The Offshore Emergency Response Inspection Guide

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(Inspection guides should be reviewed every three years – it may be necessary to review sooner in the event of legislative changes)

Review History

Date	Changes
October 2023	Reformatting and periodic content review – some operational standard and guidance updates
June 2020	10 June 2020 Reformatting and revision of content, particularly regarding emergency command and control. Addition of Appendix on “Arrangements for Recovery and Rescue”
October 2014	First Publication as Inspection of Evacuation Escape and Rescue (EER)

Target Audience

OMAR Inspectors / ED Offshore Inspectors / ED Specialist Inspectors

Contents

- Summary
- Introduction
- Relevant Legislation
- Action
- Background
- Other relevant Inspection Guides
- Specialist Advice
    - Organisation Targeting
    - Resources
    - Recording & Reporting
- Appendices
    - Appendix 1: PFEER Regulation 5 assessment
    - Appendix 2: Preparation and arrangements for command and control
    - Appendix 3: Emergency response plan
    - Appendix 4: Alarms and communication
    - Appendix 5: Control of emergencies
    - Appendix 6: Access / egress routes and mustering
    - Appendix 7: Evacuation
    - Appendix 8: Means of escape
    - Appendix 9: Arrangements for recovery and rescue
    - Appendix 10: Emergency PPE and life-saving appliances
    - Appendix 11: Example Pre-visit Information request
    - Appendix 12: Example Emergency Response Offshore Agenda
    - Appendix 13: Glossary of terms, abbreviations and definitions
    - Appendix 14: Application of the Enforcement Management Model (EMM) and dutyholder performance assessment

Summary

This IG outlines an approach to the inspection of dutyholder's arrangements with respect to the **Offshore Emergency Response** topic and the key areas that inspectors should consider when inspecting this topic. It also sets out the criteria for satisfactory and unsatisfactory performance factors against which dutyholder performance will be rated. Reference are made to technical standards and guidance that inspectors will use to form and opinion of legal compliance.

For convenience of analysis and action, it is normal to consider the management of ER under two headings. First, there are the overarching command and control capabilities of those charged with the management of emergencies; and second, there are issues of team and personal competence, ER equipment and external support arrangements that each form vital parts of the system.

This inspection guide (IG) outlines an approach to inspection of dutyholder arrangements for emergency response, and the key areas that inspectors should consider when inspecting this topic offshore.

Introduction

The aim of this IG is to provide information and guidance to OMAR inspectors to support the delivery of consistent and effective safety and environmental critical element (SECE) management and assurance. It does this by highlighting key areas to be covered during inspections, and by 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 Enforcement Policy Statement (EPS) and Enforcement Management Model (EMM). References are made to technical standards and guidance that inspectors will use to form opinion for legal compliance.

Relevant Legislation

- *Offshore Installations (Prevention of Fire, Explosion and Emergency Response) Regulations 1995 (PFEER)*
- *Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 (SCR2015)*

Action

Inspectors should review relevant documentation (see Annex 13 Pre-visit Information Request) prior to the installation visit and test compliance during the installation visit against the “Success Criteria“ given in relevant Appendices)

Inspection of this topic should include not only the ten core areas themselves, but also an overview of the onshore and offshore emergency response plans to ensure a consistent and complete evaluation of the control measures in place.

In accordance with SCR2015 there should be in place suitable performance standards (PS), verification schemes and, where necessary, written schemes of examination (WSE) for the systems and equipment that fall within the scope of the ER topic.

Success criteria for each core inspection area are contained in the Appendices. In some instances, certain success criteria will not be applicable, and inspectors should make a judgement regarding which are relevant in each case. If success criteria are not met, inspectors should assess how serious the consequences of failure to comply could be. This will inform decision making in terms of the performance ratings that they assign, and the enforcement action they take.

When carrying out inspections covered by this guidance OMAR inspectors should

- Check the key issues against their success criteria in Appendices 1 to 10
- Use the generic performance descriptors in Appendix 11 to determine the appropriate performance rating and the initial enforcement expectation to use alongside the EMM if appropriate
- Consider how and when the issues raised during an inspection are to be closed out and recorded.

Where ER-related concerns are encountered during an inspection, such issues should be dealt with by applying existing legal requirements/other relevant standards to determine what action to take in each case according to HSE's EPS and EMM.

Background

Offshore ER systems should be designed to mitigate the immediate aftermath of a lowfrequency event that has either escalated, or has the potential to escalate, into a major accident. ER systems

also have relevance to other high-consequence events that might affect only one or a small number of persons, for example, a person-overboard situation.

Lord Cullen's report of the findings of the Public Inquiry into the Piper Alpha disaster raised a total of 106 recommendations - 41 of these relating directly to the ER topic area. The key Cullen recommendations were subsequently implemented in offshore-specific legislation.

Among this legislation, the Offshore Installations (Prevention of Fire, Explosion and Emergency Response) Regulations 1995 (PFEER) specify the goals for preventative and protective measures to manage fire and explosion, and for securing emergency response. They place the responsibility to put measures in place to achieve these goals on one person – the dutyholder.

- Regulation 4 places a general duty on a dutyholder to take appropriate measures with a view to protecting persons on the installation from fire and explosion; and to securing effective emergency response.

- Regulation 5 requires an assessment to be undertaken to identify major accident hazards, to evaluate related risks and to identify measures necessary to protect people and provide means of evacuation, escape and rescue.

- Regulation 6 requires the dutyholder to anticipate and be prepared for emergencies. ER preparations should include arrangements for
    - development and assessment of an effective emergency command structure (ECS)
    - provision of sufficient competent personnel to fulfil critical ER roles, and
    - provision of adequate training and instruction to all personnel in appropriate actions to take in an emergency

- Regulation 8 requires the dutyholder to formulate a plan which documents the organisation and arrangements for dealing with an emergency on the installation.

- Regulation 11 requires the dutyholder to make arrangements for giving warning in the event of an emergency.

- Regulation 12 requires the dutyholder to take appropriate measures to be able to limit the impact of an emergency.

- Regulation 14 requires the dutyholder 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 dutyholder 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 or parts of it fail.

- Regulation 17 requires the dutyholder to ensure that effective means for the recovery and rescue of people on or near the installation are in place, that these measures offer a good prospect of recovery, and that ensure persons recovered / rescued are taken to a place of safety.

- Regulation 18 requires the dutyholder to provide appropriate personal protective equipment (PPE) and lifesaving appliances (LSA) 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 legislation is available to download from https://www.legislation.gov.uk. A list of applicable HSE publications, e.g., Approved Codes of Practice (ACoP), is also provided with these documents available from https://www.hse.gov.uk.

An emergency response system can be considered to comprise two parts.

1. Emergency command and control, and
2. Emergency response systems including procedures, plant, and emergency response equipment.

ER procedures and provisions must reflect the ability of an installation to withstand an emergency, the risks from which are required to be demonstrated as reduced to ALARP under the safety case

assessment and acceptance procedures. ER arrangements must reflect the performance standards of the accepted safety case for mustering, for the endurance times of egress routes and temporary refuges, and for the for evacuation, escape and recovery / rescue of personnel.

Other relevant Inspection Guides

There is significant overlap of the issues addressed in this IG with the those relating to controlling risk arising from offshore marine and aviation operations. The content of this guide should be considered alongside that included in OMAR **Offshore Marine Operations** and **Offshore Aviation Operations** IGs.

Specialist Advice

Specialist advice should be sought from ED Emergency Response, Marine and Aviation Operations (ERMA) discipline in the following when considering enforcement / debate over relevant standards.

Organisation

Targeting

Inspections should be planned within the timescales set out by Energy Division (ED) divisional management. Although inspections may be carried out at any installation it is particularly important to carry this out where there are known issues that may affect emergency response such as

- Combined operations
- Major work-over and construction projects
- Sharing of recovery and rescue arrangements between installations, and
- Changes in staffing arrangements and operating parameters such as during decommissioning and dismantling.

