HID Inspection Guide Offshore

Inspection of Evacuation Escape and Rescue (EER)

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Summary
This guidance outlines an approach to inspection of dutyholder’s arrangements for Evacuation, Escape and Rescue (EER) and the current key topic areas that inspectors should consider when inspecting this topic offshore. It also sets out criteria for satisfactory and unsatisfactory performance factors against which the duty holder performance will be rated for each of these areas. References are made to technical standards and guidance that inspectors will use to form opinion for legal compliance. This guidance does not include Marine Operations or Aviation Operations, which also form part of the remit of ED3.3

Introduction
The aim of this Operational Guide (OG) is to provide information and guidance to offshore inspectors to support the delivery of consistent and effective safety critical element (SCE) management and assurance. It does this by highlighting current key areas to be covered during inspections, providing a framework for inspectors to judge compliance, assign performance ratings, and decide what enforcement action to take should they find legislative breaches. In doing so, it complements HSE’s Enforcement Policy Statement (EPS) and Enforcement Management Model (EMM).

The operational guidance outlines HSE’s current EER inspection practices undertaken offshore. The topic breaks down into nine core intervention areas as follows:
1. PFEER Assessment
2. Emergency Response Preparation
3. Emergency Response Plan
4. Alarms and Communication
5. Control of Emergencies
6. Access/Egress Routes and Muster
7. Evacuation
8. Escape
9. Personal Protective Equipment/Life Saving Appliances (PPE/LSA)

An overview of each of the above will be provided in the appendices.

The effectiveness of such systems is a key component of risk management and securing effective emergency response should events occur that require evacuation, escape and rescue to avoid or minimise the impact of a major accident.

This guidance is to promote a consistent approach to the inspection of the core sub topic of EER.

**Action**

Effective means of emergency response, evacuation and rescue is essential should an event occur. It is essential that appropriate measures are put into place to protect people and secure effective emergency response.

Inspection of this topic should include both inspection of the core areas themselves and an inspection over viewing the sum of the individual sections to establish a consistent and complete coverage of the topic. In inspecting individual core areas it may be necessary to have input from the relevant specialist inspectors where there are technical issues beyond the competence of the IMT inspector.

There should be in place suitable Performance Standards, Verification Schemes and where necessary Written Schemes of Examination for the systems and equipment that falls within the scope of the EER topic

Success criteria are listed under the inspection topics (see appendices); these cover the key issues that inspectors should consider when carrying-out inspections against each core intervention issue. In some instances, not all of the success criteria will apply so inspectors should make a judgement regarding which of these are relevant in each case. If the relevant success criteria cannot be met, inspectors should assess how serious the consequences of failure to comply could be. This will inform their decision making in terms of the performance ratings that they assign and the enforcement action they take (if any) based on the findings of the inspection.

When carrying out inspections covered by this guidance inspectors should:
- check the key issues against their success criteria in Appendices 1 to 9;
- use the generic performance descriptors in Appendix 10 to:
  - determine the appropriate performance rating; and
  - the initial enforcement expectation to use alongside the EMM.
• consider how and when the issues raised during an inspection are to be closed out and recorded using the COIN issues tab;
• assess the extent to which senior management leadership influences front-line safety
• Where occupational health, safety and welfare concerns are encountered during an inspection, deal with such issues as a matter of routine and apply existing standards to determine what action to take in each case according to HSE’s EPS and EMM.

Inspectors should use the HID SI generic performance descriptors to determine the appropriate performance rating for each of the four core intervention issues covered by this OG. The appendices also give guidance on the initial enforcement expectation and should be used alongside the Enforcement Management Model (EMM). The local factors that apply in each case will ultimately determine the whether there should be any enforcement action. Consideration also needs to be given as to how and when the issues raised during an inspection should be closed out. Inspectors must adhere to the relevant operational guidance (e.g. on use of the COIN issues tab).

**Background**

**Relevant Legislation**

• The Prevention of Fire, Explosion and Emergency Response Regulations 1995 (PFEER) specify the goals for the preventative and protective measures to manage fire and explosion and to secure emergency response and recognise that the responsibility to put into place measures necessary to achieve these goals is best placed with one person – the duty holder.

  ▪ **Regulation 4** places a general duty on a duty holder to take appropriate measures with a view to protecting persons on the installation from fire and explosion; securing effective emergency response.
  ▪ **Regulation 5** requires an assessment to be undertaken to identify major accident hazards and the measures necessary to protect people and provide means of evacuation, escape and rescue
  ▪ **Regulation 6** requires the duty holder to anticipate emergencies and be prepared for those emergencies.
  ▪ **Regulation 8** requires the duty holder to formulate a plan which documents the organisation and arrangements for dealing with an emergency on the installation.
  ▪ **Regulation 11** requires the duty holder to make arrangements for giving warning in the event of an emergency.
  ▪ **Regulation 12** requires the duty holder to take appropriate measures to be able to limit the impact of an emergency
  ▪ **Regulation 14** requires the duty holder to make provision of safe areas for people on the installation to be able to muster in the event of an emergency
  ▪ **Regulation 15** requires the duty holder to have in place arrangements to make a safe evacuation of the installation.
- **Regulation 16** requires the provision of means of escape should the evacuation system fail.
- **Regulation 17** requires the duty holder to ensure that effective means for the recovery and rescue of people on or near the installation are in place, that these measures give a good prospect of recovery and that they take the people to a place of safety.
- **Regulation 18** requires the duty holder to provide appropriate personal protective equipment for use in the event of an emergency.
- **Regulation 20** requires that sufficient life saving appliances such as survival craft, life rafts, life buoys, life jackets etc are made available for immediate use in sufficient numbers for the number of persons on board the installation.

