



Government of **Western Australia**
Department of **Mines, Industry Regulation and Safety**

GUIDE

Development and submission of an offshore facility safety case

as required under *Petroleum (Submerged Lands) Act 1982* and
*Petroleum (Submerged Lands)(Management of Safety on
Offshore Facilities) Regulations 2007*





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Guides

A guide is an explanatory document that provides information on the requirements of legislation, details good practice and may explain means of compliance with standards prescribed in the legislation. The government, unions or employer groups may issue guidance material.

Compliance with guides is not mandatory. However, a guide could have legal standing if it were demonstrated that the guide is the industry norm.

This Guide has an operations focus and is set out in the context of risk assessment and legislative requirements of all responsible persons. Consequently, each operation needs to understand its limitations and skills base.

The Guide is based on current experience and is not claimed to be complete.

Who should use this guide?

You should use this Guide if:

- you are the licence holder or operator of an offshore facility under the *Petroleum (Submerged Lands) Act 1982*
- you are required to develop and maintain a safety case under the Petroleum (Management of Safety on Offshore Facilities) Regulations 2007.

The Act

The *Petroleum (Submerged Lands) Act 1982* (the Act) Schedule 5 sets up a regime to facilitate occupational health and safety and health matters at or near offshore facilities licensed under the Act. Schedule 5, cl. 1 outlines the scheme's objectives to prevent injury or harm to personnel and other protected persons entering the licensed area. To achieve these objectives, the Act imposes duties on persons engaged in offshore activities (for example, operators, employees, and suppliers, amongst others). Schedule 5, cl. 2 provides a simplified outline of the scheme and the duties.

The Act sch 5 cl. 8-15 sets out the duties owed by different categories of people at or near offshore facilities. The Act's subsidiary legislation, the Regulations, set out the rules and duties in relation to safety cases. This Guide and other guides, are non-statutory explanatory documents provided by the Department to assist licensees and operators to develop a safety case submission that satisfies the Act and its Regulations.

Regulations

Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 2007 (the Regulations) provides for the development of, and compliance with, safety cases. Part III, div 1, applies penalties for breaches of duties in relation to safety cases. Part III, div. 2, prescribes the contents of a safety case. The Regulations are subsidiary legislation enabled by the Act and are enforceable and breaches may result in prosecution, fines, or directions to cease operations and undertake remedial action.

Application

This Guide is a non-statutory document provided by the Department to assist persons subject to duties under the Act and/or required to develop and/or comply with a safety case as prescribed by the regulations.

Other legislation

It should be noted that this guide only covers the Act and the regulations. Separate guides are available for the development of a pipeline management plan (PMP), diving safety management system (DSMS), safety cases and safety management system (SMS) for the following legislation:

- *Petroleum (Submerged Lands) Act 1982*
 - Petroleum (Submerged Lands) (Pipelines) Regulations 2007
 - Petroleum (Submerged Lands) (Diving Safety) Regulations 2007
- *Petroleum Pipelines Act 1969*
 - Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010
- *Petroleum and Geothermal Energy Resources Act 1967*
 - Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010

For facilities outside the Western Australian waters, the Act does not apply and guidance should be sought from National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). If a vessel does not fall under the definition of "facility" in the Act, operators should contact Australian Maritime Safety Authority and Department of Transport.



Foreword

A key area of responsibility for the personnel at Department of Mines, Industry Regulations and Safety (the Department) is the ongoing risk management and safety requirements for the offshore facilities, submerged pipelines and diving activities within Western Australia waters. To this end, a series of guides has been developed to provide support and assist operators to meet their commitments under the various Acts and Regulations currently in place.

Operators of these offshore facilities are required to develop and submit safety cases for review and acceptance by the Minister's delegate. This provides the opportunity for the operator to put forward their case for safety that demonstrates the systems, capabilities, leadership and workforce involvement as well as continual improvement of existing systems.

As stated by Lord Cullen in his keynote address to the Oil & Gas UK Piper 25 Conference in June 2013:

To achieve the proper management of safety you need good safety leadership and a strong and positive culture of safety. A great deal has been done to reduce the risk, the rest depends on how the management handles its safety arrangements.

Following the acceptance by the British Parliament of all of the 106 recommendations made by Lord Cullen in his investigation report into the Piper Alpha disaster in 1988, Western Australia's legislative requirements are

now based around these 106 recommendations with the implementation of the safety case regime.

With regard to safety cases in particular, Lord Cullen concluded his address with the following:

Safety cases should be living documents central to the way facilities are operated and with contents widely understood by senior management, management and the workforce alike, any organisation that regards them simply as a regulatory necessity denies itself the opportunity of realising the value they can aid to their business.

Another test for the quality of the management of safety – a safety case should reflect, the organisation's safety culture. If that culture is sound and healthy it should show.

It is important that both industry and the Department follow a path of continual improvement by demonstrating quality in safety and risk management and ensuring the workforce is given a leading role in their own safety.

Steve Emery

Acting Director Dangerous Goods and Petroleum Safety

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1 Introduction

The purpose of this document is to provide clear guidance to operators of facilities for the development of safety cases under the Act and the Regulations [rr. 3, 7(3)].

Each safety case must be submitted for acceptance by the Minister for Mines and Petroleum through their delegate in the Department of Mines, Industry Regulation and Safety (the Department).

1.1 Structure and scope

This document is set out to reflect the areas of a safety case and provide an overview of the required contents to comply with the Act and Regulations (Section 2.2).

The following appendices are included:

- Appendix 1 Legislative provisions
- Appendix 2 Glossary of terms
- Appendix 3 Concordance table
- Appendix 4 Further information.

1.2 Combination safety case and pipeline management plan

Operators may decide to combine the safety case with a pipeline management plan (PMP) in one safety case submission document due to the similarity of the regulations and the required safety management systems. In order to do this, the operator of the facility and the pipeline must be the same registered operator working under the same safety management system.

When there are a number of facilities and pipelines controlled by the same operator within the area, then it may also be appropriate to have a safety case that covers multiple assets rather than an individual safety case for each facility.

Prior to making the decision to combine safety case and PMPs and multiple facilities, the operator should discuss this option with the Department to gain an understanding of the impact this may have on, for example, safety levy calculations.

When submitting a combined safety case/PMP submission it is important to ensure that both sets of regulations are quoted in the relevant sections of the document relating to legislative controls and that variations in some of the terms between the two requirements are included; for example, the Regulations refer to major accident events (MAEs) whereas Petroleum (Submerged Lands) (Pipelines) Regulations 2007 refer to significant pipeline accident events (SPAEs).

In the event that there are no details to include against a legislative requirement for either of the regulations covered, then the licensee or operator should, for the purposes of clarity, include a statement to this effect in the document and to indicate to the Department assessors that the requirement has not been overlooked.

1.3 Concordance table

In order to assist operators preparing safety case documentation, a concordance table has been developed to support this Guide. It is suggested that the operator include a concordance table in an appendix to the safety case listing the regulations and the section of the introduction, facility description, SMS or formal safety assessment which covers the requirements of those regulations.

Completion of this concordance table during the development and internal review of the safety case by operators should verify that sufficient information has been included and each element of the legislation has been adequately covered. In this way, the concordance table can act as a self-assessment tool for the operator and assist in avoiding possible delays in the acceptance of the safety case by the Department.



2 Preparation of safety case documentation

A safety case accepted by the Minister must be in force for all phases of the facility [r. 10], while the facility is in the licence area, including the kinds of operations conducted at that facility:

- construction
- commissioning and operations
- modifications, upgrades and significant changes to the facilities
- decommissioning.

The operator must ensure that there is a process in place for the smooth transition for update, review and acceptance of the safety case before any prescribed activity commences on the facility [r. 10].

If new or increased risks are identified that are not adequately covered in the safety case [r. 11], then a person must not engage in that operation until the safety case is updated, reviewed and accepted.

2.1 Planning and liaising with Department inspectors

The operators should ensure that appropriate planning is in place for the development of the safety case for each phase of the facility operations.

It is strongly recommended that operators meet with Department inspectors prior to the commencement of a new safety case, or a five yearly update of a safety case. The process for reviewing and gaining acceptance of safety case documents is extensive and cannot be completed quickly. By meeting with Department personnel, operators will be able to review and discuss the proposed activities to be conducted on the facility as well as the operator's approach to managing those activities. It should be noted that the Department does not provide a consultancy service to review drafts prior to formal submission for acceptance (Section 4.1).

These meetings should also include discussion and agreement on the scope of any validations required [r. 49] for the various phases of the facility operations.

Developing this interaction with the Department inspectors early in the process provides the basis of a good working relationship and an understanding of requirements between the operator and the Department. This will also serve to identify and eliminate possible adverse effects on such things as the calculation of the safety levy applicable to the facility, and any inconsistencies arising throughout the safety case that could be addressed prior to completion and submission for review and acceptance by the Department.

2.2 Content of the safety case

Fundamentally the safety case should demonstrate two key points.

First, it should describe the systems used by the operator to define:

- how hazards are identified and risk assessed
- how the risk is managed to as low as reasonably practicable (ALARP), verified, validated and kept up to date.

Second, it should show the outcomes from applying those systems to define:

- what hazards are on site
- what is the risk associated with the hazard
- results of the ALARP verification and validation.

The operator should include details of:

- the points at which a vessel becomes a facility and when it stops being a facility and how this is monitored and managed
- responsibility for when a vessel is tied up to a platform – bridging documentation between the vessel safety case and the facility case (Section 3.3.14)
- details of any third party class certificates and how they are managed.

The operator is required to divide their facility safety case into four divisions. Each division has defined content.