It is essential to ensure that dutyholders are robust in their assessment of the implications of these factors, that suitable mitigations are in place and that cumulative risk factors have been considered.

Timing

ERMA Topic Inspectors should undertake ER 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

ED Emergency Response, Marine and Aviation Operations (ERMA) discipline has overall ownership of this IG and takes the topic lead on inspecting ER. Resource for the undertaking of ER interventions will come from discipline specialist inspectors supported by OMAR inspection management team (IMT) regulatory inspectors as appropriate.

Recording & Reporting

The dutyholder performance ratings should be entered on the Inspection Rating (IRF) Tab of the relevant installation Intervention Plan Service Order. Findings should be recorded in the post inspection report and letter.

Further References

1. Offshore Installations (Prevention of Fire and Explosion, and Emergency Response Regulations 1995 & ACOP L65

2. Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 & Guidance L154
3. HSE Offshore Technology Report OTO 2002/021 Compatibility test protocol for lifejackets and immersion suits on offshore installation HSE Books 2002
4. HSE Offshore Technology Report OTO 2001/091 Inspecting and auditing the management of emergency response HSE Books 2001
5. HSE Research Report RR599 Overview of TEMPSC performance standards
6. HSE Offshore Information Sheet 10/2007 Testing of TEMPSC release gear
7. HSE Safety Notice 01/2006 Ensuring adequate safety during davit lifeboat drills testing and maintenance Revised 2017
8. HSE Offshore Information Sheet 6/2008 Ensuring the wearing of immersion suits in helicopter evacuation or escape to sea
9. HSE Offshore information sheet 12/2008 Big persons in lifeboats
10. HSE Offshore Information Sheet 1/2014 Training for Emergencies on Offshore Installations
11. Oil & Gas UK Guidelines for the Management of Emergency Response Issue 3, 2010
12. Oil & Gas UK Guidelines for the Management of Competence and Training in Emergency Response for Offshore Installations Issue 3, February 2010
13. Oil & Gas UK Emergency Response & Rescue Vessel Survey Guidelines Issue 7, May 2018
14. Oil & Gas UK Emergency Response & Rescue Vessel Management Guidelines Issue 6, May 2018
15. Oil & Gas UK Technical Note on Operations Assessment during Emergency Response and Rescue Vessel Unavailability HSTN005, January 2019
16. OEUK Guideline on Assurance of Evacuation Times by TEMPSC from Offshore Installations
17. Emergency Preparedness Offshore Liaison Group (EPOL) Integrated Offshore Emergency Response Version 4, August 2021
18. Energy Institute Guidelines for offshore oil and gas installations that are not permanently attended 2nd edition, November 2018
19. UK Search and rescue framework (UKSAR)
20. Step Change in Safety Totally enclosed motor propelled survival craft (TEMPSC) familiarisation guidance

Appendix 1

PFEER REGULATION 5 ASSESSMENT

1. Fundamental Requirement

The dutyholder should have undertaken an assessment or assessments in accordance with PFEER Reg. 5; a summary of which should be in the installation's safety case (Schedules 6 & 7, SCR2015). Until an effective assessment has been undertaken, the measures required to control and mitigate emergencies, and to provide effective muster, evacuation and escape, cannot be assured. This assessment should be re-visited and updated when a thorough review of the safety case has been undertaken.

2. Success Criteria

The assessment record might be a single document, or, more likely, a series of related studies and analyses that together form the PFEER Reg. 5 assessment. It should demonstrate that all credible foreseeable major incident events, and their potential consequences, that could lead to the need for emergency response have been identified; and that measures necessary to controlling / mitigating those events are identified.

Onshore inspection might include the request for and review of documentary evidence of the PFEER Reg. 5 assessment itself, or of the section of the installation safety case addressing the assessment's summary findings and updates.

Offshore inspection should be planned and undertaken using the information from the assessment.

- The output of the assessment should include the determination of
  - satisfactory emergency access and egress routes,
  - the appropriate location of a temporary refuge and muster areas for all personnel, and
  - the type, number, capacity and location of evacuation and escape systems, appropriate PPE, and the arrangements for recovery and rescue.

- Performance standards: PSs are required for those measures to protect persons from fire and explosion and to ensure effective evacuation, escape, recovery and recovery / rescue [PFEER Regulation 5(2)(c)]. These PSs should include measurable elements which demonstrate the suitable functionality, reliability, availability and survivability of the

specific SECEs to ensure effective emergency response, evacuation, escape and recovery / rescue.

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

3. Key Regulations

HSWA Sections 2 and 3 – Require (as a minimum) that risks be eliminated SFAIRP (equivalent of ALARP)

PFEER Reg. 5

SCR2015 Reg. 16(1)(d) and (e) - L154 Para 211

4. Supporting Standards, ACoP or Guidance

Paragraph 57 of the PFEER Guidance L65 provides a definition of a performance standard.

Paragraphs 62 to 71 of the PFEER ACoP give guidance to undertaking the assessment.

SCR2015 Regulations & Guidance L154 - Schedules 6 & 7 (and Schedule 8 for dismantling safety cases) specify particulars to be included in the safety case, including a summary of the assessment made as required by PFEER Reg. 5.

SCR2015 Guidance L154 Paragraphs 210-217 provides an indication as to the required depth of assessment and control.

Oil & Gas UK Guidelines for the Management of Emergency Response for Offshore Installations Issue 3, 2010

Appendix 2

PREPARATION AND ARRANGEMENTS FOR EMERGENCY COMMAND AND CONTROL

1. Fundamental Requirement

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

In the report of the Public Inquiry into the Piper Alpha Disaster Lord Cullen was critical of the offshore installation manager (OIM) for not exercising effective command as the disaster developed. However, the Inquiry recognised the OIM had been given insufficient training in emergency command and that the installation emergency command and control systems had never been subject to realistic testing or assessment. There are many other historic offshore major incidents that provide examples of poor decision making by offshore management, under pressure during a developing major incident. Preparation of effective emergency arrangements, and the provision of effective training for offshore managers, might have resulted in greatly improved outcomes.

The dutyholder should provide an emergency command structure (ECS), with enough competent people to implement an emergency response plan (ERP) and to continue to do so, so far as is reasonably practicable, throughout an emergency. There should be arrangements for communication and coordination with the UK SAR framework.

The dutyholder must also prepare and provide adequate instruction and training to ensure all persons are sufficiently trained in appropriate action to be taken in the event of an emergency. In addition to training and competence, sufficient numbers of personnel should be in attendance for helicopter movements and lists of personnel with specific emergency duties published.

2. Success Criteria

The dutyholder is required to have appropriate organisation and arrangements in place in anticipation of an emergency. These arrangements require an ECS staffed by competent people in sufficient numbers to be able to undertake emergency duties and operate relevant equipment.

Onshore inspection might include the request for, and review of, ER training and competency records.

This might include evidence of the OIM and deputy OIM OPITO approved *or equivalent* training and assessment in major emergency management (with periodic revalidation as deemed necessary). There should be a well understood onshore emergency support structure which should be well integrated with offshore ERP.

- does the dutyholder have a selection policy for onshore and offshore critical personnel who will have ECS duties that includes an assessment of leadership and installation familiarity as well as technical, engineering, and day-to-day operational management?
- has OIM / deputy successfully attended OPITO-approved major emergency management (or equivalent emergency command) training and assessment courses?
- Has OIM / deputy completed 3-yearly emergency command refresher training?

