



Building Sustainability in Business





Executive Summary

Enermex was established with one clear vision in mind, to support the Energy Sector in Mexico as a leading provider of innovative Integrated Services in all areas from Offshore Drilling to Production Operation.

An international capability to access bespoke technology solutions, deliver best practice and underpinning knowledge transfer in an effort to support the development of the Mexican Oil and Gas Supply Chain for its Stakeholders.





Executive Summary

Our International Executive Board of Directors and Senior Management Team have over 30 years of Oil and Gas experience and 15 years working within Mexico.

15 strategic Global offices and collaboration partners.

Strong corporate board including some of industries leading Entrepreneurs who having personally establish multi-million \$ businesses in Offshore Shipping, Drilling, Marine and EPCI Turn Key Services on a global stage.





Our BCM and ERCM Expertise

We offer consultancy expertise in technical documentation, competence assurance, risk management and contract HR services in the following sectors:

- Electrical power utilities;
 - Upstream/Downstream Oil and gas companies;
 - Rail operators and Rail Track Infrastructure companies;
 - Pharmaceuticals engineering and research;
 - Risk, Compliance and Governance.
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- Development of SH&E management systems complying with internationally recognised standards and best practices;
 - SH&E inspection, audits, gap analyses and reports;
 - Safety Case preparation and management;
 - Safe working procedures and safety manuals;
 - Permit to Work System development;
 - Hazard-based emergency operating and response procedures/plans;
 - Pipeline management/Major Accident Prevention Document (MAPD).





Our BCM and ERCM Expertise

Gap analysis against key Governance and Risk issues.

Activities associated with the business operation;

- Meeting the obligations of the Commercial Agreements to which the Company is a party e.g. Finance Agreements;
- Managing compliance with Corporate Governance requirements;
- Risk identification, mitigation and management;
- Safeguarding the interests of shareholders;
- Complying with over-arching corporate standards;
- Complying with relevant legislation.





Our BCM and ERCM Expertise

Our Consultants have supplied BCM HSE and process ERCM development to some of the following clients and projects and major commercial and industrial programmes:

- London Under Ground Jubilee Line Extension;
- BP Northern North Sea and Southern North Sea Business Unit;
- ARCO British Limited
- Production and Project Management of Operation and Maintenance documentation for Barking, Rye House, Connahs Quay, Kings Lynn, Peterborough and Corby power stations;



Our BCM and ERCM Expertise

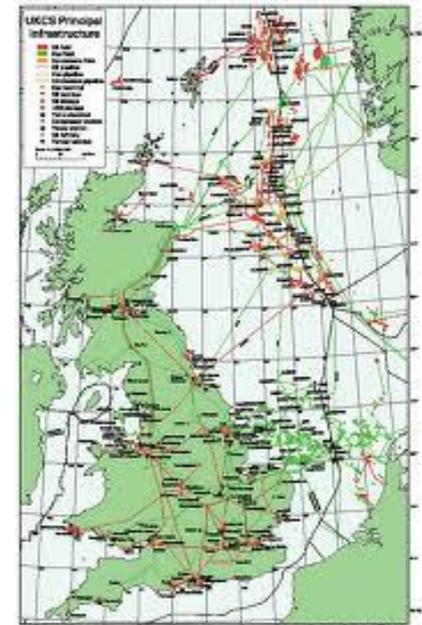


- Sizewell B, the UK's first Multi-billion £ Nuclear Power Plant;
- Magnox Nuclear Power Plant life extension and enhancement plan
- Preparation of policies and BCM for Tapada do Outerio, Csepel II and Ferrybridge power stations;
- Preparation of ERCM Training for the Air Transport Industry Training Association (ATITA);
- Configuration management, MOD for the Challenger Tank II project.

Offshore Installation Definition

In the UK An offshore installation is defined in regulation 3(1) of MAR (The UK Management and Administration Regulations) as a structure used for any one of a number of activities, which are:

- Exploring for, or exploiting mineral resources by means of a well;
- The offshore storage of gas and the recovery of stored gas;
- The conveyance of anything by means of a pipe.
- The provision of accommodation for workers on offshore installations.





