



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

GUIDE

# Development and submission of a pipeline operation safety case

as required under *Petroleum Pipelines Act 1982* and  
*Petroleum Pipelines (Management of Safety of Pipeline Operations)  
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 of a pipeline under the *Petroleum Pipelines Act 1969*, and
- you are required to develop and maintain a safety case under the Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010.

## The Act

*Petroleum Pipelines Act 1982* (the Act) sets objectives to licensees for the safe operation of onshore pipelines licensed under the Act that prevents injury or harm to personnel and other protected persons entering the licensed area of the pipeline.

The Act sets out broad duties and is supported by regulations, together with codes of practice and guides.

## Regulations

Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010 (the Regulations) provide more specific requirements for a range of activities.

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 legislation listed above. Separate guides are available for the development of pipeline management plans, diving safety management systems and safety cases/safety management systems for the following legislation:

- *Petroleum (Submerged Lands) Act 1982*
  - Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations 2007
  - Petroleum (Submerged Lands) (Pipelines) Regulations 2007
  - Petroleum (Submerged Lands) (Diving Safety) Regulations 2007
- *Petroleum and Geothermal Energy Resources Act 1967*
  - Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010.



# Foreword

A key area of responsibility for the personnel at Department of Mines, Industry Regulation and Safety (the Department) is the ongoing administration of risk management and safety requirements for the onshore pipelines in Western Australia. To this end, a series of guide have been developed to provide support and assist licensees and operators to meet their commitments under the Western Australian Act and Regulations currently in place.

Licensees of onshore pipelines licensed under the *Petroleum Pipelines Act 1969* are required to develop and submit safety cases for review and acceptance by the Minister's delegate. This provides the opportunity for the licensee to put forward their case for safety that demonstrates the systems, capabilities, leadership and workforce involvement as well as continual improvement of existing systems.

In his keynote address to the Oil & Gas UK Piper 25 Conference in June 2013, Lord Cullen said:

*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.*

The British Parliament accepted of all 106 recommendations made by Lord Cullen in his investigation report into the Piper Alpha disaster in 1988. Western Australia's legislative requirements are 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 add 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

This document provides guidance for the development of safety cases to licensees of pipelines under the Act and the Regulations.

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

## 1.1 Structure and scope

This Guide reflects the four areas of a safety case and provides an overview of the required contents to comply with the Act and the 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 Concordance table

In order to assist licensees preparing safety case documentation, a concordance table has been developed to support this guide. It is suggested that the licensee include a concordance table in an appendix to the safety case listing the Regulations and the section of the introduction, facility description, safety management system (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 is a legislative requirement. A safety case accepted by the Minister must be in force for all pipeline and associated facility operations before any prescribed activity commences on the pipeline, including:

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

The licensee must ensure that there is a process in place to manage the smooth transition for update and review and acceptance of the safety case before any prescribed activity commences on the pipeline.

If new or increased risks are identified that are not adequately covered in the safety case, then a person must not engage in that operation until the safety case is updated, reviewed and accepted [r. 6].

### 2.1 Planning and liaising with Department inspectors

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

It is strongly recommended that licensees meet with the 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.

The Department does not provide a consultancy service to review drafts of safety case documents prior to formal submission for acceptance (Section 4.1).

These meetings should include discussion and agreement on the scope of any validations required [r. 41] for the various phases of the pipeline 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 licensee and the Department. This will identify and eliminate possible adverse effects on such things as the calculation of the safety levy applicable to the pipeline, 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 licensee 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 of 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 safety case only covers facilities and activities within the licensed area as defined in the relevant pipeline licence and including any licence variations (Section 3.1). Facilities outside the licence area but associated with the pipeline (e.g. accommodation camps, communication towers) should be noted within the facility description for information purposes only.

The operator should 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 pipeline, its configuration, function and control systems identified as a result of the formal safety assessment (Section 3.2).
- Safety management system (SMS) – provides a detailed description of the management systems in place to maintain the safety of the pipeline 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 pipeline, a summary of the risk assessment workshops, details of identified major accident events (MAEs), ALARP demonstrations and bowtie diagrams (Section 3.4).



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

- the location of the pipeline and the functionality of equipment installed
- 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 licensee to specify what is required for safety and/or legislative compliance. The licensee 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 of inspections against which the Department inspectors will conduct periodic inspections and assessments of the licensee's activities on the pipeline. It should cover all activities likely to take place on the pipeline and associated facilities, 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 licensee of the pipeline is required to ensure the safety case is updated regularly, to include any significant changes for new or increased risks, equipment or operational changes. A five yearly review of the safety case must be undertaken by the licensee regardless of the other updates completed and accepted by the Minister (Section 3.1.5).

## 2.3 Referencing and hyperlinking within safety cases

Throughout the safety case there will be many requirements to reference the licensee's procedures and other documentation that is summarised within the safety case to meet the requirements of the Regulations. As many licensees now maintain all documentation within online databases, it is preferred that, where possible, these referenced documents are hyperlinked to provide ease of access.

If a licensee 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 pipeline licensee should ensure that members of the workforce are involved in the development or revision of the safety case for the pipeline [r. 16] (Section 3.3.6).

*Involvement of members of the workforce* guide assists with this requirement.

## 2.5 Safety case – supporting documentation

The Minister may request the licensee to provide further information in the form of written documentation about any matter required by the Regulations to be included in a safety case [rr. 28, 35].

The information provided will be formally considered to be included 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, including document control, records management and emergency response plans (ERP)
- quantitative and qualitative risk assessments
- consequence analyses



- ALARP assessments
- validation reports
- hazard and operability study (HAZOP)
- hazard analysis (HAZAN)
- hazard identification study (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 safety and health processes and risk management on the pipeline and should be seen as a standalone document. It must be auditable, that is, make statements that the licensee can objectively prove they 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 pipeline, the associated risks and systems in place without referring to those documents.

Some common issues identified in safety case submissions are:

- inadequate identification of MAEs
- vague statements, rather than specific facts about the pipeline
- discrepancies between the formal safety assessment and 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 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.

The introduction should include details of the ownership of the pipeline(s). If the safety case covers numerous Department pipeline licences, it is necessary to include details for each licence, including any variation to the original licences and showing the percentage of ownership for each stakeholder if the pipeline licence is subject to a joint venture.

