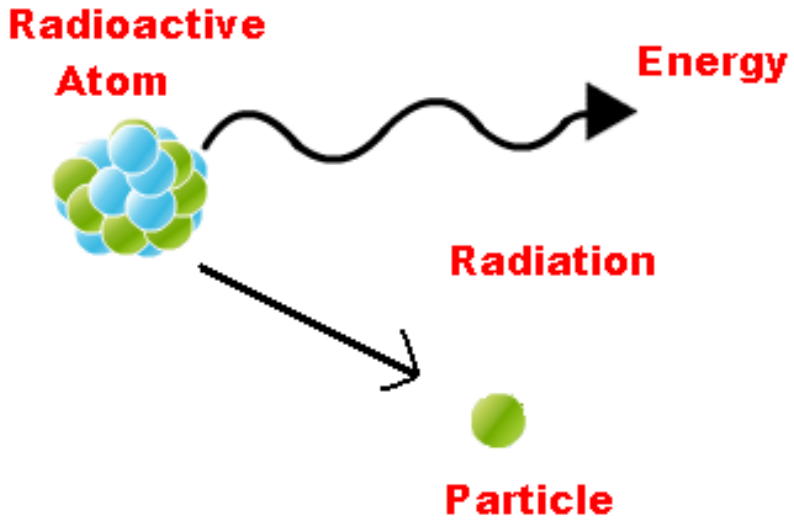
Element 3.1 – Entering the Incident Area

Continued..

3.1.2 – Safe emergency response practices to be used in the incident area:

iv) Simulated radiation incident

- Type of radiation release



Element 3.2 – Selection & Operation of Firefighting Equipment

3.2.1 – Selection and operation of portable fire fighting equipment & media to extinguish fires.

Fire Types

a) Responding to, and extinguishing fire types:

Class A	Class B	Class C	Class D
Solid materials	Combustible liquid	Combustible gases	Combustible metals

Element 3.2 – Selection & Operation of Firefighting Equipment

3.2.1 – Selection and operation of portable fire fighting equipment & media to extinguish fires.

Equipment - Portable Fire Equipment

Dry Chemical Extinguisher

- Portable type

Hose Reels

Hose Branches

- Nozzles

Monitor

- Portable type

Element 3.2 – Selection & Operation of Firefighting Equipment

Continued..

3.2.1 – Selection and operation of portable fire fighting equipment & media to extinguish fires.

Equipment - Foam Equipment

Inductors

- Foam Inductor

Branches

Compound Container

- Portable type

Flushing (after use)

Element 3.2 – Selection & Operation of Firefighting Equipment

Continued..

3.2.1 – Selection and operation of portable fire fighting equipment & media to extinguish fires.

Equipment - Hose Operation

i. Running out & Under-running
ii. Connecting to ancillary equipment
iii. Routing through, walkways, stairways & inside modules
iv. Adding & replacing length of hoses

Element 3.2 – Selection & Operation of Firefighting Equipment

3.2.1 – Selection and operation of portable fire fighting equipment & media to extinguish fires.

Extinguishing Media

i. Water
ii. Foam
iii. CO2
iv. Dry Chemical Powder

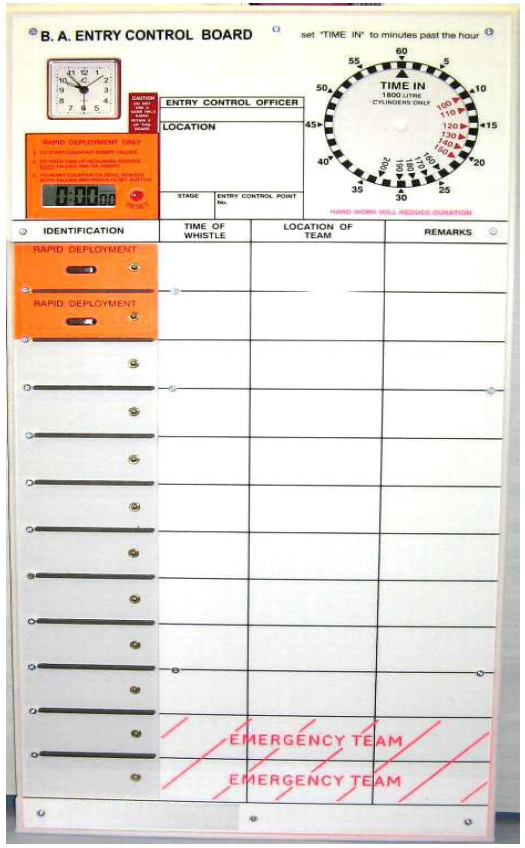
Element 3.3 – Working Duration Breathing Apparatus