Role of HSE - Health Safety Executive

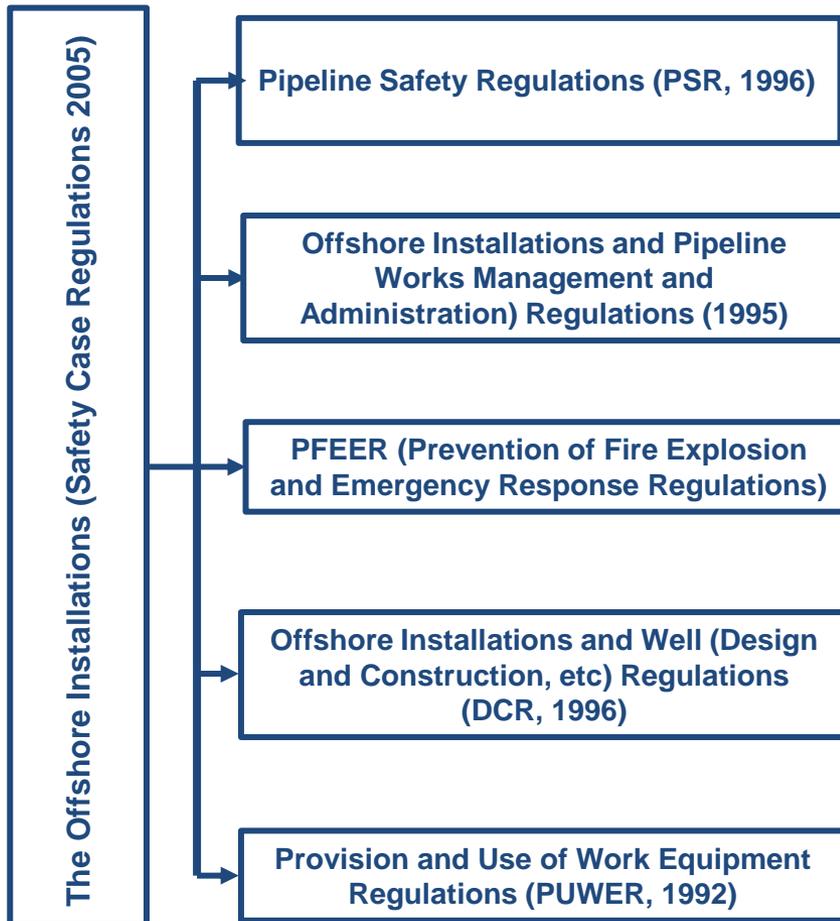
When it comes to "approvals" most regulators accept the safety cases that have been approved by the UK HSE **Health and Safety Executive**, particularly when these safety cases have been developed utilising the IADC format; other regulators have their own approval processes.

Safety Cases are required by the owners and operators of jack-ups, semi-submersibles, FPSOs, platforms and accommodation vessels operating in the jurisdictions e.g. 500 Metre zone and/or Hydrocarbon containment areas of any offshore installation.

The HSE is a government organisation independent and has the authority of the Police to shut down any working environment considered a threat to Health Safety and or the Environment.



Role of Safety Case in BCM



The Safety Case Regulations (Offshore installations (Safety Case) Regulations 2005) is supported by other major regulatory documents as shown in the Figure to the Left.

The PFEER Regulations are particularly important for the management of fire and explosion hazards as they specify goals for preventive and protective measures and for securing effective emergency response.

In addition further UK health and safety legislation will also apply, for example: Health and Safety at Work Act 1974.