- Introduction outlines the scope and purpose of the document, the legislation, principal standards and codes of practice covering the facility, approval and custodian details of the safety case, address for delivery of communications regarding the safety case and other administrative requirements (Section 3.1).
- Facility description provides a concise overview of the facility, its function and control systems (Section 3.2).
- SMS provides a detailed description of the management systems in place to maintain the safety of the facility and personnel. This includes performance standards for safety critical elements (SCEs) and supports the findings from the formal safety assessment (Section 3.3).
- Formal safety assessment provides a detailed description of the risk management methodology in place for the facility, a summary of the risk assessment workshops, details of identified MAEs, ALARP demonstrations and bowtie diagrams (Section 3.4).



The safety case may be described as a detailed commitment from the operator to the WA State Government that outlines:

- the type of facility and the activities undertaken
- the types of safety studies undertaken
- the results of those studies
- the safety management arrangements to address the findings of those studies.

The safety case should emphasise consultation, workforce participation and a continual improvement approach to safety and risk management. The reader should be assumed to be non-technical and independent.

It is the responsibility of the operator, not the Department, to specify what is required for safety and/or legislative compliance. In the safety case, the operator should:

- clearly define the activity
- identify the process of how the activity will be conducted safely
- show ALARP justification
- summarise the activity within the safety case.

The safety case content is the basis against which Department inspectors will conduct periodic inspections and assessments of the operator's activities on the facility. It should cover all activities likely to take place on the facility, including those of contractors and subcontractors.

In the event of an accident or incident, the safety case may form part of evidence in legal proceedings.

The operator of the facility is required to ensure the safety case is reviewed and updated regularly, to include any significant changes for new or increased risks, equipment or operational changes. A full review of the content of the safety case needs to be undertaken at five yearly intervals after the safety case was first accepted by the Minister (r. 42, see Section 3.1.5).

2.2.1 Interaction with NOPSEMA

As vessels and platforms move from site to site, these facilities will often crossover jurisdictions between the Commonwealth legislation administered by NOPSEMA and Western Australia's Petroleum (Submerged Lands) Regulations (the Regulations) administered by the Department.

There is no formal mutual recognition between the Department and NOPSEMA so an operator should include details in their safety case about how they will manage the cross-jurisdictional issues between WA and the Commonwealth.

Where an operator's safety case has been accepted by NOPSEMA, it is likely the operator will need to develop a bridging document to reflect the different requirements in the WA jurisdiction under the Regulations. Operators should provide the Department with a copy of the formal letter of NOPSEMA's acceptance of their safety case and a bridging document.

The bridging document should:

- link the NOPSEMA approved safety case to the requirements of the WA Act and Regulations
- include details of how the operator will monitor and manage any changed safety requirements when the facility changes areas regulated by the Commonwealth or Western Australia.

2.3 Referencing and hyperlinking within the safety case

Throughout the safety case there are many requirements to reference the operator's procedures and other documentation summarised within the safety case. As many operators now maintain their documentation within online databases, it is preferred that, where possible, these referenced documents are hyperlinked to provide ease of access.

If an operator wishes to refer to another document from within the safety case, this subordinate document needs to be:

- explicitly identified in the safety case
- identified in some manner as being linked to the safety case
- available to the Department for review as part of the overall review and assessment of the safety case
- able to be used as the basis for inspection to confirm that the document complies with legislation and that the organisation is conforming with the document
- maintained under document control to ensure that only the current version is available to personnel and previous versions have been archived
- a controlled document that is subject to the same change controls as the parent safety case and all changes are recorded and available for review
- subject to the same internal compliance quality assurance and quality control as the parent safety case to ensure that referenced documents meet the legislation and are being complied with.

The safety case should include an overview of the content of the referenced document provided with the hyperlink. A single sentence under the heading of a regulatory requirement that includes the hyperlinked document is not sufficient content for the safety case.



2.4 Involvement of members of the workforce

The operator of the facility should ensure that members of the workforce are involved in the development or revision of the safety case for the facility [r. 22]. *Involvement of members of the workforce* guide assists with this requirement.

2.5 Safety case – supporting documentation

The Minister may request the operator to provide further information in the form of written documentation about any matter required by the regulations to be included in a safety case [r. 36].

The information provided will be formally considered as part of the safety case submission. Typical examples of information requested are:

- any procedures or plans referred to within the safety case as containing pertinent information supporting that required by the regulations. This includes document control, records management and emergency response plans (ERPs)
- quantitative and qualitative risk assessments
- consequence analyses
- ALARP assessments
- validation reports
- hazard and operability study (HAZOP)
- hazard analysis (HAZAN)
- hazard identification (HAZID)
- layer of protection analysis (LOPA)
- failure mode effects analysis (FMEA)
- fire and explosion risk analysis (FERA)
- engineering studies and analyses
- external certification.

2.6 Safety case level of detail

The safety case is a roadmap to ongoing health and safety processes and risk management on the facility and is a standalone document. It must be auditable, that is, make statements that the operator can objectively prove have been achieved.

While the safety case will reference other documents, it should be sufficiently detailed to enable all readers to understand the operations of the facility, the associated risks and systems in place without referring to other documents.

Some common issues identified in safety case submissions are:

- inadequate identification of MAEs
- vague statements, rather than specific facts about the facility
- discrepancies between the formal safety assessment and other parts of the safety case
- inclusion of assertions, independent of the risk assessment, about the overall acceptability of the design
- provision of too much operational detail so the currency of the document is difficult to maintain
- discrepancies in facts provided
- discrepancies between written descriptions and figures or drawings
- poor cross-referencing
- lack of review or quality assurance processes
- illegible drawings or figures
- preparation in isolation without managerial and technical input
- preparation in isolation without workforce input
- assuming that compliance to a standard is sufficient
- using the risk assessment process to justify a plan or design
- writing the safety case as though the Minister is the intended audience, rather than the operator's workforce.



3 The safety case

3.1 Introduction

The introduction covers the administrative requirements for the document and gives an overview of the structure of the safety case.

A paragraph should include details of the ownership of the facility. The operation may be covered by numerous licences and it is necessary to include details for each licence, along with any variation to the original licences and showing the percentage of ownership for each stakeholder if the operation is subject to a joint venture.

This area should also include details of the nominated and accepted operator who is responsible for the day-to-day safe operation of the facility.

3.1.1 Scope and objectives

Briefly outline the scope and objectives of the safety case demonstrating the operator has a management system capable of systematically and continuously identifying, assessing and eliminating/minimising the hazards/risks to people at or near the facility.

Include an overview of the management of the safety case taking into account effective start and stop dates indicating when the facility is active and how this will be tracked by the operator and communicated to the Department. The operator should include details of this in the management system section of the safety case which should be cross-referenced in the introduction section.

For the facility to be classed as inactive, there should not be any activities taking place. Care and maintenance does not equate to the facility being inactive. Accurate classification of the facility as active or inactive is critical for the calculation of the safety levy.

Interaction with other safety cases, vessels and projects will also need to be summarised under this area with a reference to the requirement of development of bridging documentation and simultaneous operation requirements.

3.1.2 Legislation, codes and standards

Include a list of legislative and statutory requirements covering the facility, including any pipelines connected to the facility and the legislation under which they are governed. Apart from the legislation applicable to the facility, details of the actual licences covering the facility and any connected pipelines should be listed, as any conditions under these licences also form part of the mandatory legislative requirements.

List the principal Australian and international standards used for the design and operation of the facility.

This may be included in this section or included in the appendices. If the preferred structure is to use appendices, references should be included in this area of the introduction.

It is recommended these sources of information are clearly set out in table format for ease of reference. Any changes should then be reviewed by the relevant subject matter experts and procedures and processes updated through the management of change process (Section 3.3.16).

3.1.3 Definitions and abbreviations

Definitions and abbreviations need to be included for any acronyms or terms used in the safety case, either in the introduction or in the appendices. If they are in an appendix, then this should be noted in the introduction.

For accuracy and consistency the operator should use the definitions within the Act and the Regulations in the safety case [s. 4 and sch. 5 the Act and r. 3 of the Regulations].

3.1.4 Approval and custodian details

The safety case needs to be approved by the relevant officer of the operator prior to submission to the Department for review and assessment. The officer approving the safety case should have the authority to impose the requirements of the safety case on all personnel, including joint venture partners and contractors.

This section should include the address for delivery of communications relating to the safety case, and the name of the person who is the nominated custodian of the safety case. This may or may not be the same person as the officer authorised to approve the safety case.

3.1.5 Safety case revision requirements

The safety case is a dynamic instrument requiring monitoring and updating as and when the operator identifies the need to do so – either to incorporate significant changes in the way safety is being managed on the facility, new or increased risks identified, or when there is a requirement for simultaneous operations and bridging documentation to include activities not already covered in the safety case.

It is important that the operator ensures that any proposed revisions are done taking into account the timescales set out in the Regulations and that the revised safety case can be reviewed and accepted by the Minister prior to any changes taking place on the facility.



This includes:

- Revision because of changing circumstances or operations [r. 40(1)]. The operator of a facility must submit a revised safety case as soon as practicable after the occurrence of any significant changes to the facility or systems.
- Revision on Minister's request [r. 41]. The Minister may request additional or changed information be included in the safety case and the document be re-submitted for review and acceptance within a certain time period.
- Revision after five years [r. 42]. The safety case is required to be updated and re-submitted five years after the formal acceptance of the first version of the safety case regardless of any interim changes and updates that have been reviewed and accepted by the Minister, and every subsequent five years following acceptance of a revised safety case [r. 44]. Section 4.6 details the timeline for these five yearly reviews.

