



Safety Case Workforce Involvement

Technical Note

Issue 1
December 2022

Acknowledgments

In preparing and publishing this document, OEUK gratefully acknowledges the contribution of members of the work group, namely:

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We also appreciate reviews undertaken by members of the OEUK Major Hazards Technical Group, Step Change in Safety - Safety Representatives Network and the Health and Safety Executive.

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ISBN: 978-1-913078-41-6

PUBLISHED BY OEUK

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List of abbreviations

Abbreviations	Definitions
ALARP	As Low As Reasonably Practical
CBT	Computer-Based Training
ESD	Emergency Shutdown
ESR	Elected Safety Representatives
HAZID	Hazard Identification Study
HAZOP	Hazard and Operability Study
HSE	Health & Safety Executive
HSEA	Health Safety & Environment Adviser
IOGP	International Association of Oil & Gas Producers
MAH	Major Accident Hazard
OIM	Offshore Installation Manager
ORA	Operational Risk Assessment
PFD	Process Flow Diagram
SECE	Safety & Environmental Critical Element
SCiS	Step Change in Safety
TA	Technical Authority
UKCS	United Kingdom Continental Shelf

1 Introduction

This technical note has been developed to provide guidance to the UK oil and gas industry to meet the requirement of The Offshore Installations (Offshore Safety Directive) (Safety Case etc.) Regulations 2015 for workforce involvement in the development, update and review of a safety case. Specifically, Schedule 6 for production and Schedule 7 for non-production safety cases which require:

A summary of any worker involvement in the preparation of the safety case, including how any safety representatives for that installation were consulted with regard to the revision, review or preparation of the safety case pursuant to regulation 23(2)(c)(i) of the Offshore Installations (Safety Representatives and Safety Committees) Regulations 1989(1).

Paragraph 432 of the Guidance to the Safety Case Regulations (L154) expands on this to describe how such involvement should be summarised in the safety case:

The summary should include an outline of how the workforce were consulted in the development of the safety case. It should demonstrate that major accident hazard information was communicated in a manner accessible to all so that informed comment could be made. The summary should include a description of how safety and, where present, environmental representatives were consulted and what procedures were used to encourage them to offer their views. It should demonstrate that sufficient time was allowed for safety representatives to discuss matters with the workforce. It should also explain how the views of the workforce were taken into account in the preparation of installation safety cases or their subsequent amendments. The summary does not need to be very detailed providing it covers these points.

While the above defines the regulator's expectations, it is useful to put this into context. The Nimrod disaster¹ highlighted that workforce participation in safety cases is vital in the aviation industry, insofar as an aircraft safety case is akin to a Hazard and Operability study (HAZOP), not an offshore safety case. This confirms that workforce participation in activities such as HAZOP is vital but does not necessarily help to determine what involvement in the safety case itself requires, as opposed to the highly important supporting studies such as HAZOPs. The fact that participation in HAZOP, or similar studies, is of at least as much importance as the safety case itself is consistent with Lord Cullen's original thinking on the purpose of a safety case as he expressed it in Paragraph 17.35 of his original inquiry report². It states:

Primarily the safety case is a matter of ensuring that every company produces a Formal Safety Assessment to assure itself that its operations are safe and gains the benefits of the Formal Safety Assessment already described.

Only secondarily is it a matter of demonstrating this to the regulatory body.

That said, such a demonstration both meets a legitimate expectation of the workforce and the public and provides a sound basis for regulatory control.

In addition to the requirements given above, the Offshore Installations (Safety Representatives and Safety Committees) Regulations 1989 (Third Edition, 2012) sets a regulatory requirement that the Duty Holder must:

¹ <https://www.gov.uk/government/publications/the-nimrod-review>

² <https://www.hse.gov.uk/offshore/piper-alpha-disaster-public-inquiry.htm>

Regulation 23 (c) without prejudice to sub-paragraph (b) above, to consult safety representatives in good time with regard to -... the preparation of a safety case relating to the installation under the Offshore Installations (Safety Case) Regulations 1992;

This means that that Elected Safety Representatives (ESRs) must be consulted on the preparation, review and revision of a safety case. Guidance on the Offshore Installations (Offshore Safety Directive) (Safety Case etc) Regulations 2015 L154 states:

Regulation 23 of the Offshore Installations (Safety Representatives and Safety Committees) Regulations 1989 (OSRSCR) places a duty on the installation operator or owner to consult safety representatives appointed under those Regulations on the preparation, review and revision of a safety case for the installation in question. This is without prejudice to the general duty in regulation 23(b) to consult safety representatives with a view to making and maintaining health and safety arrangements.

