

HEALTH AND SAFETY EXECUTIVE

OFFSHORE DIVISION

EMERGENCY RESPONSE, AVIATION, MARINE &

DECOMMISSIONING TOPICS

STRATEGY 2008 - 2013

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1.0 INTRODUCTION

1.1. The aim of this strategy is to ensure that the risks to the offshore workforce associated with emergency response, aviation, marine and decommissioning activities are properly controlled and managed.

1.2. This document defines a five-year strategy for OSD for offshore Emergency Response, Aviation, Marine and Decommissioning activities. These topics are now solely the responsibility of OSD 3.3 which acts as the focal point for the Division in the following areas:

(a) Emergency Response, which includes;

- ER strategy and planning
- ER management
- Communications
- Potential incident detection

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- Alarm
- Mustering
- Temporary refuge
- Incident monitoring
- Evacuation
- Escape
- Rescue and Recovery
- Place of Safety
- PPE
- ER Performance Standards

(b) Aviation Operations including;

- Helicopter Operations and Helidecks

(c) Marine Operations, which include;

- Marine and Airborne Search and Rescue
- Offshore Supply Vessels
- Transport of Dangerous Goods
- Collision Risk Management
- Marine aspects of Emergency Response (ER), including ERRVs, FRCs, and daughter craft, performance standards of TEMPSC and competency of marine personnel
- Marine Access and Egress
- Marine and Aviation communications

(d) Decommissioning and dismantling of installations

In a number of the above sub topics there is significant overlap with the areas of responsibility of other teams both within OSD 3 and elsewhere in the Division.

1.3. Because of the nature of these topics, OSD works closely with other regulatory and industry bodies, including Oil & Gas UK, IADC, BROA, ERRVA, MCA, CAA and IMO to deliver these strategies and to ensure that all interfaces between the relevant stakeholders and HSE are effectively managed, and that OSD is fully aware of developments and initiatives with a bearing on the safety and effectiveness of emergency response, aviation and marine operations and decommissioning activities.

2 EMERGENCY RESPONSE

2.1 Background

2.1.1. There is a regulatory requirement to secure an effective emergency response to emergencies affecting persons on an offshore installation or engaged in activities in connection with it, and which have the potential to require

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evacuation, escape and rescue. The principal legislation relevant to emergency response offshore is contained in the Health and Safety at Work Act (HSWA), the Offshore Installations (Safety Case) Regulations 2005 (SCR) and the Offshore Installations (Prevention of Fire and Explosion, and Emergency Response) Regulations 1995 (PFEER) although other regulations may have application to specific areas of emergency response.

2.2 Intervention Strategy

2.2.1. Regulatory responsibility for enforcement relating to offshore emergency response lies solely with the Health and Safety Executive (HSE) although there are significant interfaces with the regulatory responsibilities of the Maritime and Coastguard Agency (MCA) and the Civil Aviation Authority (CAA).

2.2.2. OSD 3.3 will carry out safety case assessment of the emergency response topic as required by the Offshore Installations (Safety Case) Regulations 2005 and in line with published guidance⁽¹⁾ on topic assessment of the major accident hazard aspects of safety cases. In addition to ensuring continued regulatory compliance, this assessment activity will be used to inform our intervention strategy.

2.2.3. OSD 3.3 will conduct a 5 year programme of proactive inspections of duty holders' arrangements for offshore emergency response to assess and ensure compliance with regulations and industry and other regulators' guidance on good practice. This programme will aim to cover all duty holders operating in the UKCS, but with priority given to:

- duty holders who have recently acquired some of the older installations;
- duty holders who wish to introduce significant changes to their emergency response arrangements; and
- duty holders who wish to adopt novel approaches to emergency response.

Particular attention will be given to the duty holders' use of assessment to establish performance standards for emergency response arrangements and the duty holders' arrangements for monitoring and auditing their compliance with such standards.

2.2.4. OSD 3.3 has developed a PFEER audit tool which it has piloted with a duty holder and hopes to use more generally across the industry in the future. The purpose of the audit process is to confirm that a duty holder can:

- demonstrate the systems and equipment in place for emergency response are appropriate for the duty holder's installations and their potential for major accident hazards emergency response arrangements continue to be appropriate
- demonstrate that management procedures are in place to ensure that the duty holder's emergency response arrangements continue to be appropriate

During 2008/2009 we intend to continue developing this audit tool and apply it to other duty holders.