3.3.1 – Breathing Apparatus Control Board Procedures

a) Setting up the BA control board on safe location

b) Calculation of working duration & whistle times

c) Using BA Control (BACO) Board Tally Procedures

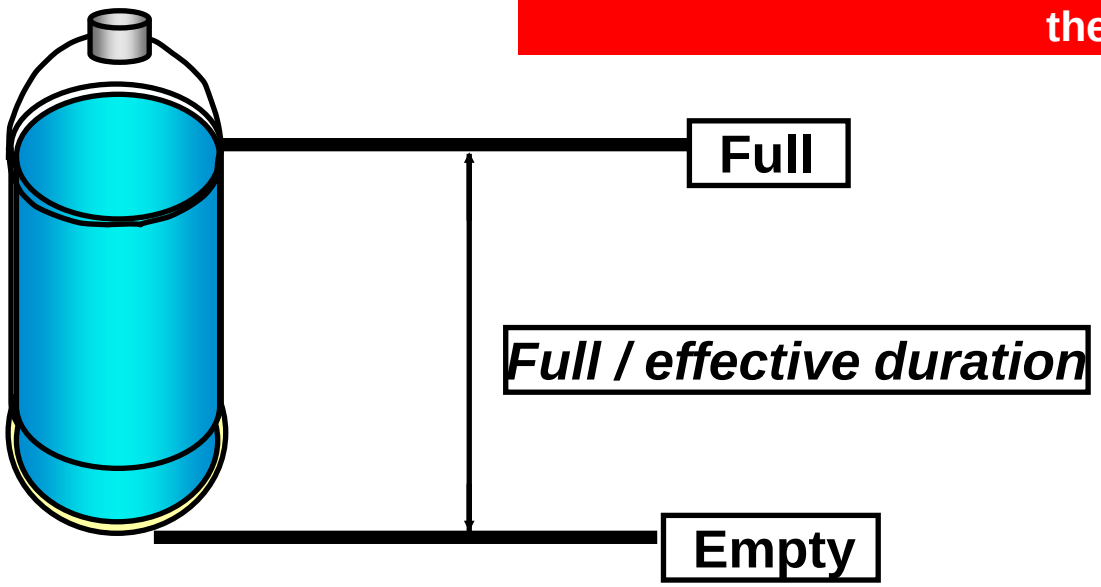


Element 3.3 – Working Duration Breathing Apparatus

3.3.1 – Breathing Apparatus Control Board Procedures

a) Calculation of working duration & whistle times

Full / Effective duration - From start up until the air is exhausted



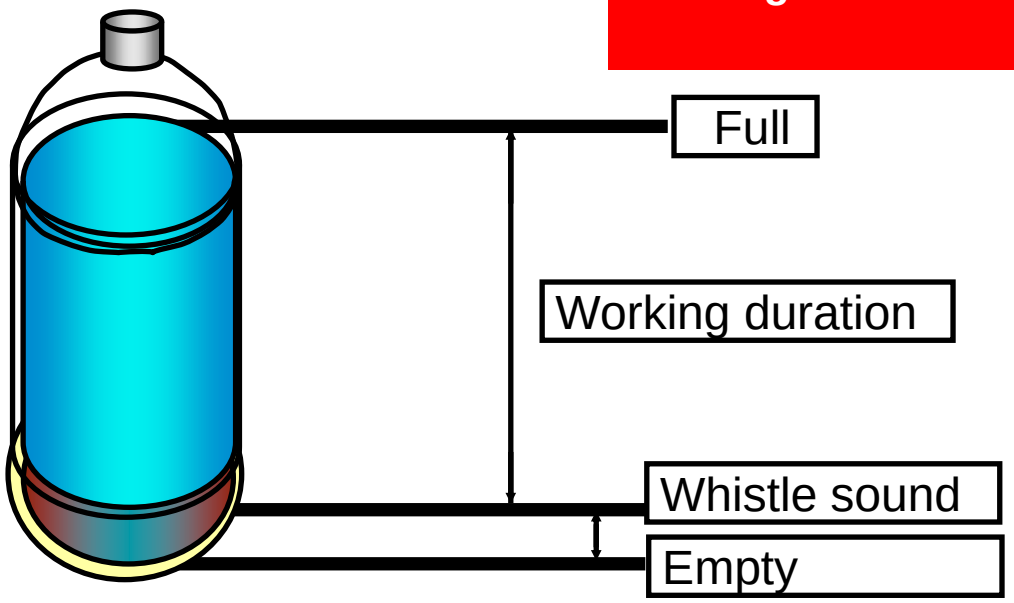
Element 3.3 – Working Duration Breathing Apparatus

Continued..