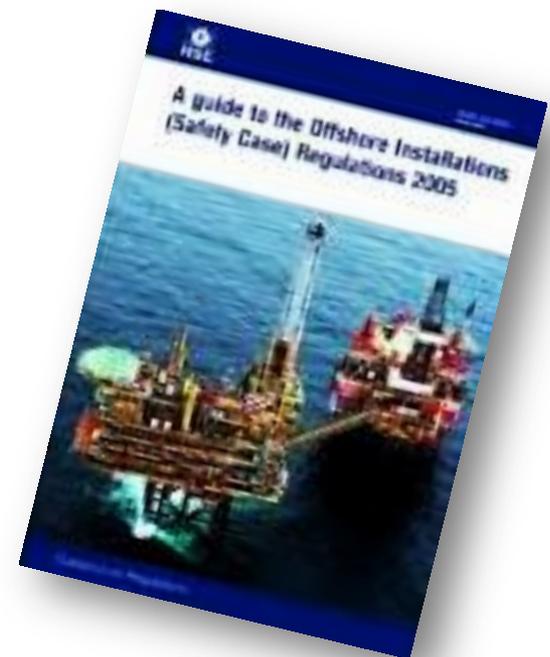
Introduction to the Safety Case

The Offshore regime is based around the Safety Case Regulations (2005) which requires operators to have a safety case for fixed and mobile installations accepted by the **Health and Safety Executive (HSE)**.

The safety cases need to be maintained and submitted to the HSE at various times throughout the life cycle of the installation.

Safety Cases are required for all installations operating, or to be operated, in British waters and in UK designated areas of the continental shelf (UKCS).

It should also be noted that vessels entering UK waters are subject to the Health and Safety at Work Act 1974.



The Safety Case

Different requirements apply to installations used for producing oil and gas (production installations) and to those used for other purposes, such as drilling, exploring or providing accommodation (non-production installations).



The duty to submit **Safety Cases** and notifications is generally placed on a single **Duty Holder** in respect of each type of installation, namely the **operator** of a production installation and the **owner** of a non-production installation.

For non-production installations, the owner must submit a Safety Case for HSE acceptance before moving the installation into UK waters for the purpose of operating it there.

The Safety Case

Typically for the following will require safety cases:

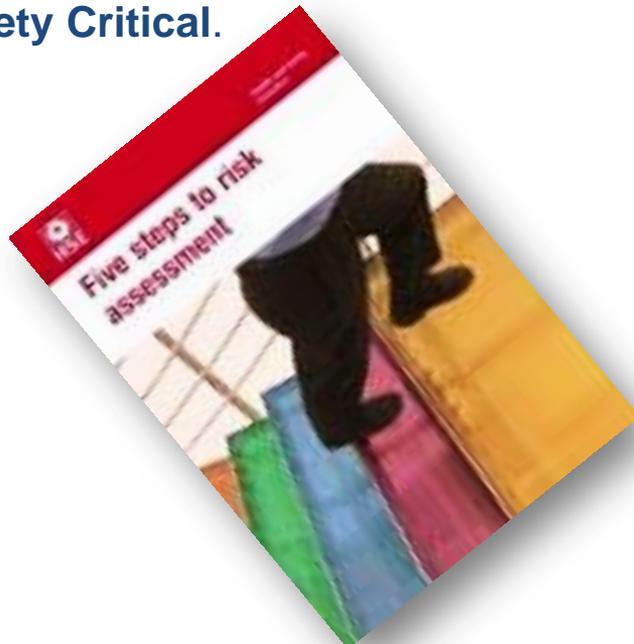
- Production Installations;
- Drilling rigs;
- Accommodation barges;
- SBVs – Stand By Vessels
- Well intervention vessels/Diving vessel (temporarily connected to the well [depends on time interval] working within the ‘hydrocarbon containment boundaries’.
- Heavy lifting vessels (depending on type of lift); also as most likely acting as accommodation barges as well.



Safety Case Development

Safety Case needs to be a summary of aspects of the operation of the offshore installation involved.

It should contain details of the systems on board the unit which are considered to be **Safety Critical**.



Safety Case should summarise the safety management system, it should contain details of the risk assessment process undertaken to identify and reduce the frequency and consequences of major hazards and it should be provided with details of the emergency procedures and systems in place.



Safety Case Development

In any Safety Case which is going to require **HSE** approval, the section on emergency response should be a summary of the **PFEER (Prevention of Fire Explosion and Emergency Response Regulations)** assessment.