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2.2.5. Recent research studies in Canada have reignited concerns about set back of davit launched TEMPSC with the potential for collision with the installation in adverse weather. Following the completion of OSD commissioned research entitled 'Overview of TEMPSC Performance Standards'⁽²⁾, it is now our intention to compile a comprehensive database of TEMPSC on offshore installations in the UKCS detailing the local factors which might influence their ability to launch. Once completed, this database will be used to prioritise inspection activity on those installations with marine evacuation systems most at risk of impairment due to adverse environmental conditions.

2.3 Work with stakeholders

2.3.1. OSD is represented by OSD 3.3 on the Evacuation, Escape and Rescue Technical Advisory Group (EERTAG) which is the main industry group for dealing with offshore emergency response matters. Membership includes representatives from appropriate divisions of HSE; technical representatives of offshore operators including O & G UK, IADC and BROA; the Trades Union Congress; Emergency Response and Rescue Vessel Association (ERRVA); Maritime and Coastguard Agency (MCA) and other similar organisations representing the offshore industry and regulatory agencies. The principal aims of EERTAG are to:

- identify, compile and develop technical information on EER arrangements for offshore installations.
- publish and disseminate that information within the offshore industry to enable improvements in EER capabilities.
- provide information for suppliers, designers, operators and owners to take account of when developing their EER arrangements.
- advise the industry and associated regulators on areas where further research and guidance may be needed.

2.3.2. OSD and the above stakeholders also meet regularly to discuss significant offshore emergency response issues and research matters on a one to one basis.

2.3.3. During 2008/2009 we will work with stakeholders to revise the following guidance documents:

- Oil & Gas UK Guidelines for the Management of Emergency Response on Offshore Installations⁽³⁾
- Oil & Gas UK Guidelines for Ship/Installation Collision Avoidance⁽⁴⁾

and in future years continue our participation in the revision of the following guidance documents:

- Oil & Gas UK Emergency Response & Rescue Vessel Management Guidelines⁽⁵⁾
- Oil & Gas UK Emergency Response & Rescue Vessel Survey Guidelines⁽⁶⁾

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2.4 Future challenges

2.4.1 During 2005 significant problems with the structural integrity of certain models of freefall TEMPSC emerged from the Norwegian sector where such vessels are relatively commonplace compared with the UK. These problems have been the subject of a major OLF study which has called into question the previous dependence solely on SOLAS compliance as a credible means of demonstrating the fitness for purpose of these vessels in an offshore as opposed to a purely marine context. Other concerns that have arisen more recently from the OLF study include the possibility of set back following TEMPSC launch in adverse weather and the possibility of the occupants of certain seats in free fall TEMPSC being subject to excessive 'g' forces, again following launch in adverse weather.

2.4.2. UK duty holders with freefall TEMPSC of Norwegian manufacture have adopted the findings of the OLF study to resolve these problems. However duty holders with TEMPSC not included in the OLF study have commissioned their own research to demonstrate the fitness for purpose of their vessels. While going a long way to achieving this goal, this research has revealed uncertainty in the effects of wind strength and direction on the launch of freefall TEMPSC. The possibility of HSE participating in this research to ensure these issues are resolved should be considered.

2.4.3. There are now a considerable number of TEMPSC offshore which have been in service for many years and the effect of prolonged exposure to UV and other environmental factors on the glass-reinforced-plastic material from which many TEMPSC are fabricated is poorly understood. The possibility of a joint industry project to investigate lifeboat structure aging by analysing samples of fibreglass from one of these old boats should be explored.

2.4.4 Some years ago HSE published an offshore technology report entitled 'Compatibility test protocol for lifejackets and immersion suits on offshore installations'⁽⁷⁾. However the size chart used to select test subjects provided within this report is taken from the IMO standard used for assessing life-saving appliances carried on ships, including immersion suits and lifejackets. The adult size range used by IMO covers all individuals weighing more than 32kg, and thus includes older children (from approximately 10 years of age upwards). This means that the size range is rather biased towards smaller sizes when an adult-only population (>18 years of age) is being considered. A number of compatibility assessments undertaken by duty holders have demonstrated some problems with the range of subject sizes suggested within this HSE guidance document.

