

# HERTM



**Helideck Emergency Respons Team Member Training**

# The Aim & Objective

The aim of the HDA Helideck Emergency Response Team Member (HERTM) Training programme is to equip Offshore Helideck Assistants with the knowledge, understanding and skills required to perform an emergency response team member role in offshore helideck and helicopter emergencies.

The main objectives are for delegates to fully understand the role and responsibilities of a HDA Helideck Emergency Response Team Member and practice responding to a variety of helideck firefighting and non-firefighting emergency scenarios in a training environment .

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# Module 1

## Helideck Emergency Response Preparedness

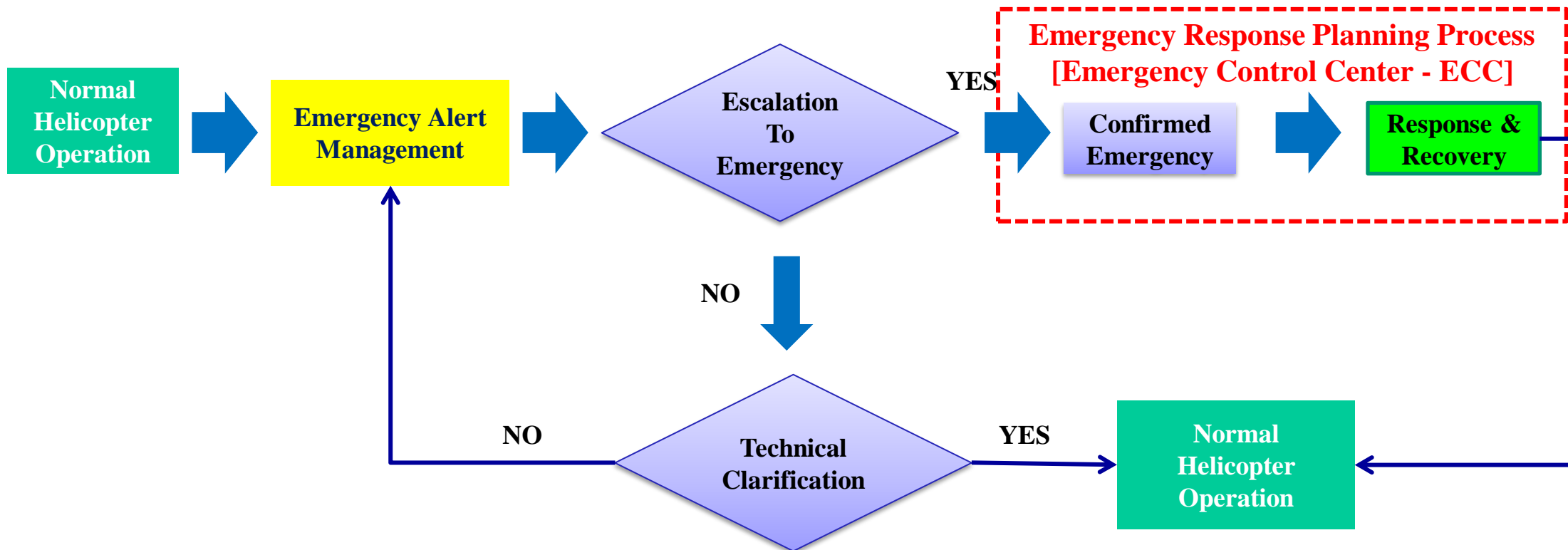
# Helideck Emergency Response Pre-Planning

## The role and key responsibilities of a HDA HERTM

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

# Helideck Emergency Response Pre-Planning

The requirement for helicopter emergency response pre-planning.



# Helideck Emergency Response Pre-Planning

The requirement for helicopter emergency response pre-planning.