3.3.1 – Breathing Apparatus Control Board Procedures

a) Calculation of working duration & whistle times

Working duration - From start up until the whistle starts to operate



Element 3.3 – Working Duration Breathing Apparatus

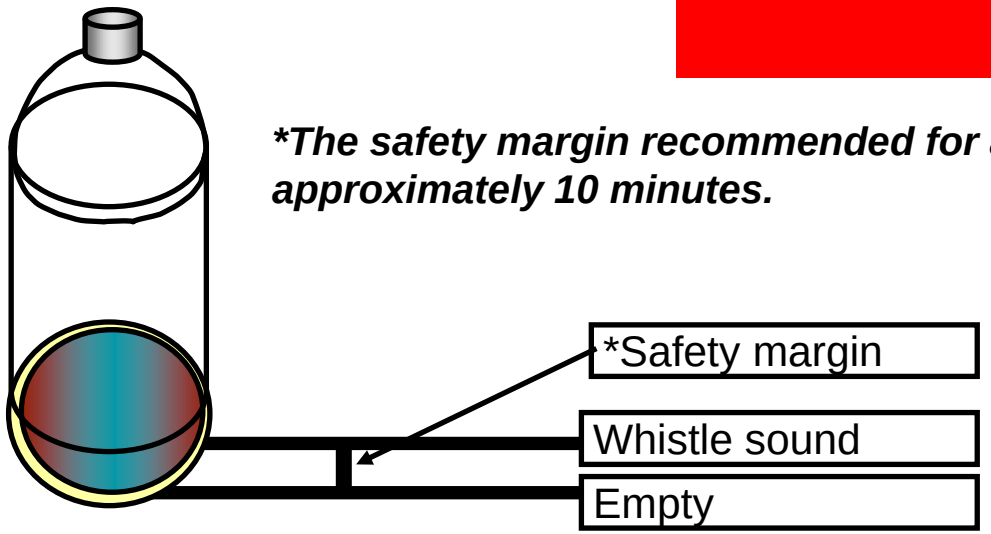
Continued..

3.3.1 – Breathing Apparatus Control Board Procedures

a) Calculation of working duration & whistle times

Safety margin - From time of whistle starts until the cylinder is exhausted.

***The safety margin recommended for all types of BA is approximately 10 minutes.**



Element 3.3 – Working Duration Breathing Apparatus

Continued..

3.3.1 – Breathing Apparatus Control Board Procedures

a) Calculation of working duration & whistle times

Size of cylinder: 6 litres

Pressure of cylinder: 300 bars

Effective Duration = 6 X 300 = 1800 liters of air divided by 40 litres = **45 minutes**

Working Duration = Effective Duration - 10 minutes *(safety margin)* = **35 minutes**

Element 3.3 – Working Duration Breathing Apparatus

3.3.1 – Breathing Apparatus Control Board Procedures

c) Using BA Control (BACO) Board Tally Procedures

The Procedures:-

1. Position BACO Board at safe location
2. Tally insert in BACO Board
3. BACO Board showing close-up of timer and duration tables
4. Some practice tally as an integral part of the Distress Signal Unit (DSU).

Element 3.3 – Working Duration Breathing Apparatus

3.3.2 – Operation, donning and wearer checks of working duration BA

i. Pre-operational checks
ii. Low pressure check (Face seal)
iii. Donning
iv. Operation
v. Whistle check
vi. Monitoring usage in the incident area – gauge checks

Note: Point i – vi to be demonstrated at fireground practical briefing area

Element 3.4 – Search & Rescue

3.4.1 – Typical search and rescue procedures, equipment and techniques

a) Installation and module design:

i. Open / closed modules
ii. Differing heights / levels
iii. Congested / confined
iv. Ascending / descending ladders and stairs

Element 3.4 – Search & Rescue

3.4.1 – Typical search and rescue procedures, equipment and techniques

b) Methods of access and egress:

- Staircase
- Openings
- Ladders (internal & external)
- Ropes

Element 3.4 – Search & Rescue

3.4.1 – Typical search and rescue procedures, equipment and techniques

c) Maintenance of means of escape:

- Should not be obstructed at all times
- Ensure means of escape is available
- Clearly marked with signage and lighting

Element 3.4 – Search & Rescue

3.4.1 – Typical search and rescue procedures, equipment and techniques

d) Varying range of visibility, to include one of each of the following search and rescue scenarios:

   i. Without BA and no smoke

   ii. With BA and no smoke

   iii. With BA and smoke

Element 3.5 – Casualty Recovery

3.5.1 – Casualty Recovery

a) Casualty Handling Equipment;

i. Stretcher

ii. Harness

iii. Slings

Element 3.5 – Casualty Recovery

3.5.1 – Casualty Recovery

b) Casualty Assessment;
   i. Reassurance
   ii. Airway
   iii. Breathing
   iv. Bleeding control
   v. Recovery position

Module 4

Onshore-Offshore Fire-fighting Comparison & Communication

Fire On Oil Platform or Vessel at Sea in Isolated Location

Oil Platform or Vessel rely on own resources and Emergency Response Team

Fire Onboard Vessel in Port or Near to Shore

Initial response - vessel use its own resources to fight and control the fire until shore-based assistance arrive.

Onshore Fire - Building or Oil Tank Installation

Company Emergency Response Team, CERT act as 1st Responder until support and back-up from other agencies and resources arrive.

Importance of Company Emergency Response Team (CERT) to be properly trained

Key Differences Between Onshore and Offshore Firefighting

Environment:

- **Onshore:** Firefighters have more freedom of movement and can access resources readily. They can use nearby buildings for shelter or vantage points.
- **Offshore:** Firefighters are confined to the platform or vessel, with limited escape routes. Weather conditions at sea can be harsher, making firefighting more difficult.

Key Differences Between Onshore and Offshore Firefighting

Water Supply:

- **Onshore:** Firefighters typically have access to a constant water supply from hydrants or municipal water systems.
- **Offshore:** Water supply on rigs or platforms is limited and needs to be self-contained. Firefighters rely on onboard water tanks, seawater pumps, and firefighting foam concentrates.

Key Differences Between Onshore and Offshore Firefighting

Resources and Equipment:

- **Onshore:** Firefighters have access to a wider range of firefighting equipment, including ladder trucks, heavy machinery, and support vehicles.
- **Offshore:** Space is limited on platforms, so firefighting equipment needs to be specialized and compact. Firefighters need to be trained on using specialized equipment for offshore environments.

Key Differences Between Onshore and Offshore Firefighting

Evacuation:

- **Onshore:** Evacuation of civilians and personnel can be done more easily, with access to land transportation.
- **Offshore:** Evacuation during a fire on a platform is complex and time-sensitive. Firefighters may need to use lifeboats, helicopters, or transfer to nearby vessels.

Key Differences Between Onshore and Offshore Firefighting

Training:

- **Onshore:** Firefighters typically focus on fighting fires in buildings and structures.
- **Offshore:** Firefighters require additional training for offshore environments, including helicopter evacuation procedures, working at heights, and using specialized equipment for flammable liquids and gases.

Shore-based Supporting Agencies and Resources for Fire Incident Onboard Vessel or Oil Platform

Indonesia	Singapore	Thailand
National Search and Rescue Agency (BASARNAS)	**Maritime and Port Authority of Singapore (MPA)**	**Marine Department (MD)**
Directorate General of Sea Transportation (DGST)	**Singapore Civil Defence Force (SCDF)**	**Department of Fisheries (DOF)**
Indonesia Coast Guard (KPLP):	**Singapore Police Coast Guard (SPCG)**	**Department of Pollution Control (DPC)**
National Fire Agency (Damkar):	**National Environment Agency (NEA)**	**Royal Thai Navy**
Ministry of Environment (KLHK):		**Provincial Fire Services**

- This is not an exhaustive list, and the specific agencies involved may vary depending on the location and severity of the fire incident.
- It's important to contact the local Vessel Traffic Service (VTS) or port authority for the most up-to-date information on emergency response procedures and relevant agencies in a specific location.

Importance of clear and concise communication between the vessel/platform and shore based support during a fire incident

This allows for:

- **Coordinated Response:** All involved agencies can work together effectively.
- **Quick Decision-Making:** Timely updates enable faster decisions for improved outcomes.
- **Safety & Environmental Protection:** Ensures the safety of personnel and minimizes environmental impact.