All the above stem from the recommendations made by Lord Cullen in the report following the public inquiry into the Piper Alpha Disaster which gave 57 recommendations for the HSE to oversee.

**Organisation**

**Targeting**
Inspections should be planned within the timescales set out by ED divisional management.

Although the inspection may be carried out at any installation it is particularly important to carry this out where there are known issues that may affect EER issues such as aging equipment, major work over projects etc. It is essential to ensure that duty holders are robust in their assessment of the implications of these factors and that suitable mitigations are in place and that cumulative risk factors have been considered.

**Timing**
Inspectors should undertake EER inspections as part of the agreed ED offshore intervention plan, when intelligence indicates intervention is necessary or when investigation due to incident is required.

**Resources**
Resource for the undertaking of EER interventions will come from discipline specialist inspectors and Inspection Management Team inspectors as appropriate.

**Recording & Reporting**
The duty holder performance ratings should be entered on the Inspection Rating Form (IRF) tab of the relevant installation Intervention Plan Service Order. Findings should be recorded in the normal post inspection report and letter.
Health & Safety

Diversity

Further References

PFEER Regulations & ACoP L65
SCR & ACoP L30
Oil & Gas UK ‘Guidelines on Management of Emergency Response’
Guidelines for offshore oil and gas installations that are not permanently attended - Energy Institute.
Step Change in Safety Guidance “Loading of Lifeboats during drills”.
RR599 HSE Research Report “Overview of TEMPSC performance standards”.
Offshore Information Sheet 6/2008 “Ensuring the wearing of immersion suits in helicopter evacuation or escape to sea”
Offshore information sheet 12/2008: Big persons in lifeboats
Offshore Information Sheet 10/2009 “Ladders for escape to sea”
Offshore Information Sheet 1/2014 “Training for Emergencies on Offshore Installations”

Contacts

ED Offshore: ED3.3 Specialist Inspectors
Appendices

Appendix 1 – PFEER Assessment, PFEER Reg 5
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Appendix 10 – Performance Assessment
Appendix 1: PFEER Assessment, PFEER Reg 5

PFEER Assessment PFEER Reg 5

i. Fundamental Requirement

The duty holder should have undertaken an assessment in accordance with PFEER Reg 5, a summary of which should be in the safety case (Schedules 2 & 3 SCR). Until an effective assessment has been undertaken the measures required to control, mitigate and provide effective muster, evacuation and escape cannot be assured.

ii. Success Criteria

The assessment is required to show that all credible and foreseeable events that could lead to the need for evacuation, escape or rescue, to avoid or minimise a major accident, have been identified and that the required measures for dealing with them are in place.

The output of the assessment should include; the determination of the type, number and location of escape and evacuation systems and appropriate PPE, satisfactory access and egress routes, appropriate location of muster areas.

Performance standards: Performance standards are required for those measures to protect persons from fire and explosion and to ensure effective evacuation, escape and rescue (PFEER Regulation 5). These Performance Standards should include measurable elements which demonstrate the suitable functionality, reliability, availability and survivability of the specific Safety Critical Element(s) to ensure effective evacuation, escape and rescue.

There should be evidence that the assessment is reviewed as often as necessary to accommodate changes during the life cycle of the installation.

Offshore inspection should be undertaken using the information from the PFEER Reg 5 assessment as a basis to work from.

iii. Key Regulations

PFEER Reg 5
SCR 05 Reg 12(1)(d)

iv. Supporting Standards/ACoP or Guidance

- Paragraph 45 of the PFEER ACoP provides a definition of a performance standard.
- Paragraphs 50 to 58 of the PFEER ACoP give guidance to undertaking the assessment.
- SCR Regulations & ACOP Schedules 2 & 3 detail particulars to be included in the Safety Case including a summary of the assessment made as required by PFEER Reg 5
Appendix 2: Preparation for Emergencies, PFEER Reg 6

Preparation for emergencies PFEER Reg 6

i. Fundamental Requirement

PFEER Reg 6 requires the duty holder to establish appropriate organisation and arrangements to deal with emergencies.

In addition to training and competence which is dealt with elsewhere, it includes requirements for sufficient numbers of personnel to be in attendance for helicopter movements, and for lists of all personnel with either emergency duties.

ii. Success Criteria

The duty holder is required to have appropriate organisation and arrangements in place in anticipation of an emergency. These arrangements require a command structure by competent people in sufficient numbers to be able to undertake emergency duties and operate relevant equipment. The duty holder also has to provide prepare adequate instruction and training to enable appropriate action to be taken.