Consultation must be a genuine attempt to seek the views and contributions of workforce representatives. Duty holders are not obliged to accept any proposals made, but they must consider them properly.

Furthermore, the Principles of Process Safety Leadership for the Offshore UKCS Oil & Gas Industry encourages workforce involvement in process safety and states that:

Engagement of the workforce is needed in the promotion and achievement of good process safety management.

2 Purpose and scope

The assumption that the workforce should be involved in a safety case has generally been taken to mean that the workforce must review the safety case before it is finalised and submitted to the HSE. However, such reviews can often be superficial and have limited workforce participation.

Notwithstanding the legal requirement to involve ESRs, it is evident that involving the workforce will lead to the production of a better safety case and a workforce with an improved understanding of the safety case, its structure and contents as well as an increased understanding of their asset's MAHs.

The purpose of this technical note is to provide industry with good practice on how to:

- Involve the workforce including ESRs in the preparation, revision and review of safety cases.
- Raise awareness of MAH management, which is a key aim of the safety case legalisation.
- Demonstrate the involvement of the workforce in the safety case.

This technical note is applicable to all operators and owners at all stages of the life of an offshore production or non-production installation.

3 Effective workforce involvement with the safety case

3.1 Workforce involvement in the generation and update of safety cases

3.1.1 General principles

On a day-to-day basis, the safety case is generally not used by the workforce. This is not because of any particular negative facet of the safety case. Rather most work done offshore, or its planning onshore, is by necessity at a greater level of detail than may be described in the safety case. The workforce still needs to understand the hazards that exist and its role in reducing the risk they pose, but this is not necessarily best achieved by their direct input into, or review of, the safety case.

As an example, the workforce will not regularly consult the safety case to find out the strength of a blastwall. The blastwall needs to be such that the risk from explosions is as low as reasonably practicable (ALARP) and this needs to be summarised in the safety case, but the offshore workforce has very limited interaction with the definition of its performance, or design and does not need to know its strength on a day-to-day basis.

However, whether for a new safety case, or a change or review of an existing one, workforce involvement in the aspects that they interact with on a day-to-day basis is key to ensuring safe operations. This is likely to be achieved through HAZIDs, HAZOPs, safety critical task analysis, management of change processes and risk assessments and similar processes that are the foundation of the safety case. These processes have a key role in ensuring that the platform is operated in a way that minimises risk. Participation in them is more important than the workforce reviewing the safety case in its entirety. An understanding of Major Accident Hazards (MAHs) is critical to quality participation in these studies. Section 4 gives guidance on how this can be achieved.

Guidance on workforce involvement through direct update or review of the safety case, involvement in the studies that support it and the need for them to be consulted on the Safety Case are outlined below.

3.1.2 Direct minor update of the safety case

For a direct minor update of the Safety Case, this may be red-lined by any member of the workforce and reviewed by Discipline Engineers and / or Technical Authorities (TAs) who are responsible for the change. For example, if the way in which items of equipment mentioned therein is changed or a pressure range is modified then it might be red-lined offshore but checked and incorporated onshore.

3.1.3 Involvement in studies underpinning the safety case

The workforce needs to be involved in studies that underpin the safety case. Good practice in this area includes:

- Relevant members of the offshore workforce, e.g., team leads, Offshore Installation Manager (OIM), ESR etc attend hazard risk assessments (HAZIDs / HAZOPS / MAH worksheets or Bowtie diagrams etc.).
- Workforce involvement during design eg, ergonomic design of plant, layout reviews etc.

The workforce will always be involved in the studies supporting the first safety case, and some may be involved in its development.

3.1.4 Consultation on the safety case

As quoted in Section 2, Clause 432 of L154 describes the requirements for ESRs to be consulted on the development of a safety case. The requirements for general workforce involvement are given in Section 1. This does not necessarily mean review of the safety case, but it does require ESRs to be consulted. For lesser changes the workforce can be consulted on through the ESRs, but for more significant changes direct consultation is appropriate.

Consultation is a process of explanation of the changes that are about to be made to the safety case (and hence management of major hazards) and taking feedback on these changes. Within this:

- The change should focus on any changes to major hazards and the way they are managed.
- The level of information provided, and its communication should reflect the magnitude of the change.
- The consultation should happen before the safety case is completed and earlier consultation makes it simpler for feedback relating to the management of major hazards to be acted on.