The safety case may also contain an improvement programme, which will be taken into account by the regulators when considering the case for approval.

Safety Case regulations required that every safety case be resubmitted **Every Three Years**.

The regulations stipulate that the **safety case is a 'living document**, and a 'thorough review' must be undertaken every five years, or when required by the HSE.

Safety Cases Reviews

In addition, periodic revisions to the safety case are also required, and if the revision involves a '**Material Change**' affecting safety critical equipment or the original basis of the safety case for the installation, then a revised Safety Case must be submitted to the HSE for approval.

There is always considerable discussion about what a material change actually is, but the guidance to the regulations suggests that "this would involve changes to the basis on which risk control decisions are made or which necessitate a review of the adequacy major hazard control measures."



Combined Operations Notifications

The 2005 Safety Case regulations no longer require that a Combined Operations Safety Case be submitted to the authorities for approval.



Instead a Combined Operations Notification must be provided to the HSE.

When combined operations are to be undertaken, combination of two installations which already have Safety Cases, then risk assessments must be carried out and bridging documents provided.



Combined Operations Notifications

Typical combined operations are well interventions by semi-submersibles where there is connection by pipeline to a central platform, the provision of accommodation for offshore workers where there is a connection by gangway to a platform and tender operations where a mobile is anchored close to a platform and provides manpower and power and fluid services.

The most common combined operation is the use of jack-ups to drill through platforms constructing new wells and maintaining others.



Decommissioning Safety Case

In addition, combined operations notifications and partaking, with the duty holder, with the development of abandonment /decommissioning safety cases will also be required on as necessary basis.



Historically the Offshore Safety Case Regulations 1992 required an abandonment safety case (ASC) before starting the decommissioning of a fixed installation (defined to include, for example, activities for end of production such as plugging wells).

The Offshore Safety Case Regulations 2005 requires duty holders, instead, to revise the safety case, giving details of each phase of the decommissioning process and submit it to HSE for acceptance.



Major Hazard Risk Assessments

The core of any Safety Case is the major hazard risk assessment process.

The general rule which must be followed is that “suitable and sufficient” risk assessment must be undertaken.

The processes are divided into qualitative and quantitative risk assessments.

Lord Cullen, who led the investigation into the North Sea Piper Alpha disaster, recommended much reliance on QRA (Quantitative Risk Assessments) which is the determination of risk by reference to existing accident data.



Major Hazard Risk Assessments

The UK **Health and Safety Executive** have set a standard that the individual risk of death to an offshore worker per annum, (IRPA) must be less than 1×10^{-3} . This means that an individual would have to work offshore for 1000 years to be at risk of being killed in the workplace.



However, greater emphasis has been placed on qualitative risk assessments, involving discussions and assessment of risk, and their reduction by means of recommendations, resulting in improved skills, training, systems and procedures.

PFEER Assessments

UK Safety Case legislation requires that a PFEER Assessment be carried out in relation to the development of Safety Cases.

PFEER (The Prevention of Fire, Explosion and Emergency Response Regulations) are a set of regulations which have been put in place to ensure that the owners and operators of offshore installations deal with the requirements to provide appropriate emergency response.

The regulations specifically require that lifeboats be provided for 150% of the personnel on board the installation, and it should be noted that there is guidance being provided by the regulators as to what weight they will accept for offshore personnel, since the SOLAS standards allow construction against a weight of 75 kilos.



PFEER Assessments

The regulations also require the provision of a means of recovering personnel accidentally entering the water to a place of safety.

This is usually an Emergency Rescue and Recovery Vessel (ERRV) formally known as a Standby Vessel (SBV).



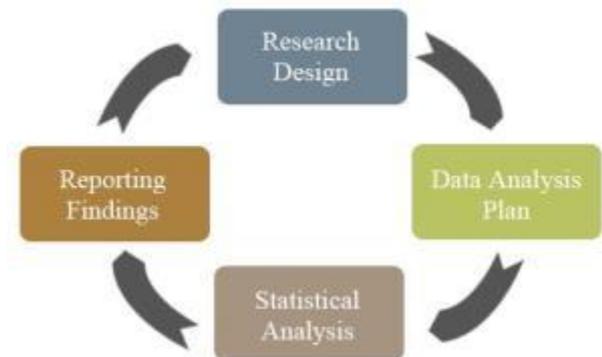
The installation must also be provided with an emergency plan, which usually combines or links the offshore emergency procedures, the station bill and the onshore emergency support processes.