Further details on these requirements are outlined in Section 4 of this Guide.

3.2 Facility description

3.2.1 General

The safety case facility description describes the facility and operations within the valid period of the safety case, providing a non-technical reader with a good understanding of the facility, equipment, operation and safety critical systems including their operational parameters.

Details include the management of:

- normal operations – most activities operating correctly with no or minor issues
- irregular operations – significant issues encountered during the operations on the facility
- shutdowns – how the operation of the facility is managed during shutdowns
- care and maintenance – the restricted operations on the facility during care and maintenance
- remote control – the areas of the facility where operations can be managed through remote control.

The content and level of detail should be sufficient to show how equipment will function within the facility and to gain an appreciation of the hazard potential of the systems to people at or near the facility.

Following is an indication of the details that should be included in the facility description.

- An overview of the facility, highlighting key assumptions and phases of development and any unique features. Where parts of the facility may be outside the scope of the safety case it may be appropriate to include a reference to those areas and identify that they are outside the scope of the safety case.

- The facility location should detail the geographical location, meteorological conditions, geotechnical conditions, marine data in regard to shipping, and navigational hazards and transport data in regard to the basis for assessing transportation risks (e.g. flight times).
- A summary of key design parameters with cross-references to key technical documents.
- The design life of the facility including the initial design life and details of any projects that relate to extending that design life.
- Details of who performed the validation and when was it submitted to the Department.
- A brief description of the process flow and operations including well number and location, production profiles and well intervention arrangements
- Primary systems and functions including integrity and corrosion management.
- Details of key drawings for the facility.

3.2.2 Facility layout

Facility and equipment layout and configuration should provide an effective overview of the location of key physical elements of the facility, including:

- primary safety systems and functions including fire pumps, deluge, fire and gas detection
- flowlines, risers and subsea equipment
- isolation valves
- emergency and evacuation equipment
- service systems including power, water, heating, ventilation and air conditioning, communication, including backup provisions in the case of an emergency
- utility equipment or packages
- accommodation amenities
- supporting infrastructure
- identified hazardous areas
- storage of hazardous substances and dangerous goods, including estimated inventories to be stored and used at the facility
- pipeline connections.

3.2.3 Machinery and equipment

A broad description of the machinery and equipment installed on the facility should be included in the facility description. This should provide sufficient information to demonstrate its functionality and any hazards identified. These hazards should later be taken into consideration when conducting detailed risk assessments with respect to MAEs.

Evidence that the machinery and equipment installed are fit for purpose can be provided by reference to the design standards, functional testing, maintenance and testing regime.



3.2.4 Design, control systems, structural integrity and safety critical elements

The facility description should contain the design safety method, control systems and structural integrity management applicable to the facility that will enable ongoing safe operations.

This description should be customised to the facility by including any SCEs identified as part of the formal safety assessment. The facility description should include cross-references to the relevant MAE and performance standards within the formal safety assessment and SMS sections of the safety case as appropriate.

Note: The following wording is an indication only and should not be considered as a standard inclusion in the safety case.

Indication of content detail for control systems and structural integrity management

- Instrumentation and control systems – describe the instrumentation and control systems installed on the facilities that safeguard operations and personnel in the event of equipment failure. Indicate what alarms would be activated and how these systems would operate to isolate inventory.
- Functional safety systems – describe the functional safety system in place for the facility. This should include the equipment which is managed by functional safety systems and what action would be initiated if the system shuts in equipment.
- Leak detection systems – describe the leak detection systems in place on the facility and, if appropriate, the pipelines. Provide an overview of how the systems are monitored, what alarms are activated when leaks occur and reference any functional specification of the leak detection system.
- Emergency shutdown facilities – include a description of the emergency shutdown facilities installed and details of what occurrences would trigger the operation of these shutdown facilities.
- Inventory isolation – describe how inventory isolation would be activated in the various parts of the facility and pipeline.
- Pressure relief and blowdown systems – describe what pressure relief and blowdown systems are present on the facility, their location and functionality.
- Redundancy of safety systems – indicate what redundancies of safety systems are installed on the facility and how they would be brought on line as and when required.

- Black start capabilities – describe any black start capabilities that have been installed on the facility.
- Corrosion management – describe the corrosion management system in place for the facility and the pipelines, and what processes are in place for monitoring corrosion.
- Cathodic protection – describe the cathodic protection in place, how this is monitored and inspected to ensure full coverage is maintained where required.

3.2.5 Emergency response

The facility description should include systems and processes in place for the management of emergencies. This includes details for escape, mustering and evacuation of the facility, firefighting equipment installed and alarms that will be triggered in the event of an emergency.

The details in the facility description should be cross-referenced with the emergency response details in the SMS and the formal safety assessment (Section 3.3.26).

The emergency response in the facility description should also show the management of emergencies in relation to pipelines connected to the facility and vessels and aircraft operating within the vicinity of the facility.

3.2.6 Pipelines

The facility description should include appropriate descriptions of pipelines connected to the facility and should include operation and design data relevant to the operation of the facility.

The facility description should contain details for the effective control and operating of all relevant emergency shutdown valves for a pipeline, as well as fail-safe systems for isolating a pipeline in the event of failure of other safety devices.

The regulations require a detailed pipeline management plan (PMP). It is the choice of the licensee and operator whether these requirements are included in the safety case, or a separate PMP is developed to describe the pipelines connected to the facility and the operation, maintenance and inspection of those pipelines (Section 1.2).

Pipeline management plan guide assists with these requirements.



3.2.7 Vessel and aircraft control

The facility description should provide a description of the vessel and aircraft control systems in place and should include information on safety measures appropriate to the activities to be conducted at the facility involving the arrival, loading and departure of the vessels and aircraft.

Interaction of vessels and aircraft with the facility needs to be taken into account within the ERP for the facility and associated emergency preparedness plans such as evacuation drills.

3.2.8 Major accident events, safety critical elements and performance standards

The facility description should include details of the MAEs identified for the facility, including any that may be related to pipelines connected to the facility and vessels and aircraft operating within the vicinity of the facility. This area should then define each safety critical element in place to mitigate the risks associated with these MAEs to ALARP.

Cross-reference the areas of the safety case that cover those controls and the relevant performance standards developed for each SCE.

Major accident events, *control methods and performance standards* guide assists with this requirement.

The facility description section should be cross-referenced to the SMS and formal safety assessment where appropriate.

3.2.9 Provision of drawings

Include details of key drawings. Depending on the quantity, it may be relevant to insert a paragraph advising that a drawing register is maintained for the facility, how the drawings for the facilities are managed and that they are available to stakeholders and the workforce from a specific intranet area. This should note that only the latest version of the drawings are accessible. It may also be relevant to reference specific drawing numbers throughout the facility description within areas relating to control systems, processes and layouts, or include a copy of the drawing to demonstrate the functionality of a system.

3.3 Safety management system

3.3.1 General requirements

The SMS description must define the system in sufficient detail to demonstrate the SMS satisfies r. 16(4). It is not the intention of the regulations that the entire SMS be included in the safety case.

It is expected that the detailed description will provide sufficient information to demonstrate that the SMS is comprehensive and integrated, using examples where appropriate.

The SMS should also cover the occupational safety and health requirements included in sch. 5, div. 2 of the Act covering duties of operators, employers and employees.

3.3.2 Policy and leadership

The SMS description should include an overarching statement relating to the policy and leadership of the operator and reference a current occupational safety and health policy which should also be included as an appendix to the safety case.

3.3.3 Compliance

The SMS description should include a statement to the effect that all personnel are required to comply with and enforce the provisions of sch. 5, div 2 of the Act describing the duties of operators, employers and employees. This should be supported by a statement that these details are included in the mandatory occupational safety and health induction and training required to be completed by all personnel.

3.3.4 Management system overview

The SMS description should provide details of:

- the operator's management system
- any certification over the system (AS/ANZ ISO 9001 *Quality management systems*, AS/NZS ISO 14001 *Environmental management systems* and AS/NZS ISO 45001 *Occupational health and safety management systems*)
- how the documentation is made available to all personnel as and when required.

3.3.5 Organisation and responsibility

The SMS description should demonstrate the command structure in place for the facility. This can be done using organisation charts with position titles rather than individual names to maintain the currency of the chart in the event of staff changes. Include details of key occupational safety and health responsibilities for identified management positions, along with references to internal documentation providing details of accountability and responsibility.

3.3.6 Workforce involvement and communication

The SMS needs to outline how the operator maintains effective participation and consultative mechanisms that demonstrate the consultation with, and participation of, the workforce in the development or revision of the safety case, so that the workforce may reach an informed opinion about the risks and hazards to which they may be exposed at the facility [r. 22].

Detail methods of communication including pre-start and toolbox meetings, minutes and notice boards. Any relevant internal documents covering these activities should be listed as referenced documents under this section.



3.3.7 Employee selection, competency and training

Describe the process for employee selection and who is responsible for this process. Include referenced documents covering the operator's recruitment process, training and competency reviews.

Include reference to the need for industrial certificates and high risk work licenses to be held by members of the workforce required to perform these tasks and how these are monitored to ensure they are current.

The operator must have a process for mandatory inductions of all members of the workforce including employees, contractors and sub-contractors, and the requirement for all members of the workforce, including contractors and sub-contractors, to comply with the safety case [rr. 12, 13].

This SMS section should describe the process for ongoing training requirements for the workforce covering how these requirements are identified, reviewed and managed. Include requirements for specialist training such as cathodic protection surveys and hazardous areas management, and how changes in training requirements are managed when personnel move to new positions.