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

Competency: Instruction / training provision to all on the installation, including offshore safety induction

- review the content and delivery of the offshore safety induction for new arrivals on the installation and for periodic refresher training of core crew. This should include as a minimum.
  - alarms and action upon them
  - muster and alternative muster arrangements
  - safety tour of accommodation and external areas; to include location of escape routes, primary and alternative muster points, evacuation and escape facilities, and LSA.
- review arrangements (if not provided as part of the induction itself) to ensure each person is familiar with all equipment they may be expected to deploy or use in an emergency.
  - TEMPSC – PPE/LSA requirements; safe entry and seating, and any activity expected of personnel to support safe evacuation by TEMPSC. Familiarisation with TEMPSC evacuation equipment and craft are crucial elements to familiarisation that can, under normal circumstances, only be provided by entry into boats.
  - provision of sufficient practical training in regard to the following, where appropriate (delivered either onshore or offshore), as is deemed to be *reasonably practicable*.
    - escape chutes – selection of compatible PPE / LSA, system deployment & use
    - davit-launched / throw-over Life rafts – deployment and access
    - personal descent devices (e.g. DONUT, S-Cape)
  - immersion suits and life jackets – sizing, donning, compatibility

- check station bill, safety plot plans, signs and written emergency instructions are available, clear and legible.

Emergency Command Structure (ECS)

- confirm that the dutyholder has provided sufficient competent people to implement the emergency response plan and provide backup/stand in for the OIM
- review the structure of the medical and emergency response teams and the training and competence records for the team members, and all those with identified specialist ER roles.
- review muster arrangements and availability of first aid, ER and communications equipment
- witness/monitor a suitable emergency exercise where possible. Dutyholders should be able to demonstrate robust systems for planning, conduct, monitoring and review of an exercise, and demonstrate recording/closeout of lessons learned. Inspection might include oversight of ECR command and control exhibited by OIM and their team during the exercise; including:
  - information gathering / filtering
  - recognition and evaluation of emerging risk
  - understanding of installation ER equipment and controls
  - competence and training
  - decision making
  - incident escalation
  - development, communication and review of plan
  - dealing with stress / information overload
  - issue of clear instructions
  - teamwork and resource management
  - loss of key personnel
  - delegation of tasks

Note – The scenario chosen, and the timing and duration for the exercise / drill to be witnessed, should generally be selected by the dutyholder allowing for the operational status of the installation. Inspectors could fairly ask for a scenario that is representative of the current operational status of the installation, and that is sufficiently challenging to enable identification of weakness(es) in the ER arrangements.

Coordination with the SAR Framework of Great Britain and NI

OIM and other key members of the ECS should understand relevant descriptors for, and the implications of, declaring one of the three IAMSAR emergency phases, and coordination with the UK SAR framework in accordance with the *UK's Integrated Offshore Emergency Response (IOER) guidance produced by the Emergency Preparedness Offshore Liaison (EPOL) Group*.

Installation ECS should have easy access to current contact numbers for HM Coastguard (HMC), and be prepared to provide the following critical information to the MCA when raising an alarm

- emergency phase declaration
- who is calling?
- nature of the problem?
- confirmation of position?
- persons on board?
- what actions you are taking?
- what assistance do you require from HMC?
- weather on-scene?
- name and proximity of standby vessel?
- heli-deck serviceable?
- agree call back arrangements

3. Key Regulations

PFEER Reg. 6(1) and (2)
HSWA Sections 2 & 3
Management of Health and Safety at Work Regulations 1999 (MHSWR) Reg. 13

4. Supporting Standards/ACoP or Guidance

Paragraph 79 of the PFEER Guidance L65 refers to the training requirements that HSWA sections 2 & 3 and MHSWR Reg. 13 places on employers and goes on to explain the PFEER Reg. 6 requirements placed on owner/operators.

Paragraph 82 of the PFEER ACoP L65 provides a suitable standard for an ECS.

Paragraph 83 of the PFEER ACoP states that those who have command responsibilities, or who have allocated emergency duties, must be competent. Dutyholders should have a system in place to assure themselves of the competence of the OIM and others in the command. Paragraph 76 of

the PFEER Guidance define competence as having sufficient training and experience or knowledge and other qualities.

Paragraph 85 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 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 dutyholder.

Offshore Technology Report 2001/091 Inspecting and auditing the management of emergency response provides good advice as to check lists and relevant questions sets that might assist in the evaluation of on and offshore emergency command structure (ECS).

See also references:

- Offshore Information Sheet 1/2014 Training for Emergencies on Offshore Installations
- Oil & Gas UK Guidelines on Management of Emergency Response Issue 3, 2010
- Oil & Gas UK Guidelines on Management of Competence and Training in Emergency Response for Offshore Installations Issue 3, February 2010
- OPITO Standards Library: Standards for Emergency Response and Competence
- Piper Alpha Public Enquiry Report

EMERGENCY RESPONSE PLAN

1. Fundamental Requirement

PFEER Reg. 8 requires the dutyholder to prepare an emergency response plan, which documents the organisation, arrangements, and procedures for dealing with an emergency on the installation. Dutyholders must consult with those who may become involved in emergency response, including external agencies, during its preparation.

2. Success Criteria

The emergency response plan should have been developed from the findings of the PFEER Reg. 5 assessment. There is no single correct structure, but whatever structure is adopted, the result should provide a concise source of information that is readily accessible and retrievable in the event of an emergency. The plan should demonstrate that sufficient competent resources and equipment are available both onshore and offshore to implement the plan.

Main elements of an emergency plan

- an overarching ER philosophy
- reference to the installation safety case - including the performance standards that define the starting point for the emergency response system, and that establish the endurance, evacuation, escape and rescue times that the emergency response system must meet
- description of the emergency response organisation and emergency command structure, and defined emergency roles and responsibilities for designated personnel in the emergency control room (ECR)
    - onshore emergency support manager
    - OIM / deputy
    - ECR operations officer
    - ECR radio operator
    - ECR muster coordinator
    - control room operator
    - muster checkers
    - offshore medic and first aiders
    - fire/emergency response team and team leader
    - lifeboat coxswains

    - helicopter landing assistants and HLO
- description of the alarm / internal and external communication facilities definition of a major incident; and details of foreseeable major incidents identified in relation to the installation
- emergency procedures for each type of major incident – codified and set out in a user-friendly manner such as flow diagrams
- mustering, evacuation, and escape arrangements
- arrangements for making all offshore personnel familiar with the part of the plan relevant to them (instruction and training arrangements, station bill, installation safety induction)
- specify the type and frequency of the training, drills and exercises necessary to ensure and maintain ER competence to ensure that all aspects of the plan can be implemented effectively
- describe the mechanisms for judging the results of tests and practices against performance standards and for acting to address weaknesses
- list the emergency facilities
- contain an up-to-date emergency contact list
- contain proformas for emergency public address announcements
- reporting and notification requirements

Onshore inspection might involve the early request for onshore and offshore ERPs and a review of their content. Inspection might also include requests for demonstration as to how the dutyholder ensures that the onshore support systems and organisations are effective e.g. do they participate in exercises?... and how do these include external organisations (police / MCA)?

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

<u>Emergency response plan</u>

Confirm that the emergency response plan is current, and that a controlled copy is 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.

- do communication routes follow the plan (see flowcharts)?
- test knowledge and availability of ERP with critical personnel e.g., are automatic ESD / blowdown protocols – and their causes/effects well understood?
- are potential escalation scenarios understood?

Emergency drills and exercises

Check to ensure that there is a program of emergency drills and exercises in place, that they are being carried out, that they reflect the findings from major accident hazard analysis.

- are these drills and exercises part of the plan or made up locally, independently of those being exercised; and are they suitable and undertaken sufficiently frequently?
- are all major accident (MA) scenarios exercised by all crews / shifts over a period of time?
- has the dutyholder 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 dutyholder tried manning a lifeboat/life raft with people wearing full PPE or confirmed the lifeboat/life raft capacity with people wearing full PPE?
- does the dutyholder and OIM ensure that the policy on clothing required for transit / evacuation purposes is implemented for all musters and drills?

