Information Booklet for
Offshore Personnel involved in Petroleum Exploration Activities in Ireland
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Purpose of this Information Booklet

The purpose of this booklet is to assist safety representatives and offshore personnel in understanding their role under Irish offshore legislation.

Safety representatives contribute to improving the safety of offshore personnel by representing their fellow workers, understanding their safety concerns, and participating in safety committee meetings and safety case development. This booklet will act as a guide and a resource for safety representatives on how to exercise the powers given to them by Irish legislation, as well as an information source on safety regulation for offshore personnel.

1. Regulatory Framework Ireland

1.1 The Commission for Regulation of Utilities

The Commission for Regulation of Utilities (CRU) is the independent safety regulator for major accident hazards for upstream (offshore and onshore) petroleum exploration and extraction activities in Ireland. For petroleum undertakings, operators and owners to carry out a designated petroleum activity, they must first hold a safety permit and accepted safety case(s) from the CRU.

The CRU regulates the industry in accordance with the Petroleum Safety Framework (PSF), a collection of regulations, regulatory documents and procedures. The underpinning legislation and key PSF documents can be found on the CRU website, including the Requirements of the Petroleum Safety Framework, which provides an overview of the PSF.

While the PSF covers all upstream designated petroleum activities, this booklet focuses on exploration activities and non-production installations.

1.2 The Health and Safety Authority

The Health and Safety Authority (HSA) is the national statutory body with responsibility for ensuring that over 2 million workers (employed and self-employed) and those affected by work activity are protected from work related injury and ill-health. The HSA do this by enforcing occupational health and safety law, promoting accident prevention, and providing information and advice across all sectors including offshore.
1.3 Irish Legislative Framework

1.3.1 CRU Legislation

The legislation under which CRU operates its upstream safety functions is briefly set out below.

- The *Electricity Regulation Act 1999* (the Act), as amended by the *Petroleum (Exploration and Extraction) Safety Act 2010* and the *Petroleum (Exploration and Extraction) Safety Act 2015*, gives the CRU responsibility for the safety regulation of petroleum exploration and extraction activities in Ireland;

- The *Petroleum Safety (Designation of Certain Classes of Petroleum Activity) Regulations 2013*, (S.I. No. 89 of 2013) set out the petroleum activities that require a safety permit from CRU. They include: exploration (well work); production; and decommissioning;

- Specific petroleum incidents must be reported to the CRU. These are set out in the *Petroleum Safety (Petroleum Incident) Regulations 2016*, (S.I. No. 166/2016);

- **Petroleum undertaking**: the legal entities named on the petroleum authorisation, as issued by the responsible Irish Government Minister, and subsequently on the CRU safety permit;

- **Operator**: means the entity appointed to conduct designated petroleum activities, including managing and controlling the functions of petroleum infrastructure (except non-production installations/Mobile Offshore Drilling Units); and

- **Owner**: means a person entitled to control the operation of a non-production installation.

1.3.2 HSA Legislation

The HSA has responsibilities in relation to the inspection of offshore workplaces. Work offshore is governed by the *Safety, Health and Welfare at Work Act 2005* and specifically by the *Safety, Health and Welfare (Offshore Installations) Act, 1987*. In addition to the 1987 Act there are sets of regulations which govern the various activities offshore. These consist of:


To facilitate co-operation between the HSA and the CRU, both parties have signed a Memorandum of Understanding, which is regularly reviewed.

Assisting safety representatives and offshore personnel in understanding their role under Irish offshore legislation.
2. Key Terms

2.1 What is a safety case?
A safety case:
- Is a standalone document which describes the components of the safety and environmental management system;
- Must demonstrate that the operator or owner has the ability and means to control major accident risks effectively; and
- Documents how operators and owners have reduced all risks to a level which is as low as reasonably practicable (ALARP).

The fundamental obligation placed upon the operator and owner under the Act is to reduce the major accident hazard risks to a level that is ALARP.

A safety case must include a demonstration that all the major accidents have been identified, their likelihood and consequences assessed, and that their control measures including associated Safety Environmental Critical Elements (SECEs) are suitable so as to reduce the risk of a major accident to an acceptable level.