- Briefing and alerting of personnel;
- Positioning of equipment;
- Communication;
- Consult the emergency response plan of the responsible company

# Helideck Emergency Response Pre-Planning

The main elements of a helicopter emergency response plan to include:

- ❑ Protecting persons on the Installation from fire and explosion & securing an effective emergency response
- ❑ Set out the emergency duties and responses for management, the HLO, helideck and firefighting teams, the requirements for emergency drills and exercises and the training and assessment of personnel competence
- ❑ Procedures for all credible emergency scenarios where helicopters may be involved



# Helideck Emergency Response Pre-Planning

- ❑ Emergency scenarios involving helicopter operations and typical response requirement of HDA HERTM to the emergency, to include:
  - Helicopter crash on deck (with or without fuel spillage)
  - Engine fire on helicopter
  - Offshore installation or vessel fire
  - Fire during helicopter refuelling operations
  - Aviation fuel skid fire
  - An emergency or precautionary landing on the helideck
  - An attempted wheels-up landing
  - Evacuation and emergency movement by helicopters (e.g. medevac)
  - Helicopter use for man overboard



# Helideck Emergency Response Pre-Planning

Events that may severely impact on flight safety, to include:

- Aviation fuel contamination
- Obstructed helideck
- Wrong deck landing (wrong installation)
- Installation, MODU or vessel status changes with helicopter on deck

# Helideck Emergency Response Pre-Planning

Helideck general firefighting safety goals and objectives and how to achieve them.

- ❑ The primary objective is to ensure the safety of the helicopter passengers and crew, the helideck crew and the Installation, MODU or vessel.

How to achieve?

- Full compliance to National & International Helideck Operation guidelines & Regulations – PFEER, CAP437, UKOOA & etc.
- Regular trainings & drill for helideck ERTM.
- Proper inspection & maintenance of helideck firefighting equipment.

# Helideck Emergency Response Pre-Planning

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Offshore and onshore helicopter emergency response practice:

- Offshore drills and
- Onshore fire and non-fire training practice

# Helideck and helicopter emergency systems and controls

Typical helideck fixed firefighting equipment and systems, to include foam producing equipment performance requirements:

- ❑ Speed of response of producing foam – The minimum requirement for foam production is six (6) litres of the solution per minute, per square meter of the landing area, for a duration of not less than five (5) minutes.
- ❑ Reliability – through weekly tests and maintenance routines

# Helideck and helicopter emergency systems and controls

Typical helideck fixed firefighting equipment and systems, to include foam producing equipment performance requirements:

- ❑ Coverage – within the D-value of the helideck at the rate of 225 litres/min
- ❑ Quality of the foam

**Note:** Foam monitor systems are key to effective helideck firefighting and are dependent on the quality of the foam produced.



# Helideck and helicopter emergency systems and controls

## Deck Integrated Firefighting Systems (DIFFS)

This system consists of a series of 'pop-up' nozzles designed to provide an effective spray distribution of foam to the whole of the Safe Landing Area (SLA).





# Helideck and helicopter emergency systems and controls

## Typical helideck mobile firefighting equipment and systems





# Helideck and helicopter emergency systems and controls

Minimum helideck rescue equipment – as specified by international guidelines.



# Helideck and helicopter emergency systems and controls

1. Adjustable wrench
2. Rescue axe, large (non wedge or aircraft type)
3. Cutters, bolt
4. Crowbar, large
5. Hook, grab or salving
6. Hacksaw (heavy duty) and six spare blades
7. Blanket, fire resistant
8. Ladder (two-piece)\*
9. Life line (5 cm circumference x 15 m in length) plus rescue harness
10. Pliers, side cutting (tin snips)
11. Set of assorted screwdrivers
12. Harness knife and sheath\*\*
13. Gloves, fire resistant\*\*
14. Power cutting tool

*\*For access to casualties in an aircraft on its side*

*\*\*This equipment is required for each helideck crew member*

# Helideck and helicopter emergency systems and controls

Helicopter emergency systems and controls that can be initiated by the HLO or HDA HERTMs, to include helicopter:

- engine shutdown
- fuel isolation
- Fixed firefighting and protection systems (onboard helicopters).