3. Key Regulations

PFEER Regs. 6, 7 & 8

PFEER ACoP Paras 66-70

HSWA Sections 2 and 3

MHSWR Regs. 7, 11

4. 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 considered 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 dutyholders 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 in depth and be updated as required.

See also References:

- Offshore Technology Report OTO 2001/091 Inspecting and auditing the management of emergency response provides good advice as to check lists and relevant questions sets that might assist in the evaluation of on and offshore emergency command structure (ECS).
- Oil & Gas UK Guidelines for the Management of Emergency Response for Offshore Installations Issue 3, 2010
- Oil & Gas UK Guidelines on Management of Competence and Training in Emergency Response for Offshore Installations Issue 3, February 2010
- Energy Institute Guidelines for offshore oil and gas installations that are not permanently attended 2nd edition, November 2018
- See also management of ship collision risks as addressed in the Offshore Marine Operations IG, and rescue and recovery arrangements as for PFEER Reg. 17

ALARMS AND COMMUNICATIONS

1. Fundamental Requirement

The dutyholder should have a warning system in place that conforms with PFEER Reg. 11 and should have satisfied themselves that all personnel on board would be aware of an incident through either audible and, where necessary, visual alarm systems. The dutyholder should also have sufficient, effective communications systems in place to implement the emergency response plan.

2(a) Success Criteria - Alarms

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 does the dutyholder satisfy themselves that all members of the workforce can be made aware of alarms, e.g. noise level checks, light systems in high noise areas etc.?
- has the dutyholder ensured that the alarms comply with regulation 11 of PFEER?
- physical monitoring should be undertaken in selected areas of the installation

2(b) Success Criteria - Communications

The dutyholder is required to make appropriate arrangements for communications with persons engaged in activities on and in connection with the installation, as well as 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 search and rescue (SAR) services. Where the incident is likely to lead to an evacuation, the Coastguard should be alerted at an early stage by the OIM, and this should be provided for in the ERP.

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 and under all ESD arrangements, including after shut-down / blow-down, where loss of main / emergency / battery UPS power might affect functionality?
- are all communications systems used as part of ER, (refer to safety case description of systems) in place as described?
- has the dutyholder an effective system in place to ensure these communications are fit for purpose and 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 affected 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 dutyholder 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 two independent and complete 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 dutyholder needs to demonstrate how effective communications can be maintained on loss of the PA.
- are those expected to operate communications systems (marine and air band VHF radios, satellite phones, etc.) competent to do so?

3. 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 (SFAIRP) 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 PFEER must be fit for purpose and maintained in an efficient state, in efficient working order and in good repair.

4. **Supporting Standards, ACoP or Guidance**

Paragraphs 114-115 of the PFEER ACoP indicate the requirements for acoustic and visual alarms and their meanings.

Paragraphs 195-200 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.

Paragraphs 109-111 of the PFEER ACoP give guidance on the requirements for communication for the purpose of emergency response.

Oil & Gas UK Guidelines for the Management of Emergency Response for Offshore Installations Issue 3, 2010

CONTROL OF EMERGENCIES

1. Fundamental Requirement

The dutyholder should have in place appropriate control measures, including plant, equipment and workplace procedures, to limit the extent and escalation of all foreseeable emergencies. PFEER Reg. 12 specifically states foreseeable emergencies should include fire and explosion, but control measures *for all foreseeable major incident scenarios* should be provided.

Measures for the remote control of plant from a safe location and, SFAIRP, other emergency plant/arrangements provided should be capable of remaining effective during an emergency (for as long as they are needed to fulfil their functions, taking into account the conditions to which they may be exposed).

Some of the measures required will be the subject of inspection by other specialist and IMT teams and are the subject of other detailed IGs. Those measures that are of relevance to the ER topic are detailed below.

2. Success Criteria

The dutyholder should have sufficient, effective control systems in place to implement the emergency response plan.

Onshore Inspection might include review of arrangements for offshore emergency response control in the ERP.

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

Emergency Response Control Point (ERC) and Systems

A protected emergency control point or points (typically contained within a temporary refuge (TR)) must be provided, and there should be suitable control systems in place to enable the offshore management in that location (those locations) to monitor the emergency, and to implement the ERP. Personnel allocated to control points should be competent in the range of duties required of them.

Control systems in place should align with findings of the PFEER Reg. 5 assessment, with the description in the safety case, and with the ERP. The dutyholder should be able to demonstrate that they are working effectively.

Control measures should provide for the timely and effective isolation or shutdown of systems which could exacerbate an emergency, for example, those providing sources of ignition for flammable releases, or with the potential to escalate a fire and/or release of toxic gas or fumes.

Critical emergency shutdown / isolation actions should be able to be initiated from the ERC.

For normally unattended installations (NUIs) appropriate arrangements should be made to ensure that sufficient oversight of the production process and fire & gas system is available to the ER control team in a developing emergency, and that effective ER actions can be taken in an emergency to ensure safety of personnel.

Temporary Refuge

The requirement for a TR falls under PFEER Reg. 13(a) – Mitigation of Fire and Explosion, but is referred to here in relation to control of emergencies, in that the TR provides a protected area for the OIM and their ER control team to muster safely, to assess the emergency, and to put into effect the ERP.

The dutyholder should be able to confirm the boundary of the TR, the location of the ECR within it, and the TR's design "survival time" (endurance period) in an emergency. They should be able to explain all the means of access, and to summarise the systems and equipment in place to maintain/indicate survivable conditions in the TR.

The dutyholder should be able to explain the procedures in place to maintain the TR integrity against smoke and gas ingress during an incident and explain how they ensure these continue to be effective. E.g., only air-lock doors to be used for TR access / egress in an emergency, and what action is taken to check whether HVAC intake and outlet dampers have closed. *[Note: There is significant overlap with the ED Fire, Explosion & Risk Assessment topic specialism in this regard and TR Integrity is subject to a separate inspection guide].*

Additionally

- has the dutyholder defined internal atmospheric conditions that would impair the effectiveness of the TR when a demand is placed upon it (e.g. temperature; levels of CO, O2, H2S, hydrocarbon or other gases)?
- what systems are in place to measure the levels identified above: are alarm levels identified? and are the systems in working order?
- are these systems in locations suitable for an emergency (e.g., readouts available to OIM/emergency response team)?
- where it is reasonably foreseeable that a major incident may compromise temporary refuge integrity within the TR survival time, or there is no self-contained TR (e.g., some Southern North Sea (SNS) NUIs) this must be clearly addressed by the emergency response and evacuation plans.

3. Key Regulations

PFEER Reg. 12. PFEER Reg. 13 - In regard to protection of personnel during ER (TR design and integrity) from fire and explosion

4. Supporting Standards, ACoP or Guidance

Paragraphs 117-119 of the PFEER ACoP describe the scope of this regulation, including fire and explosion matters, some of which are not addressed in this guidance document. Measures provided must be able to remain operational in an emergency.

Paragraph 126 of the PFEER ACoP refers to the requirement for control points which can be used to control the emergency and makes explicit the consideration of events for which control points may be required and their effects.

Offshore Information Sheet 1/2014 Training for Emergencies on Offshore Installations

Oil & Gas UK Guidelines for the Management of Emergency Response for Offshore Installations Issue 3, 2010

ACCESS / EGRESS ROUTEs AND MUSTERING

1. Fundamental Requirement

The dutyholder is required to make appropriate provision for safe muster areas, evacuation and escape points for use under foreseeable emergencies identified through the PFEER Reg. 5 assessment. Safe emergency egress from work/accommodation areas and access to the TR and muster areas, as well as to evacuation and escape points, is required.

2. Success Criteria

Onshore inspection might involve the review of ER arrangements and provisions detailed in the installation safety case and the ERP.

Offshore inspection should include, but not necessarily be limited to, the following; ensuring that provisions align with the safety case and ERP:

Muster Areas

Muster area(s) must be located where it is safe to assemble, allowing time for the emergency to be assessed and for control to be taken. Each should be provided with sufficient access and egress routes to ensure that, SFAIRP, safe entrance to the area and exit from it for evacuation purposes is possible for the duration of any emergency.