In order to carry out well work activity, a well work safety case and a non-production safety case must be submitted to CRU for assessment. If the safety cases are accepted, the CRU will issue a safety permit for the proposed petroleum activity to be carried out.

2.2 What is ALARP
CRU legislation requires that all risks are reduced to a level that is as low as is reasonably practicable, or ALARP.

For designated petroleum activities, the process of managing risks to be ALARP must be demonstrated through the safety case. The CRU’s requirements for ALARP demonstration are described in the ALARP Guidance Document.

2.3 What is a major accident hazard?
A major accident hazard (MAH) is an occurrence (e.g. fire, explosion) which results from an uncontrolled event during designated petroleum activities that could impact on multiple persons, including members of the public/employees.
In Ireland, a major accident in relation to petroleum infrastructure or petroleum activities is defined as:

A. An event involving an explosion, fire, loss of well control, or release of oil, gas or dangerous substances involving, or with a significant potential to cause, fatalities or serious personal injury;

B. An event leading to serious damage of petroleum infrastructure involving, or with a significant potential to cause, fatalities or serious personal injury;

C. Any other event leading to fatalities or serious injury to multiple persons; or

D. Any major environmental incident resulting from the incidents referred to above.

A comprehensive hazard and risk reduction identification process, and its results, must be demonstrated in the safety case. This must include enough detail to fully understand the nature of each hazard and to identify the most appropriate risk reduction measures. The assessment must cover human factors, infrastructure, plant and equipment that could cause or contribute to a major accident. This includes subsea systems, pipework, utilities and process plant. MAHs should be specifically identified.

Detailed below are examples of MAHs which are specific to a Mobile Offshore Drilling Unit (MODU):

- Blowout;
  - Shallow gas;
  - Hydrocarbons in formation whilst drilling;
  - Hydrocarbons in the formation during coiled tubing work;
- Hydrocarbon inventories during well test;
- Entrained gas within mud system;
- Main generator room fuel/ ignition conditions;
- Pump room fire;
- Accommodation fire;
- Perforating gun charges;
- Dropped objects;
- Loss of position;
- Helicopter transport;
- Vessel impact;
- Toxic gas (H₂S);
- Loss of stability; and
- Loss of structural integrity.
**2.4 What is a Safety and Environmental Critical Element?**

SECEs are such parts of an installation and its plant, including computer programs, the purpose of which is to prevent or limit the effect of a major accident, or the failure of which could cause or contribute substantially to a major accident. Each SECE must have a performance standard associated with it that outlines what it must do to prevent or limit the effects of a major accident. Each SECE is also subject to independent verification carried out by an Independent Competent Body (ICB).

Examples of SECEs for MODUs are:
- Vessel Structure;
- Stability System;
- Ballast system;
- Bilge System;
- Watertight doors;
- Fire and Gas System;
- Primary Well Control Equipment;
- Secondary Well Control Equipment;
- Temporary Refuge;
- Life rafts;
- Lifeboats and Totally Enclosed Motor Propelled Survival Craft (TEMPSC); and
- Positioning Systems i.e. Dynamic Positioning.

SECEs are one part of the system that an owner or operator uses to manage MAHs. Barriers can be thought of as plant, process and people. The technical plant barriers are identified in the safety case as SECEs.

Process and people are considered operational and organisational barriers. The process barriers include the safety and environmental management system which outlines the process the operator/owner has in place to maintain barrier integrity. The people aspect of the barrier is having competent personnel in place.
Bow-ties & Barrier Management

HAZARD

Cause

- People: Competence, Procedures.
- Plant (SECEs): Structural Integrity, Well Control Systems, Hydrocarbon Containment – Verification and Maintenance.

PREVENTION BARRIERS

- People: Competence, Emergency Drills.
- Plant (SECEs): Structural Integrity, Well Control Systems, Hydrocarbon Containment – Verification and Maintenance.

MITIGATION BARRIERS

- People: Competence, Emergency Drills.
- Plant (SECEs): Temporary Refuge, Life Rafts and TEMPSCs, Active Fire Protection, Emergency Shutdown Systems – Verification and Maintenance.