Essential Communication Flow:

Initial Report (Vessel/Platform to Shore):

- **Urgency:** The report should clearly indicate a fire emergency.
- **Identification:** Vessel name, platform name, and current location (GPS coordinates) are crucial.
- **Fire Details:** Describe the nature and location of the fire (e.g., engine room fire, wellhead fire).
- **Severity:** Indicate the extent of the fire (under control, spreading, loss of control).
- **Casualties:** Report any injuries or fatalities.
- **Assistance Requested:** Specify the type of assistance needed (firefighting, evacuation, medical aid).

Shore-based Response:

•**VTS/Port Authority:** Upon receiving the report, they assess the situation and activate the emergency response plan. This plan outlines the communication channels and deployment of relevant agencies:

- Coast Guard
- Fire Department
- Salvage Company
- Medical Services
- Environmental Protection Agency (if pollution risk exists)

•**Shore Agencies:** The VTS/Port Authority relays the information to these agencies, who then dispatch necessary resources to the scene.

Ongoing Communication (Both Sides):

•**Vessel/Platform:** The captain (or designated officer) maintains communication with the VTS/port authority, providing regular updates:

- Progress of firefighting efforts
- Changes in fire intensity or spread
- Need for additional resources

•**Shore Agencies:** Communication flows through the VTS/port authority, coordinating the response with the vessel/platform:

- Deployment updates of firefighting vessels with water cannons and foam extinguishers
- Evacuation procedures if necessary
- Pollution control measures

Additional Communication Considerations:

- **Standardized Formats:** Using standardized emergency reporting formats can save time and ensure critical information is relayed effectively.
- **Backup Communication:** If VHF radio fails, a satellite phone should be used as a backup.
- **Dedicated Channels:** Ports may have dedicated communication channels specifically for emergencies.

Module 5

The Emergency Response Team Leader

The role of the ERTL

The Role & Key Responsibilities of the ERTL

a) Restrict access to the incident scene and surrounding area as the situation demands

b) Take any other steps necessary to minimize any threat to health and safety

c) Request medical assistance, if necessary

d) Verify substance released and obtain Material Safety Data sheets, as necessary

e) Identify and isolate source to minimize product loss

f) Coordinate further response actions with Incident Commander and local responders

The role of the ERTL

The Role & Key Responsibilities of the ERTL – (cont'd)

g) Activate the Emergency Response team

h) Appoint a Safety Officer

i) Activate additional response contractors and local resources

j) Evaluate the Severity, Potential Impact, Safety Concerns, and Response Requirements based on the initial information provided by the First Person On-Scene

k) Confirm safety aspects at site, including need for personal protective equipment, sources of ignition, and potential need for evacuation

The role of the ERTL

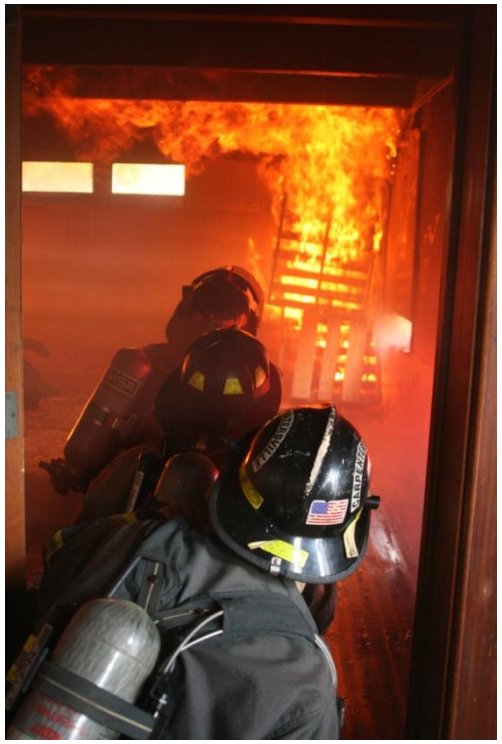
The Role & Key Responsibilities of the ERTL – (cont'd)

l) Communicate and provide incident briefings to company superiors, as appropriate