Offshore inspection should include but not necessarily be limited to the following:

- Confirm that the duty holder has provided sufficient competent people to implement the emergency response plan and provide backup/stand in for the OIM.
- Review the structure of the emergency response teams and the training and competence records for the team members.
- Review records of drills and exercises and witness/monitor a suitable exercise where possible.

iii. Key Regulations

PFEER Reg. 6

iv. Supporting Standards/ACoP or Guidance

- Paragraph 63 of the PFEER ACoP defines competence as having sufficient training and experience or knowledge and other qualities.
- Paragraph 64 of the PFEER ACoP mentions that elements of instruction and training are also a vital part of general management systems, and that complying with other PFEER Regulations will require appropriate levels of instruction and training.
- Paragraph 66 of the PFEER ACoP refers to the training requirements that HSWA S2 and MHSWR Reg 11 places on employers, and goes on to explain the PFEER Reg 6 requirements placed on owner/operators.
- Paragraph 69 of the PFEER ACoP states that those who have command responsibilities, or who have allocated emergency duties, must be competent. Duty holders should have a system in place to assure themselves of the competence of the OIM and others in the command
Paragraph 71 of the PFEER ACoP states that appropriate information, instruction and training on what to do in the event of an emergency is required to be provided by the duty holder.

See Also:

- Offshore Information Sheet 1/2014 “Training for Emergencies on Offshore Installations”
- Piper Alpha Report
- OPITO Standards Library
- OPITO Standards for Emergency Response
- OPITO Standards for Competence
- Oil & Gas UK ‘Guidelines for the Management of Competence and Training in Emergency Response’
- TRIM document 2012/377651
Appendix 3: Emergency Response Plan, PFEER Reg 8

Emergency Response Plan PFEER Reg 8

i. Fundamental Requirement
PFEER Reg 8 requires the duty holder to prepare an emergency response plan, which documents the organisation and arrangements for dealing with an emergency on the installation. It requires duty holders to consult those who may become involved in emergency response.

ii. Success Criteria
The emergency response plan should have been developed, based on the findings of the PFEER Reg 5 assessment. This assessment should have identified all the major accident hazards, which have the potential to occur on the installation. The plan should demonstrate that sufficient trained resources and equipment are available both onshore and offshore and that external resources (Coastguard etc) have been involved. A system of drills and exercises should be in place to ensure that all aspects of the plan can be implemented effectively.

Offshore inspection should include but not necessarily be limited to the following:

Emergency Response Plan
Confirm that the emergency response plan is current and in place offshore. Have other stakeholders who are likely to have a role in the implementation of the plan been consulted, e.g. HM Coastguard, other operators etc.

- Drills and Exercises
Check to ensure that there is a program of drills and exercises in place, have they been carried out, do they reflect the findings from major accident hazard analysis.

- Are these drills and exercises part of the plan or made up locally, are they suitable and undertaken sufficiently frequently.

- Has the duty holder a formal system in place to implement corrective actions arising from findings from drills and exercises.

- What is the policy on PPE to be worn for evacuation/escape purposes, has the duty holder tried manning a lifeboat/liferaft with people wearing full PPE or confirmed the lifeboat/liferaft capacity with people wearing full PPE.

- Does the duty holder and OIM ensure that the policy on clothing required for transit purposes is implemented for all musters and drills.

Onshore Systems
- How does the duty holder satisfy themselves that the onshore support systems and organisations are effective e.g. do they participate in exercises and do these include external organisations.

iii. Key Regulations
- PFEER Reg. 6, 7 & 8
iv. Supporting Standards/ACoP or Guidance

- Paragraphs 60-62, 65, 67 of the PFEER ACoP stresses the importance of adequate preparation and planning for all the stages of emergencies, including the need for contingency arrangements, and consideration of the requirements for normally unattended installations. The requirements to consult with safety representatives, and for the provision of medics and first aiders are also noted.

- Paragraph 68 of the PFEER ACoP states the points to be taken into account when establishing a command structure, which include: one person being given responsibility for taking overall charge during an emergency, clear definition of roles and responsibilities for those in the command structure, and contingency arrangements to allow for the unavailability of those with emergency duties including the OIM.

- Paragraph 70 of the PFEER ACoP states that duty holders should identify tasks to be carried out during an emergency and ensure that personnel are not allocated conflicting tasks. Additionally, it discusses the likely location of personnel with emergency duties.

- Paragraphs 76-83 of the PFEER ACoP refer to the requirement for a plan, having organisational structures in place, the need for procedures to inform people as to their duties in particular emergencies (including medical and first aid provision) and also the need to consult with others who may also become involved such as HM Coastguard.

- Paragraph 85 of the PFEER ACoP states that the plan should be exercised and tested with sufficient frequency and depth and updated as required.

See Also:

- Piper Alpha Report.
- Oil & Gas UK ‘Guidelines on Management of Emergency Response’
- Guidelines for offshore oil and gas installations that are not permanently attended. Energy Institute.
- Offshore Division Major Incident Response Plan
- See also management of ship collision risks as per Marine Topic, and Rescue and Recovery arrangements as for PFEER Reg 17 Topic.
- TRIM document 2012/377659
Appendix 4: Alarms and Communications, PFEER Reg 11

Communication PFEER Reg 8

i. Fundamental Requirement

The duty holder should have a warning system in place that conforms with regulation 11 of PFEER and have satisfied themselves that all personnel on board would be aware of an incident through either audible and, where necessary, visual alarm systems.

The duty holder should also have sufficient, effective communications systems in place to implement the emergency response plan.