Additionally

- Muster areas should either be inside a TR or, if not, provide protection against the effects of foreseeable major incident for the endurance period identified as necessary in the PFEER Reg. 5 assessment
- all personnel must be assigned to a muster area and must know where it is
- alternative muster areas should be allocated for foreseeable circumstances where the incident compromises the safety of primary muster points (e.g. in the event of fire in accommodation areas / TR), or where the PFEER Reg. 5 assessment identifies that personnel might be prevented from reaching the TR or primary muster point in an emergency. Procedures/guidance should be provided to make clear when the alternative provisions should be utilised
- there shall be an up-to-date list of names for those personnel assigned to the muster area displayed at the location

- 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 muster area
- muster area(s) should
    - be kept clear of obstruction
    - be provided with suitable emergency lighting
    - have means of communication with the emergency control point for passage of information about the emergency's progress and any further action necessary
    - provide access to appropriate PPE/LSA
- muster areas should be of a suitable size to accommodate the assigned number of personnel, considering the need for enough space for all to be able to don PPE
- muster areas should be clearly identified, and their access routes and location indicated by clear suitable signage
- where no safe survival time has been demonstrated for mustered personnel (e.g. NUI where no physical TR is provided, and location of the muster provides no reliable protection against foreseeable major incidents), the ER philosophy should indicate the need for immediate evacuation (and all in the command structure should be clear that this is the case). *Concerns relating to the protection of mustered personnel from hydrocarbon release major incidents should be referred to FERA discipline.*

<u>Access/Egress Routes</u>

- all following routes should be as shown in the safety case and on plot plans located at strategic points
    - to muster areas/TR from all normally occupied areas
    - from the TR to the evacuation systems
- enclosed areas in accommodation and externally which are normally occupied, should have at least two means of egress
- access routes should be clearly marked, and signs should be readable in low / emergency lighting, e.g. located in clear sight, with low level / ground markings to assist in smoke conditions, with an appropriate finish. All signs should be legible, understandable, and informative
- adequate emergency lighting should be provided for all emergency routes should normal lighting fail

- where necessary, 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 accurately reflects the provisions on the installation
- The dutyholder should ensure that routes from vulnerable areas such as crane cabs, which may have long ladders, be facing the hazard etc, have diverse systems available for egress e.g., personal descent devices
- the dutyholder should demonstrate that there are secure routes to escape-to-sea locations in place, and that they are maintained and available

Emergency Lighting

The dutyholder should be able to explain emergency lighting strategy (e.g., 25% of lights provided with battery back-up; minimum lux levels etc.).

In locations where sufficient lighting might be required to ensure effective emergency response (e.g., escape routes, muster area, TEMPSC embarkation, escape stations etc.), all emergency lights should work under normal power. Should mains power to lights in that location fail, an effective proportion of lights must work on battery back-up.

- lighting levels should be adequate for purpose
- if less than 20% of emergency lights fail to work specialist EC&I topic support may be required
- claimed lighting backup battery endurance times (often 60 minutes) can be checked

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

Cabin Lighting

The dutyholder 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.

3. **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.

4. **Supporting Standards, ACoP or Guidance**

Paragraphs 191-194 of the PFEER ACoP discuss the need to make provision for personnel to assemble safely while the emergency is assessed, and action is taken, including safe access to means of evacuation or escape if necessary. The accounting procedures should deal with normal musters and 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 SCR2015 schedules 5-7.

Paragraph 191 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 193 of the PFEER ACoP considers emergency lighting and other visual aids.

Paragraph 194 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.

SCR2015 Schedules 6 & 7

EVACUATION

1. **Fundamental Requirement**

Evacuation is defined in PFEER Reg. 2 as:

… "the leaving of an installation and its vicinity, in an emergency, in a systematic manner and without directly entering the sea."

This is clarified further under Guidance to Regulation 2, Paragraph 26: Evacuation should be planned and controlled and should result in personnel being recovered to a place of safety (PoS) - an onshore or safe offshore location or vessel where appropriate medical treatment and other facilities for the care of survivors are available. Means of evacuation should offer **protection** as necessary from relevant hazards arising during foreseeable major incidents and should have its **own motive power** to enable persons to move quickly away from the installation.

The dutyholder must ensure suitable measures are taken to provide plant and have in place arrangements (with persons beyond the installation as necessary), for the safe evacuation, ***SFAIRP***, of all personnel in an emergency.

Arrangements should include

- **preferred means of evacuation** (normally the usual transport for crew-changing e.g., helicopter or walk-to-work vessel);
  and
- **alternative means of evacuation** (normally TEMPSC) when either circumstances of the incident or environmental conditions make use of the preferred means impracticable.

Other means of evacuation under specific circumstances might include bridge-link or direct marine access transfer to another vessel or installation.

There is a general duty on other 'suitable persons beyond the installation' to cooperate in the evacuation effort. Arrangements made should be agreed between the parties involved and documented, for example in the PFEER Reg. 5 assessment and ERP.

PFEER ACoP paragraph 212 explains that, where it has been justified in the PFEER. Reg 5 assessment and demonstrated in the safety case (typically for NPAIs / NUIs), it may be reasonably practicable to rely on only a ***single evacuation system***. Under these circumstances, dutyholders should arrange for the preferred means of evacuation to remain available while personnel are on the installation.

The dutyholder should define exceptional weather and/or sea conditions where the use of / launch of alternative evacuation provision (typically TEMPSC) might be prevented. When such conditions are forecast or experienced, dutyholders should consider operational restrictions that may be required for the reduction of the likelihood of any event that might require evacuation. The following publication will assist duty holders: Oil & Gas UK Guidelines on Management of Emergency Response Issue 3, 2010; Section 3.7.1.

2. **Success Criteria**

The dutyholder should ensure appropriate provisions are in place for evacuation in an emergency.

Onshore inspection should include, but not necessarily be limited to, assessment as to whether the dutyholder has adopted a clear hierarchy of evacuation systems in place and the strategy for using them. Dutyholders should select means of evacuation based upon their contribution to reducing the risks of those who might have to use them to *as low as reasonably practicable*.

(a) Helicopters

Where helicopters are relied upon as the preferred means of evacuation the dutyholder should be able to demonstrate that

- the time determined necessary to mobilise civilian helicopters and crew, and to travel to the installation by air to effect evacuation in an emergency must be minimised. Consideration should be given to how availability of helicopter evacuation (aircraft, crew and helideck) is ensured outside normal crew change flight hours
- where crew-change helicopters are relied upon as the **sole means of evacuation** (under circumstances where it has been justified as not reasonably practicable to do more by the PFEER Reg. 5 assessment), they will be considered to meet the '**remaining available'** criterion (PFEER ACoP paragraph 212) only if it is possible to mobilise civilian helicopters and crew, and to travel to the installation to effect evacuation by air **within the design survival time of the TR / safe area**.

(b) Bridge links between jackets / gangways between installations and walk-to-work vessels

In the absence of an operable helideck, or where helicopters are not being utilised for crew transfer, the dutyholder must be able to show that *preferred* means of evacuation - a bridge to another installation or vessel - is an effective means of evacuating people in the event of an incident. There should be no impediment to its use as an emergency evacuation route.

- a bridge-link or gangway, linking a mobile installation (or separate jacket) that is to receive evacuating personnel from an installation, should be so designed as to be able to remain connected to the installation during foreseeable major incident scenarios for **enough time to allow for evacuation of all personnel**.

- Where a WTW vessel is relied upon as the **sole means of evacuation** (under circumstances where it has been justified as not reasonably practicable to do more by the PFEER Reg. 5 assessment), they will be considered to meet the '**remaining available**' criterion (PFEER ACoP paragraph 212), if it can return from its stand-by position to an installation, enter into the 500m safety zone, safely set-up and approach, and land a gangway **in less that the design survival time of the TR / safe area**.