Verification Schemes

Installations operating on the UK continental shelf must be provided with a Verification Scheme, which fulfils the requirements of the **DCR (Design and Construction Regulations)** and certain aspects of **PFEER**.

The schemes require that owners and operators identify **Safety Critical Elements** and set standards for them.

While safety critical elements might well include personnel and procedures it has generally been accepted that **SCEs** included in **Verification Schemes** are related to systems.



Once the elements have been identified standards for their operation and maintenance must be set, and conformance with them ensured during the operation of the unit.

Verification Schemes

Verification schemes require input from Independent and **Competent Persons (ICPs)** who must be independent from the operational organisation of the owner or operator, and during the development of the schemes it is expected that discussion will take place between the ICP and the compiler of the scheme.

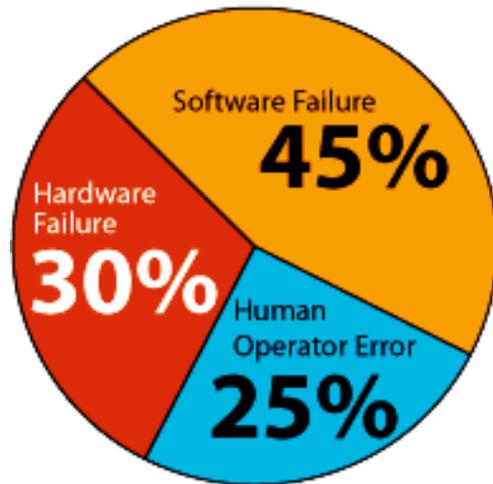
All processes should be written around **ISO standards** for **BCM**, IT Governance, risk management, asset management and internal control.

- Competence for safety critical roles. **Controls are only as good as the people who operate them.**
- **Asset integrity:** relates to integrity (**no unacceptable surprises**) , condition (the ability of asset perform in line with expectation) and performance (in line with demand).



Verification Schemes

- Critical processes should identify inputs and outputs, process controls, risks and competence standards.
- Three tiers of assurance needs to be built into the model for critical process management.



There is a major piece of work for industry players to map out their business models and process architecture to understand their critical / strategic processes, the associated process risks, and how these wire up to the national plans and agency responses.





ERCM - Emergency Response Crisis Management

- Major Emergency Management (MEM)
- Training-Onshore/Offshore
- Crisis Planning
- Exercise Preparation/Conduct
- Safety Services HAZOP, Field Assessments etc.



“Biggest Problem With Procedural / Regulatory Communication Plans?”

- They are usually in someone's office
- They are usually become quickly out of date
- They are useless unless you have the knowledge with you!

Emergency Response - Training

BCM; as a sub-set risk management and it's attendant controls (internal control - critical processes) and asset integrity (criticality).



Need for national and local emergency response plans in critical infrastructures and hence applies to national agencies and key industry players and the interaction between these.

Crisis Management

We're asked to tackle varies enormously; from the establishment of a full crisis management capability (including facilities) to audit and specialist advice on areas like business continuity, fire fighting, leadership, HR and oil pollution planning.

Our CM consultants can:

- Assess current emergency response arrangements
- Conduct a gap analysis
- Establish and deliver business continuity programme
- Design new emergency response plans
- Develop a management of change programme
- Implement new arrangements
- Deliver drills and exercises to test the robustness of new plans
- Assess the competence of personnel following implementation





Oil Spill Planning & Response

An OPEP is required to demonstrate an operator's response capability for oil spills originating from all production, drilling and well intervention operations.

We are investing in R&D and have developed a the first 100% bio friendly oil displacement technology. With successful trial recent run we intend to bring this into the GOM and other eco habitats.





Thank You

Questions