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# Module 2

## Helideck Emergency Response Team Member

# HERTM Response in Helideck and Helicopter Emergencies

Human factors during emergency response:-

- Stress affecting decision making,
- Physical exhaustion
- Excessive heat
- Weather condition

# HERTM Response in Helideck and Helicopter Emergencies

Potential hazards during the emergency response:-

- Fire
- Electrical
- Helicopter materials
- Dangerous goods cargo
- Sponson deployment

# HERTM Response in Helideck and Helicopter Emergencies

## Emergency Response PPE requirements for HDA HERTM

2 sets of fireman's equipment should be provided, and be readily available adjacent to the helideck, for the intervention crew members assigned to helideck duties:

- A protective outfit including gloves, boots, a facemask or a hood and a helmet
- A self-contained Breathing Apparatus (BA)
- A portable battery-operated safety lamp
- A fireman's axe, safety harness and lifeline



# HERTM Response in Helideck and Helicopter Emergencies

How different helicopter types can affect the emergency response?

- ❑ Helicopter fuselage dimensions for each category (Helicopter category – H1, H2 & H3) – the availability of firefighting equipment, extinguishant media intensity on the helideck.
- ❑ The types of helicopters utilised and specific hazards (e.g. construction, fuel load)

# HERTM Response in Helideck and Helicopter Emergencies

## Emergency Response Arrangements

- ❑ an emergency response plan – Incident management, support & recovery
- ❑ Response process – vessel, rescue team, equipment, coast guard
- ❑ Rescue plan – equipment, design, training & competence
- ❑ Communication – how, when, effective

# HERTM Response in Helideck and Helicopter Emergencies

## Breathing apparatus operation and control procedures



# HERTM Response in Helideck and Helicopter Emergencies

## Breathing apparatus operation and control procedures

### Pre-use Checks

- Visual check for defect & damage
- Check the cylinder content (min. 80% full = 240 bars)
- Check leakage (not >10 bars/min)
- Check whistle function (between 50-45 bars)



Pressure Gauge

Alarm whistle box

# HERTM Response in Helideck and Helicopter Emergencies

## Breathing apparatus operation and control procedures

### Low Pressure Test

- Don the set.
- Open cylinder valve.
- Don the facemask. Bottom straps first.
- Take few deep breaths, hold gauge, close cylinder valve (keep hold of valve)
- Breathe slowly, watch gauge until whistle sounds.
- When needle zero, mask should collapse into face.
- Open cylinder valve slowly and fully





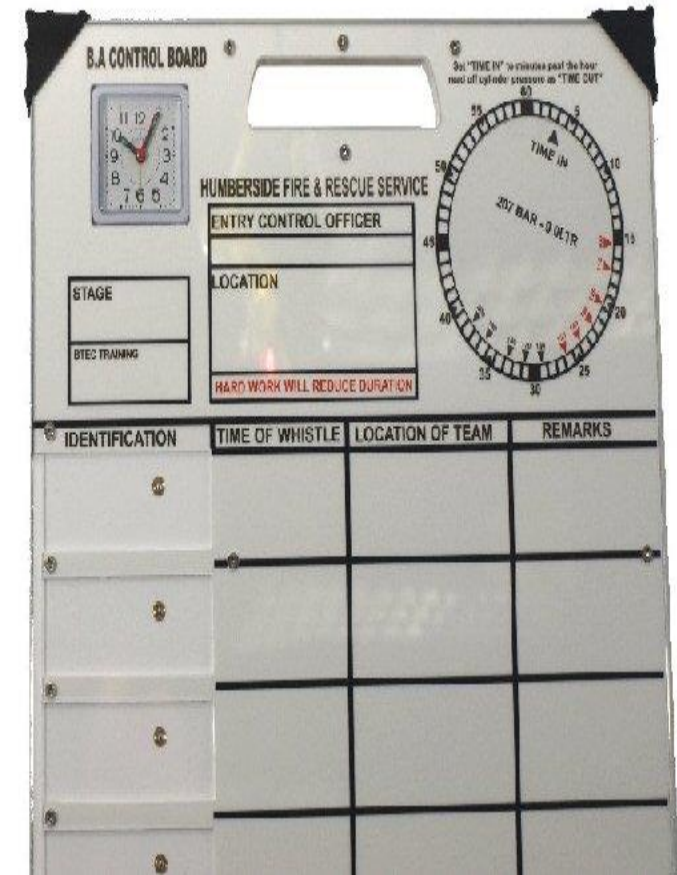
# HERTM Response in Helideck and Helicopter Emergencies

## Breathing apparatus operation and control procedures

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).