Communications

ii. Success Criteria

The duty holder is required to make appropriate arrangements for communications with persons engaged in activities on and in connection with the installation, and with persons not on the installation who have a role in the emergency plan. Arrangements are needed to alert those persons to an incident on the installation, and for those persons to communicate with personnel on the installation. This might include HM Coastguard, other installations, attendant vessels, shore-based personnel and rescue and recovery services. Where the incident is likely to lead to an evacuation, the Coastguard should be alerted and this should be provided for in the emergency response plan.

Offshore inspection should include but not necessarily be limited to the following:

- Has the installation sufficient systems for communicating both on the installation and with outside organisations to implement all aspects of the emergency response plan, are they used as part of drills and exercises, (reference safety case description of systems in place).
- Has the duty holder a system in place to ensure these communications are working effectively.
- The normal external communications systems are likely to be contained in the accommodation module and as such are unlikely to be damaged by major accident events. However, aerials etc may be located in places that could be effected and checks need to be undertaken to ensure they are in safe locations. The internal communication systems however, in particular the PA system, may suffer damage from major accident events. Reg 11.1(b) requires that the duty holder shall ensure, so far as is reasonably practicable, that the arrangements are capable of remaining effective in an emergency. This is typically achieved by use of PA systems with A and B networks supported by radios and telephone systems.
- Inspection should include ensuring that the PA (A and B) systems are working throughout the installation, including the cabins and noisy areas. (Also check to ensure ongoing works on the installation are not having an adverse effect on the system) If the installation does not have a back up PA system then the duty holder needs to demonstrate how effective communications can be maintained on loss of the PA.
iii. Key Regulations:
- PFEER Reg. 11
- PFEER Reg 19

iv. Supporting Standards/ACoP or Guidance
- Paragraphs 109-111 of the PFEER ACoP give guidance on the requirements for communication for the purpose of emergency response.

Alarms

ii. Success Criteria
Arrangements must be in place for emergency alarm sounds, signals and communications. It is important that people are fully informed, irrespective of where they are on the installation, that an incident is starting/ongoing to ensure that they can benefit from the emergency response systems and equipment in place on the installation.

Offshore inspection should include but not necessarily be limited to the following:
- How has the duty holder satisfied themselves that all members of the workforce will be aware of alarms, e.g. noise level checks, light systems in high noise areas etc.
- Has the duty holder ensured that the alarms comply with regulation 11 of PFEER.
- Physical checks should be undertaken in selected areas of the installation.

iii. Key Regulations
- PFEER Reg. 11. Appropriate arrangements shall be in place for giving warning of an emergency by audible and, where necessary, visual alarm systems to all persons on the installation. The arrangements should (AFARP) remain effective in an emergency. Details of the illuminated signs and type of acoustic signals required are defined in this regulation.
- PFEER Reg. 19. All plant on the installation provided in compliance with the PFEER Regulations must be fit for purpose and maintained in an efficient state, in efficient working order and in good repair.

iv. Supporting Standards/ACoP or Guidance
- Paragraphs 114, 115 of the PFEER ACoP indicate the requirements for acoustic and visual alarms and their meanings.
- Paragraphs 195 to 200 of the PFEER ACoP refer to the requirement for equipment to be suitable, be examined and have defects identified to allow for remedial measures to be able to be taken.
- TRIM Document 2012/377034
Appendix 5: Control of Emergencies, PFEER Reg 12

Control of Emergencies PFEER Reg 12

i. Fundamental Requirement

The duty holder should have in place appropriate control measures to limit the extent of an emergency. Remote operation of plant and providing systems that are capable of functioning effectively during an emergency where practicable is also a requirement.

ii. Success Criteria

The duty holder should have sufficient, effective communications systems in place to implement the emergency response plan.

Offshore inspection should include but not necessarily be limited to the following:

Emergency Response Room and Control Systems

- The TR should have sufficient systems in place to monitor, control and implement the emergency response plan.
- These systems should conform to the description in the safety case.
- The duty holder should be able to demonstrate that they are working effectively.

TR Definition

- Duty holder to confirm the boundary of the TR, explain all the means of access and summarise the systems and equipment in place to maintain/indicate survivable conditions in the TR.

Integrity (NB This is subject to a specific Operational Guide)

- Duty holder to explain the procedures in place to maintain the TR integrity against smoke and gas ingress during an incident and explain how they ensure they are working. E.g. only air lock doors used during an incident, people allocated to put window shutters in place (where shutters are required to achieve A60 or explosion rating, shutters not really recommended as may be too late from a blast over pressure requirement, glass may have sufficient pressure rating but documented proof should be available) and check dampers have closed.

Atmospheric monitoring system

- What atmospheric conditions has the duty holder defined as impairing the effectiveness of the TR when a demand is placed upon it (e.g. temperature, CO, O₂ H₂S hydrocarbons)
- What systems are in place to measure the levels identified above, are alarm levels identified, are the systems in working order.
- Are these systems in locations suitable for an emergency (e.g. readouts available to OIM/emergency response team)

Command

- Confirm that duty holder has provided sufficient competent people to implement the emergency response plan and provide backup/stand in for the OIM
iii. Key Regulations

- PFEER Reg 12.

iv. Supporting Standards/ACoP or Guidance

- Paragraphs 117-119 of the PFEER ACoP describe the scope of this regulation, including fire and explosion matters for example, which are not included in this guidance document. They also identify the need for measures in place to be able to remain operational in an emergency.