A reference list of the operator's internal procedures and processes should be included and, where possible, hyperlinked.

3.3.8 Resources

The SMS should include details of how the operator manages resources for the effective and safe operation of the facility. This may include reference to annual work program reviews and budgets. List referenced internal documents to support this requirement.

Detail how the licensee may use contractors and sub-contractors, management of those contractors, and verification that contractors' personnel are competent in the tasks they are required to perform.

3.3.9 Hazard identification and risk management

The SMS should demonstrate the key methods of hazard identification and risk management. It should be robust and fully detail the characteristics of the risk management system in place including:

- the organisation
- people
- processes
- data
- tools
- quality assurance and improvement.

Note: The following wording is an indication only and should not be considered as a standard inclusion in the SMS.

Indication of content detail for hazard identification

The operator will systematically manage all potential risks over the life of the facility and operations. This will involve a process of hazard identification, risk assessment and determination of control measures to ALARP.

As outlined in the formal safety assessment of this safety case, a number of risk assessment processes including HAZIDs, HAZOPs and quantitative risk assessments contribute to the hazard identification and risk management. The operator conducts regular operational risk reviews, which result in an update of the facility hazard register, MAEs and performance standards. To meet this objective, the operator:

- developed, implemented and maintains a hazard identification and risk assessment process which results in a prioritised corrective action register
- ensures the hierarchy of controls are used to minimise and manage operational risks, namely:
 - elimination of hazard at source
 - substitution of materials/process
 - enclosure/isolation of materials/process
 - engineering methods
 - work practices
 - administrative control
 - training/education
 - personal protective equipment
- involves and trains all employees and subcontractors in the hazard identification and risk assessment process so that day-to-day hazards are identified and control measures are determined and implemented
- demonstrates that the risk of high or significant hazards are reduced to ALARP.

It is expected that there will be numerous internal operator documents that will relate to the hazard identification and risk assessment. The document number and title of the document should be listed, with the option to hyperlink, as reference documents under the relevant section.

Following the hazard identification, an assessment of the risk needs to be completed. The safety case should include details of the risk methodology used and referencing the operator's internal documents where relevant.



Note: The following wording is an indication only and should not be considered as a standard inclusion in the SMS.

Indication of content detail for assessment of risk

Where a hazard is identified, the risk of injury or harm to a person, damage, loss or activity interruption at the facility is assessed.

In assessing the level of risk the following process is carried out:

- identification of all injury, disease or organisational loss potential and consequence
- determination of the actual risk taking into consideration the realistic frequency of potential occurrence, the duration of the event and the loss severity or consequence
- prioritisation of control requirements for identified risks.

Matters that are considered include:

- type of hazard
- size and layout of the workplace
- frequency potential of the hazard
- consequence of injury, damage or loss likely to occur as a result of being exposed to a hazard
- number of employees, including shift workers and where they are located (e.g. remote or isolated areas)
- systems of communication for employees in isolated or remote locations to enable contact for assistance
- information available on safety data sheets (SDS) or product sheets relating to first aid measures
- validation that the right risks were assessed
- verifying that the risks were mitigated effectively and residual risk is ALARP.

Hazards associated with specific tasks are assessed using experienced personnel. Each identified hazard is assessed against a risk matrix to obtain a risk ranking. Upon identification that additional control measures need to be implemented to bring the risk ranking to ALARP, actions are raised and entered into a database that monitors the progress of work completed so that the additional controls can be implemented against the risk. Once implemented, the control measures are monitored for effectiveness on a regular basis through auditing of operations.

Hazard identification and Risk assessment and management including operational risk assessment guides assist with these requirements.

3.3.10 Objectives, plans and performance targets

This section should cover objectives and plans for satisfying legislative compliance and quality system management. Provide evidence with statistical data demonstrating how these requirements and responsibilities for all aspects of occupational safety and health management will be met.

The data should include details of positive performance indicators (PPIs) as well as other key performance indicators (KPIs) covering data on lag statistics.

These objectives may relate to high level strategic plans developed by the operator and reviewed periodically. A five year strategic plan should be reviewed annually to identify achievement of the objectives set in the plan, identify new objectives and targets to be set for the forthcoming period and address areas where objectives, plans and performance standards have not been achieved.

3.3.11 Sources of information

The operator needs to identify how they maintain regulatory compliance management for the SMS. This should cover an overview of the various areas:

- monitoring for changes in legislation
- monitoring for changes to any of the Australian or international standards used in the operation of the facility
- monitoring relevant chemical database websites for changes in SDS content for chemicals used on the facility.

This should be monitored by ongoing internal audits to ensure current information is available.

3.3.12 Management system documentation and records management

The SMS should describe the records management and document control for all records and documents developed in the course of operating the facility. The regulations require the operator to comply with their safety case document control and record management system [r. 14].

It should also address the arrangements for records, including security [r. 14]. A concise overview of the methods used should be included in the SMS with reference to the operator's internal processes and procedures for management of these key elements. It should include details of development, review and authorisation of procedures and that records are retained in accordance with an approved retention schedule.

The section should also include details of where documents are located and that they are readily available to personnel as and when required.



3.3.13 Design, construction and commissioning

Management of design of the facility should be covered in this area and briefly outline the design development, resources and responsibility. It should cover the design review and validation during the course of the design development, and the interface between fabricators and operations personnel to ensure adequacy of design for fabrication and maintenance purposes. This section should reference key engineering, design, validation and review processes.

If the safety case for a facility is likely to be used for further construction activities on the facility, then there should be an overview of the management of that construction as well as details of how simultaneous operation and construction will be managed.

Note: The following wording is an indication only and should not be considered as a standard inclusion in the SMS.

Indication of content detail for construction and simultaneous operations (SIMOPS)

Construction

Future minor works construction (MWC) projects on the facility may be conducted under this safety case and SMS.

Each MWC project will develop a suite of project specific documentation to support the project, including an SMS, project specific emergency response plan, quality plans, audit plans and any other project specific documentation that is identified as being required.

During MWC projects the construction site will be clearly demarcated and the operator's permit to work system will be utilised to ensure site safety is controlled.

Any major construction work or the inclusion of an additional vessel will be covered under a separate safety case.

Simultaneous operation and construction

Risk associated with simultaneous operation and construction projects shall be identified through risk assessments and any additional procedures or processes associated with these risks will form part of the construction and commissioning procedures.

Where safety systems are identified as being temporarily out of service due to modifications to plant and equipment, the risks associated with any unavailable safety systems shall be identified and procedures included in the construction and commissioning procedures.

Details of how commissioning will be achieved for the new construction must be summarised in the SMS and include details of any pre-commissioning requirements. All appropriate records required for the manufacturer's data records should be collected into a separate area which can then be passed to operations on handover of the new facility and easily accessed by an independent validator of the project.

Commissioning should include an overview of the stages implemented during commissioning, the commissioning plan and details of all commissioning procedures and processes to be employed. The completed and signed commissioning documents shall be retained using the appropriate records management and document control procedures.

3.3.14 Simultaneous operations and bridging documents

When a separate vessel is involved that has its own safety case, it is important to have a bridging document that covers the management of the simultaneous operations, includes details of the risk assessments conducted and any new procedures or processes brought into place for the duration of the SIMOPS.

The *Bridging documents and simultaneous operations (SIMOPS)* guide will assist with this requirement.

3.3.15 Validation

The safety case should include details of any required validation. Normally a validation is required:

- upon finalisation of design and prior to construction of a pipeline
- upon completion of construction and prior to commissioning and operation of a facility
- on any significant change to the facility operations [r. 49(2)(b)].

The Minister may require the operator to provide a validation [r. 49(2)]. A validation is a statement in writing by a competent independent person (the validator, rr. 49(3), 49(4), 49(6)) in relation to design and construction of the facility. The Regulations provide for the operator and the Minister to agree on the scope of the validation for a proposed facility [r. 49(3)] or significant changes to an existing facility [r. 49(4)].

Prior to the commencement of validation, the operator must prepare a scope of validation to be accepted by the Minister prior to any instructions being given to the nominated validator.

A copy of the validation statement must be submitted to the Minister by the operator upon receipt from the validator.



3.3.16 Management of change

The SMS should include a section detailing the management of change to the facility or its management. This section should include an overview of all areas of the facility that may be impacted by changes, such as, changes to:

- procedures and processes
- standards
- design of the facility
- operating parameters
- components
- tools and equipment.

The management of change section of the SMS should outline the methodology for the communication of any changes put in place by any of the above examples and any other areas of change not listed. The SMS must also outline the requirements used to effect the change, its authorisation and implementation, as well as risk assessment of any possible effects the change may have on other areas of the facility.

The relevant internal documents covering any aspect of change on the facility should be listed and referenced in this section.

3.3.17 Purchasing and control of materials and services

The facility description covers machinery and equipment installed on a facility. However, under the SMS, the operator should have in place purchasing procedures and processes for procurement of goods and services for the operation of the facilities. The procedures for procurement should contain a requirement for assessment of fit for purpose of any products being purchased and that contractors and sub-contractors have suitable processes in place to ensure their products or services meet the safety and health criteria. The operator should have in place a list of approved suppliers who have been assessed as meeting these requirements.

The SMS should outline the non-compliance procedure for identifying and checking incoming goods that do not meet the requirement of the purchase order raised. For example, demonstrating if goods are returned to the supplier or managed in some other way through the purchasing process.

The SMS should outline the operator's non-compliance procedure for identifying and checking incoming goods that do not meet the requirement of the purchase order raised. For example, demonstrating if goods are returned to the supplier or managed in some other way through the purchasing process.