# HERTM Response in Helideck and Helicopter Emergencies

## Breathing apparatus operation and control procedures

Calculation of working duration & whistle times

Size of cylinder: 6 litres

Pressure of cylinder: 300 bars

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

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



# HERTM Response in Helideck and Helicopter Emergencies

Search and rescue (SAR) principles and techniques – on or close to the helideck, following helicopter incident on helideck

Factors to be considered on helideck:

- Helicopter position
- Damage sustained
- Type of the helicopter
- Passengers or crew visible on arrival
- Fire situation on arrival
- Are engine or rotor running?

# HERTM Response in Helideck and Helicopter Emergencies

## Principles & Technique:

- Always establish contact with the crew
- Perform action to save life & prevent fire from affecting fuselage
- Pay attention to both main & tail rotors
- Approach in crouching position from the rear on the opposite side of the tail rotor.
- Carry tools or equipment below waist level
- Do not slam the doors on helicopter
- Avoid engine air intake & exhaust efflux area

# HERTM Response in Helideck and Helicopter Emergencies

## Principles & Technique:

- Bear in mind helicopter floatation device
- Any spillage must be covered with aspirated foam
- To ensure rapid knockdown of any fire, appliance mounted monitor(s) should be put to work with supporting aspirated foam side line being simultaneously deployed.
- An entry to the aircraft cabin or cockpit area to carry out rescue is the priority which must be considered simultaneously with controlling fire.

# HERTM Response in Helideck and Helicopter Emergencies

## Principles & Technique:

- Any casualty shall be removed to a place of safety upwind on the incident.
- Charge guard branches (aspirated foam) must be maintained throughout the duration of the incident.
- At incident where pressurized flammable liquids or running fuel fire are involved the use of a dual application of foam/dry powder – foam/CO<sub>2</sub> should be considered.

# HERTM Response in Helideck and Helicopter Emergencies

## Principles & Technique:

- Care must be taken when working with pressure jets to ensure that any water actuated devices fitted to the aircraft are not inadvertently activated.
- Owing to the potential for a fire to subsequently ignite or re-ignite whilst rescue operations are in progress charged lines should be taken into enclosed cabin areas by rescue crews and main charged guard lines maintained outside.

# HERTM Response in Helideck and Helicopter Emergencies

## Principles & Technique:

- Watch out on magnesium component used in helicopter construction. It will react violently with water & other medias. 'D' Class powder may be used.
- Ensure SAR team shall be dressed in full protective clothing including used of SCBA.

## REMEMBER

Always exercise cautions around helicopter  
“Be alert around helicopter & live”

# HERTM Response in Helideck and Helicopter Emergencies

## Relevant equipment and controls - helideck and helicopter

### Helideck Equipment

- Illumination of the helideck & surrounding area
  - Surface lighting (Floodlighting)
  - Perimeter lighting
  - Obstruction lighting
- The anti-slip net
- Perimeter safety net



# HERTM Response in Helideck and Helicopter Emergencies

## Relevant equipment and controls - helideck and helicopter

### Helideck Equipment

- Meteorological equipment
  - Wind sock
  - Weather instrument – anemometer, barometer & thermometer
- Operational equipment
  - Rope, bonding materials
  - Chocks or sand bags
  - Weighing scale
  - Electrical supply – for start-up of helicopter

# HERTM Response in Helideck and Helicopter Emergencies

## Relevant equipment and controls - helideck and helicopter

### Helideck Equipment

- ❑ Emergency rescue equipment (Crash box)
- ❑ Firefighting equipment requirement
  - Foam forming agent
  - Mobile other fire extinguisher – Dry powder & CO2
  - Water hoses
  - Ring line system
- ❑ Refueling facilities

# HERTM Response in Helideck and Helicopter Emergencies

## Relevant equipment and controls - helideck and helicopter

### Helicopter Equipment

- ❑ Emergency floatation device
- ❑ Dual externally mounted liferafts
- ❑ SAR beacon (SARBE)
- ❑ Emergency Locator Beacon
- ❑ Helicopter Emergency Egress Lighting (HEEL)
- ❑ Automated Deployable Emergency Location Transmitter (ADELT)
- ❑ High intensity white strobe collision avoidance lights

# HERTM Response in Helideck and Helicopter Emergencies

## Relevant equipment and controls - helideck and helicopter

### Helicopter Equipment

- Pressure refueling
- Rescue hoist
- Moveable landing lights
- Central auxiliary fuel tank

# HERTM Response in Helideck and Helicopter Emergencies

Firefighting equipment: guidance on when and where to use various media

- ❑ Foam is considered the principal medium for dealing with fires involving fuel spillages
- ❑ Variety of fire incidents likely to be encountered during helicopter operations – e.g. engine, avionic bays, transmission areas, hydraulics – may require the provision of more than one type of complementary agent/media.