If the licensee has appointed a contractor to operate and maintain the pipeline, details of the contractor should be included in this section of the safety case.

### 3.1.1 Scope and objectives

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

Include a reference to the phase of the pipeline operations:

- **Construction.** This covers the survey, design, construction and installation of a pipeline including any pre-commissioning and cold commissioning to be carried out.
- **Commissioning and operations.** This covers all activities for completion of commissioning and handover to operations and maintenance.
- **Care and maintenance.** This covers any areas of the pipeline or associated facilities that are to be placed into care and maintenance and how this will be managed.
- **Decommissioning.** Identify all or part of the pipeline that is to be decommissioned and the processes and procedures in place to manage that activity including details of identified MAEs that may arise.

Refer to r. 5 covering the requirement for the safety case to be in force for the operation being undertaken. Regulation 6 prevents a person engaging in an operation where any new or increased risks have been identified which are not currently covered in the safety case in force.

Some phases of the pipeline operations that involve work to be conducted by contractors may require bridging documentation to take into account simultaneous operations (Section 3.3.13).

### 3.1.2 Legislation, codes and standards

Include a list of legislative and statutory requirements covering the pipeline licence as any conditions under the licence form part of the mandatory legislative requirements.

List the principal Australian and international standards used for the design and operation of the pipeline – this may be included in this section of the safety case or as appendices to the document. If the preferred structure is to use appendices, note this in the introduction.

It is recommended that these sources of information are clearly set out in tables for ease of reference (Section 3.3.11). Any changes should then be reviewed by the relevant subject matter experts and procedures and processes updated through the management of change process (Section 3.3.15).

### 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 the appendices. If they are in the 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. 1 of the Act and r. 4 of the regulations].

### 3.1.4 Approval and custodian details

The safety case needs to be approved by the relevant officer of the licensee 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 sub-contractors.

Include the address for delivery of communications relating to the safety case, and the name of 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 licensee 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 licensee ensures that any proposed revisions are done taking into account the timelines 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 pipeline.

This section needs to reflect the requirements of the revision of safety cases, including:

- The Minister may request by notice, that the licensee revise the safety case by including information as requested, and that the licensee submit the revised safety case for review and acceptance within a prescribed time period [r. 33].
- The licensee of a pipeline must submit a revised safety case as soon as practicable after the occurrence of any significant changes to the facility or systems [r. 32].
- 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 under r. 29 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 under r. 34. Section 4.6 details the timeline for these five yearly reviews.

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

## 3.2 Facility description

### 3.2.1 General

The safety case facility description is an overarching description of the pipeline(s). It should describe the buried pipeline and aboveground installations and be written in a way that provides a non-technical reader with a good understanding of the equipment, operation and safety critical systems, including their operational parameters.

Where applicable, details should be included for the management of:

- normal operation – most activities operating correctly with no or minor issues
- irregular operation – 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 persons at or near the pipeline.

Details that should be included in the facility description are:

- overview of the pipeline including the start and end locations, and the aboveground equipment installed
- geographical location, pipeline route, the location classifications along the pipeline route and a summary of environmental conditions along the pipeline route
- summary of key design parameters cross-referencing key technical documents
- design life of the pipeline and the aboveground equipment, including the initial design life and details of any remaining life reviews that relate to extending that design life
- who performed the validation and when it was submitted to the Department
- a brief description of the pipeline corridor including interactions with other facilities, depth of cover of the buried pipeline, pipeline crossings (road, water and rail)
- the interfaces with laterals off a pipeline, specifically the boundary point between the two assets, as well as details of the physical, electrical and isolation control systems and how these are monitored and managed
- the boundaries of pipelines that cross between onshore and submerged areas and how this is monitored and managed
- the boundary point of a pipeline that is supplying gas to a processing plant or major hazard facility and the physical, electrical and isolation controls in place for the monitoring and management of this boundary point
- pipeline inventory and gas composition
- hazardous areas and management of those areas
- external interference protection, including aboveground facility security
- overview of machinery and equipment installed at the aboveground facility and their function including compressor stations, offtake stations and delivery stations
- details of management of possible upstream and downstream impacts; e.g. sudden changes in pressure, and the equipment in place to safely manage these changes
- primary systems and functions including integrity and corrosion management
- emergency shutdown and isolation equipment installed



- MAEs and safety critical elements and reference to associated performance standards
- key drawings for the pipeline and aboveground installations.

### 3.2.2 Aboveground station layout

Equipment layout and configuration should provide an effective overview of the location of key physical elements of the aboveground stations within the pipeline licence area, including:

- primary safety systems and functions including fire extinguishers, deluge, fire and gas detection
- isolation valves
- emergency and evacuation equipment
- service systems, including power, water, lighting, communication, data 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 that are to be stored and used at the station.

### 3.2.3 Machinery and equipment

A broad description of the machinery and equipment installed aboveground within the pipeline licence area should be included in the facility description. This should provide sufficient information to demonstrate its functionality and take into consideration 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 details of the design safety method, control systems and structural integrity management applicable to the pipeline that will enable ongoing safe operations.

This description should be customised to the pipeline 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. What alarms would be activated and how these systems would operate to isolate inventory.
- Functional safety systems – describe any functional safety system in place for the pipeline. 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 pipeline. Provide an overview of how the systems are monitored, what alarms are in place 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.
- Pressure relief and blowdown systems – describe what pressure relief and blowdown systems are present on the pipeline, their location and functionality.
- Redundancy of safety systems – indicate what redundancies of safety systems are installed on the pipeline and how they would be brought on line as and when required.
- Corrosion management – describe the corrosion management system in place for the pipeline, what processes are in place for monitoring corrosion etc.
- 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. Include details for escape, mustering and evacuation of the pipeline, firefighting equipment installed and alarms that will be triggered in the event of an emergency.

The details included in the facility description should be cross-referenced with the emergency response details included in the SMS and the formal safety assessment (Section 3.3.27).

### 3.2.6 Major accident events, safety critical elements and performance standards

The facility description should include details of the MAEs identified for the pipeline through the formal safety assessment. This area should then define each safety critical element in place to mitigate the risks associated with these MAEs to ALARP.