- Paragraph 126 of the PFEER ACoP refers to the need to have control points, which can be used to control the emergency and the consideration needed for the events for which control points may be required.

- Offshore Information Sheet 1/2014 “Training for Emergencies on Offshore Installations”
Appendix 6: Muster areas, Access/Egress Routes, PFEER Reg 14

Muster areas etc PFEER Reg 14

i. Fundamental Requirement

The duty holder is required to make appropriate provision for safe muster areas, evacuation and escape points, with safe egress from accommodation and work areas and provide safe access to muster areas, TR and evacuation/escape points.

ii. Success Criteria

The duty holder should have appropriate provisions in place for muster, access, egress, temporary refuge and points for evacuation and escape.

Offshore inspection should include but not necessarily be limited to the following:

Muster Area

- The muster area(s) must be a place where it is safe to assemble whilst the emergency is assessed and control action is taken. It should have sufficient routes available to enable safe means of access and egress in an emergency.
- All personnel must be assigned to a muster area and know where it is.
- There shall be an up to date list of names for those personnel assigned to the muster area.
- There should be procedures for mustering in the assigned areas and for, when necessary, making immediate evacuation with means of accounting for the persons assigned to the particular muster area.
- The assigned muster areas should be of a suitable size to accommodate the assigned number of personnel, taking into account there may need to be sufficient space to be able to don PPE.
- The muster areas should be either inside the TR or, if outside the TR, provide protection against the incident for the required endurance period and provide access to appropriate PPE.
- The duty holder is required to ensure that the muster area(s) is kept clear of obstruction, has sufficient emergency lighting and suitable signage.

Temporary Refuge

- The duty holder should be able to demonstrate that there is an effective TR available on the installation that will protect the workforce from the effects of fire and gas for a defined endurance period.
- The TR should be equipped with sufficient equipment to allow the OIM and the emergency response team to monitor and control the incident and implement the emergency response plan.
- The TR should have sufficient routes available to enable safe means of access and egress in an emergency.

TR Definition
• Duty holder to confirm the boundary of the TR, explain all the means of access and summarise the systems and equipment in place to maintain/indicate survivable conditions in the TR.

**TR Integrity (This is primarily undertaken by the Fire & Explosion team ED3.2 see separate Operational Guide)**

• Duty holder to explain the procedures in place to maintain the TR integrity against smoke and gas ingress during an incident and explain how they ensure they are working and meet necessary Performance Standards.

**Alternative Muster Areas/Temporary Refuge**

• Duty holder needs to have considered whether alternative muster area/temporary refuge is required under certain emergencies, where alternative muster area/temporary refuge has been provided these need to satisfy the requirements of the ‘normal’ muster area/temporary refuge and procedures/guidance should be provided to determine when the alternative provisions should be utilised.

**Access/Egress Routes**

• The routes to the Muster Area/TR from all normally manned areas should be as shown in the safety case. All enclosed areas, which are normally manned, should have at least two means of egress. All access routes should be clearly marked and the signs should be readable in low light and smoke conditions e.g. located high and low with an appropriate finish. All signs should be legible, understandable and informative. Adequate emergency lighting should be provided should the normal lighting fail.

• The routes from the TR to the evacuation systems should be as shown in the safety case.

• All access routes should be provided with sufficient protection from thermal radiation, smoke etc to ensure they are available for the required endurance period.

• The installation should have a Station Bill, which is correct.

• The duty holder should ensure that routes from vulnerable areas such as cranes which may have long ladders, be facing the hazard etc have diverse systems available e.g. Personal descent devices.

• In the event of an incident accommodation areas are required to have at least one exit leading to a safe access or egress route

• The duty holder should demonstrate that there are escape to sea routes in place and that they are maintained and available.

• All the escape routes should be fitted with emergency lighting and suitable signage.

**Emergency Lighting**

• Duty holder to explain emergency lighting strategy (e.g. 25% of lights battery back up, minimum lux levels etc) Pick an area e.g. muster area, check that all emergency lights actually work under normal power, turn off power to main lights, check %age of emergency lights working. Check maintenance records.

  a) Light levels should be adequate
b) If more than 20% of emergency lights fail to work specialist support is required,
c) In lifeboat area, if lights are normally on, turn off lights, check emergency lights come on, leave on for the claimed endurance time.

Note:
Any test on the emergency lights should not in themselves restrict use of the system in an emergency, e.g. emergency lighting battery test should only be carried out with sufficient daylight left to recharge the batteries.