The level of consultation with the workforce in any safety case revision will depend on factors such as whether the change directly affects the workforce such as the evacuation arrangements or if it is a detailed engineering change with limited impact on the workforce. It will also depend on whether the change is minor (no consultation is expected for corrections, or simple changes) or major.

When a change may directly affect the workforce, it is expected that they would be consulted directly. For example, if evacuation arrangements are being changed, the whole workforce should be consulted. But it might not be efficient or productive to review the safety case update itself.

For an organisational change it may not be appropriate to consult the whole workforce.

Good practice for a consultation and its communication includes:

- HSEAs / ESRs being made aware of upcoming material changes via consultations and given information that can be shared with constituents (coverage across shifts is important).
- The OIM being part of the decision on whom in the workforce needs to be consulted about the change.
- There being a named focal point to discuss any change with.
- Issue note / briefing pack sent out to inform workforce of the change.
- Record of revisions to the safety case recorded in revision history.
- Changes being communicated at site, either in dedicated sessions or during regular safety meetings etc. It is important that the changes are communicated so that non-technical personnel can understand them and that there is good coverage across shifts.

3.2 Thorough reviews

Workforce involvement in the 5 yearly safety case thorough review will generally be similar to that associated with a material change but there are several examples of good practice for workforce involvement with a thorough review including:

- Identifying the key personnel that need to be involved and what this entails. This can be detailed in the safety case thorough review procedure.

- Including identified key personnel, i.e., ESRs, OIM, team leads, HSEA etc., in a thorough review kick-off meeting, for example, to ensure they understand the process and why their involvement is important.
- Allocating specific sections of the safety case to relevant offshore and onshore personnel, e.g., TAs, to review to check for errors, omissions and overall accuracy.
- Having members of the thorough review team carry out interviews with offshore personnel who are involved with maintaining safety & environmental critical elements (SECEs) with targeted questions depending on job role to give them the chance to raise any concerns / issues.
- Inviting relevant members of the offshore workforce, e.g., those who have participated in the above tasks, to review the management of MAHs through ALARP / MAH workshops, or review of MAH worksheets or bowtie diagrams etc. This may result in improving the demonstrations given in the safety case or making changes to improve processes or plant.

3.3 Combined operations

The combined operations section of an installation's safety case should describe the way workforce involvement is carried out before any combined operation recognising that new hazards or change to the existing ones may occur depending on the nature of the operations taking place.

Additional risk assessments will likely be required for the combined operation and possibly other design activities e.g., fire and gas and communication interfaces. The relevant members of the workforce should be involved with these and the new or altered hazards should be communicated.

3.4 Other MAH involvement

The workforce is also involved in many other processes that formally assess MAHs, which can also help with understanding them e.g., operational risk assessments (ORAs) and incident investigations.

4 Major accident hazard awareness

4.1 Introduction

A key aspect of MAH prevention is to raise awareness of MAHs and help the workforce understand how their decision making, behaviours and interactions with systems and processes can collectively prevent MAHs. In turn, providing MAH awareness will enable the workforce to arrive at informed opinions about the risks and hazards to which they may be exposed on the facility, allowing them to effectively contribute to the assessments that feed into a safety case.

Different job roles may require different approaches to MAH awareness. Workforce awareness training can take several forms to suit the installation, MAHs and the workforce. Selecting an appropriate technique will depend on factors such as:

- Organisational priorities, budget and expectations.
- Data gathered on the effectiveness of previous initiatives.
- The existing job role and skill set of individuals in the workforce.

When assessing who and what level of awareness are required, it is important to recognise that most of the workforce will need to refresh their awareness from time to time.

It should be noted that the Offshore Installations (Safety Representatives and Safety Committees) Regulations 1989 (Third Edition, 2012) details ESR workforce involvement with the safety case. This document is not intended to be a definitive list of all possible relevant training but to provide good practice examples of methods to provide MAH awareness and increase workforce involvement. Furthermore, it was written with the intent of expanding the definition of workforce involvement to include more than just the ESRs.

4.2 Methods of MAH awareness

The table below gives examples of how to improve workforce MAH awareness both on and offshore, their advantages and the issues to consider.