Cross-references should identify 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.

### 3.2.7 Provision of drawings

Details of key drawings should be included. Depending on the quantity, it may be relevant to advise that a drawing register is maintained for the pipeline, how the drawings are managed and that they are available to stakeholders and the workforce from a specific intranet area. It should also note that they are maintained under document control and only current versions of the drawings are accessible. It may 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 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. 10(4). The entire SMS does not need to be included in the safety case.

The detailed description will provide sufficient information to demonstrate that the SMS is comprehensive and integrated using appropriate examples.

The SMS should cover the occupational safety and health requirements that are included in Sch. 1, div 2 of the Act covering duties of licensee, duties of persons in control of parts of pipeline operation and duties of employers.

### 3.3.2 Policy and leadership

The SMS description should include an overarching statement relating to the policy and leadership of the licensee and reference a current occupational safety and health policy, a copy of which should be included in appendices 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 the relevant legislation and including Sch. 1, 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 licensee's management system in place
- any certification over the system (i.e. AS/ANZ ISO 9001 *Quality management systems*, AS/NZS ISO 14001 *Environmental management systems*, AS/NZS ISO45001 *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 safety case description should include a chain of responsibility for the pipeline operation, both under normal day-to-day operations and in the event of an emergency [r. 13].

Chain of responsibility for normal day-to-day operations may be covered by inclusion of organisation charts to demonstrate the command structure in place for the pipeline, using 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. Reference internal documentation that includes details of accountability and responsibility.

The chain of responsibility for emergency events may be included here or under the section of the safety case covering emergency response and the emergency response plans in place (Section 3.3.27).

### 3.3.6 Workforce involvement and communication

The licensee should outline how they maintain effective workforce involvement, participation and consultative mechanisms for safety, the control of workplace hazards and risks in the development of the safety case [r. 16].

Detail the methods of communication including pre-start and toolbox meetings, minutes and noticeboards. 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 the licensee uses for personnel selection and who is responsible. Include references to documents covering the licensee's recruitment process, training and competency reviews.

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

The licensee must have a process in place for mandatory inductions of all members of the workforce both employees and contractors/sub-contractors that includes compliance with the safety case [rr. 7 and 8].

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, hazardous areas management and management of changes in training requirements when personnel move to new positions.

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

### 3.3.8 Resources

Include details of how the licensee manages resources for the effective and safe operation of the pipeline. 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 licensee will systematically manage all potential risks over the life of the pipeline and operations. This will involve a process of hazard identification, risk assessment and determination of control measures to ALARP.

A number of risk assessment processes including HAZIDs, HAZOPs and quantitative risk assessments contribute to the hazard identification and risk management. The licensee conducts regular operational risk reviews, which result in an update of the pipeline hazard register, MAEs and performance standards. To meet this objective, the licensee:

- 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 by:
  - 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 (PPE)
- 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 should be listed, with the option to hyperlink, as reference documents under the relevant section.

Following the hazard identification, an assessment of the risk should 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 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.

Plans should be developed showing measurable and achievable health and safety objectives implemented for relevant function and levels within the organisation and for the facilities. Include details on how achievements against these targets and objectives are to be routinely reviewed.

Plan implementation is monitored and performance against standards is appraised. Include details of how various management levels of the organisation are held accountable for meeting health and safety performance standards.



These objectives may relate to high level strategic plans developed by the licensee 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.

Include a reference to the communication methods used for personnel to be kept aware of the safety objectives, plans and performance standards and the subsequent level of achievement against the targets and objectives set.

### 3.3.11 Sources of information

The licensee needs to identify how they maintain regulatory compliance management for the safety case. This should cover an overview of the various areas monitored for changes in legislation, standards (both Australian and international) and, where appropriate, chemical information by:

- monitoring changes in legislation
- monitoring changes to any of the Australian or international standards used in the operation of the pipeline
- 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 of all records and documents developed in the course of designing, constructing and operating the pipeline. The Regulations require the licensee to comply with their safety case document control and record management system. The content should address the arrangements for records including security [rr. 9 and 26].

A concise overview of the methods used should be included in the SMS with reference to the licensee's internal processes and procedures for management of these key elements. The area should include details of development, review and authorisation of procedures and that records are retained in accordance with an approved retention schedule.

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 interface between fabricators and operations personnel to ensure adequacy of design for fabrication and maintenance purposes. Key engineering, design, validation and review processes should be referenced within this section.

If the safety case for a pipeline is likely to be used for further construction activities on the pipeline, 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 construction projects on the pipeline may be conducted under this safety case and SMS.

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

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

##### 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.



The section covering construction should reference r. 20. Include details of weekly progress reports which must be given to the Minister covering matters relating to the occupational safety and health of persons engaged in the operation, and the safety and health of other protected persons.

Details of how commissioning will be achieved for the new construction should be summarised in the SMS and include details of any pre-commissioning requirements. All appropriate records required for the validation and manufacturer's data record (MDR) 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 Validation

The Minister may, by notice in writing, require the licensee to provide a validation [r. 41].

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 pipeline
- on any significant change to the pipeline operations [r. 41].

Prior to the commencement of validation, the licensee should 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 licensee once received from the validator.

### 3.3.15 Management of change

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

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

The management of change section of the safety case must 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 safety case must 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 pipeline.

All relevant internal documents covering any aspect of change on the facility should be listed as a referenced document in this section.

### 3.3.16 Purchasing and control of materials and services

The facility description covers machinery and equipment installed on a pipeline. However, under the SMS the licensee of the facility should have in place purchasing procedures and processes for procurement of goods and services for the operation of the facility. The procedures for procurement should contain an 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 licensee 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.

Relevant procedures and processes that manage procurement should be referenced in this section to avoid inclusion of too much detail.

### 3.3.17 Safe operating procedures

The SMS must include a section on safe operating procedures for the pipeline, including the permit to work procedure (PTWP) [r. 15].

The overview of the permit to work procedure should include details of:

- the types/classes of permits to work
- who is responsible for generating the permits to work
- who controls the permits to work including how many permits are open, ensuring that workgroups are aware of other open permits in their area of work and ensuring 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 licensee's PTWP must be included in this section but the full procedure should not be reproduced within the SMS.