EVENT
3. CRU Safety Cases and Safety Permits

3.1 The Safety Case

3.1.1 Safety Case Structure

The required contents of a safety case are laid out in the Safety Case Requirements and are structured in a recommended safety case format. Generally, the structure of a safety case is as follows:

1. Introduction
   Contains a summary that is intended to provide information about the document layout and content.

2. Description of facilities
   Contains a description of the operating limits and the key safety systems and equipment that relate to the safe operation of the facilities.

3. ALARP Demonstration
   Describes the means by which all MAH risks have been reduced to a level that is ALARP.

4. Safety and Environmental Critical Elements, Performance Standards, Assurance and Verification
   This section describes the process for identification of SECEs, outlines the performance standards for each SECE and details of the independent verification scheme.

5. Safety and Environmental Management System
   Summarises the company Safety and Environmental Management System.

6. Emergency Response
   Describes the arrangements for emergency response management, including the arrangements for escape, evacuation and rescue and how these are tested through drills and exercises.

7. Workforce Consultation
   Describes the workforce involvement during preparation of the safety case.

3.1.2 Quantitative Risk Assessments

A quantitative risk assessment (QRA) is required in the safety case to allow comparison against CRU defined tolerability criteria and to understand the risk so that it can be managed.

The QRA should demonstrate that the likelihood and the consequences of each MAH have been assessed in a systematic manner. The methodology and the results of the QRA must be documented in the safety case and should include:
Methods and assumptions used;

Failure rate data used, which must be relevant to the application and composed of a dataset for which there is sufficient certainty in its accuracy; and

Justification for data in terms of:
- Site-specific circumstances;
- Processes and methods used to assess the consequences of each event; and
- Sensitivity of the conclusions to the assumptions made and the inherent uncertainty in the data inputs and the modelling used.

For any hazard that may occur, there are likely to be many possible outcomes dependent on, for example, whether emergency systems respond as intended or not, the location of an accidental hydrocarbon release and its size. The QRA should contain enough detail such that these variables can be considered as part of the analysis and:

- Improve understanding of the hazards and what drives the risk from it;
- Show where risk reduction measures could be improved; and
- Identify whether the risk is tolerable or not.

3.1.3 Non-production safety case

Non-production installations include MODUs, well intervention vessels and flotels. A safety case is required for a non-production installation.

A non-production installation may be used at many different locations. The non-production safety case should therefore identify the range of potential hazards it may encounter in its intended use and define the conditions that will apply to ensure its safe use.

3.1.4 Well work safety case

A well work safety case should demonstrate that the operator has carefully considered all available data in the planning of the proposed well and that the risks associated with the design and execution of the activity have been reduced to ALARP.

The specific hazards for a specific well need to be described in a well work safety case. The well work safety case should describe acceptable operating envelopes for critical design parameters.
3.1.5 Who submits what?

Safety cases are submitted by operators and owners.

<table>
<thead>
<tr>
<th>Safety Case</th>
<th>Activity</th>
<th>Who submits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well Work Safety Case</td>
<td>Well Work Activities</td>
<td>Operator</td>
</tr>
<tr>
<td>Non-production Safety Case</td>
<td>MODU Activities</td>
<td>Owner</td>
</tr>
</tbody>
</table>

3.1.6 Role of Offshore Personnel in Safety Case developments

Everyone who works on an offshore installation has a role to play in ensuring safety, the primary responsibility for safety on an offshore installation rests with the operator and owner of the installation. All members of the workforce must play their part if risks are to be eliminated or minimised.

Personnel familiar with the design, operation and structure of the non-production installation are required to be involved in the development of the non-production safety case as per the Safety Case Requirements.

The safety case for a non-production installation must contain evidence of workforce consultation and involvement; this evidence should include how the consultation was carried out and how the safety case was prepared/reviewed showing that members of the workforce have contributed to the safety case development.

3.2 CRU Safety Permits/Letters of Acceptance

Safety permits are applied for and issued to petroleum undertakings; the parties named on the petroleum authorisation issued by the responsible Irish Government Minister.