Relevant procedures and processes that manage procurement should be listed as referenced documents.

3.3.18 Safe operating procedures

The SMS should include a section on safe operating procedures for the facility. The key procedure is the permit to work procedure (PTWP).

The overview of the PTWP should include details of:

- the types/classes of permit to work including hot work and confined space
- who is responsible for generating the permits to work
- who controls the permits to work and how many permits are open, ensuring that workgroups are aware of other open permits in their area of work and that work does not adversely impact other open permits to work
- how long the permits remain in force. Is it for a job taking more than one day or one shift? Is the permit to work closed out at the end of that period or carried over until completion of the job?

Reference to the operator's PTWP must be included in this section, but the full procedure should not be reproduced within the SMS.

Other safe operating procedures should also be included in this section of the SMS, covering:

- facility isolation/rigging/lock-out system
- signposting and hazard identification
- waste fuel, lubricants and hazardous chemicals
- naturally occurring radioactive materials
- non-destructive testing with radioactive substances
- safe operation of vessels and aircraft on and around the facility
- a general overview of documentation of work practices for routine, semi-routine and non-routine work instructions and operations procedures
- diving operations overview of the required diving safety management system (DSMS) to be in place prior to any diving activity being undertaken, and the need for a diving project plan to be developed by the diving contractor and approved by the operator prior to any diving activities being undertaken from the facility.

The operator should reference their internal documents to limit inclusion of too much detail for each of these activities.



3.3.19 Materials handling and storage

The operator should have in place a process and procedures for managing materials handling and storage. It should cover:

- handling and storage of equipment
- packaging and preservation of materials where required
- delivery of equipment
- stock take of spare parts and consumables
- loss, damage or deterioration of goods.

This section may also include the requirement that personnel who operate lifting equipment such as cranes and hoists are trained and the process to verify their competency.

Operations should include evidence registers are maintained. For example, for all slings, chains and other equipment used for manual handling and that the equipment is tagged with load weighting and checked regularly by trained personnel to identify any repairs or maintenance that may be required.

3.3.20 Maintenance and repair

This area describes the operator's maintenance management system that is in place to ensure the integrity and reliability of the facility. The system should include a list of all plant and equipment located at the facility and the scheduled maintenance requirements applicable under the facility work program.

The maintenance management system should be supported by various work procedures and work instructions and the operator must ensure that operations personnel familiar with the requirement of the machinery and equipment are involved in the development and review of these work program documents [r. 22].

3.3.21 Inspection, testing and monitoring

This SMS section describes the operator's management of SCEs. The section should detail how the maintenance management system satisfactorily manages SCEs by ensuring they are regularly inspected and tested to monitor their application in the event of an emergency.

This section should include the operator's general inspection, testing and monitoring, and provide an overview of the facility's scheduled and unscheduled requirements. This should cover inspection, testing and monitoring of flowlines, pipelines and subsea equipment connected to the facility if they are part of the facility.

Describe the operator's process to determine the frequency of the inspection, testing and monitoring should be included in this section. This process should include periodic reviews to ensure that the inspection schedule is still viable, taking into account the age of the equipment and machinery being checked, and

whether or not the schedule should be adjusted to either increase or reduce the frequency based on the age, status and condition of the equipment.

The section should reference the operator's maintenance management system and their planning and scheduling documentation and facility work programs.

3.3.22 Integrity management

The operator should describe the integrity management plan linked with the maintenance management system to provide an ongoing review of the management and monitoring of the integrity of the facility and any connected pipelines.

This section should include details of the periodic review of the integrity management plan, actions to be taken as a result of the various survey studies that may have been conducted on the facility and other activities that consider the condition of the facility.

This section should also review and highlight areas of the facility where machinery and equipment may be aging and require additional management, including increased testing and inspection, forecasting of possible parts replacement or major overhauls.

Include reference to the integrity management plan document number and full title.

3.3.23 Incident/hazard reporting and investigation

This section should outline the licensee's system for incident and hazard reporting and investigation [r. 50] and summarise the system with reference to the internal procedures and processes used.

Details should be included of the management of incidents and near miss occurrences which are considered to be statutory reportable incidents under the Regulations.

All personnel including supervisors, health and safety representatives and managers involved in incident and hazard investigation and reporting should be trained and competent in this area.

The overview of the system should also include reference to communication of the investigation results to the workforce and the corrective actions generated to prevent a recurrence of the incident.

This section should include an overview of the reporting requirements for these accidents and dangerous occurrences. There is also a requirement for ongoing written reports by the 15th of each month by the operator of a facility of the status of all open dangerous occurrence reports [r. 53(3)].

Reporting of accidents, incidents and dangerous occurrences guide assists with this requirement.



3.3.24 Workplace environment

This section should describe the processes in place required under sch.5, div. 2 of the Act cl. 8-10 to ensure the maintenance of a safe and healthy working environment at the facility by maintaining:

- high standards of housekeeping cleanliness, hygiene and ergonomics
- procedures for fatigue management and maximum hours to be worked under normal conditions
- monitoring of exposure to noise, vibration, fumes and odours
- limited exposure to hazardous substances
- the operator's smoking policy.

3.3.25 Health monitoring systems

Include details of the operator's health monitoring procedures and processes in place for the workforce, and detail any pre-employment health assessments and subsequent health surveillance programs.

Include details of the medical and health assistance available on the facility both offshore and onshore [sch. 5, div. 2 cl. 8.2(h) of the Act].

The operator's prescription medication policy should be included detailing who is responsible for this prescription medication to ensure all medication is secured, and that members of the workforce notify their immediate supervisor when they are taking medication which may impact their performance at work.

3.3.26 Emergency response

The SMS must include a description and the implementation of the ERP [r. 31].

The ERP must describe the response to the emergency risks that the operator has identified in their formal safety case assessment [r. 31] (see Section 3.4 regarding formal safety assessment). The ERP should include a list of possible scenarios that could result in its implementation.

The operator should demonstrate that:

- emergency response roles and responsibilities have been documented within the ERP and there is a description of the chain of command for emergencies
- emergency response training is conducted for all personnel
- emergency response drills and exercises are scheduled, conducted and reports generated on the results
- emergency response equipment is readily available and fit for purpose, a schedule for inspection and testing of emergency equipment is in force, there is a suitable redundancy of equipment for backup purposes in the event of equipment failure.

The operator should list all internal referenced documents where critical information is contained.

This section of the SMS should cross-reference sections of the facility description and formal safety assessment, where appropriate.

Emergency panning guide assists with this requirement.

3.3.27 Safety management system audits

This is a key element of the SMS and operators should have an audit system in place that is clear, objective and evidence based to show outsiders that the operator conforms to the SMS. It is one of the main focus areas for the Department.

The operator must demonstrate that they have ensured the implementation of the SMS and there is a continual and systematic identification of deficiencies in, and improvement of, the system as required by r. 17. Therefore, the operator's audit of the SMS requirements should measure its effectiveness, and identify ways to improve it, and any deficiencies that need rectifying as required by r. 17(b)–(c).

This section should detail the audit process, including the existence of an audit plan outlining the methodology by which the operator will conduct internal or external audits. This requirement should include details of auditor independence requirements for the areas being audited and the qualifications of the auditor.

Details of the management of non-compliance areas identified during the audit, how actions are generated to address the non-compliance and the monitoring of the actions through to effective closure should also be included.

Audits, review and continual improvement guide will assist with this requirement

3.3.28 Review and continual improvement

The operator should include details of systems and processes that will be reviewed, how and when the review will take place and the results.

The results of the review should be documented and be formally communicated to management to provide continual improvement to the SMS. These actions may be through identification of new objectives and targets, ongoing audits and the closeout of actions generated from audit reports and incident investigations.

The areas of audit, review and continual improvement are critical elements of the safety case and should focus on:

- ensuring compliance
- identification and management of continual improvement.

These areas of the safety case should be robust, comprehensive and continuous. As a guide to assist development of the safety case, operators should take into account that the Department will be inspecting against the safety case to ensure compliance and improvement. A principle means of achieving this will be to ask the operator how they ensure they are doing



what they said they would do in the safety case. It is important that details contained within the safety case are comprehensive and concise.

Operators should ensure that they have a process in place to regularly verify that their audit and review and continual improvement requirements are managed effectively. Where Department inspection findings identify issues with the operator's systems, questions will be raised as to why these issues were not already identified and corrected by the operator's audits, review and continual improvement requirements.

Audits, review and continual improvement guide assists with this requirement.

3.4 Formal safety assessment

The formal safety assessment description must summarise the risk assessments undertaken in sufficient detail to provide evidence that the requirements in r. 16(3) have been addressed. This section of the safety case should therefore include a comprehensive summary of the assessments, analyses and results that have been documented as part of the formal safety assessment.

It is expected that the detailed description should provide sufficient information to demonstrate that the formal safety assessment has identified all MAEs, systematically assessed the associated hazards and implemented adequate control measures to reduce the risks to ALARP.

3.4.1 Purpose

The formal safety assessment description should include a brief overview of the purpose of the formal safety assessment to identify as broad a range of risks as possible using appropriate hazard identification techniques and risk assessment methodologies.

3.4.2 Scope

The scope should reference the facility covered by the formal safety assessment and the types of risks covered in the assessment process, including loss of integrity on the facility, work activities in connection with operating the facility and work environment.

3.4.3 Objective

The formal safety assessment description must include a summary of the objectives of the formal safety assessment.

Note: The following wording is an indication only and should not be considered as a standard inclusion in the safety case.