The other safe operating procedures that should be included in this section of the SMS covering reference to:

- facility isolation/tagging/lock-out system
- signposting and hazard identification
- waste fuel, lubricants and hazardous chemicals
- naturally occurring radioactive materials
- non-destructive testing with radioactive substances
- a general overview of documentation of work practices for routine, semi-routine and non-routine work instructions and operations procedures
- movement and control of light vehicles and mobile plant.

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

### 3.3.18 Materials handling and storage

The licensee should have in place a process and procedures for managing materials handling and storage which 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 include requirement for personnel who may operate lifting equipment such as cranes and hoists are trained and the process to verify their competency.

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

### 3.3.19 Maintenance and repair

Describe the licensee's maintenance management system that is in place to ensure the integrity and reliability of the pipeline operation. The system should include a list of all plant and equipment located on the pipeline and the scheduled maintenance requirements applicable under the pipeline work program.

The maintenance management system is to be supported by various work procedures and work instructions and the licensee 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. 16].

### 3.3.20 Inspection, testing and monitoring

Identification of the management of SCEs should be covered in this area with details as to how the SCEs are managed through the maintenance management system to ensure they are regularly inspected and tested to monitor their application in the event of an emergency.

General inspection, testing and monitoring should be covered providing an overview of scheduled and unscheduled requirements.

Details of the pigging programs should be included showing the types of pigging to be conducted at various intervals and also where a lateral cannot be pigged due to its size or lack of gas flow, how this lateral will be inspected to verify that the pipe is in good condition.

This section should describe the process in place 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.

This section should reference the maintenance management system in place as well as planning and scheduling documentation and facility work programs.

### 3.3.21 Integrity management

The licensee should describe the integrity management plan in place that is linked with the maintenance management system to provide an ongoing review of the management and monitoring of the integrity of the pipeline operation.

Detail 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 pipeline from time to time.

Review and highlight areas of the pipeline where machinery and equipment may be ageing and require additional management including increased testing and inspection and forecasting of possible parts replacement or major overhauls.

Reference should be included of the integrity management plan document number and full title.



### 3.3.22 Performance standards for safety critical elements

The licensee must describe the process and methodology for the development of performance standards [r. 10(4)(k)] for each of the SCEs that have been listed as controls for the MAEs identified in the formal safety assessment. Cross-reference the performance standards to the relevant MAE and the sections of the facility description and formal safety assessment that relate to this requirement. Reference should be made to the relevant procedure covering the development of the performance standards, who is responsible for the development and approval of the performance standards and the system in place for the review and verification that the identified requirements under these standards are still viable.

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

### 3.3.23 Incident/hazard reporting and investigation

This section should outline the licensee's system for incident and hazard reporting and investigation [r. 42] 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 [r. 44]. The licensee should submit a written report by 15th of each month on the status of all open dangerous occurrence reports.

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

### 3.3.24 Workplace environment

This section should describe the processes required under Sch. 1, div 2 of the Act cl. 7-9 the licensee has in place to ensure the maintenance of a safe and healthy working environment at the pipeline operations by maintaining:

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

### 3.3.25 Health monitoring systems

This section of the SMS should include the licensee'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 pipeline operations [Sch. 1, div 2 cl. 7.2(g) and (h) of the Act].

### 3.3.26 Drugs and intoxicants

This section should reference the drug and alcohol policy in place and the tolerance level for substance abuse [r. 19]. If the licensee has a separate policy covering fitness for work and drug and alcohol then this should be referenced and a copy of the policy included in the appendices to the safety case.

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



### 3.3.27 Emergency response

The SMS must include a description and implementation of the emergency response plan (ERP) [r. 24].

The licensee should demonstrate within this section that:

- emergency response roles and responsibilities have been documented within the ERP and there is a description of the chain of command for emergencies
- the ERP contains details of sample emergency scenarios that may occur on the facility
- emergency response training is conducted for all personnel
- emergency response drills and exercises are scheduled, conducted and reports generated on the results.

The licensee should list all internal referenced documents where critical information is contained rather than include large sections of the ERP to cover these requirements.

This section of the SMS should be cross-referenced with the facility description and the formal safety assessment areas covering emergency response.

*Emergency planning* guide assists with this requirement.

### 3.3.28 Safety management system audits

This is a key element of the SMS and licensees must 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 licensee should 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. 11.

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

Detail 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.

*Audits, review and continual improvement* guide assists with these requirements.

### 3.3.29 Review and continual improvement

The licensee should include details of systems and processes that will be reviewed, how and when the review will take place, and the results [r. 11]. The results of the review should be documented and be formally communicated to management for review and identification of actions to be taken to provide continual improvement to the SMS through identification of new objectives and targets, ongoing audits and the closeout of actions generated from audit reports and incident investigations and generated actions.

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

- ensuring compliance with the safety case
- identifying and managing continual improvement.

It is expected that these areas of the safety case should be robust, comprehensive and continuous. As a guide to assist development of the safety case, the licensee should take into account that the Department will be inspecting against the safety case to ensure compliance and improvement including demonstrating how 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.

The licensee 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 the Department inspection findings identify issues with the systems, questions may be raised as to why these issues were not already identified and corrected by the licensee's audits, review and continual improvement requirements.

*Audits, review and continual improvement* guide assists with these requirements.

## 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. 10(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 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 must include a brief overview of the purpose of the formal safety assessment identifying 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 pipeline operation covered by the formal safety assessment and the types of risks covered in the assessment process including loss of integrity on the pipeline, work activities in connection with pipeline operation and work environment.

### 3.4.3 Objective

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

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

#### 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 pipeline operation
- identify all potential hazards associated with the operation and maintenance of the pipeline
- 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 pipeline operation and for the critical tasks involved in the operations and maintenance of the pipeline and use this for the subsequent development of risk control strategies and safety plans
- conduct an assessment on the potential for any major accident event as defined in r. 3 as “an event connected with a pipeline operation, including a natural event, having the potential to cause multiple fatalities of persons engaged in the operation or other protected persons”
- 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 licensee has in place a risk tolerability criteria against which all risks have been assessed and reduced to a level that is tolerable and as low as reasonably practicable. Details of the procedures and processes in place to achieve tolerability should be included as a reference.
- all major hazards have been identified, and 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 pipeline
- impact on the health of personnel
- potential for personnel injury or fatality.