In addition to the issuance of a safety permit, the CRU issues letters of acceptance to both the operator for the well work safety case and the non-production unit owner for the non-production safety case. These letters of acceptance are for the specific well work activity and are published on the CRU website.
3.3 The Role of Verification

Operators and owners must have in place verification schemes for verifying the suitability and performance of SECEs and the maintenance of well integrity by one or more independent and competent organisations, termed ICBs.

Operators and owners are required to appoint one or more ICBs to verify the initial (design) and continuing (operational) performance of the SECEs and well integrity. In this regard a:

- Well verification scheme must be in place for the well work described in the well work safety case; and
- Facilities verification scheme must be in place for all petroleum infrastructure that is outside the scope of a well verification scheme.

Verification is carried out by assessing and reviewing or witnessing a cross-section of the operator’s or owner’s actions and processes used to define and maintain SECEs. The verification must allow the ICB to determine whether the SECEs meet their performance standards. The verification scheme must be reviewed by the ICB.

It is the responsibility of the operator and owner to establish and ensure implementation of their verification scheme.

3.4 Access to a CRU Safety Case

The operator/owner is required to keep a copy of the safety cases (both well work safety case and non-production safety case) onboard the installation, these are usually held by the Offshore Installation Manager (OIM). These must be available to personnel to read if they wish to do so. An electronic copy may also be available on the company intranet.
4. Role and Rights of Safety Representatives

Under Section 25 of the Safety, Health and Welfare at Work Act, 2005, all employees are entitled to select and appoint a safety representative to represent them on safety and health matters with their employer. If a safety representative has not been selected, then after 6 months, one must be appointed under Section 25 of the Safety, Health and Welfare (Offshore Installations) Act, 1987.

Section 26 of the 2005 Act requires the employer to consult with employees to ensure cooperation with preventing accidents and ill health and in turn the workers can consult with their employer. This section sets out the arrangements for this consultation on a range of safety and health issues. Where a safety committee is already in existence, it can be used for this consultation process.

4.1 What can a safety representative do?

Safety representatives can represent their colleagues in consultations with their employer on matters of safety, health and welfare at their workplace.

Workforce engagement is a key component of the CRU’s Petroleum Safety Framework. Therefore a safety representative can:

- Represent staff in dealings with inspectors from the CRU;
- Receive information about CRU inspections, including inspection findings reports and enforcement correspondence;
- Attend opening and closing inspection meetings;
- Make a confidential report to the CRU;
- Represent staff and participate in the development of the safety case; and
- Be provided with access to the safety case.

Under the Safety, Health and Welfare at Work Act 2005, a safety representative may:

- Carry out inspections (see section 4.3)
- Carry out investigations (see section 4.4)
- Accompany an inspector carrying out an inspection (at the discretion of the inspector);
- Be present when the inspector interviews the employee about an accident or dangerous occurrence at a place of work at the discretion of the HSA inspector and where an employee so requests;
Make representations to the employer on safety, health and welfare at the place of work;

Make verbal or written representations to inspectors, including about the investigation of accidents or dangerous occurrences;

Receive advice and information from inspectors in relation to safety, health and welfare at the place of work; and

Consult and liaise with other safety representatives appointed in the same undertaking.

4.2 Safety Committee (Schedule 4 of Safety, Health and Welfare at Work Act 2005)

The safety committee should be chaired by the OIM, who should call meetings at scheduled intervals. All elected safety representatives are entitled to be members. The committee’s main purpose is to help promote and develop measures to ensure the occupational health and safety of the workforce on the installation, through co-operation between the management and the workforce. Among other things, it may consider and make recommendations about:

- Health and safety measures;
- The training of safety representatives;
- Health and safety matters raised by members; and
- The causes of accidents and occupational ill health.

Section 27 of the 2005 Act protects employees generally from penalisation for any involvement in safety and health measures. This includes any employee who is a safety representative or is involved in the safety consultation and safety committee processes.

4.3 Right of Safety Representatives to undertake inspections

Safety representatives, after giving reasonable notice to the employer, have the right to inspect the whole or part of a workplace. A safety representative also has the right to inspect immediately where an accident or dangerous occurrence has taken place, or where there is an imminent danger or risk to the safety, health and welfare of any person.