m) Coordinate/complete additional internal and external notifications

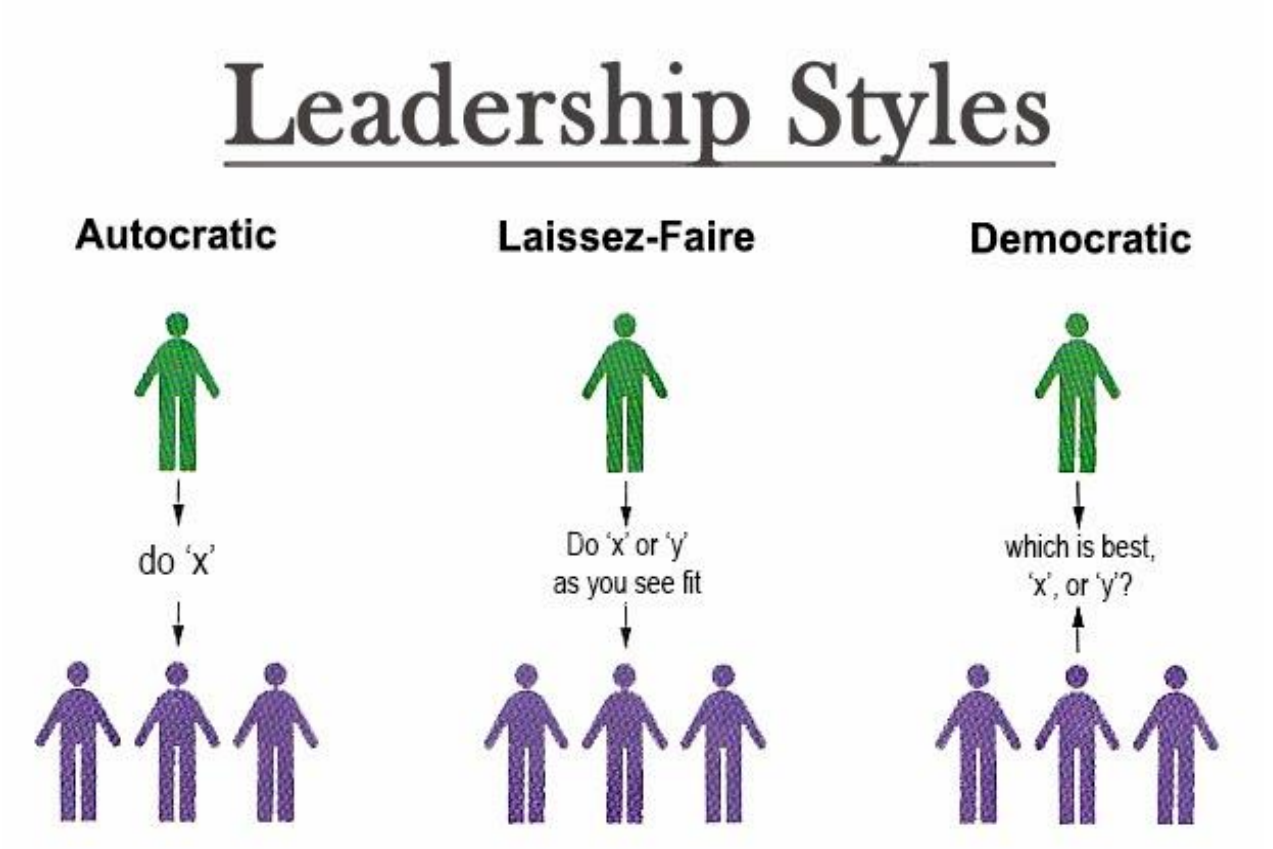
n) Communicate with Emergency Response Team, as the situation demands