2.4.5. The most recent anthropometric survey of the UK offshore population was conducted almost 20 years ago and since then many changes to the demographics of the population have taken place. Consideration should be given to a project to gather current anthropometric data to permit a revision of the compatibility protocol.

2.4.6. Lifeboats which meet the SOLAS requirements are normally based on an average weight per person of 75 kg. However, there is evidence that the average weight of persons travelling to UK oil and gas installations has increased substantially since a previous survey in 1984. Gathering current anthropometric data to update the compatibility protocol would also provide information to include in guidance to duty holders on lifeboat loading.

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3 AVIATION OPERATIONS

3.1 Background

3.1.1 Helicopter travel is the principal means of transportation of personnel to and from offshore installations and despite having a good safety record⁽⁸⁾ still remains an important issue for duty holders and the offshore workforce. For that reason, there remains a need for HSE to monitor and assist as far as possible with the development of initiatives to improve the safety of helicopter operations.

3.2 Intervention Strategy

3.2.1 Regulatory responsibility for enforcement relating to offshore helicopter travel is shared between the Health and Safety Executive (HSE) and the Civil Aviation Authority (CAA). The HSE enforces the Health and Safety at Work Act (HSWA) and related Regulations in respect of offshore Installations.⁽⁸⁾

3.2.2 OSD 3.3 will conduct a 5 year programme of proactive inspections of duty holders' arrangements for offshore helicopter operations to assess and ensure compliance with regulations, Oil & Gas UK and CAA guidance on good practice^(9,10,11). This programme will aim to cover all duty holders operating in the UKCS, but with priority given to the smaller companies who have recently acquired some of the older installations. Particular attention will be given to verification arrangements, helideck crew competency, companies' arrangements for auditing their safety management procedures with respect to helideck operations, and standards of helideck netting and fire fighting foam management in the light of an ongoing inspection project.

3.2.3 During 2008/2009 we intend to develop a CD based tutorial package on helicopter operations for OSD inspection management team (IMT) inspectors. This should enable, in the long term, responsibility for carrying out the proactive programme of helicopter operation inspections to be passed to OSD IMT teams. However, OSD 3.3 will continue as the topic specialist focal point, and will ensure that generic issues identified during these inspections are fed back to industry.

3.3 Work with stakeholders

3.3.1 OSD is represented on the Aviation Safety Technical Group (ASTG) which is the main industry group for dealing with offshore aviation safety matters and which reports directly to the Oil & Gas UK Health, Safety and Environment Management Representative Team. Membership comprises senior representatives from the oil and gas industry, helicopter operators, the CAA and OSD. The primary remit and scope of ASTG is to:

- Identify issues of strategic importance, which require action;
- Work together to ensure that risks are identified and industry safety standards are maintained at a high level;
- Influence the development of appropriate regulation and industry guidance through effective liaison between helicopter operators, the industry and regulators;

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- Provide effective means of communication on all aviation safety issues within the industry.

3.3.2 In addition to ASTG, OSD chairs the [Offshore Industry Advisory Committee Helicopter Liaison Group](#) (OIAC HLG) which comprises Industry Representatives, Trade Unions, the Helideck Certification Agency (HCA) and CAA. Its primary remit is to provide a forum for advising OIAC on safety policy matters associated with the provision and operation of helicopter facilities at offshore installations, which are subject to HSWA. It meets twice a year.

3.3.3 OSD also attends the Joint Industry/CAA Helicopter Research Management Committee (HSRMC). Its primary remit is to identify helicopter safety research suitable for funding by individual member organisations and to monitor progress. Details of OSD sponsored research can be found on www.hse.gov.uk/aboutus/hsc/iacs/oiac/hlg.htm.

3.3.4 OSD and CAA also meet regularly to discuss major offshore helicopter safety issues and research matters on a one to one basis.

3.3.5 During 2008/2009 we will work with stakeholders to revise the following guidance documents:

1. Oil & Gas UK Guidelines for the Management of Helideck Operations
2. OIAC HLG Design Guide
3. CAP 437 Offshore Helicopter Landing Areas – Guidance on Standards

3.4 Future challenges

3.4.1 OSD is currently co-funding research with CAA and industry into the development of a standard for helicopter escape emergency breathing systems, a helideck motion severity index, and friction criteria for aluminium helidecks. HSRMC (see para 3.3.3 above) will remain the forum whereby helicopter research needs will be identified.