Cabin Lighting
- The duty holder should show that there are systems in place to ensure people in cabins have sufficient light to get dressed by in the event of loss of main power.

iii. Key Regulations
- PFEER Reg 14. Further requirements deal with the adequacy of emergency lighting and signage and the need to ensure that the egress and access remain passable in an emergency.

iv. Supporting Standards/ACoP or Guidance
- Paragraphs 139-144 of the PFEER ACoP discuss the need to make provision for personnel to assemble safely while the emergency is assessed and action taken, including safe access to means of evacuation or escape if necessary. The accounting procedures should deal with normal musters and also where immediate evacuation is required. The adequacy of signage for access/egress routes, together with muster areas and evacuation/escape points is considered, as is the need for emergency lighting when normal lighting fails. The guidance goes on to discuss the relationship between this regulation and the SCR schedules 1-3.
- Paragraph 145 of the PFEER ACoP states that the muster areas, and the access and egress routes should remain functional for the time necessary to safeguard personnel. It states that protecting routes should be given priority over provision of PPE. It considers the need to clearly identify and protect muster areas, and the provision of communications facilities.
- Paragraph 146 of the PFEER ACoP considers emergency lighting and other visual aids.
- Para 147 of the PFEER ACoP states that personnel should be given information about the location and arrangements for mustering, including alternatives, immediately upon their arrival on the installation. Also Para 71 of the ACoP is relevant.
- SCR05 Schedules 2, 3
Appendix 7: Evacuation, PFEER Reg 15

Evacuation

i. Fundamental Requirement

There is a requirement of the duty holder to provide means of evacuation from its installation in an emergency. There should be a ‘preferred’ means (normally helicopter) and an alternate means (normally TEMPSC/lifeboat). Further means of evacuation are bridge-link or marine access. These are referenced in PFEER. Evacuation is from installation to designated ‘place of safety’ (PoS). There is a general duty on other ‘suitable persons beyond the installation’ to cooperate in the evacuation effort.

ii. Success Criteria

The duty holder should have appropriate provisions in place for evacuation in an emergency.

Offshore inspection should include but not necessarily be limited to the following:

Hierarchy

- The duty holder should have a clear hierarchy of evacuation systems in place and the strategy for using them. In cases where basket transfer is available this should be clearly identified for use in precautionary evacuations only and must be LOLER compliant.

Helicopters

- The duty holder should show that sufficient systems are available offshore for the control and use of helicopters in an emergency. (N.B. Duty holder should have arrangements in place to ensure correct PPE is available for personnel being evacuated)

Bridge links between jackets/installations

- Duty holder to show that the bridge is an effective means of evacuating people in the event of an incident e.g. there are no impediments to use it as an emergency escape route, a retractable bridge has warning systems which activate before it lifts.
- Ensure T card or similar personnel accounting systems do not restrict movements etc.
- Duty holder to demonstrate that the bridge has sufficient systems and equipment for use in an incident e.g. emergency lighting, active fire protection etc.

Lifeboats/TEMPSC

- The installation should be fitted with the number of lifeboats/TEMPSC as described in the safety case, which should have been established in the assessment required by PFEER Reg 5. This number should reflect contingencies such as unavailability through maintenance, the incident (fire, gas smoke) allowance for PPE worn by the crew, allowance for the size of the crew, potential additional space required for casualties e.g. stretcher cases.
- The lifeboats/TEMPSC should be subject to routine maintenance schedules, the maintenance work should be undertaken by suitably competent personnel, be up
- The duty holder should be able to show that the engines will start with both primary and secondary systems (secondary first).
- The duty holder should show that the lifeboats/TEMPSC are fitted with appropriate systems to make them effective, e.g. air bottles, radio, EPIRB etc and that these systems are subject to routine maintenance and it is up to date. If appropriate these systems can be demonstrated by the duty holder on a sample basis.
- The lifeboats should have sufficient protection from thermal radiation for the required endurance period as defined in the safety case. The protection may include PPE, e.g. smoke hoods, BA, survival suits or more typically water spray systems.
- The lifeboat stations, boarding areas and access routes should have emergency lighting in place (over the side spotlight to check the sea below before launch).

**Direct Evacuation to Sea only**
- Where this evacuation route is identified, e.g. NUI installations the duty holder should show the availability and suitability of the route, and that all systems and equipment necessary for its effective use are available, e.g. life jackets, survival suits etc.
- Arrangements should be such as to minimise the requirement to enter the sea e.g. ensuring arrangements are such that direct entry into a liferaft is feasible.

### iii. Key Regulations

PFEER – Reg 2, 5, 15, 19 & 20.

MAR Reg. 8

### iv. Supporting Standards/ACoP or Guidance

- PFEER Reg. 2 defines ‘evacuation’.
- PFEER Reg. 15, requires the duty holder to ensure arrangements are in place for evacuation to a place of safety. In the case of helicopter evacuation, the provision may be from ‘suitable persons beyond the installation’ i.e. Helicopter operator or MCA.
- PFEER Reg. 17 defines phrase ‘place of safety’.
- Paragraph 45 of the PFEER ACoP indicates the requirement for performance standards (for evacuation of persons to PoS).
- Paragraphs 83 and 84 of the PFEER ACoP outline the requirement for communication with other agencies on ER.
- Paragraphs 149-152 of the PFEER ACoP describe the attributes of evacuation arrangements.
- Paragraph 152 of the PFEER ACoP clarifies evacuation/escape distinction and outlines the four practical means of evacuation as: helicopters, direct sea transfer, bridge-links, and TEMPSC/lifeboat.
• Paragraphs 154 and 155 of the PFEER ACoP state the requirement to select low risk means of evacuation and to take into account any constraint on the means of evacuation e.g. metocean conditions. Also indicates the need to have sufficient capacity for the various means of evacuation identified.

• MAR Reg. 8 - Places a duty on all to cooperate with installation’s OIM and HLO.

• Oil & Gas UK ‘Guidelines on Management of Emergency Response’.

• Step Change in Safety Guidance “Loading of Lifeboats during drills”.