Indication of content detail for objective section of formal safety assessment

The objectives of the risk assessment processes comprising the formal safety assessment are to:

- identify all potential threats to the integrity of the facility
- identify all potential hazards associated with the operation and maintenance of the facility
- document existing risk controls for the identified hazards
- estimate intrinsic and current (residual) risk levels for the identified hazards
- establish a risk profile for the integrity of the facility and for the critical tasks involved in the operations and maintenance of the facility and use this for the subsequent development of risk control strategies/safety plans
- conduct an assessment on the potential for any major accident event defined in r. 3 as "an event connected with a facility, including a natural event, having the potential to cause multiple fatalities of persons at or near the facility"
- demonstrate that the processes adopted for the facility have reduced the level for risk to ALARP.

The objective of the formal safety assessment is to demonstrate that:

- the operator has in place a risk tolerability criteria against which all risks have been assessed and reduced to a level that is tolerable and ALARP. Details of the procedures and processes in place to achieve tolerability should be included as a reference
- all major hazards have been identified, and that those that pose particular risk to the personnel and/or the facility have been assessed
- the control, mitigation and recovery measures that have been or will be put in place to manage the risks are adequate and effective
- the risks have been reduced to a level that is tolerable.



The consequences of the risks considered include the:

- impact on fitness for purpose of the facility
- impact on the health of personnel
- potential for personnel injury or fatality.

3.4.4 Methodology

This section should describe the formal safety assessment methodology including:

- Risk assessment process – this should cover the approach taken to accurately identify all hazards and risks relating to the operation and maintenance of the facility, the types of assessment employed (e.g. qualitative, semi-quantitative, quantitative, facility integrity assessments) and the associated controls to reduce the level of risk to ALARP.
- Participation in the formal safety assessment process – outline the participants identified to attend risk assessments based on their level of experience, competence and involvement in the operations of the facility. This should include a broad range of workforce participation to ensure adequate levels of consultation and communication which is an essential part of the risk management process.
- Workshop facilitation – provide an overview of who facilitates the risk assessment workshops and their selection based on industry experience and competency.
- Risk analysis and evaluation – include details of the analysis and evaluation process undertaken, including reference to the risk matrix used, a copy of which should be included as an appendix to the safety case.

3.4.5 Fire and explosion risk analysis

The safety case must include a detailed description of the facility's fire and explosion analysis (FERA) [r. 28(1)]. The formal safety assessment should summarise the FERA by providing details of:

- the types of fire and explosion that can occur on the facility
- the fire detection measures that have been installed on the facility
- the measures of prevention of fire or explosion that have been put in place on the facility
- the control and extinguishment systems and processes in place on the facility
- management of hazardous or flammable substance storage on the facility
- the conclusion reached during the fire and explosion analysis and any additional control measures that were identified that have been or need to be put in place on the facility.

Include the document number and title of the FERA conducted which will have full details of the items listed above as well as specific operator internal documents and any Australian or international standards utilised for the analysis.

Cross-reference to any other area of the facility description or SMS referring to the FERA within emergency response [r. 28(1)].

3.4.6 Evacuation, escape and rescue analysis

The safety case must include a detailed description of the facility's evacuation, escape and rescue (EER) analysis conducted for the facility and should be summarised in the formal safety assessment providing details of:

- the types of emergency that could arise on the facility
- the range of routes of evacuation and escape of personnel
- any alternative routes if the prime evacuation route is not available
- different procedures for managing evacuation, escape and rescue
- a range of means and equipment for evacuation, escape and rescue
- any areas that can provide temporary refuge
- a range of life saving equipment
- conclusions reached as a result of the analysis and any additional control measures required to reduce the risks associated with emergencies.

Reference the document number and title of the EER analysis which will have full details of the items listed above, as well as specific operator internal documents and any Australian or international standards utilised for the analysis.

This section should cross-reference any other area of the facility or SMS referring to the evacuation, escape and rescue analysis within emergency response [r. 27(1)].

3.4.7 Major accident events

The formal safety assessment must include the likelihood and consequence of a major accident event (MAE) [r. 16(3)(b)]. This section should list the identified MAEs for the facility and include details of the intrinsic risk levels, the controls that have been applied and the residual risk levels and that the risk tolerability is ALARP.

Cross-reference the section in the facility description and SMS covering the performance standards developed for each of the SCEs identified as controls for the MAEs.

Major accident events, control measures and performance standards guide assists with this requirement.



3.4.8 Safety critical elements and bowtie diagrams

The formal safety assessment description must summarise all of the technical and other control measures that the operator has identified to prevent, detect, control and mitigate MAEs. Each of these control measures is considered a SCE. A summary of the SCE and a link to their performance standards (summarised in the SMS) needs to be included.

Bowtie diagrams displaying each MAE with the associated preventive and mitigating controls in place is the preferred method to assist in summarising the associated SCEs. Inclusion of the bowtie diagrams is usually attached in the safety case appendices.

3.4.9 Demonstration of as low as reasonably practicable

The formal safety assessment must demonstrate that the operator has reduced the risks associated with identified MAEs to ALARP. This should include a detailed description of the necessary prevention, detection, control and mitigation measures implemented. This demonstration should include a technical argument as to why it is not reasonably practicable to implement further control and mitigation measures [r. 16(3)-(4)].

ALARP demonstration guide assists with this requirement.

3.4.10 Summary of risk assessment studies

The formal safety assessment should include a summary of the workshops run as part of the formal safety assessment methodology must be included. The summary should include the risk assessment workshops conducted on the facility detailing the facilitator, the location and date of the workshop, the results of the workshop, and details of the formal risk assessment report (document number and title).

During a five yearly review, the formal safety assessment should be updated to reflect:

- risk assessments that have been conducted since the last five yearly review
- update of previous risk assessments as to current status of any actions that were still outstanding when first entered into the formal safety assessment
- update of the HAZOP conducted.

Hazard identification and Risk assessment and management including operational risk assessment guides assist with this requirement.



4 Submission and assessment of the safety case

4.1 Submission of safety case

The Minister normally delegates their powers to receive and accept the operator's safety case submission [s. 16] to an officer of the Department, currently the Director Dangerous Goods and Petroleum Safety.

Acceptance of a safety case means that the Department considers that it demonstrates the operator's commitment to operate their facility in a manner that satisfies their legislative duties and any other legislative requirements. It does not mean:

- that it is safe to follow the safety case irrespective of the circumstances around the activity that may indicate further risk assessment is necessary
- that the WA State Government indemnifies the operator for any incident, or liability, or breach of the legislation.

The safety case is the operator's document that reflects the operator's commitment to comply with the legislation. The operator remains responsible for all risks.

Prior to submitting a safety case for assessment, the operator needs to liaise with the Department on any validation requirements [r. 49]. If validation is required, it is important that the scope of the validation is agreed between the operator and the Department prior to instructions being given to a third party validator (see Section 3.3.15).

4.2 Request for additional information

Regulation 36 allows the Minister to request additional information. The additional information supplied will then become part of the safety case [r. 36(3)].

Operators should note that if additional information is requested the 90 day time limit for the Minister's notice of the decision is suspended until the operator provides the requested information. For example, if the Minister sends a request for additional information 20 days after the operator's safety case submission then the count on the remaining 70 days of the assessment period will recommence after the Minister has received the required information. The same will apply to a revised safety case time limit of 30 days [r. 44].

4.3 Acceptance or rejection of a safety case

Regulation 37 prescribes the Minister's jurisdiction to decide to accept or reject a safety case. The Minister must accept a safety case if satisfied that it is compliant with the regulation requirements and, if required, the requested validation has been provided [r. 37(1)]. The Minister may impose conditions on the acceptance regarding the facility or its activities [r. 37(5)].

The Minister must reject the safety case if, firstly, the operator has had reasonable opportunity to change [r. 37(3)] and resubmit their safety case, and secondly, the Minister is not satisfied the resubmitted safety case complies with the regulation requirements r. 37(4). If the Minister rejects the safety case they must provide reasons for the decision in writing [r. 38(3)].

4.4 Notice of decision on safety case

The Minister must provide the operator with written notice of, and reasons for, their decision on a safety case submitted under r. 35 or resubmitted under r. 37(3) within 90 days after receiving the safety case [r. 38].

The Minister must notify the operator in writing if they are unable to provide a decision to the operator within 90 days and provide the operator with a proposed timetable for their consideration of the safety case.

If the submitted safety case covers more than one prescribed activity, then the Minister may partially accept the safety case. For example, if a safety case is submitted for two activities the Minister may accept the safety case for activity one and reject it for activity two [rr. 37(2), 44(2)] and also apply a conditional acceptance [rr. 37(5), 44(5)].