### 3.4.4 Methodology

This section should describe the safety case 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 pipeline, the types of assessment employed including 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 pipeline. This should include a broad range of workforce participation to ensure adequate levels of consultation and communication which are essential parts 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 in the appendices to the safety case.



### 3.4.5 Fire and explosion risk analysis

The safety case must include a detailed description of the operation's fire and explosion risk analysis (FERA) [r. 21(1)]. The formal safety assessment should summarise the FERA by providing details of:

- the types of fire and explosion that can occur on the pipeline
- the fire detection measures that have been installed on the pipeline
- the measures of prevention of fire or explosion that have been put in place on the pipeline
- the control and extinguishment systems and processes in place on the pipeline
- management of hazardous or flammable substance storage on the pipeline
- 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 pipeline.

Reference should include the document number and title of the FERA which will have full details of the items listed above as well as specific licensee internal documents and any Australian or international standards used.

Cross-reference to any other area of the facility description or SMS referring to the FERA within emergency response.

### 3.4.6 Major accident events

The formal safety assessment must include the likelihood and consequences of a major accident event (MAE) [r. 10]. This section should list the identified MAEs for the pipeline operations and include details of the intrinsic risk levels, the controls that have been applied, residual risk levels and that the risk tolerability is ALARP.

This section of the formal safety assessment should be cross-referenced to the section in the facility description and SMS covering the performance standards developed for each of the safety critical elements identified as controls for the MAEs.

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

### 3.4.7 Safety critical elements and bowtie diagrams

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

### 3.4.8 Demonstration of as low as reasonably practicable

The formal safety assessment must demonstrate that the licensee 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.

The *ALARP demonstration* guide assists with this requirement.

### 3.4.9 Summary of risk assessment studies

The formal safety assessment should include a summary of the workshops run as part of the formal safety assessment. The summary should include the risk assessment workshops conducted on the pipeline detailing the facilitator, the location and date of the workshop, the results of the workshop and details of the 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.

Further details are in the *Hazard identification and Risk assessment and management* guides.





# 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 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 licensee's commitment to operate pipelines in a manner that satisfies their legislative duties and/or 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 licensee's document that reflects the licensee's commitment to comply with the legislation. The licensee remains responsible for all risks.

Prior to submitting a safety case for assessment, the licensee should liaise with the Department on any requirements for validation [r. 41]. Where validation is required, it is important the scope of the validation is agreed between the licensee and the Department prior to instructions being given to a third party validator (Section 3.3.14).

## 4.2 Request for additional information

Regulation 28 covers the details of when the Minister may request additional information in relation to a submitted safety case.

Licensees 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.

## 4.3 Acceptance or rejection of a safety case

Regulation 29 describes the Minister's jurisdiction to decide to accept or reject a safety case. The Minister must accept a safety case if they are satisfied it is compliant with the regulation requirements and, if required, the requested validation has been provided [r. 29(1)]. The Minister may impose conditions on the acceptance regarding the pipeline operations [r. 29(5)].

The Minister must reject the safety case if, first, the licensee has had reasonable opportunity to change [r. 29(3)] and resubmit their safety case, and secondly, the Minister is not satisfied the resubmitted safety case complies with the regulation requirements r. 29(4). If the Minister rejects the safety case, they must provide reasons for the decision [r. 30(3)].

## 4.4 Notice of decision on safety case

The Minister must provide the licensee with written notice of, and reasons for, their decision on a safety case submitted under r. 27 or resubmitted under r. 29(3) within 90 days after receiving the safety case [r. 30].

The Minister must notify the licensee in writing if they are unable to provide a decision to the licensee within 90 days and provide the licensee 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 [r. 29(2)] and conditional acceptance in r. 29(5).

## 4.5 Revision of safety cases

The regulations prescribe the circumstances that trigger the revision of a safety case [rr. 32, 33].

The Minister may request that the licensee for pipeline operations for which a safety case is in force submit a revised safety case [r. 33]. The request by the Minister must be in writing and provide details of the matters to be revised, the time in which the licensee must complete the revision, and the Minister's reasons for the request.

On receipt of the notice, the licensee may submit an opinion in writing within 21 days (or longer at the Minister's discretion) why the revision is unnecessary, and/or to vary the date or terms proposed by the Minister [r. 33(4)]. The operator must provide reasons for their opinion [r. 33(5)].



The Minister will provide written notice of, and reasons for, their decision on the licensee's submission within 28 days [r. 33(6)]. The operator must revise their safety case in accordance with the revision notice as originally received or as varied by the Minister [r. 33(7)].

#### 4.6 Revision after five years

The licensee must revise and resubmit their safety case every five years [r. 34(1)] after the initial acceptance [rr. 29, 37], regardless of any other revisions and acceptances because of pipeline operation modifications and/or at the Minister's request under rr. 32, 33.

Licensees should have in place a process to track this five yearly requirement as there will be no reminders sent from the Department to complete these reviews. Regulation 34 has specific timelines for the submission of five yearly revisions.

Figure 2 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 licensee with written notice of their decision on their revised safety case submission within 30 days.

The Minister will notify the licensee 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. 37].

#### 4.8 Rejection of a revised safety case

If the decision of the Minister is to reject a revised safety case, then the safety case in force immediately before the revised safety case was submitted remains in force subject to the Act as if the revised safety case had not been submitted.

#### 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. 39 and 40.

#### 4.10 Activities undertaken in a manner different from safety case requirements

The Minister may consent in writing to the licensee undertaking pipeline operations 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. 31].