3.4.2 OSD is addressing concerns in consultation with CAA, HCA and Oil & Gas UK about changes to staffing practices on Normally Unattended Installations (NUIs) which are often leading to increasing visit frequencies, particularly with regards to the continuing adequacy of helideck management issues, including fire fighting arrangements.

3.4.3 No other challenges can be foreseen at this stage other than for HSE to ensure that the current good safety standards set by the industry continue to be met. In addition OSD 3.3 will continue to maintain a close working relationship with stakeholders and colleagues, in order to develop effective research to anticipate and meet any challenges that may arise.

4.0 MARINE OPERATIONS

4.1 Background

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4.1.1 Vessels and other marine craft play an important role in day-to-day offshore operations as well as providing the necessary marine assets for the evacuation, escape and rescue of personnel from and around an installation. There are a diverse range of issues in respect of marine operations that include logistics, EER performance standards and the management of collisions between vessels and installations.

- PFEER, under Regulation 5, requires the duty holder to conduct an assessment to establish standards in relation to EER. Regulation 8 requires the Duty Holder to prepare, after consultation with other involved parties, an emergency response plan.
- Regulation 10 requires duty holders to take appropriate measures to detection incidents, such as ship collision.
- Regulation 15 requires the duty holder to have in place effective means of evacuation such as TEMPSC.
- Regulation 17 of PFEER requires installation operators to put in place ‘*effective arrangements*’ that offer survivors a ‘*good prospect*’ of rescue and recovery and taking to a ‘*place of safety*’. This should include arrangements with suitable persons beyond the installation.

Although standby vessels (ERRV) are specifically excluded from the HASWA, HSE has an interest in the function of such vessels as they, when contracted to the duty holders, enable the duty holder to comply with the requirements of PFEER 17.

4.1.2 Offshore legislation in respect of supply vessel operations applies to installations and any activities on or near them on vessels working in connection with the installation (except vessels being used as an ERRV). Activities in this area that come within OSD’s remit include loading, unloading, and activities immediately preparatory to them.

4.1.3 Shipping, both passing traffic and attendant vessels, can pose a threat to all installations. Under offshore health and safety legislation, ship collision is defined as a major accident hazard and the duty holder of an installation is therefore required to carry out an appropriate risk assessment and have in place an effective safety management system. Such a system should include a method for the detection of ship collision and ways to reduce the risks to as low as reasonably practicable (ALARP). The nature of ship collision is such that, though infrequent, it realistically holds out the possibility of catastrophic loss.

4.2 Intervention Strategy

4.2.1 We will continue with a cyclical 5 year inspection programme of duty holder collision risk management systems to assess compliance with regulations and recently revised industry guidance on good practice.⁴ Particular attention will be given to emergency procedures, verification arrangements, crew competency and companies’ arrangements for auditing their safety management procedures with respect to collision risk management. We will ensure that close liaison is maintained with those OSD teams with overall responsibility for emergency response, verification, audits and competency to ensure the team’s approach follows the Divisional intervention strategy.

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4.2.2 Support will be planned for the follow-on to the KP2 inspection programme, focusing on offshore and onshore logistic operations in relation to support vessels and in supply bases. These inspections will be co-ordinated with offshore inspections. The KP2 programme identified the importance of safe supply vessel loading, discharging and back loading procedures and performance standards for improving safety associated with lifting operations on offshore installations. We intend to undertake a specific inspection programme covering this topic, to ensure that such operations are conducted in accordance with accepted industry standards.

4.2.3 Planned intervention in relation to the marine aspects of EER will be conducted to cover various marine and aviation assets as required (TEMPSC, ERRV, Rescue Craft, SAR helicopters, PPE) as well as duty holders' emergency response procedures to ensure that they meet the appropriate performance standards and comply with PFEER.

4.3 Work with stakeholders

4.3.1 OSD represents HSE on the Marine Safety Forum, which has the following remit:

- To air marine safety issues in an open forum of service users and providers.
- To highlight areas of particular concern and reach consensus on action required to minimise risk of major incidents.
- Take pre-emptive action on minor issues that have the potential to escalate.
- To represent marine concerns within the "Step Change in Safety" initiative.
- To work together to share safety information and good practice across the whole industry.

Membership comprises ship owning/managing companies, logistics companies, oil companies, marine consultants, port authorities, Maritime and Coastguard Agency and the Chamber of Shipping. It meets three times a year.