• Guidelines for offshore oil and gas installations that are not permanently attended. Energy Institute.

• Offshore Information Sheet 10/2007 “Testing of TEMPSC release gear”.

• Offshore information sheet 12/2008: Big persons in lifeboats.

• Offshore Information Sheet 1/2014 “Training for Emergencies on Offshore Installations”

• RR599 HSE Research Report “Overview of TEMPSC performance standards”.

• HSE view regarding provision of aviation lifejackets on installations.

• SOLAS.

• Piper Alpha Report.
Appendix 8: Means of Escape, PFEER Reg 16

Escape

i. Fundamental Requirement

There is a requirement for the duty holder to provide such means as will ensure, so far as is reasonably practicable, the safe escape of all persons from the installation in case arrangements for evacuation fail. This should have been identified in the PFEER Reg 5 assessment.

ii. Success Criteria

The duty holder should have appropriate provisions in place for escape should the means of evacuation fail in an emergency.

Offshore inspection should include but not necessarily be limited to the following:

- The installation should be fitted with the number of life rafts as described in the safety case. They should be certified with a system in place to ensure the number is not reduced during maintenance. (Ensure the correct capacity of life raft is fitted and that the painter length is correct for the location).
- The life rafts should be easy to launch, preferably by one person and be protected from thermal radiation. The painter should be secured to a sufficiently strong part of the installation.
- The duty holder should be able to explain the reasoning behind the number and location of the life rafts on the installation.
- The life raft stations should have emergency lighting in place and an over side floodlight to illuminate the sea below.
- The installation should be fitted with suitable controlled means of decent to the sea. Ideally the escape route should either be to a life raft or to a position on the installation where people can be rescued by FRCs (e.g. hanging on a descender or on a platform close to sea level fitted with a means of descending to sea level, possibly ladders) Actually entering the sea should be regarded as a last resort.
- The system(s) and numbers in place should be described in the safety case.
- The duty holder should be able to explain the reasoning behind the number and location of the controlled means of decent on the installation.
- The location of these means of descent should be suitable for use, e.g. access to life rafts etc.
- Systems such as Donuts, shutes etc are acceptable controlled means of descent. Knotted ropes and scramble nets which require strength and dexterity to use are not considered as a controlled means of descent. These should lead to the liferafts or other provisions to minimise likelihood of having to enter the water.
- The duty holder should ensure that appropriate training schemes are in place for the means of descent in use on the installation.
- The installation should be fitted with emergency lighting at all locations having controlled means of descent.

iii. Key Regulations

PFEER – Reg 16.

iv. Supporting Standards/ACoP or Guidance
• Paragraphs 50 – 58 of the PFEER ACoP give guidance for the PFEER Reg 5 assessment.

• Paragraphs 161 – 162 of the PFEER ACoP give guidance on the selection and provision of the means of escape provided.

• Paragraphs 195 – 196 of the PFEER ACoP give guidance on the suitability requirements.

• Oil & Gas UK ‘Guidelines on Management of Emergency Response’

• Guidelines for offshore oil and gas installations that are not permanently attended. Energy Institute.

• Offshore Information Sheet 10/2009 “Ladders for escape to sea”

• Offshore Information Sheet 1/2014 “Training for Emergencies on Offshore Installations”

• SOLAS requirements for means of escape.

• MODU Code requirements for means of escape.

• Piper Alpha Report.
Appendix 9: Emergency Personal Protective Equipment & Life Saving Appliances, PFEER Reg 18 & 20

Emergency PPE (LSA, lifejackets etc.)

i. Fundamental Requirement

The duty holder of an offshore installation is responsible, in relation to all persons on the installation, for the personal protective equipment for use in an emergency required by PPEWR, including the provision of this equipment. The responsibilities extend to the examination, testing, and maintenance, provision and design, training in use of PPE, and compatibility of PPE with rescue and recovery arrangements.

ii. Success Criteria

The duty holder should have appropriate provisions in place for Emergency PPE and LSA for use in an emergency.

Offshore inspection should include but not necessarily be limited to the following:

- The number and type of PPE available across the installation should be as described in the safety case (e.g. survival suits, life jackets, grab bags, BA etc)
- The duty holder should be able to explain the reasoning behind the number and location of PPE on the installation, this explanation should support the diverse means of evacuation and escape.
- The duty holder should have a clear strategy in place for ensuring that sufficient insulation is provided with survival suits so that survival time in the sea will exceed recovery times. Any minimum clothing requirements to meet insulation standards should be enforced during musters and drills.
- All PPE available should be compatible with evacuation and escape mechanisms and each other (i.e. suits and life jackets). Of particular concern are inherently buoyant life jackets which have jump height restrictions.
- The duty holder should have in place a system for ensuring all members of the crew have training/practice in putting on emergency survival suits.
- The duty holder should have systems in place to ensure all PPE is maintained effectively.