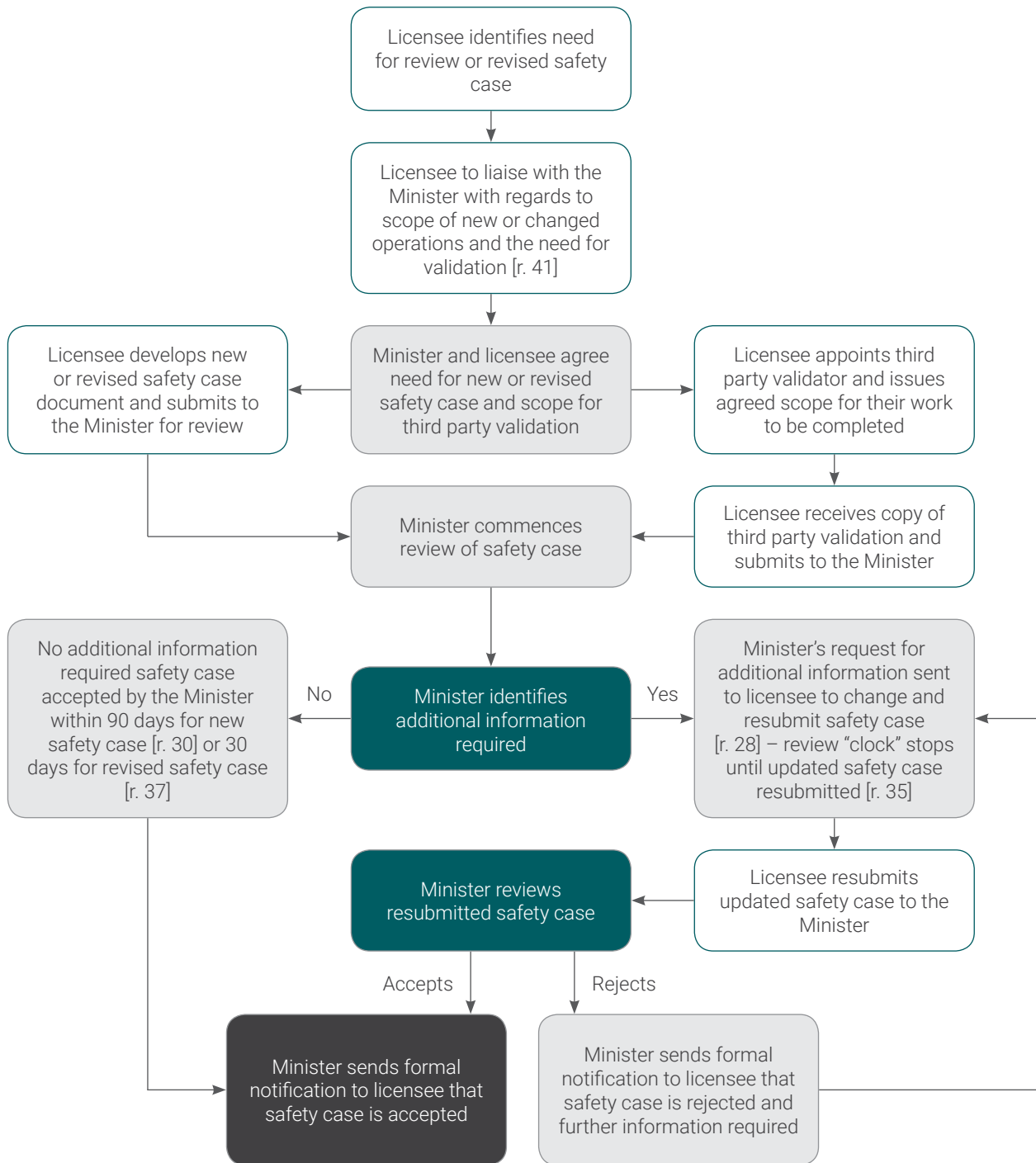


Figure 1 Safety case submission flow chart



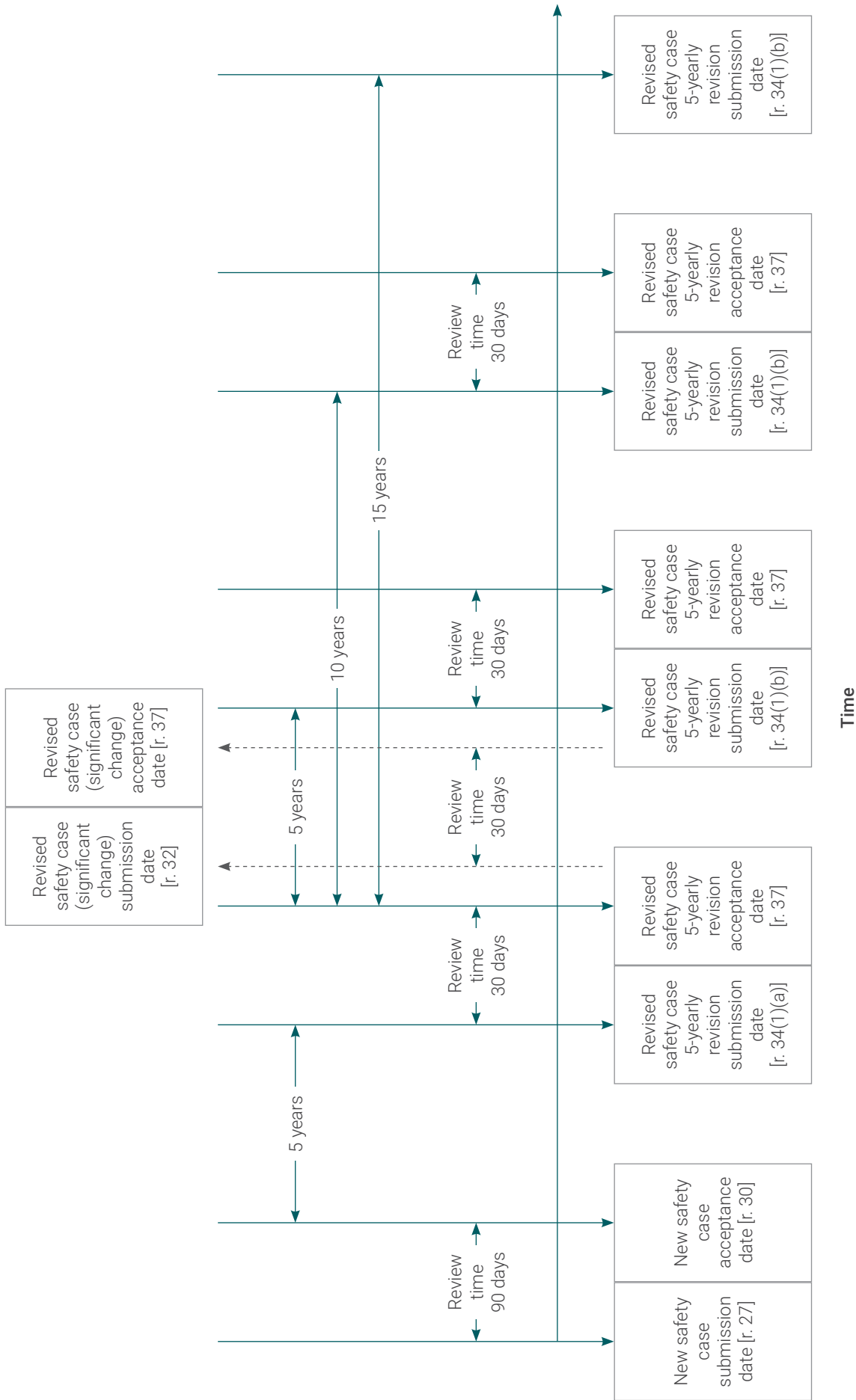


Figure 2 New and revised safety case timelines

# APPENDICES

# Appendix 1 Legislative provisions

The sections of the *Petroleum Pipelines Act 1969* and parts of the *Petroleum Pipelines (Management of Safety of Pipeline Operation) Regulations 2010* that are applicable to this guide are listed below.

## **Petroleum Pipelines Act 1969**

Schedule 1 Occupational safety and health

## **Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010**

### Part 2 – Safety cases

- r. 4 Terms used
- r. 5 Safety case required for pipeline operation
- r. 6 New or increased risks
- r. 7 Compliance with safety case
- r. 8 Other protected persons to comply with safety case
- r. 9 Maintaining records for safety case
- r. 10 Pipeline operation description, formal safety assessment and safety management system
- r. 11 Implementation and improvement of the safety management system
- r. 12 Standards to be applied
- r. 13 Chain of responsibility
- r. 14 Competence of members of the workforce
- r. 15 Permit to work system for safe performance of work
- r. 16 Involvement of members of the workforce
- r. 17 Machinery and equipment
- r. 18 Structural integrity etc.
- r. 19 Drugs and intoxicants
- r. 20 Reports during construction of a pipeline

- r. 21 Fire and explosion risk analysis
- r. 22 Emergency communications systems
- r. 23 Emergency control systems
- r. 24 Emergency preparedness and response plan
- r. 25 Pipelines connected to other pipelines, facilities
- r. 26 Arrangements for records
- r. 27 Safety case to be submitted to the Minister
- r. 32 Revision because of a change of circumstance or operations
- r. 33 Revision on Minister's request
- r. 34 Revision every 5 years
- r. 37 Notice of decision on revised safety case
- r. 41 Validation of proposed or existing pipeline

### Part 3 – Accidents and dangerous occurrences arising from pipeline operations

- r. 42 Accidents and dangerous occurrences
- r. 44 Notices of accidents and dangerous occurrences
- r. 45 Reports of accidents and dangerous occurrences
- r. 47 Details in applications or submissions

*Note: The only authorised versions of the Act and regulations are those available from the Parliamentary Counsel's Office ([www.legislation.wa.gov.au](http://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	Operator	A company engaged by the licensee who maintains and operates the pipeline