4.3.2 We will continue to engage with EERVA, MCA and other regulators both here in the UK and elsewhere to develop an operational policy on realistic performance standards and safe operational envelopes of marine emergency response systems, including, though not limited to, FRC and DC launch and recovery, the safe operation of TEMPSC as well as other issues as and when they arise.

4.3.3 OSD will work with Oil & Gas UK to organise and participate in an industry emergency response seminar during 2008/09 in order to review progress on ER arrangements, explore current capabilities, and provide an insight into the current and future challenges facing the industry.

4.4 Future challenges

4.4.1. Future challenges, as they effect marine operations, are likely to come from greater use by industry of dedicated marine assets for rescue purposes in place of the ERRV fleet, and the development of an operational policy on realistic performance standards for marine emergency response systems. OSD 3.3 will continue to engage with other stakeholders and colleagues in order to tackle these challenges.

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4.4.2. OSD will continue to promote research and work with duty holders and industry to review current practices and performance standards in the area of marine aspects of emergency response. As part of this process, OSD 3.3 will continue to maintain and update a record of EER systems that are being introduced into active service. Research in the following area has also been identified:

- Update of Ship/Platform Collision Incidents Database in order to ensure that industry has the most current data available for assessing collision risk in the UKCS.

5.0 DECOMMISSIONING

5.1 Background

5.1.1. The offshore industry will eventually need to consider the removal of over 200 installations from the UKCS, taking into account international and European obligations with respect to the environment, safety of navigation and UK safety legislation. So far a limited number of decommissioning and dismantlement operations have taken place. Most have been on a modest scale and relatively straightforward technically. However the removal of more installations in harsher conditions, in depths greater than 100m and with sub-structures weighing more than 10,000 tonnes can be expected in the future. A balance will need to be struck between the environment, the health and safety of workers, the costs involved, and the required technology.

5.1.2. The decommissioning of offshore oil and gas installations and pipelines on the United Kingdom Continental Shelf (UKCS) is controlled through the Petroleum Act 1998 which is enforced by DECC⁽¹²⁾. HSE's role in decommissioning and dismantlement stems from SCR and a range of other statutory health and safety provisions which require that decommissioning and dismantlement of an installation is to be done safely.

5.2 Intervention Strategy

5.2.1. Although research and technical support tasks commissioned by OSD into the Norwegian and US experiences has provided some insight into the technical and safety issues, our experience to date is still limited and may be out of date. With support from OSD's Topic Teams we will therefore work closely with industry to update our experience of decommissioning and dismantlement activities and to disseminate those lessons to all interested parties. With this in mind, OSD will make proactive inspection of decommissioning and dismantling projects a high priority.

5.2.2 We will then develop suitable guidance to OSD inspectors to enable them to carry out their enforcement work in relation to the decommissioning and dismantlement of installations.

5.3 Work with stakeholders

5.3.1 OSD is represented on the TEDS group (The Early Decommissioning Synergy group). This group was set up in 1998 by UK and Norwegian operators to sponsor development of technologies to reduce decommissioning costs, increase

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safety and reduce environmental impact. The group is examining, for example, single lift technology, underwater cutting and improved methods of removing and returning platform modules to shore. It meets regularly two or three times a year.

5.3.2 One subgroup of the PILOT decommissioning project recently established is Workgroup 4, which is tasked with looking at technical, cost and supply chain issues. Important activities will be exploring technologies that could have a material impact on cost, safety and the sharing of good practice. We aim to approach industry in order to establish whether developing a close working relationship with this workgroup would be of benefit to OSD.

5.4 Future challenges

5.4.1 Future decommissioning and dismantlement operations can be expected to present a greater challenge technically and involve greater uncertainty in terms of safety particularly for the larger installations. The tendency so far has been for cessation of production (CoP) to be deferred to enable existing facilities to be used to maximise economic recovery of remaining reserves. For economic reasons this trend may continue for a while, but we can eventually expect to see a gathering pace of decommissioning and dismantlement operations. But over what timescale is likely to be notoriously difficult to judge.

5.4.2 OSD 3.3 will therefore continue to work closely with others, including those stakeholders mentioned above, and colleagues, to anticipate and meet these challenges through close liaison and effective research.

6.0 REFERENCES

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