iii. Key Regulations

- PFEER Reg 5
- PFEER Regs 6, 7 & 8
- PFEER Reg 18
- PFEER Reg 20
- PPEWR
- MHSWR Reg 3

iv. Supporting Standards/ACoP or Guidance

- Paragraphs 176 – 180, of the PFEER ACoP explain the responsibilities and requirements surrounding the provision of PPE for use in an emergency.
• Paragraphs 181 – 182 of the PFEER ACoP state the requirements to provide PPE for use in an emergency
• SPC/Enforcement/81 HSE website. “Avoiding problems with auto-inflating lifejackets ”
• Offshore information sheet 7/2009 “Lifejackets for abandonment from an offshore installation.”
• Offshore Information Sheet No. 6/2008 “Ensuring the wearing of immersion suits in helicopter evacuation or escape to sea”.
• Offshore Information Sheet 1/2014 “Training for Emergencies on Offshore Installations”
• Oil & Gas UK ‘Guidelines on Management of Emergency Response’.
• Oil & Gas UK ‘Guidelines for the Management of Competence and Training in Emergency Response.
• Guidelines for offshore oil and gas installations that are not permanently attended. Energy Institute.
• SOLAS requirements for survival PPE.
• MODU Code requirements for survival PPE.
• ISO standards for lifejackets and immersion suits.
• OPITO BOSIET and FOET training standards.
• Piper Alpha Report.
Appendix 10: Performance Monitoring

When inspecting the EER topic each of the sub topic areas (Appendices 1-9) which have been inspected against need to be considered for the level of compliance to the success criteria identified for the relevant sub topic against the regulatory requirements and the accepted standards identified in the relevant guidance documents identified for the relevant sub topic.

- The following descriptors may be used to assist in determining the appropriate score for the dutyholder.

- **Unacceptable**- There is little or no evidence that the required success criteria for any of the sub topics inspected are being met and that there is evidence that the arrangements in place would fail to satisfy the required intent for providing effective evacuation, escape and rescue provisions in the event of a foreseeable major accident event.

- **Very Poor**- There is some evidence that the required success criteria for some of the sub topics inspected are being partly met and that there is evidence that it is highly likely that the required intent for providing effective evacuation escape and rescue provision in the event of a foreseeable major accident event will fail.

- **Poor**- There is some evidence that the required success criteria for some of the sub topics inspected are being met and that there is evidence that it is likely that the required intent for providing effective evacuation escape and rescue provision in the event of a foreseeable major accident event will fail in some areas.

- **Broadly Compliant**- There is evidence that the required success criteria for all the sub topics inspected are just being met and that there is evidence that the required intent for providing effective evacuation escape and rescue provision in the event of a foreseeable major accident event may be achievable.

- **Fully Compliant**- There is evidence that the required success criteria for all the sub topics inspected are being met in full and that there is evidence that the required intent for providing effective evacuation escape and rescue provision in the event of a foreseeable major accident event will be achievable.

- **Exemplary**- There is clear evidence that the required success criteria for all the sub topics inspected are being met in full or exceeded and that it is clearly evident that the required intent for providing effective evacuation escape and rescue provision in the event of a foreseeable major accident event will be readily achieved.
An overview or holistic approach should be taken in forming an opinion as to the effectiveness of the EER arrangements on the installation, also onshore arrangements need to be considered where appropriate. Further guidance on the performance scoring is provided in the table below:

<table>
<thead>
<tr>
<th>EMM RISK GAP</th>
<th>EXTREME</th>
<th>SUBSTANTIAL</th>
<th>MODERATE</th>
<th>NOMINAL</th>
<th>NONE</th>
<th>NONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPIC PERFORMANCE SCORE</td>
<td>60</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unacceptable</th>
<th>Very Poor</th>
<th>Poor</th>
<th>Broadly Compliant</th>
<th>Fully Compliant</th>
<th>Exemplary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unacceptably far below relevant minimum legal requirements.</td>
<td>Substantially below the relevant minimum legal requirements.</td>
<td>Significantly below the relevant minimum legal requirements.</td>
<td>Meets most of the relevant minimum legal requirements.</td>
<td>Meets the relevant minimum legal requirements.</td>
<td>Exceeds the relevant minimal legal requirements.</td>
</tr>
<tr>
<td>Most success criteria are not met.</td>
<td>Several success criteria are not fully met.</td>
<td>Degree of non-compliance significant.</td>
<td>Most success criteria are fully met.</td>
<td>All success criteria are fully met.</td>
<td>All success criteria are fully met.</td>
</tr>
<tr>
<td>Degree of non-compliance extreme and widespread.</td>
<td>Many success criteria are not fully met.</td>
<td>Limited recognition of the essential relevant components of effective health and safety management, but demonstrate commitment to take remedial action.</td>
<td>Degree of non-compliance minor and easily remedied.</td>
<td>Management competent and able to demonstrate adequate identification of the principal risks, implementation of the necessary control measures, confirmation that these are used effectively; and subject to review.</td>
<td>Management competent, enthusiastic, and proactive in devising and implementing effective safety management system to ‘good practice’ or above standard. Actively seek to further improve standards.</td>
</tr>
<tr>
<td>Failure to recognise issues, their significance, and to demonstrate adequate commitment to take remedial action.</td>
<td>Failure to recognise issues, their significance, and to demonstrate adequate commitment to take remedial action.</td>
<td>Management recognise essential relevant components of effective health and safety management, and commit to improve standards.</td>
<td>Management recognise essential relevant components of effective health and safety management, and commit to improve standards.</td>
<td>Management competent, enthusiastic, and proactive in devising and implementing effective safety management system to ‘good practice’ or above standard. Actively seek to further improve standards.</td>
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</tbody>
</table>

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