



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

Petroleum safety and major hazard facility – guide

Bridging documents and simultaneous operations (SIMOPS)

February 2020

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Guides

A guide is an explanatory document that provides more 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, guides 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 responsible for the development and maintenance of safety cases, safety management systems and bridging documentation covering simultaneous operations (SIMOPS).

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1 Introduction

This document has been developed to provide assistance and guidance to licensees and operators to meet the Western Australian petroleum safety and major hazard facility legislation administered by the Department of Mines, Industry Regulation and Safety (the Department).

The legislation covered by this Guide is listed in Appendix 1.

1.1 Scope and objective of this Guide

This Guide has been developed to provide licensees and operators with assistance for effective bridging and simultaneous operations (SIMOPS) documentation.

The term “safety case” is used in this Guide to cover all of the existing safety documentation required under the various regulations.

The objective is to provide clarity to both industry and Department personnel on areas of the legislation which may be ambiguous or open to interpretation.

The following appendices are included:

Appendix 1 Legislative provisions

Appendix 2 References and acknowledgements

Appendix 3 Glossary of terms

Appendix 4 Further information

1.2 Definitions and abbreviations

Definitions and abbreviations are included in Appendix 3 Glossary of terms.

1.3 Use of standards

There are a number of standards that can provide guidance and assistance to licensees and operators for completion of their bridging and simultaneous operations documentation. Examples are:

- AS ISO 31000 *Risk management – Guidelines*
- IEC ISO 31010 *Risk management – Risk assessment techniques*
- ISO 17776 *Petroleum and natural gas industries – Offshore production installations – Major accident hazard management during the design of new installations*
- AS/NZS 2885.6 *Pipelines – Gas and liquid petroleum, Part 6: Pipeline safety management*
- AS IEC 61882 *Hazard and operability studies (HAZOP studies) – Application guide*
- AS IEC 61511 *Functional safety – Safety instrumented systems for the process industry sector*

Licensees and operators should reference the current versions of these publications to support the requirements of the safety case and development of bridging and SIMOPS documentation.

2 Bridging documents and simultaneous operations

There is no specific provision for bridging documentation and the management of simultaneous operations; however, this falls under the regulations requiring the need for a safety case to be in force covering all activities taking place at a facility.

It is critical that licensees and operators understand what constitutes a simultaneous operation (SIMOPS) and have comprehensive bridging documentation to link in force safety cases from the individual operations into a single safety management plan (the Plan).

Details of how licensees and operators propose to identify and manage SIMOPS together with development of the required bridging documentation should be included in their safety management systems within an accepted safety case.

Temporary, short duration, emergency or one-off operations should be covered under individual SIMOPS and bridging documents. Any long term or regularly recurring operation should be detailed within the safety case in force for the facility.

2.1 Liaison with Department inspectors

Licensees and operators should liaise with Department inspectors as soon as possible when a SIMOPS is identified.

Engagement with the Department will enable:

- early notification to the Department of when and where the SIMOPS is due to take place
- agreement to be reached on whether a bridging document needs to be developed or the SIMOPS will trigger an amendment to the existing safety case in force for the facility.

2.2 Hierarchy of controls and responsibilities

The licensee or operator of the facility will always have ultimate control and responsibility over the SIMOPS project.

In the event that a bridging document is developed to cover the SIMOPS, this will become an annex to the in force safety case covering the facility. It will also be necessary to update the safety case to include a reference to the bridging document and summary of the relevant SIMOPS. The bridging document will be subject to the same document control and records management requirements applicable to the safety case.

3 Simultaneous operations (SIMOPS)

SIMOPS can fall into two main categories:

Category 1 – the performance of two or more concurrent operations taking place within a facility, or in close proximity to a facility, where each operation is currently managed under its own accepted safety case.

Category 2 – when the current safety case does not cover all the intended operations required to be conducted within a facility.

Identifying the SIMOPS early and before work commences, will prevent a potential clash of activities which could result in an undesired event or set of circumstances adversely impacting, for example, safety, the environment, assets and schedules.