ERP	Emergency response plan		
FERA	Fire and explosion risk 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
FMCA	Failure mode effects analysis		
HAZAN	Hazard analysis		
HAZID	Hazard identification study		
HAZOP	Hazard and operability study		
KPI	Key performance indicators	Pipeline	A pipeline licensed under the Act
Licensee	The holder of the licence issued over a pipeline	PPI	Positive performance indicators
LOC	Loss of containment	PTWP	Permit to work procedure
LOPA	Layers of protection analysis	SCE	Safety critical element – any item of equipment, system, process, procedure or other control measure the failure of which can contribute to an MAE
MAE	Major accident events – an event connected with a pipeline operation, including a natural event, having the potential to cause multiple fatalities of persons engaged in the operation or other protected persons	SDS	Safety data sheet
		SIMOP	Simultaneous operations
MDR	Manufacturer’s data record	Validation	In relation to a proposed or existing pipeline, that complies with r.41



# Appendix 3 Concordance table

*Petroleum Pipelines Act 1969*

Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010

Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
<b>Petroleum Pipelines (Management of Safety of Pipeline Operations) Regulations 2010</b>						
rr. 5, 6	3.1.1	Scope and objective of safety case				
rr. 7, 8	3.3.3	Compliance with safety case				
r. 9	3.3.12	Maintaining records for safety case				
r. 10(1)	3.1	Introduction				
	3.1.3	Definitions and abbreviations				
r. 10(2)(a)	3.2.1	General overview of the pipeline operation, location				
r. 10(2)(b)	3.2.2	Configuration and layout of the pipeline and aboveground facilities				
r. 10(2)(c)	3.2.4	Design safety philosophy, control systems and safety critical elements				
r. 10(2)(d)	Other relevant matters:					
	3.2.5	Emergency response				
	3.2.6	Major accident events controls and performance standards				
	3.2.7	Provision of drawings				
r. 10(3)(a)	3.4.6	Hazard identification – major accident events				
r. 10(3)(b)	Risk assessment:					
	3.4.1	Purpose				
	3.4.2	Scope				
	3.4.3	Objective				
	3.4.4	Methodology				
	3.4.6	Major accident events				
	3.4.7	Safety critical elements and bowtie diagrams				
r. 10(3)(c)	Controls to achieve ALARP:					
	3.4.8	Demonstration of ALARP				
	3.4.9	Summary of risk assessment studies				
r. 10(4)(a)	3.3.1	Safety management system general requirements				





Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
r. 10(4)(a)	Other relevant areas:					
	3.3.2	Policy and leadership				
	3.3.4	Management system overview				
	3.3.11	Sources of information				
r. 10(4)(b)-(c)	3.3.10	Objectives, plans and performance targets				
r. 10(4)(c)	3.3.29	Review and continual improvement				
r. 10(4)(d)-(e)	3.3.9	Hazard Identification and risk management				
r. 10(4)(f)	3.3.9	Risk reduction to ALARP				
r. 10(4)(g)	3.3.19 3.3.20	Inspection, testing and maintenance – including requirements for safety critical elements				
r. 10(4)(h)	Provision of adequate communications:					
	3.3.6	Normal communication requirements				
	3.3.27	Emergency communication requirements				
r. 10(4)(i)	3.3.28	Safety management system audits				
r. 10(4)(j)	Other relevant areas for safety management systems:					
	3.3.8	Resources				
	3.3.13	Design construction and commissioning				
	3.3.15	Management of change				
	3.3.16	Purchasing and control of materials and services				
	3.3.18	Materials handling and storage				
r. 10(4)(k)	3.2.6, 3.3.22	Performance standards for MAE safety critical elements				
r. 10(5)	3.3.13	Safety case for construction of pipeline				
r. 11	3.3.29	Implementation and improvement of the safety management system				
r. 12	3.1.2	Standards to be applied				
r. 13	3.3.5	Chain of responsibility				
r. 14	3.3.7	Competency of members of the workforce				
r. 15	3.3.17	Permit to work system and other safe work procedures				
r. 16	3.3.6	Involvement of members of the workforce				
r. 17(1)-(2)	3.2.3	Machinery and equipment				
r. 18	3.3.21	Structural integrity, integrity management				
r. 19	3.3.26	Drugs and intoxicants (including prescription medication)				



Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
r. 20	3.3.13	Reports during construction of a pipeline				
r. 21	3.4.5	Fire and explosion risk analysis				
r. 22	3.3.27	Emergency communications system				
r. 23	3.2.4	Emergency control systems				
r. 24	3.3.27	Emergency preparedness and response plan				
r. 25	3.2.4, 3.2.5	Pipelines connected to other pipelines, facilities				
r. 26	3.1.4, 3.3.12	Arrangements for records – includes document control requirements				
r. 32	3.1.5, 4.5	Revision of safety case due to change in circumstances of operation				
r. 33	3.1.5, 4.5	Revision on Minister's request				
r. 34	3.1.4, 4.6	Revision after five years				
r. 41	3.3.14	Validation				
r. 42	3.3.23	Accidents and dangerous occurrences				
rr. 44, 45	3.3.23	Notices and reporting of accidents and dangerous occurrences				
r. 47	3.1.4	Details in application or submission – contact details to be kept up to date				
<b>Petroleum Pipelines Act 1969 Schedule 1 Division 2, subdivision 1</b>						
cl. 7(1)	3.3.9, 3.3.23	Licensee to ensure pipeline operation safe and without risk to the health of any persons engaged in the pipeline operation or other protected persons				
cl. 7(2) (a)-(b)	3.3.9, 3.3.24	Licensee to ensure physical environment at the place where pipeline operation is carried out is safe and provide adequate amenities for workforce				
cl. 7(2)(c)	3.3.9, 3.3.20	Licensee to ensure any plant, equipment, materials and substances for use in the pipeline operation are safe and without risk to health				
cl. 7(2)(d)	3.3.17	Licensee must implement and maintain systems of work in relation to the pipeline operation that are safe and without risk to health.				
cl. 7(2)(e)	3.3.27	Licensee to implement procedures for control and response to emergencies				
cl. 7(2)(f)	3.3.7	Licensee to provide workforce with appropriate information, training and supervision to safely perform activities				
cl. 7(2)(g)	3.3.25	Licensee to monitor occupational safety and health of all members of workforce and maintain records of that monitoring				



Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
cl. 7(2)(h)	3.3.25	Licensee to provide medical and first aid services at the facility				
cl. 8(1)	3.3.9, 3.3.23	Person who is in control of any part of a pipeline operation must take all reasonably practicable steps to ensure that that part of the pipeline operation is carried out in a manner that is safe and without risk to health of persons engaged in the pipeline operation or other protected persons				
cl. 8(2)(a)	3.3.9, 3.3.24	Person who is in control of any part of a pipeline operation must ensure physical environment at the place where that part of the pipeline operation is carried out is safe and provide adequate amenities for workforce				
cl. 8(2)(b)	3.3.9, 3.3.20	Person who is in control of any part of a pipeline operation must ensure any plant, equipment, materials and substances for use in that part of the pipeline operation are safe and without risk to health				
cl. 8(2)(c)	3.3.17	Person who is in control of any part of a pipeline operation must implement and maintain systems of work in relation to that part of the pipeline operations are safe and without risk to health.				
cl. 8(2)(d)	3.3.27	Person who is in control of any part of a pipeline operation must ensure means of access to and egress from the place where that part of the pipeline operation is carried out is safe and without risk to health				
cl. 8(2)(e)	3.3.7	Person who is in control of any part of a pipeline operation must provide workforce with appropriate information, training and supervision to safely perform activities				
cl. 9(1)	3.3.9, 3.3.23	Employer to take all reasonably practical steps to protect the safety and health of employees at facility				
cl. 9(2)(a)	3.3.9, 3.3.24	Employer must ensure physical environment is safe for employees and without risk to their health				
cl. 9(2)(b)	3.3.9, 3.3.20	Employer must ensure any plant, equipment, materials and substances for use in connection with employees' work are safe and without risk to health				
cl. 9(2)(c)	3.3.17	Employer must implement and maintain systems of work that are safe and without risk to health				



Reference	Guide section	Topic	Safety case section and page no.			
			Intro	FD	SMS	FSA
cl. 9(2)(d)	3.3.27	Employer must ensure means of access to and egress from the employee's work location that is safe and without risk to health				
cl. 9(2)(e)	3.3.7	Employer must provide employees with appropriate information, training and supervision to safely perform activities				



# Appendix 4 Further information

Other guides available:

- *ALARP demonstration*
- *Audits, review and continual improvement*
- *Bridging documents and simultaneous operations (SIMOP)*
- *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*
- *Offshore facility safety case*
- *Pipeline management plans*
- *Pipeline operation safety case*
- *Records management including document control*
- *Reporting of accidents, incidents and dangerous occurrences*
- *Risk assessment and management including operational risk assessment*









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