Safety in numbers

George Petrie shares research into how to define staffing levels for offshore emergency responses

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About the author

George Petrie is a Chartered Human Factors Specialist and European Ergonomist with more than 20 years' experience in engineering, manufacturing, mining, rail and power generation as well as the oil and gas industry. This has included UK North Sea, Southern sector, the US, Europe, Russia and the UAE both offshore and onshore. He is currently consulting on behalf of IHF.

Effective response to unplanned emergency situations in the offshore environment is essential for ensuring the continued safety of personnel and the asset. This requires a robust emergency response (ER) process and the allocation of ER duties among offshore teams.

Determining the optimal number of personnel required to effectively manage various offshore emergencies is a complex undertaking, influenced by factors such as facility type, operational activities and potential hazards. Inadequate ER staffing can compromise response times, hinder rescue efforts and exacerbate the consequences of incidents, while excessive staffing may lead to unnecessary costs and inefficiencies.

Here, we'll explore the considerations and methodologies involved in defining appropriate offshore ER staffing levels, ensuring a balance between safety, operational effectiveness and resource optimisation.

Background

Released in December 2023, Offshore Energies UK guidance for Operational Risk Assessments (ORA) requires duty holders to undertake ORA when changes could affect crewing levels and assure competencies for critical roles. The requirement is based on an ER staffing level baseline, so the questions are:

1. What is the methodology to determine a baseline?
2. Where does this baseline 'live' in the management system to be effective?

As part of the research project, a total of 25 regulations, standards and research reports pertaining to ER have been reviewed. Significant gaps were identified in industry standards and three case studies are presented here that show actual deficiencies offshore.

Results and recommendations

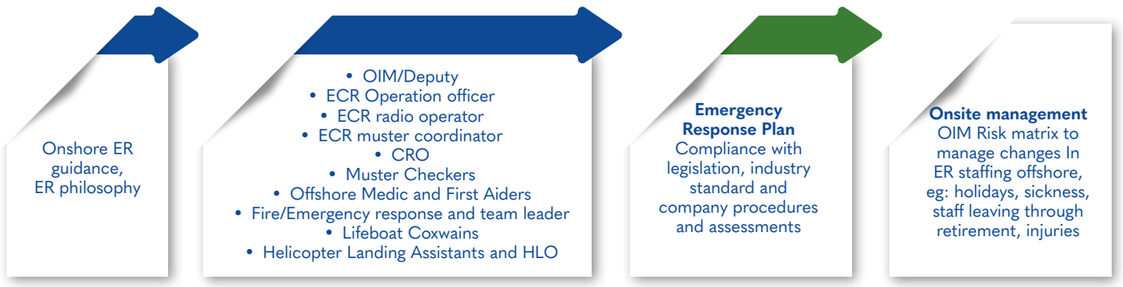
The findings from the case studies include an unclear methodology for defining minimum staffing requirements, no baseline for emergency duties and insufficient ER staffing levels. Misalignment between manuals and procedures was evident, with a lack of guidance for the offshore management of changes to emergency staffing levels. This was a key example of the disconnect from 'work as imagined' vs 'work as done'.

The various regulations and standards for ER staffing levels were found to be inadequate in some areas and especially when it came to determining a clear staffing level baseline. It's also unclear as to where that baseline should be located within the management system to be effective. There are areas where there are significant gaps in guidance when determining specific staffing levels, for example, the number of personnel in ER/fire teams or the number of offshore first aiders.

The findings of the research identified that the risk assessments that should clarify the ER staffing tend to focus instead on the 'hardware' and not the staffing side. The output of these risk assessments and guidance in many cases does not determine the baseline ER staffing levels, and various roles and responsibilities are misaligned. The process for mitigating risk from inadequate ER staffing is often left to the offshore management team with little guidance as to what actions to take.

The recommendations are that duty holders should review their risk assessments to ensure the ER staffing levels are clearly determined. The primary document should be the emergency response plan (ERP) that includes the ER staffing baseline, offshore ER list, a risk matrix to assess any impacts from lack of ER staffing and clear roles when multitasking is acceptable. The diagram below describes how this would work in practice.

This ensures that all the documents to manage the ER staffing levels are aligned and then supported by the onshore systems such as the training and competency system ensuring that resources are optimised. ■



Case study 1

Offshore HSE human factors inspection

During an offshore HSE human factors inspection it was identified that the asset had been operating for a considerable period with a full crew of 'green hats' – new and less experienced workers. There was a high turnover of crews with significant pressure on offshore management team.

Key issues found:

- Offshore installation manager (OIM) did not have any clear indication of when to shut the asset down due to lack of competent ER crew.
- Production supervisor was covering night shift control room operator (CRO) to allow outside operations, leading to major fatigue issues and risk as production supervisor has duties over and above CRO in an emergency.
- Neither the safety case, station bill, ER plan or the offshore ER list had details of ER numbers, but did have conflicting details of ER crewing offshore.
- Roles and job titles were not aligned between documents.
- Onshore management unaware of any issues. Key performance indicators (KPIs) for people was 'green'. Subsequent review found that vacancies and new starts were not included in KPI measurement and only the duty holder and main contractor employees were included.

Case study 2

Offshore fatigue management audit

During an offshore fatigue audit it was identified that the asset had been operating in non-compliance with the safety case ER requirements and fatigue issues caused by lack of crew.

Key issues found:

- Production supervisor covering their own position, CRO and OIM with no risk assessment and onshore unaware.
- Safety case specified two fire teams but only one found (safety case thorough review had just been completed).
- Safety case and station bill did specify numbers in ER roles, but roles and job titles/numbers were not aligned between documents and no staffing level study found.
- On occasions the asset was down to one coxswain onboard, although the escape risk assessment required two lifeboats to evacuate asset. Key concern is if that coxswain was injured in the event then no coxswain available to launch lifeboat.
- Onshore management unaware of any issues.

Case study 3

Down-manning to minimum offshore core team

Duty holder is looking to reduce core team on an asset and use campaign maintenance. This will be a material change to the safety case and organisational change.

Key issues found:

- Operations looking at core team of 14, this is to cover ER and operations roles.
- Safety case, station bill, ER plan and the offshore ER list had details of ER numbers but conflicting details of ER crewing offshore.
- Roles and job titles were not aligned between documents.
- Manning level study found but generic and did not include ER.