Examples of Category 1 SIMOPS involving operations covered by separate safety cases are:

Offshore

- Diving – the bridging document in this instance is the diving project plan (DPP) which is the link between the diving safety management system (DSMS) and the operator's safety case. Refer to the guide for *Diving safety management system* developed under the *Petroleum (Submerged Lands) Act 1982 and Petroleum (Submerged Lands) (Diving Safety) Regulations 2007*.
- Drilling programs – involvement of multiple vessels comprising the drilling vessel and support vessels in the vicinity of an offshore facility. Bridging documents can be developed using the information contained in section 4 and 5 of this Guide.
- Seismic surveys – survey vessels in the vicinity of the offshore facility. Bridging documents can be developed by using the information contained in section 4 and 5 of this Guide.
- Changes to a facility – any changes within a facility constitute a SIMOPS and appropriate bridging documentation needs to be developed. This can be done using the information in section 4 and 5 of this Guide.

Onshore

- Construction of new facilities – construction of any new facilities that are part of, or adjacent to, existing facilities including pipelines. Bridging documents can be developed using the information contained in section 4 and 5 of this Guide.
- Modification of existing facilities – any changes to existing facilities which could adversely impact the safety of the operations of the facility. Bridging documents can be developed using the information contained in section 4 and 5 of this Guide.
- Well management – any changes to the number of wells, whether drilling of new wells or plugging and abandonment of existing wells. Bridging documents can be developed with the drilling contractor using the information contained in section 4 and 5 of this Guide.

Category 2 SIMOPS are tasks not included in an existing safety case and require a stand-alone plan; for example, using a crane to perform lifting operations. A bridging document in this case would be a lifting plan used to bridge the gap between the in force safety case and the intended SIMOPS.

3.1 Defining a SIMOPS project

A SIMOPS project needs to be clearly defined as early as possible.

Licensees and operators must identify and arrange early consultation with all members of a SIMOPS project, including licensees and operators of all the facilities or vessels involved, contractors and service providers.

The documented scope of the SIMOPS should include details of:

- who will be involved
- the activities that will be taking place
- the location
- expected timeframe, including start and end dates and any critical milestones
- any other relevant details such as risk levels and the controls in place to maintain these at as low as reasonably practicable (ALARP).

A SIMOPS project team can be selected and roles and responsibilities documented. This team will then be responsible for the development of the required bridging documentation.

3.2 SIMOPS documentation (bridging documents)

Bridging documents combine the various individual safety cases into one SIMOPS safety management plan. This document is formatted along the lines of the in force safety cases and in compliance with the relevant legislative and regulatory requirements covering the project.

Bridging documents are live documents which may require review and updating during the course of the SIMOPS. Licensees and operators should have a system in place to manage this requirement.

The bridging document should identify existing procedures which take precedence across either the whole of the project or, if necessary, during different phases of the project. The need to develop project specific procedures and plans such as audits, quality assurance and procurement should be identified in the bridging document.

An emergency response plan should be developed for the project which can be linked to the existing emergency response plans in place for general operations of the facilities.

Once finalised and approved by the individual SIMOPS parties, the project safety management plan together with the emergency response plan can be submitted to the Department for review and acceptance.

3.3 Involvement of members of the workforce

Involvement of members of the workforce from each of the licensees or operators and their contractors and service providers is as critical for SIMOPS requirements as it is for normal operations.

The SIMOPS project team should comprise appropriately experienced members of the workforce who can participate in hazard identification and risk assessments for the SIMOPS, as well as identification of suitable procedures to be used and any new documentation that may be required for the project.

For further information refer to the *Involvement of members of the workforce* guide.

3.4 Hazard identification and risk assessment

Once the scope and activities to be undertaken during the SIMOPS are identified, the project team arranges for the necessary hazard identification and risk assessment process to take place, the results of which will feed into the formal safety assessment of the bridging document.

This includes the identification of any potential major accident event (MAE) related to the project that has not already been identified during previous assessments for normal activities taking place at the facility.

For further information refer to the *Hazard identification and Risk assessment and management including operational risk assessment* guides

3.4.1 Major accident events (MAEs)

During the course of the hazard identification and risk assessment processes, the project team must identify any potential MAEs, significant pipeline accident events (SPAEs) or major incidents (MIs) (these are all referred to as MAEs in this Guide) that may occur during the course of the SIMOPS project not identified during the course of normal day-to-day operations.

This review should also include existing MAEs that have the potential to occur during the course of the project to ensure that the control measures in place are also appropriate for the SIMOPS project.

Details of additional MAEs that are project specific should be included in the formal safety assessment of the bridging document. If the MAE is project specific and completion and close out of the project will remove the threat of this occurrence, this should be documented within the project formal safety assessment.

For further information, refer to the *Major accident events, control measures and performance standards* guide.