# HERTM Response in Helideck and Helicopter Emergencies

Firefighting equipment: guidance on when and where to use various media

- ❑ Dry powder as the primary complementary agent.
  - The minimum total capacity should be 45 kg delivered from one or two extinguishers.
  - The dry powder system should have the capacity to deliver the agent anywhere on the landing area



# HERTM Response in Helideck and Helicopter Emergencies

Firefighting equipment: guidance on when and where to use various media

- ❑ The use of CO<sub>2</sub> in addition to DCP as the primary complementary agent.
  - provided with a suitable applicator for use on engine fires
  - minimum quantity delivered from one or two extinguishers is 18 kg

# HERTM Response in Helideck and Helicopter Emergencies

## Monitoring of environmental conditions and how they may impact on the emergency response

- Wind speed and direction (including variations in direction);
- Air temperature and dew point temperature;
- Cloud amount and height of base (Above Mean Sea Level (AMSL));
- Visibility; and
- Present weather – seastate, Motion Severity Index (MSI) and a Wind Severity Index (WSI)

# HERTM Response in Helideck and Helicopter Emergencies

## Techniques for keeping calm during an emergency response

- ❑ Deep breathing exercises
- ❑ Positive thinking
- ❑ Listen to Team Leader's assurance & support
- ❑ Get up to date information regarding the situation
- ❑ Keep interacting with each other



# HERTM Response in Helideck and Helicopter Emergencies

Asking for assistance if struggling to cope with emergency events - physical or mental.

- Over exhaustion
- Bodily injured
- Severely under stress condition
- Indecisive is sign of mentally distress

# HERTM Response in Helideck and Helicopter Emergencies

## Training staff to explain:

- Effective communications with HLO and team members– clear and concise communication.
- Updating HLO on progress against the emergency response plan at appropriate times.
- Responding appropriately to HLO direction during emergencies.
- Under direction from the HLO: approaching the incident area in a controlled manner – continually assessing how the changes in the emergency could impact on the safety of other HERT members
- Effective execution of emergency response tasks.
- Conducting helicopter incident firefighting operations, to include responding to a helicopter engine fire using a CO2 media extended applicator.

# HERTM Response in Helideck and Helicopter Emergencies

## Training staff to explain:

- Correct use of breathing apparatus (BA) when instructed by HLO.
- Effective Search and rescue (SAR) principles and techniques – on or close to the helideck, following helicopter incident on helideck.
- Appropriate response to non-firefighting operations during helicopter incident.
- Effective use of firefighting fixed and mobile systems.
- Working with back-up emergency response teams – where required to do so.
- Correct casualty handling techniques

# HERTM Response in Helideck and Helicopter Emergencies

## Practical Exercises for the HERTM

The scope of the response exercises to include the following:

- Emergency access and egress to/from helidecks
- Maintaining a means of escape from the incident area
- A non-firefighting emergency response
- Selection of appropriate fire-fighting equipment for the incident
- Effective use of fixed fire monitors
- Effective use of mobile and portable firefighting and rescue equipment, to include dry chemical and CO2 fire extinguishant and control media.
- Responding to Class A fires caused by helicopter incident
- Responding to \*Class B fires (flammable liquid spill and leaking fuel fires) caused by helicopter incident.



# HERTM Response in Helideck and Helicopter Emergencies

## Practical Exercises for the HERTM

The scope of the response exercises to include the following:

- Hose-running techniques and associated hazards
- Locating, extracting and handling missing personnel and casualties following a helicopter incident on the helideck.
- Breathing Apparatus (BA) control
- BA use (all delegates to practice donning and using BA)