Ensure T-card or similar personnel monitoring systems do not restrict movements etc., and that muster arrangements are able to accurately account for evacuated POB.

Dutyholder to demonstrate that any bridge / gangway is provided with systems and equipment to ensure a good likelihood of its availability during an incident (e.g. with emergency lighting, active / passive fire protection etc.).

(c) Lifeboats/TEMPSC as alternative means of evacuation

The installation should be fitted with the number of lifeboats/TEMPSC described in the safety case, which should have been established in the assessment required by PFEER Reg. 5 and, unless an alternative standard is either ***justified*** or ***called for*** by the assessment and this is made clear in the safety case, there should be enough spaces for **150% of the installation maximum POB** in total.

Where TEMPSC relied upon as alternative means of evacuation, sufficient craft for evacuation of **100% x POB must be accessible directly from the TR**.

The number and location of TEMPSC provided should reflect contingency in the event of TEMPSC unavailability

- during inspection or maintenance / repair of one or more TEMPSC, or
- as a foreseeable result of escalation of the incident identified in the PFEER Reg. 5 assessment (for example, through release of hydrocarbon or toxic gas, the development of major fire and associated smoke, or the potential for explosion and related damage to infrastructure).

There should be allowance for PPE worn by the crew, allowance for the size of the crew, and potential additional space and securing arrangements as required for foreseeable casualties e.g. stretcher cases. Account should be taken of the reduction in capacity of TEMPSC due to the historic increase in size/weight of offshore personnel (Offshore information sheet 12/2008 Big persons in lifeboats).

(d) Alternative marine evacuation solutions (subject to a *so far as is reasonably practicable challenge*)

Some installations have developed / are developing systems for evacuation which attempt to meet PFEER requirements in a novel way. These should be inspected against the principal criteria for an evacuation system

- there should be suitable provision for safe muster until controlled evacuation initiated
- evacuation system should be readily accessible to all people on board from temporary refuge / safe muster. There should be a measure of protection from fire, smoke and thermal radiation (or other foreseeable hazard) afforded to those personnel deploying / using the system
- means of access to the evacuation system should be able to be useable in a controlled manner, and there should be consideration for the evacuation for stretcher-bound casualties
- evacuation to a place of safety should be under reliable self-propelled means
- means of evacuation should offer a degree of protection against foreseeable hazards, such as thermal radiation or contamination of breathing air, arising during major incidents
- critically, the level of risk personnel are exposed to during evacuation using a novel system should never be greater than that associated with other reasonably practicable solutions, including helicopters, bridge links and TEMPSC. **Clear demonstration of the assessment and control of the risks associated with the foreseeable major incident in relation to the proposed evacuation system is expected.**

(e) Marine Transfer

In cases where basket transfer is available, this should be clearly identified for use in **precautionary evacuations only** - and must be LOLER-compliant for man-riding.

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

TEMPSC

There should be enough trained and competent coxswains allocated to TEMPSC; with consideration for some redundancy in the event of one or more allocated coxswains being incapacitated in the emergency, to ensure a good prospect that all required TEMPSC can be launched competently and safely.

Opportunity should be taken to assess one coxswain's competence and familiarity with one of the installation's TEMPSC (free-fall or davit launched), specifically

- pre-launch checks • the means of achieving safe and timely loading of personnel in an emergency
- launch procedures (including dealing with potential problems arising during launch)
- the coxswain should be able to demonstrate that the engine will start with both primary and secondary systems (secondary first, whilst engine cold)
- communications systems within the TEMPSC
- Lowering of the TEMPSC a number of meters to confirm the operation of the brake, sheaves and wires.

Familiarisation training for all those likely to use TEMPSC (both freefall and davit-launched) should be provided. Dutyholders operating in the UKCS are expected to provide practical TEMPSC familiarisation training and instruction, delivered in part/in full within a survival craft. This can be accomplished either

- as part of the safety induction upon arrival on the installation, or more commonly
- by taking the opportunity for practical lifeboat familiarisation training by coxswains during their weekly inspection/maintenance activities. This may be provided to new crew members / contractors when practicable after their arrival, and to experienced crew on a rolling, periodic basis. Where persons are visiting for only a day or two, it might be impracticable to provide practical lifeboat familiarisation training. Under these circumstances, it is considered that there would be sufficient crew /contractors familiar with the lifeboats to assist in the event of abandonment.

Either of these practises is acceptable; and each can be considered a reasonably practicable standard as to TEMPSC familiarisation training.

*If a dutyholder was to argue that a similar/better standard of training can be provided **without** entry into a lifeboat, ERMA topic inspection should examine whether their proposal can meet the same standard, and effectively cover the same content, as could be provided from inside the survival craft itself. If not, it would be reasonable for an inspector to form the opinion that the dutyholder was not taking all reasonably practicable measures to ensure adequate training for emergency response; and, in line with inspection expectations, evidence should be gathered, if necessary, to support enforcement/other action.*

Maintenance and protection of survival craft and embarkation areas

The TEMPSC and associated lowering / release gear should be subject to routine maintenance schedules. The maintenance work should be undertaken by suitably competent personnel and be up to date.

TEMPSC interior lighting, emergency air supply, VHF marine-band radio, emergency position indication radio beacon (EPIRB) etc. should also be subject to routine maintenance, and maintenance should be up to date. If appropriate these systems can be demonstrated by the dutyholder on a sample basis. The dutyholder should be able to demonstrate a procedure to be adopted in the event of one or more TEMPSC being unavailable, due to either identified fault or planned maintenance activity, where TEMPSC cannot be returned to full functionality within a short period of time in the event of emergency. Under these circumstances, dutyholders should review their compliance with their safety case and with PFEER Reg. 15; and take remedial action in advance of the outage (in the case of planned activity), or as a matter of urgency (in the case of identified fault) to ensure that PFEER Reg. 15 continues to be complied with. *Remedial action might comprise temporary down-manning of the installation and/or taking operational action to cease activities that might give rise to major incident.*

TEMPSC should have sufficient protection from thermal radiation for the required endurance period as defined in the safety case. The protection typically comprises an external water deluge system.

The lifeboat stations, embarkation areas and access routes should have emergency lighting in place (including over the side spotlight to check the sea below before launch).

3. Key Regulations

PFEER Regs. 2, 5, 15, 19 & 20.

Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 (MAR) Reg. 8

4. Supporting Standards, ACoP or Guidance

PFEER Reg. 2 defines ‘evacuation’.

PFEER Reg. 15, requires the dutyholder 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. Civilian crew-change helicopter operator. 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.

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 for the Management of Emergency Response Issue 3, 2010

HSE Safety Notice 01/2006 (Revised April 2017) *Ensuring adequate safety during davit lifeboat drills, testing and maintenance on UK offshore installations*

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*

HSE Research Report RR599 *Overview of TEMPSC performance standards*

HSE Position paper: *Provision of Familiarisation Training and Instruction for Marine Evacuation by TEMPSC*

SOLAS

Piper Alpha Public Enquiry Report

MEANS OF ESCAPE

1. Fundamental Requirement

There is a requirement for the dutyholder 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.

Paragraph 221 of the PFEER ACoP requires *enough means of escape to ensure that they are available for personnel who may have to use them, which may be all personnel*.
Paragraph 216 of the PFEER ACOP *requires the escape arrangements to be set out in the emergency response plan required by Regulation 8*.
Paragraph 217 of the PFER ACOP *states that training requirements are set out in Regulation 6*

Means of escape are provided **in addition** to arrangements for evacuation and may not be relied upon to supplement insufficient evacuation.

2. Success Criteria

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

The dutyholder should have appropriate provisions recorded in the safety case and in place for escape should the means of evacuation fail in an emergency. The PFEER Reg. 5 assessment should provide a basis for the decisions as to location and quantity of escape means provision.