4 Bridging document contents

The following sections are indicative content for both the safety management plan and the project emergency response plan. These should be changed and modified to suit the specific requirements of a SIMOPS project.

4.1 Safety management plan

The content of the safety management plan should be concise and, where possible, reference the relevant sections of existing safety cases for detailed descriptions of procedures and tasks to be undertaken. Where a requirement arises for project specific processes or procedures to be developed, a detailed overview of those areas should be included referencing the project specific document numbers.

The format of the plan should be aligned with the existing sections of the safety cases, divided into the four key areas of:

- Introduction
- Site description
- Safety management system
- Formal safety assessment.

4.1.1 Introduction

The introduction should contain an overview of the SIMOPS project including:

- a concise overview of the scope of the project
- names of the participating organisations and their current safety case details (title and document number)
- which of the parties has the ultimate responsibility for all safety, health and environmental management issues that may arise during the SIMOPS
- details of the legislation governing the SIMOPS and any key standards to be adhered to.

4.1.2 Site description

Include a description of the project with location maps showing, as appropriate, the location of offshore facilities, vessels and wells, or onshore facilities and proposed construction sites in relation to those facilities.

For existing facilities, the bridging document should include a general overview with a reference to a section of the existing in force safety case rather than duplicate pages from existing documents.

Include details of:

- geographical conditions including, as relevant, possible cyclones, storms, earthquakes
- for offshore – ocean conditions, e.g. depth, wave/current conditions, seabed stability
- vessel orientation
- layout of existing wells, whether offshore or onshore, the well equipment and structural layout
- details of hazardous substances and inventories which may impact the project
- safety features and systems in place – this can also be covered with a reference to the particular section of existing safety cases
- drawings showing key equipment layouts, process flows and safety equipment
- links to any other relevant information contained within existing safety cases or in project specific documentation such as design basis documentation.

4.1.3 Safety management system

The safety management system (SMS) within a bridging document should be informative and concise without duplicating large amounts of the safety management systems included in existing safety cases. The aim should be to include details of project specific requirements and provide links to sections of existing documentation for information on day-to-day requirements being used for the project.

A number of key areas should be addressed within the SMS:

Leadership and commitment

Include details of:

- Policy and leadership – covering the requirements of project safety and health and that the respective safety and health policies have been reviewed and confirmed by the project team that their individual policy documents are aligned. If the individual policy documents do not align, then it is necessary to either develop a new project specific policy, or agree that all participants adopt one of the existing policies for the duration of the project.
- Safety management plan implementation strategy – identify the strategy for implementing the project safety management plan in a manner that will ensure the health and safety of the members of the workforce involved in the project.
- Objectives and targets – describe the objectives and targets to be established for the project. Include details of how these will be communicated to the general members of the workforce, the means by which the achievement of each objective and target will be verified and references of procedures and processes in place to support the achievement of these objectives and targets.
- Organisation and responsibilities – establish health, safety and environmental management responsibilities of the project management team, individuals, subcontractors and the project safety, health and environment coordinator. The safety and health responsibilities and individual performance indicators can be described in detail within a responsibilities and accountabilities matrix included as an appendix to the bridging document.
- Project management – use an organisation chart to show the management structure for the project. This chart should include details of the overall responsible senior management team through to the project managers for each SIMOPS party.
- Employee involvement and communications – detail the process to ensure all members of the workforce are informed of activities, reported incidents and general safety and health issues through toolbox or pre-start meetings or notice boards. Include details for workforce involvement and the opportunity to provide consultation with regards to documentation, hazard identification and risk assessments.
- Election of safety and health representative(s) (SHReps) – outline the process in place for the election of SHReps covering all areas of the project, their participation and involvement in any incident investigations, safety and health issues.
- Resources – identify the resources required by the project and how project management will ensure that there are sufficient resources available throughout the period of the project.
- Human resources, inductions, training and competency – describe the process for identifying the staffing levels and specific skills and competencies required on the project. Summarise the induction requirements to be completed before access to site is permitted, including contractors and third party visitors. Include details of information made available on the project site to verify individual training completed and acceptable competency levels in the tasks they are required to perform.
- Access to site and site security – provide details of access to the project site, the site security in place and any specific requirements for contractors and third party visitors before they can access the site.

Planning and implementation

This section of the plan should demonstrate those requirements in place for the successful implementation of the project plan and include:

- Hazard identification and risk management – describe the procedure and processes in place for project hazard identification, risk assessment and management, including the types of risk assessment to be undertaken; for example, hazard operability study (HAZOPS), hazard identification

study (HAZIDS), and AS 2885 threat assessments (for pipelines). Include reference to the hierarchy of control methods and the identification of potential MAEs.