The type and frequency of inspections must be agreed with the employer. For best effect, they should include a member of the safety committee for that area. Inspections can cover the whole or part of the workplace and may include a review of safety and health documentation as well as a walkabout. Following inspection, the safety representative should have the opportunity to discuss safety matters in confidence with the safety committee or employees that they represent.
4.4 Right of Safety Representatives during an incident investigation

A safety representative may investigate accidents and dangerous occurrences in the workplace to find out the causes and help identify any necessary remedial or preventive measures. However, a safety representative must not interfere with anything at the scene of an accident. The safety representative cannot obstruct an Inspector from carrying out their investigation.

4.5 Safety Representative Training

Under Section 8 of the 2005 Act, an employer has the duty to provide information, instruction, training and supervision necessary to ensure, the safety, health, and welfare at work of their employees, including safety representatives and safety committee members. For safety representatives to do their job they must have access to information on:

- Any risk assessments and safety statements prepared under the 2005 Act;
- Information on reportable accidents, occupational illnesses and dangerous occurrences, without identifying any individual;
- Any information on safety and health measures required under safety and health legislation; and
- Any safety and health information on dangerous equipment, chemicals or processes used at their workplace including instruction manuals and safety data sheets.

This information must be given to them, so they can fulfil their functions properly and play an informed part in preventing accidents and ill health and promoting safety and health. The type of information will vary according to the hazards and risks involved.

Safety committee members are entitled to paid time off for training so that they can acquire the knowledge and expertise to carry out their functions. Since a properly informed safety representative or a safety committee can play an important role in preventing accidents, it is in the operator’s/owner’s interest to ensure that they are supplied with all relevant information.

4.6 Workforce Training

Managing MAHs is fundamental to safe operations. Everyone working in the oil and gas industry, onshore and offshore, has a part to play in managing these hazards.

As part of operator’s and owner’s obligation to reduce MAHs to ALARP, CRU expects that all personnel who undertake safety critical tasks or who operate and maintain safety critical equipment are trained in the fundamentals of process safety, including MAH awareness.
4.7 CRU and HSA inspections

Operators and owners are required to inform safety representatives that an inspection is taking place. During an inspection, if the safety representative is not available, the inspector will make every effort to consult with one of the safety committee members.

The CRU requires that the following documents are disseminated to safety representatives:

- Scope of audit and inspections;
- Issued report of audit and inspection findings; and
- Enforcement actions.

CRU expects that safety representatives will be available for both opening and closing meetings during inspections.
5. CRU Confidential Reporting

Employees of petroleum undertakings, operators and owners may contact the CRU Petroleum Safety Team at any point with safety concerns in a fully confidential manner, via email or telephone or via the form supplied by the CRU. CRU will follow up such notifications in a fully confidential manner.

Following consideration of the reported concern by the CRU, safety concerns will be addressed in a manner proportionate to the concern raised. For example, where the confidential report does not relate to an immediate safety concern the topic may be included in an upcoming CRU inspection.

Petroleum undertakings, operators and owners are required to communicate the details of these CRU mechanisms for the confidential reporting of safety and environmental concerns as applicable to their employees and contractors connected with carrying out designated petroleum activities. They must also ensure that reference to confidential reporting is included in relevant training and displayed on board.

Confidential Reports can be made to the CRU by:

**Telephone:** +353 1 400 0800

**Post:** The Grain House, The Exchange, Belgard Square North, Tallaght, Dublin 24, D24 PXW0

**Email:** petroleumsafety@cru.ie
6. Further Information

CRU website
www.cru.ie

CRU – Petroleum Safety
www.cru.ie/professional/safety/petroleum-safety-framework-2

Email for general enquiries and confidential reporting:
petroleumsafety@cru.ie

HSA Website
www.hsa.ie/eng

HSA Offshore
https://www.hsa.ie/eng/Your_Industry/Offshore/

HSA – Safety Representatives and Consultation
https://www.hsa.ie/eng/Topics/Safety_Representatives_and_Consultation_/ /

Irish statute book
www.irishstatutebook.ie

Step Change in Safety
(Step Change in Safety is a not-for-profit, member-led organisation which aims to make the UK the safest oil province in the world to work in)
www.stepchangeinsafety.net

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