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

PFEER ACoP paragraph 219 and 220: Dutyholders should have ***selected means of escape based on their contribution to reducing the risks of those who may have to escape from the installation to as low as reasonably practicable***.

Preference should be given to means of escape which offer some *protection from the elements* and *avoid the need to enter the sea directly*.

In effect, this means the installation should be provided with **both** appropriate means of descent to sea level (fixed ladders, stairways, escape chutes or personal devices for controlled descent are all reasonably practicable) **and** life rafts. To meet the PFEER Reg. 5 Assessment conclusions as to sufficient quantity and location, the dutyholder should be able to explain the reasoning behind the number and location of the life rafts on the installation, and these should be provided as described in the safety case.

Physically entering the sea as part of escape should be regarded as a last resort.

Systems such as Donuts, escape chutes and fixed ladders are acceptable controlled means of descent to sea level. Knotted ropes and scramble nets which require strength and dexterity to use are not considered as a controlled means of descent. At the discretion of the dutyholder, they may be maintained having been provided historically but cannot take credit as a controlled means of descent to sea.

Practical training should have been provided to all personnel in the use of the Personal Descent Device – this includes unpacking, affixing to a suitable anchor point, donning, suspending from the device, lowering and release from the device.

Descent systems should offer the opportunity to access throw-over life rafts or other craft, minimising the likelihood of having to enter the water. In the case of personal descent devices, a means of following a painter line during descent to a deployed life raft should be provided. Other means should offer life raft painter-line access at the point of reaching sea level.

Life rafts should have in-date certification with a system in place to ensure the number is not reduced during maintenance. (Ensure the correct capacity of life raft is marked and that the painter length is correct for the location of the point of access to sea level.) All personnel should understand how to launch and inflate the life rafts.

Davit-launched life rafts should be subject to a LOLER inspection and maintenance scheme and should be in good working condition. Personnel (at the very least core crew) should be able to talk through the launching procedure. Written / diagrammatic instructions for launching should be available at embarkation point.

Throw-over life rafts should be easy to launch, preferably by one person and launch and embarkation points should be protected SFAIRP from thermal radiation. 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 emergency lighting at all locations providing controlled means of descent.

3. Key Regulations

PFEER Reg. 16

4. 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 Issue 3, 2010

Energy Institute Guidelines for offshore oil and gas installations that are not permanently attended 2nd edition, November 2018

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 Public Inquiry Report

ARRANGEMENTS FOR RECOVERY AND RESCUE

1. Fundamental Requirement

The dutyholder shall ensure that effective arrangements are made, which [shall] include such arrangements with suitable persons beyond the installation, for –

- recovery of persons following their evacuation or escape from the installation; and
- rescue of persons near the installation; and
- taking such persons to a place of safety,

and for the purposes of this regulation arrangements shall be regarded as being effective if they secure a **good prospect** of those persons being recovered, rescued, and taken to a place of safety.

2. Success Criteria

Onshore inspection should include, but not necessarily be limited to, the following

- **the dutyholder should have effective arrangements** recorded in the safety case and in place for recovery of persons from TEMPSC / life rafts and rescue of persons from the sea in an emergency. This might take the form of an in-field, MCA-certificated emergency response and rescue vessel (ERRV) (complete with fast rescue craft / daughter craft and mechanical rescue equipment) of such a size as to be able to act as a place of safety for the whole installation POB.

- **alternative arrangements for recovery and rescue** (e.g. BP's now superseded JIGSAW arrangements) might be utilised, so long as the dutyholder can demonstrate that such arrangements can meet the performance standards for recovery and rescue set out in OEUK / ERRVA Emergency Response and Rescue Vessel Management Guidelines (Issue 6, May 2018) - or their equivalent.

- **where arrangements involve the sharing of an ERRV between multiple installations,** the dutyholder should be able to demonstrate that recovery and rescue performance standards can be met under all foreseeable operational and metocean conditions. Policies and procedures for dutyholder management of the shared arrangements and their effectiveness should be robust and verifiable.

- **the dutyholder should ensure that enough quality validation trials and verification exercises have been completed** to demonstrate that an ERRV / other means of recovery and rescue provision can meet performance standards. In order to establish the effectiveness or otherwise of arrangements in all reasonable conditions, trials and exercises should be undertaken in a range of conditions that allow for the extrapolation of performance under more challenging metocean conditions to demonstrate meeting performance standards.

- **where an ERRV provides for the identification and deterrence of errant passing vessels that pose a threat to the installation from ship collision risk**, it should have sufficient active means (radar or other) of locating such vessels, of sufficient unobscured range under foreseeable metocean conditions, to allow a sufficiently timely warning to be passed to the installation for the installation to be evacuated in a controlled manner if it is deemed necessary.

- the dutyholder should have in place **measures to be taken in defined exceptional weather and sea conditions for the reduction of the likelihood of an event that requires evacuation, escape and rescue, where normal recovery and rescue arrangements will no longer be effective**. The following guidelines will assist dutyholders: Oil & Gas UK Operations Assessment during Emergency Response and Rescue Vessel Unavailability Technical Note HSTN005, January 2019

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

- possible witnessing of verification exercise planned and executed in agreement with the dutyholder
- review of verification exercise records and remedial action closeout

3. Key Regulations

PFEER Regs. 5, 6 and 17 and ACoP
MHSWR Reg. 3

4. Supporting Standards/ACoP or Guidance

Paragraphs 231-239 of the PFEER ACoP explain the responsibilities and requirements surrounding the provision of arrangements for recovery and rescue

Oil and Gas UK / ERRVA Emergency Response and Rescue Vessel Management Guidelines (Issue 6, May 2018)

Offshore Information Sheet 1/2014 Training for Emergencies on Offshore Installations

Oil & Gas UK Guidelines on Management of Emergency Response Issue 3, 2010

Oil & Gas UK Guidelines for the Management of Competence and Training in Emergency Response

OPITO BOSIET and FOET training standards.

Piper Alpha Public Inquiry Report

EMERGENCY PPE AND LIFE SAVING APPLIANCES

1. Fundamental Requirement

The dutyholder of an offshore installation is responsible, in relation to all persons on the installation, for the personal protective equipment (PPE) for use in an emergency required by the Personal Protective Equipment at Work Regulations 1992 (PPEWR), including the provision of this equipment. The responsibilities extend to the examination, testing, maintenance, provision and design, training in use of PPE, and compatibility of PPE with rescue and recovery arrangements.

2. Success Criteria

The dutyholder 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 number and type of PPE available across the installation which should be as described in the safety case (e.g. survival suits, life jackets, grab bags, BA etc).

The dutyholder 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 dutyholder 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 concern are

- Immersion suits with permanently attached gloves interfering with the ability to don and tighten a lifejacket.
- FF TEMPSC original equipment manufacturer inherently buoyant life jackets which have jump height restrictions
- the wearing of Immersion suits inside TEMPSC and heat exhaustion potential (duty holder risk assessment demonstration)

- (OEM) directions as to not wearing life jackets that might cause C-Spine damage during FF launch, and how dutyholder ensures they are available otherwise.
- Immersion suit suitability for descending escape ladders to sea

The dutyholder should have in place a system for ensuring all members of the crew have training/practice in putting on emergency survival suits, life-jackets and use of personal descent devices.

The dutyholder should have systems in place to ensure all PPE is maintained effectively.

3. Key Regulations

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

4. 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.

Offshore information sheet 7/2009 Lifejackets for abandonment from an offshore installation

Offshore Information Sheet 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

HSE Offshore Technology Report OTO 2002/021 Compatibility test protocol for lifejackets and immersion suits on offshore installations HSE Books 2002

Oil & Gas UK Guidelines on Management of Emergency Response Issue 3, 2010.