o) Direct response an clean-up operations



The role of the ERTL

The type of leadership required for ERTL



The role of the ERTL

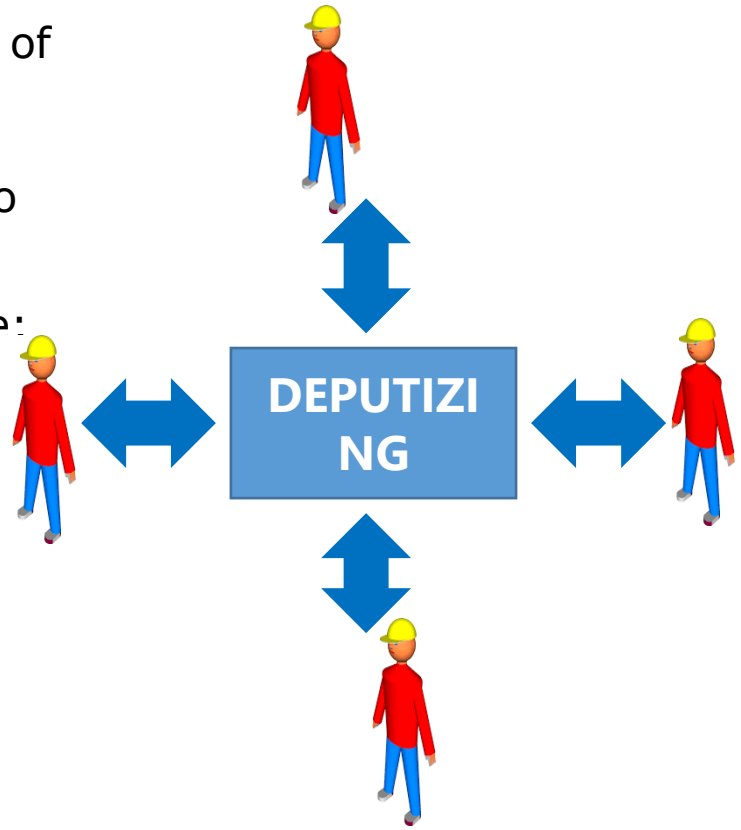
The priorities for ERTL

- Protection of Team Members
- Saving Life
- Minimize risks with highest potential
- Minimize damage

The role of the ERTL

Deputizing Arrangements

- Deputizing is an action taken by the head of installation to delegate part of his critical duties during an emergency to his subordinates or team members in order to preserve time.
- Common deputizing arrangements include:
  - ERTL
  - SAR leader
  - Breathing Apparatus Control Officer (BACO)
  - Hose Man, Kinker Man, Nozzle Man & Hydrant Man
  - Stretcher Team