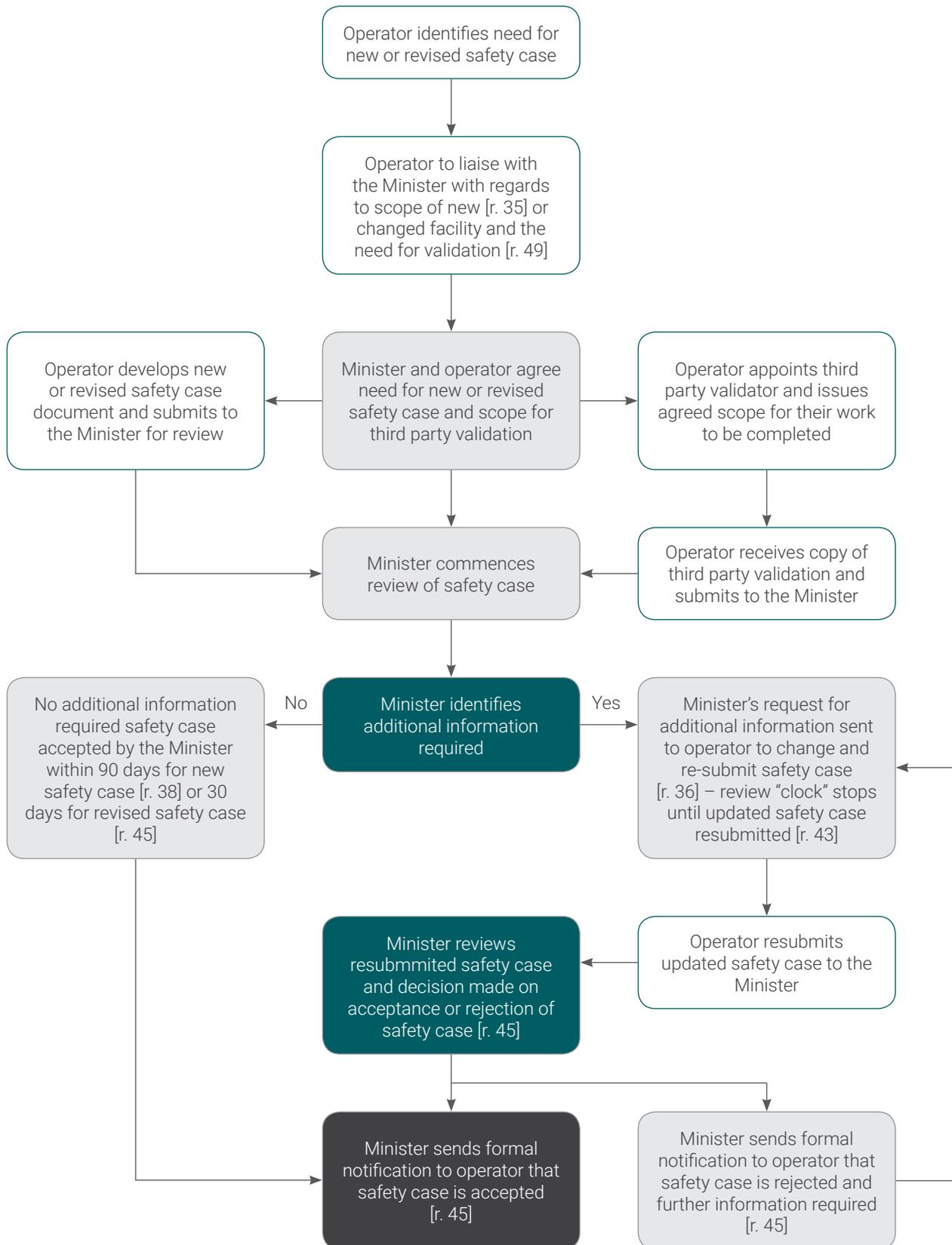


Figure 1 Safety case submission flow chart



4.5 Revision of safety case

The Regulations prescribe the circumstances that trigger the revision of a safety case [rr. 40, 41].

The Minister may request that the operator of an offshore facility for which a safety case is in force submit a revised safety case [r. 41]. The request by the Minister must be in writing and provide details of the matters to be revised, the time in which the operator must complete the revision, and the Minister's reasons for the request.

On receipt of the notice the operator may submit an opinion in writing within 21 days (or longer at the Minister's discretion) of why the revision is unnecessary, and/or to vary the date or terms proposed by the Minister [r. 41(4)]. The operator must provide reasons for their opinion [r. 41(5)].

The Minister will provide written notice of, and reasons for, their decision on the operator's submission within 28 days [r. 41(6)]. The operator must revise their safety case in accordance with the revision notice as originally received or as varied by the Minister [r. 41(7)].

4.6 Revision after five years

The operator must revise and resubmit their safety case every five years [r. 42(1)] after the initial acceptance [rr. 37, 44], regardless of any interim revisions and acceptances because of facility modifications and/or at the Minister's request under rr. 40, 41.

Operators should have in place a process to track this requirement as there will be no reminders sent from the Department to complete these reviews. Regulation 44 has specific timelines for the submission of five yearly revisions. Figure 2 below depicts the required intervals for five yearly submissions (regardless of the number of times the safety case may have been updated to reflect significant changes to operations).

4.7 Notice of decision on a revised safety case

The Minister must provide the operator with written notice of their decision on their revised safety case submission within 30 days.

The Minister will notify the operator in writing if they are unable to make a decision in the 30 days, and provide a proposed timetable for the consideration of the revised safety case [r. 45].

4.8 Rejection of a revised safety case

If the decision of the Minister is to reject a revised safety case, the safety case in force immediately before the revised safety case was submitted remains in force as if the revised safety case had not been submitted [r. 46].

4.9 Withdrawal of acceptance of a safety case

The grounds for withdrawal of acceptance and the notification of that withdrawal are set out in rr. 47, 48.

4.10 Activities undertaken in a manner different from safety case requirements

The Minister may consent in writing to the operator undertaking activities on a facility in a manner that is different to those described in the safety case in force, if the Minister is satisfied that the proposed manner of the activity will not result in or be likely to result in a significant new or increased risk to safety and health at the facility [r. 39].



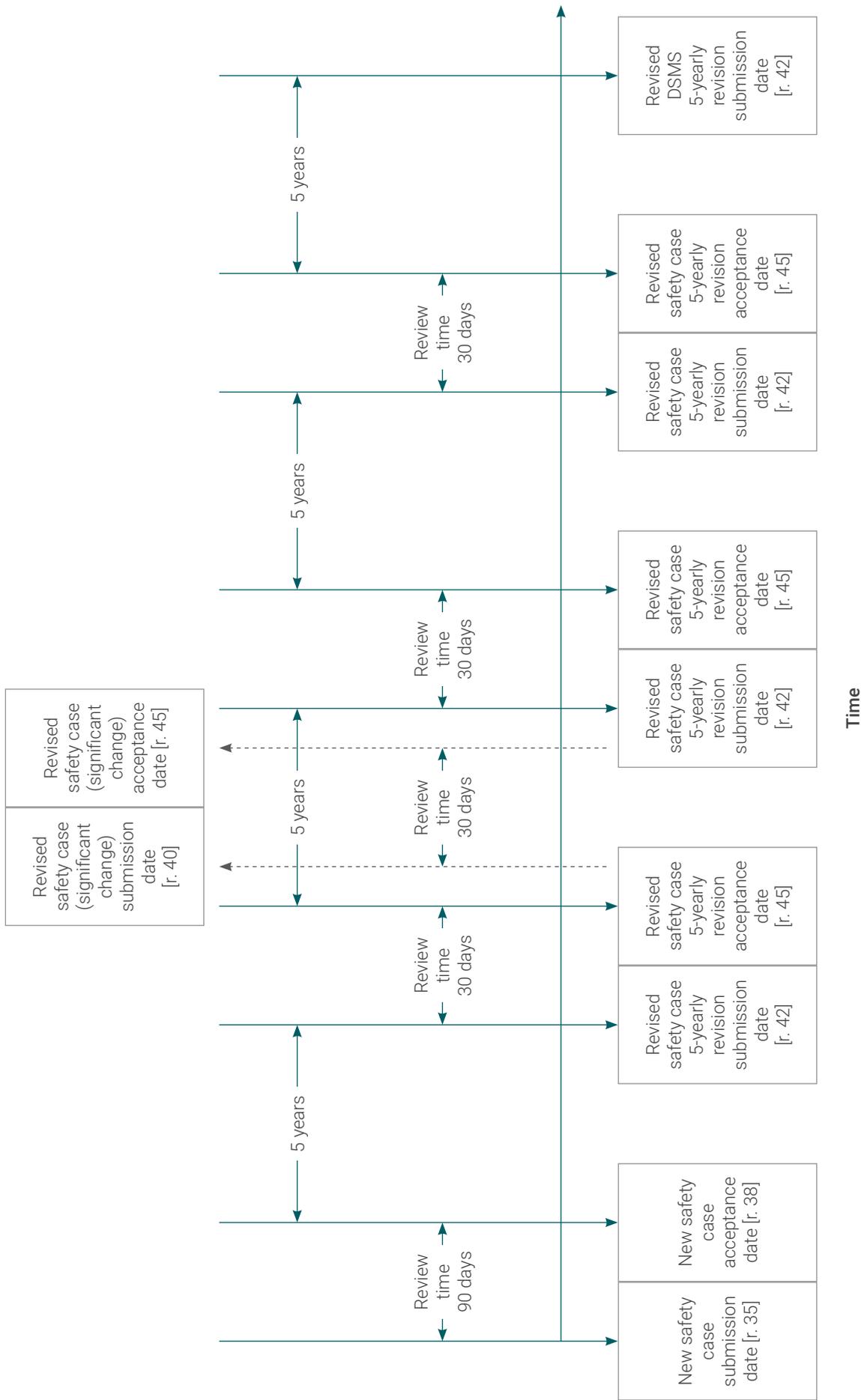


Figure 2 New and revised timelines

APPENDICES

Appendix 1 Legislative provisions

The sections of the *Petroleum (Submerged Lands) Act 1982* and *Petroleum (Submerged Lands)(Management of Safety on Offshore Facilities) Regulations 2007* referenced in this guide are listed below.

Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 2007

Part 2 – Operators

- r. 4 Meaning of facility
- r. 5 Facility to have an operator
- r. 6 Nomination of operator

Part 3 – Safety cases

- r. 9 Meaning of facility
- r. 14 Maintaining records for safety cases
- r. 16 Facility description, formal safety assessment and safety management system
- r. 17 Implementation and improvement of the safety management system
- r. 18 Standards to be applied
- r. 19 Command structure
- r. 20 Competence of members of the workforce
- r. 21 Permit to work system for safe performance of various activities
- r. 22 Involvement of the members of the workforce
- r. 23 Adequacy of design etc.
- r. 24 Medical and pharmaceutical supplies and services
- r. 25 Machinery and equipment
- r. 26 Drugs and intoxicants
- r. 27 Evacuation, escape and rescue analysis
- r. 28 Fire and explosion risk analysis
- r. 29 Emergency communications systems

- r. 30 Control systems
- r. 31 Emergency preparedness
- r. 32 Pipelines
- r. 33 Vessel and aircraft control
- r. 34 Arrangements for records
- r. 35 Safety case to be submitted to Minister
- r. 36 Minister may request more information
- r. 37 Acceptance or rejection of a safety case
- r. 38 Notice of decision on safety case
- r. 40 Revision because of a change of circumstances or operations
- r. 41 Revision on Minister's request
- r. 42 Revision after 5 years
- r. 43 Minister may request more information
- r. 44 Acceptance or rejection of revised safety case
- r. 45 Notice of decision on revised safety case
- r. 46 Effect of rejection of revised safety case

Part 4 – Validation

- r. 49 Validation of proposed facilities and proposed significant changes to existing facilities

Part 5 – Accidents and dangerous occurrences at or near facilities

- r. 50 Dangerous occurrence
- r. 53 Reports of accidents and dangerous occurrences

Note: The only authorised versions of the Act and Regulations are those available from the Parliamentary Counsel's Office (www.legislation.wa.gov.au), the official publisher of Western Australian legislation and statutory information.



Appendix 2 Glossary

The following terms are defined for the purposes of this guide.

ALARP	As low as reasonably practicable	MAE	Major accidents events – an event connected with a facility, including a natural event, having the potential to cause multiple fatalities of persons at or near a facility
DSMS	Diving safety management system		
EER	Evacuation, escape and rescue		
ERP	Emergency response plan	MWC	Minor works construction
Facility	A vessel or structure used for the recovery, processing, storage or offloading of petroleum. Includes mobile offshore drilling units and pipe lay barges	Operator	In relation to a facility or proposed facility, means a person who is registered under r. 7(3) as the operator of the facility or proposed facility
FMEA	Failure mode effects analysis	Performance standard	A standard established by the operator defining the performance required for a safety critical element typically defining the functionality, availability, reliability, survivability and interdependency of the safety critical element
FERA	Fire and explosion risk analysis		
HAZAN	Hazard analysis		
HAZID	Hazard identification study		
HAZOP	Hazard and operability study		
KPI	Key performance indicators	PMP	Pipeline management plan
Licensee	The registered holder of a licence issued under the Act	PPI	Positive performance indicators
Location	A block or blocks in respect of which a declaration under s. 37 of the Act is in force	PTWP	Permit to work procedure
		QRA	Quantitative risk assessment
LOPA	Layers of protection analysis	SCE	Safety critical elements; that is, any item of equipment, system, process, procedure or other control measure the failure of which can contribute to an MAE



Appendix 3 Concordance table

Petroleum (Submerged Lands) Act 1982

Petroleum (Submerged Lands)(Management of Safety on Offshore Facilities) Regulations 2007

Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 2007						
rr. 4, 9	3.1.1	Scope and objective of safety case				
rr. 5, 6	3.1	Facility to have an operator				
r. 12	3.3.3	Compliance with safety case				
r. 14	3.3.12	Maintaining records for safety cases				
r. 16(2)(a)	3.2.2	Layout of the facility				
r. 16(2)(b)	3.2.4	Technical and other control measures – should include safety critical elements				
r. 16(2)(c)	3.2.1 and 3.2.3	Activities – covering the general purpose of the facility and machinery and equipment				
r. 16(2)(d)	Other relevant matters					
	3.2.5	Emergency response				
	3.2.6	Pipelines				
	3.2.7	Vessel and aircraft control				
	3.2.8	MAE controls and performance standards				
	3.2.9	Provision of drawings				
r. 16(3)(a)	3.4.5	Hazard identification – fire and explosion analysis				
	3.4.6	Evacuation, escape and rescue analysis				
	3.4.7	Major accident events				
r. 16(3)(b)	Risk assessment					
	3.4.1	Purpose				
	3.4.2	Scope				
	3.4.3	Objective				
	3.4.4	Methodology				
	3.4.7	Major accident events				
	3.4.8	Safety critical elements and bowtie diagrams				
r. 16(3)(c)	Controls to achieve ALARP					
	3.4.9	Demonstration of ALARP				
	3.4.10	Summary of risk assessment studies				
r. 16(4)(a)	3.3.1	SMS to be comprehensive and integrated				



Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
r. 16(4)(b)	Scope of activities in relation to facility					
	3.3.2	Policy and leadership				
	3.3.3	Compliance				
	3.3.4	Management system overview				
	3.3.5	Organisation and responsibility				
	3.3.6	Workforce involvement and communication				
r. 16(4)(c)	3.3.9	Hazard identification				
r. 16(4)(d)	3.3.9	Assessment of occupational safety and health hazards and risks				
r. 16(4)(e)	3.3.9	Risk reduction to ALARP				
r. 16(4)(f)	3.3.21	Inspection, testing and maintenance – including requirements for safety critical elements				
r. 16(4)(g)	Provision of adequate communications					
	3.3.6	Normal communication requirements				
	3.3.26	Emergency communication requirements				
r. 16(4)(h)	Any other matters for SMS to meet requirements of regulations					
	3.3.8	Resources				
	3.3.10	Objectives, plans and performance targets				
	3.3.11	Sources of information				
	3.3.12	Management system documentation and records management				
	3.3.16	Management of change				
	3.3.17	Purchasing and control of materials and services				
	3.3.19	Materials handling and storage (includes hazardous substances)				
3.3.24	Workplace environment					
r. 16(4)(i)	3.2.8	Performance standards				
r. 16(5)	3.3.13 and 3.3.14	Construction and simultaneous operations				
r. 17	3.3.27 and 3.3.28	Implementation and improvement of SMS – audits, review and continual improvement				
r. 18	3.1.2	Standards to be applied				
	3.1.3	Definitions and abbreviations				
r. 19	3.3.5	Command structure				
r. 20	3.3.7	Competency of members of the workforce				



Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
r. 21	3.3.18	Permit to work system and other safe work procedures				
r. 22	3.3.6	Involvement of members of the workforce				
r. 23	3.3.13	Adequacy of design, includes construction, commissioning, validation and simultaneous operations				
r. 24	3.3.25	Medical and pharmaceutical supplies and services				
r. 25	3.2.3	Machinery and equipment				
	3.3.20	Maintenance and repair				
	3.3.22	Integrity management				
r. 26	3.3.25	Drugs and intoxicants including medication				
r. 27	3.2.5	Evacuation, escape and rescue analysis				
	3.3.26	Emergency response				
	3.4.6	Evacuation, escape and rescue analysis in formal safety assessment				
r. 28	3.4.5	Fire and explosion risk analysis				
r. 29	3.3.26	Emergency communications system				
r. 30	3.2.4	Control systems				
r. 31	3.3.26	Emergency preparedness				
r. 32	3.2.6	Pipelines				
r. 33	3.2.7	Vessel and aircraft control				
r. 34	3.1.4 and 3.3.12	Arrangements for records – includes document control requirements				
r. 40	3.1.5	Revision of safety case due to change in circumstances of operation				
r. 41	3.1.5	Revision on Minister's request				
r. 42	3.1.5	Revision after five years				
r. 49	3.3.15	Validation				
r. 50	3.3.23	Incidents and dangerous occurrences				
r. 53	3.3.23	Reporting of dangerous occurrences				
<i>Petroleum (Submerged Lands) Act 1982 Schedule 5 Division 2</i>						
cl. 8(1)	3.3.24	Operator to ensure facility safe and without risk to the health of any person				
cl. 8(2)(a)-(d)	3.3.24	Operator to ensure physical environment at the facility is safe and provide adequate amenities for workforce				
cl. 8(2)(e)	3.3.26	Operator to implement procedures for control and response to emergencies				



Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
cl. 8(2)(f)	3.3.7	Operator to provide workforce with appropriate information, training and supervision to safely perform activities				
cl. 8(2)(g)	3.3.25	Operator to monitor OSH of all members of workforce and maintain records of that monitoring				
cl. 8(2)(h)	3.3.25	Operator to provide medical and first aid services at the facility				
cl. 10(1)	3.3.9	Employer to take all reasonably practical steps to protect the safety and health of employees at facility				
cl. 10(2)(a)-(c)	3.3.24	Employer must provide and maintain safe working environment				
cl. 10(2)(d)	3.2.5 and 3.4.6	Employer must provide safe means of access and egress from employees work location				
cl. 10(2)(e)	3.3.7	Employer must provide training, information and supervision to perform work safely and without risk to health				



Appendix 4 Further information

Other guides available:

- *ALARP demonstration*
- *Audits, review and continual improvement*
- *Bridging documents and simultaneous operations (SIMOPS)*
- *Diving safety management system*
- *Emergency planning*
- *Hazard identification*
- *Involvement of members of the workforce*
- *Major accident events, control measures and performance standards*
- *Management of change*
- *Pipeline management plan*
- *Pipeline operation safety case*
- *Records management including document control*
- *Reporting of accidents, incidents and dangerous occurrences*
- *Risk assessment and management including operational risk assessment*
- *Safety management system*





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