Method of awareness training	Examples	Advantages	Issues to consider
<p>Interactive workshops</p> <p>Participants interact with other participants and instructors</p>	<ul style="list-style-type: none"> Internal process safety awareness training including interactive group meetings discussing management of MAHs potentially using MAH worksheets or Bowtie diagrams. Senior safety engineer discusses a MAH with a small group using interactive workshops or virtual reality to seed the discussion. 	<ul style="list-style-type: none"> Interactive workshops can lead to greater retention of information by participants. In-person learning leads to increased participation and engagement. Course can be delivered several times with little additional effort; so easier to capture more people. 	<ul style="list-style-type: none"> Dependant on the availability of workforce and whether this impacts the timescale in which the training needs to be delivered – could be difficult logistically to scale to whole workforce. Needs well-trained facilitator. Could be more costly than other methods.
<p>Physical demonstration</p> <p>Includes live demonstration of MAHs in a controlled environment</p>	<ul style="list-style-type: none"> Physical hazard awareness: one-day training course. 	<ul style="list-style-type: none"> Seeing MAH in real life which leads to greater understanding of MAHs. 	<ul style="list-style-type: none"> More time-consuming. Could be more costly than other methods. Planning and logistics more time consuming.
<p>e-Learning</p> <p>The use of videos and Computer Based Training (CBT)</p>	<ul style="list-style-type: none"> Online hazard awareness training potentially including bowtie or MAH worksheet awareness. International Association of Oil and Gas Producers (IOGP) and Step Change in Safety (SCiS) process safety fundamentals videos. Lessons learned videos. 	<ul style="list-style-type: none"> Easy to deliver to any location. Can be easily given to a large number of people. Less costly than in-person courses. Can be completed at individuals own pace. Flexible timing and easier to capture more people. 	<ul style="list-style-type: none"> Courses can be completed without full attention on the training and absorption of the material. No interaction with instructor or other participants and less engagement. Dependant on quality of materials as there is no instructor. Less effective when used in isolation.

Method of awareness training	Examples	Advantages	Issues to consider
<p>Visual aids and summaries</p> <p>The use of posters, documents and presentations</p>	<ul style="list-style-type: none"> • Posters and infographics to communicate the MAHs in the safety case or SCiS quarterly themes. • Process flow diagram (PFD) combined with safety critical functionality and basic process control system. • Safety case summary document or presentation • IOGP and SCiS process safety fundamentals reading materials. 	<ul style="list-style-type: none"> • Easy to deliver. • Workforce digest at their own pace. • Inexpensive. 	<ul style="list-style-type: none"> • Reliant on individuals reading the information. • Less effective when used without discussion. • Workforce can become blind to large numbers of safety related and other posters.
<p>Meetings</p> <p>Delivery of information to an audience with opportunity for discussion</p>	<ul style="list-style-type: none"> • Safety meetings. • ESR meetings and forums. • Town halls. • Site Manager briefings. • Offshore Induction. 	<ul style="list-style-type: none"> • Easy to deliver. • Can be delivered in the workplace. • Suited for imparting information to a large group. • Inexpensive. 	<ul style="list-style-type: none"> • Less effective unless discussion is prompted. • Reliant on individuals listening and retaining the information. • Potential to be viewed as 'just another meeting'.

5 Demonstration of workforce involvement

The safety case needs to summarise the workforce involvement in its development. This is explained in paragraph 432 of the safety case regulations and each clause of paragraph 432 is examined below considering the approach described in the rest of this document:

The summary should include an outline of how the workforce were consulted in the development of the safety case.

Consultation can be directly on the safety case update (see Section 3.1.4), or through the studies that the safety is developed from (see Section 3.1.3), or a direct update (see Section 3.1.2). This needs to be described in the safety case.

It should demonstrate that MAH information was communicated in a manner accessible to all so that informed comment could be made. The summary should include a description of how safety and, where present, environmental representatives were consulted and what procedures were used to encourage them to offer their views. It should demonstrate that sufficient time was allowed for safety representatives to discuss matters with the workforce.

The way in which, for example, ESRs were provided with major hazard information before a safety case change should be summarised. Their views do not have to be on the safety case itself but can be on other MAH information provided that can be more easily understood and therefore easier for the workforce to review and provide feedback.

It should also explain how the views of the workforce were taken into account in the preparation of installation Safety Cases or their subsequent amendments.

The above description should include this aspect.

The summary does not need to be very detailed providing it covers these points.

With the potential for the safety case itself not to be reviewed by the workforce, there is a need for them to have good major hazard awareness such that the shorter summary information provided to them can be placed in context. Therefore, a summary of how the workforce are made aware of and methods employed in increasing their understanding of MAHs should be included in the safety case if the safety case itself is not reviewed by the workforce.



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