Oil & Gas UK Guidelines for the Management of Competence and Training in Emergency Response Issue 3, 2010

Energy Institute Guidelines for offshore oil and gas installations that are not permanently attended 2nd edition, November 2018

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 Public Inquiry Report

EXAMPLE PRE-VISIT INFORMATION REQUEST

Emergency Response advance information

- Copy of most recent review of assessment made under Regulation 5 of PFEER - E.g., EERA
- Onshore and Offshore Emergency Response Procedures / Plans for response including a copy of Station Bill
- Verification Performance Standards in relation to Emergency Response SECEs
- Emergency Response-related ICP verification reports for the last year - and a summary of any remedial actions still open in relation to these
- Competence Management System and Assessment Criteria used during assessments (On and Offshore ER Roles).
- Summary of any Operational Risk Assessments in relation to compromised Emergency Response related SECEs.
- ER exercising procedures and a summary of ER drills / exercises conducted in last year

EXAMPLE OFFSHORE EMERGENCY RESPONSE INSPECTION AGENDA

- **Coxswain –** Lifeboat checks and testing - familiarisation and Drill

- **ERT Leader** - equipment check, training, drills

- **HLO** – equipment check, training, drills, normal/emergency duties

- **Medic/First Aider** – triage areas, First Aider training, drills.

- **OIM –** Training and competency for ER roles, ER Planning and Exercising, Command and control of emergencies

- **Emergency Response Arrangements -** Inspection of offshore arrangements for Emergency Response (as set out in HSE's ED Offshore ER Inspection Guide) – including sample inspection of:

    - Review intervention team familiarity with installation ER facilities and equipment; and ensuring suitably qualified and competent key personnel.

    - Review emergency plan, command and control facilities, and line / independent emergency communications systems

    - Inspection of facilities for emergency access/egress and muster.

    - Inspection of evacuation and escape equipment, maintenance and procedures.

    - Inspection of arrangements for the recovery and rescue of persons including effects of ERRV sharing arrangements and adverse weather (as appropriate).

    - Review of the field ERRV and demonstration of its ability to meet rescue and recovery performance standards.

- **Observe an exercise of the offshore Emergency Response Plan**
  Subject to OIM local risk assessment and work programming. (Development to be discussed at onshore kick-off meeting) – ER inspection will examine the procedures/ arrangements for the planning, conduct, review of - and learning from - the exercise, and include review of records of previous exercises and closeout of relevant findings. The exercise should involve the development of a relevant MA scenario, a full muster and POB reconciliation, and some limited deployment of ER / Medical Team to conduct SAR / other operations.

Appendix 13

GLOSSARY OF TERMS, ABBREVIATIONS AND DEFINITIONS

ACoP	Approved Code of Practice
ALARP	As low as Reasonably Practicable
BA	Breathing Apparatus
DH	Dutyholder
EC&I	Electrical, Control & Instrumentation
ECR	Emergency Control Room
ECS	Emergency Command Structure
ED	Energy Division
EER	Evacuation, Escape and Rescue
EMM	Enforcement Management Model
EPOL	Emergency Preparedness Offshore Liaison Group
EPS	Enforcement Policy Statement
ER	Emergency Response
ERMA	Emergency Response, Marine and Aviation
ERP	Emergency Response Plan
ERRV	Emergency Response and Rescue Vessel
ESD	Emergency Shutdown
FERA	Fire, Explosion and Risk Assessment
FF	Free Fall
HLO	Helideck Landing Officer
HMC	HM Coastguard
HSWA	Health and Safety at Work etc. Act 1974
HVAC	Heating, Ventilation and Air Conditioning
IG	Inspection Guide
IMT	Inspection Management Team
LOLER	Lifting Operations and Lifting Equipment Regulations 1998
LSA	Life Saving Appliances
MA	Major Accident

MAR	Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995
MCA	Maritime and Coastguard Agency
MHSWR	Management of Health and Safety at Work Regulations 1999
NUI Normally	Unattended Installation
OEM Original	Equipment Manufacturer
OIM	Offshore Installation Manager
PA	Public Address
PFEER	Offshore Installations (Prevention of Fire and Explosion, and Emergency Response Regulations 1995
POB	Persons on Board
PoS	Place of Safety
PPE	Personal Protective Equipment
PPEWR	Personal Protective Equipment at Work Regulation 1992
PS	Performance Standard
PUWER	Provision and Use of Work Equipment Regulations 1998
SAR	Search and Rescue
SCR2015	Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015
SECE	Safety and Environmental Critical Element
SFAIRP	So Far As Is Reasonably Practicable
TR	Temporary Refuge
TEMPSC	Totally Enclosed Motor Propelled Survival Craft
UKCS	United Kingdom Continental Shelf
WSE	Written Scheme of Examination
WTW	Walk To Work

Application of the Enforcement Management Model (EMM) and Dutyholder Performance Assessment

When inspecting the (insert topic title), dutyholder compliance is to be assessed against the relevant success criteria. The success criteria have been determined from specific regulatory requirements, defined standards, established standards or interpretative standards.

This assessment will determine the: EMM Risk Gap, the associated topic performance score together with the Initial Enforcement Expectation as shown in the table below.

The actual enforcement may differ from that consistent with the recorded topic score depending on dutyholder and strategic factors. However, should this occur then the relevant dutyholder and strategic factors should be identified in the inspection report.

The initial enforcement expectation criteria differ slightly from the EMM for a 'Nominal' risk gap. This is because in practice '30' scores have been found to cover a wide range of risk gaps and a verbal warning would be an inappropriate enforcement response in many cases.

The Topic Score recorded on COIN must be consistent with the Initial Enforcement Expectation

Further guidance can be found at: http://www.hse.gov.uk/enforce/emm.pdf

EMM RISK GAP					
Extreme	**Substantial**	**Moderate**	**Nominal**	**None**	**None**
TOPIC PERFORMANCE SCORE					
60	**50**	**40**	**30**	**20**	**10**
Unacceptable	Very Poor	Poor	Broadly Compliant	Fully Compliant	Exemplary
Optional IG Specific Performance Score Guidance (delete if not used)					
Specific IG Guidance	*Specific IG Guidance*	*Specific IG Guidance*	*Specific IG Guidance*	*Specific IG Guidance*	*Specific IG Guidance*
EMM Initial Enforcement Expectation					
Prosecution / Enforcement Notice	Enforcement notice / Letter	Enforcement notice / Letter	Letter / Verbal warning	None	None

It should be noted that:

- **the recorded score should reflect the most significant compliance gap identified** relevant to the Inspection Guide.

- the Inspection Guide and hence the allocated scores may not cover all the matters that were considered during the intervention.

- the intervention may not necessarily have used every part of the Inspection Guide – consequently the score only reflects what was inspected. **The inspection report should make it clear what aspects of the Inspection Guide the duty holder has been scored against** (or it is clearly identifiable by a letter item).

- where the score only relates to limited aspect of the Inspection Guide then consideration should be given to consulting the IG owner before finalising the score.

- proposed inspection scores should be reviewed/discussed by the full inspection team before finalising.

- the impact of cumulative risk should be considered when scoring. For example, two or three substantive scores of '30' will point strongly to an overall score of '40'. There is currently no mathematical or other systematic process for doing this and inspectors must therefore use their judgement to allocate an appropriate score that best represents the overall inspection findings against this IG.

- the allocated performance score only reflects regulatory judgements about a duty holder's degree of compliance at a particular point in time.

Use of performance scores

HSE uses the performance scores as one of the many inputs to prioritise and plan future regulatory interventions. Prioritising intervention's is fundamental to ensuring HSE delivers its major hazards regulatory strategy whilst supporting businesses and the GB economy. HSE aims to ensure that regulatory activity is proportionate to the risk to people taking account a dutyholder's performance in controlling risks. In general, this means the HSE will inspect major hazard installations and duty holders with relatively poorer risk management performance more frequently and in greater depth than lower hazard installations and dutyholders where there is evidence of higher risk management performance.