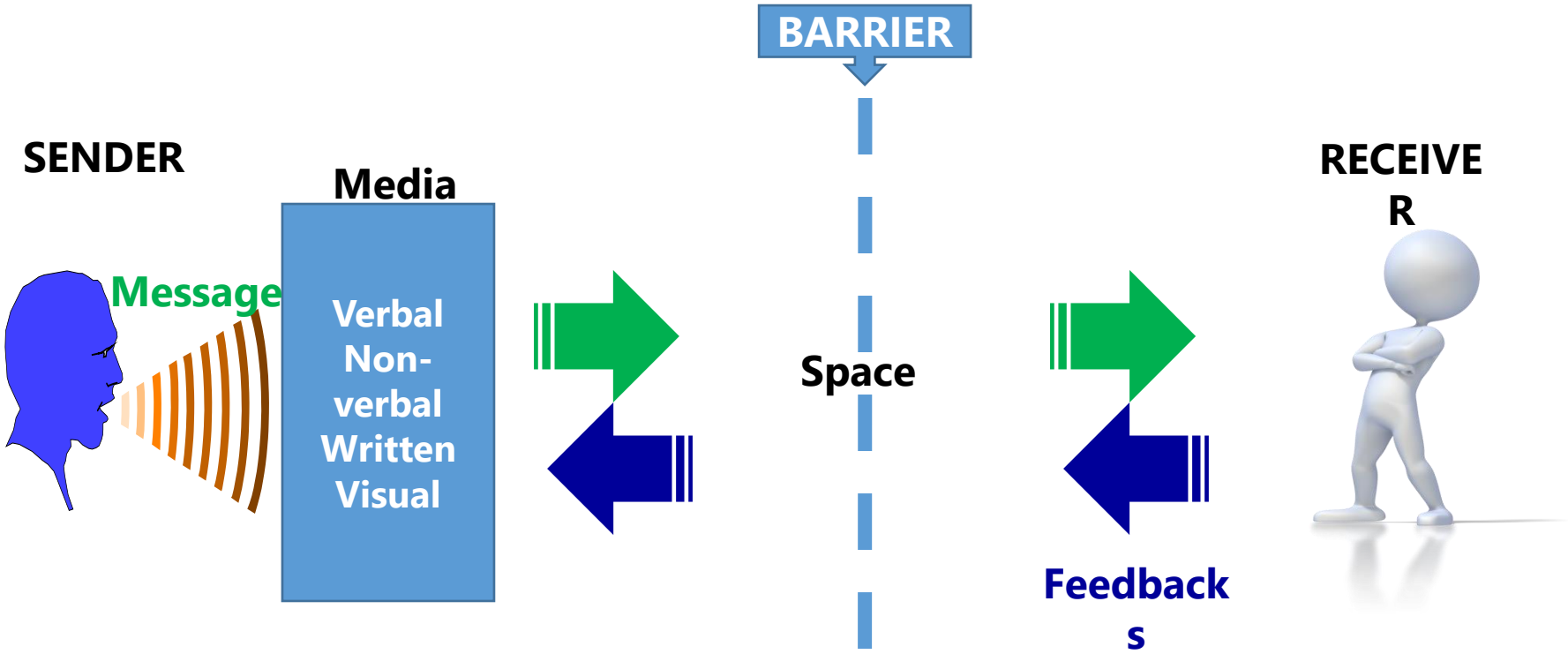
The role of the ERTL

Effective Communications during Emergency Response

- Communication is vital for the success of any emergency operation
- It reinforces visual observations, sets the stage for the entire incident and provides valuable information for everyone involved in the operation.
- Complete and effective communication is a must! Without it, information, events, conditions, situations or questions remain unknown.
- Communication must be clear & precise that include:
  - Communication between the leader & the team members – to ensure safety & correct action taken.
  - Communication between the leader & the Emergency Response Command Centre (ECC) – to ensure coordination amongst various teams.

The role of the ERTL

Effective Communications during Emergency Response (ER) – cont.



Communication Process

The role of the ERTL

The effects and management of stress while leading a team in an emergency

Firefighting regardless of where it happens is one of the most-stressful job to the members or leaders; but understanding what makes it so is key to reducing that stress.

The immediate effects include:

- Aggressive behaviour
- Buck-passing
- Poor communication
- Carelessness/mistakes
- Indecisive

The role of the ERTL

The effects and management of stress while leading a team in an emergency – cont'd

For firefighters, stress can't be avoided, but it can be managed. Coping techniques for acute and chronic stress include:

- Deep breathing exercises
- Positive thinking – even small, optimistic thoughts or funny anecdotes
- Physical exercise
- Peer Support

Module 6

Practical Exercises

Element 6 – Practical Exercises for ERT

The scope of the emergency response exercises must include the following:

1.6.1 Maintaining a means of access and egress from the incident area
1.6.2 Ensuring that appropriate fire-fighting equipment is used for the incident
1.6.3 Responding to Class A fires
1.6.4 Responding to Class B fires, to include:
a) flammable hydrocarbon liquid spill
b) flowing hydrocarbon liquid fires
c) Pressure-fed hydrocarbon fires
1.6.5 Responding to a Class C (gas) fire
1.6.6 Responding to a chemical incident
1.6.7 Responding to a radiation incident

Element 6 – Practical Exercises for ERTL

The scope of the emergency response exercises must include the following – (cont'd)

1.6.8 Effective use of portable fire monitors
1.6.9 Effective use of mobile and portable firefighting and rescue equipment, to include: dry chemical, foam and CO2 fire extinguishant.
1.6.10 Locating, extracting and handling missing personnel and casualties
1.6.11 Breathing Apparatus (BA) control
1.6.12 Personnel protection using water spray
1.6.13 Non-fire emergency response, to include:
a) Confined space entry and recovery of casualties
b) Rescue of casualties from elevated work area with restricted access (height of between 2-4 metres)

Additional Information for ERT

1.1 BLEVE

A Boiling Liquid Expanding Vapor Explosion (BLEVE) is an explosion that occurs when a container filled with pressurized liquid that is at a temperature significantly higher than its boiling point ruptures.

Additional Information for ERT

1.2 FREE SURFACE OF LIQUID

On a ship, the free surface effect refers to the movement of uncontained water that can significantly impact stability.

- **Free surface:** This is any liquid that isn't completely full within its container. Think partially filled tanks or water accumulating on decks.
- **The problem:** When a ship rolls or leans, this free surface water sloshes to the lower side. The weight of the moving water acts off-center, pushing the ship further over in a dangerous tilt.

Additional Information for ERT

1.2 FREE SURFACE OF LIQUID contd

This is a major concern when firefighting on ships because:

- **Firefighting uses a lot of water.** Large amounts of water can quickly accumulate on decks or in compartments.
- **The higher the water, the worse.** Water accumulating on upper decks has a greater effect on stability compared to lower areas.

This can lead to a situation where the more water you use to fight the fire, the more unstable the ship becomes, potentially causing a capsize.

BSTC's Fire Ground