- Management system documentation, including records management – detail the process in place to collate the required records for the project, and how they will be stored and archived at the end of the project. Include the requirements for document control within the project and how changes to documentation will be notified to the workforce and any contractors affected by the changes.
- Design and construction – this section should include the design process for the project including internal design review, verification and validation. Any proposed design changes that arise during construction must be reviewed, assessed and documented through the management of change process before being put in place. The proposed construction or modification of facilities should be included in the scope of the project at the beginning of the safety management plan and only reference to the management of work is required in this area. If modifications or construction take place outside the lease/licence area where the bridging document is in force, this should not be included in the bridging document.
- Commissioning – include a brief overview of the commissioning plan for the construction or modifications, including the responsibility of the commissioning manager, the required commissioning procedures, inspections and testing. This should include any pre-commissioning tasks carried out prior to the introduction of hydrocarbons or energisation.
- Handover – provide details of the process in place to ensure the smooth handover of the completed project for easy transition from project to operational mode.
- Management of change – demonstrate there is a system in place to ensure that any proposed changes which may affect the safety of the site are thoroughly assessed prior to implementation. All necessary modifications to the safety systems as a result of change should be incorporated into the implementation process for the project. Changes that impact the integrity of the operating procedures of any of the facility operations or which introduce new safety hazards should be addressed.
- Purchasing and control of material and services – include details of the purchasing and procurement process in place for the project and how the incoming equipment or materials will be checked to verify they comply with the purchase order issued. Identify how substandard or non-compliant goods will be registered and stored prior to being either returned to the supplier or replaced with acceptable items. This section should also include details of contractor management i.e. who is responsible for the contract and ensuring that contractor personnel are trained and competent for the tasks they are to perform. Include details for the process in place to ensure that plant and hire equipment is checked.
- Safe operating procedures – provide details of the permit to work procedure to be used in the project and all other key safety operating procedures that will be used and the requirements for project specific job hazard assessments (JHAs). This section of the safety management plan should also include details of the process for non-destructive testing with radioactive substances that may be required on the project.
- Tagging – summarise details of the tagging system to be put in place for the project including “out of service” and “commissioning” tagging.
- Signage and barricades – detail what signs will be put in place to identify the SIMOPS area and where barricades will be required to segregate operations from the project or isolate an area within the facility.
- Management of waste fuel, lubricants and hazardous substances – describe how any waste generated from project operations will be managed.
- Materials handling and storage – this section should include details of how materials will be handled and stored, including movement and control of vehicles and mobile plant, lifting equipment and lifting and security of plant and equipment. Management of chemical substances can be included in this section which should include where to locate a list of chemicals and any other hazardous substances stored on site, how they are stored and that safety data sheet (SDS) information is available.
- Workplace environment – include details of housekeeping within the project, procedures in place for the management of excessive noise, atmospheric contamination, dust generation, lighting and ventilation, provision and use of personal protective equipment. Describe the work place amenities available, provision of food and water.

- First aid facilities and access to medical services – describe the facilities on site for the provision of first aid and access to medical services. Include details of external medical or emergency services that are available to the project as required for management of serious injury.
- Emergency response management – summarise the content of the project emergency response plan. Include the chain of command in the event of an emergency, schedule of emergency exercises to be carried out during the project, full title and document number of the project emergency response plan and where it is located, where to find the current list of emergency contact details, communications available during an emergency, and evacuation and muster points.

Monitoring and evaluation

This section describes the various processes and procedures in place for the inspection, testing and monitoring of plant and equipment used by the project and health monitoring process in place, including fitness for work and drug and alcohol testing, incident and hazard reporting requirements, injury management and return to work, audit and reviews.

Include details of:

- Workplace and site inspections – describe the process and timing for regular workplace and site inspections on the project.
- Plant maintenance and inspection – what process is to be used to ensure regular inspection, testing and maintenance of project plant maintenance and inspection, including tagging of all electrical equipment as required under AS/NZS 3000 and AS/NZS 3760 and the provision of power supply protection for portable electrical equipment through residual current devices (RCDs).
- Pressure testing of pipelines and vessels – detail the process to be put in place on the project for the pressure testing requirements, including suitably trained and competent personnel, and appropriate JHAs. This section should also include details for any hydrostatic testing.
- Health monitoring system – include details for any medical assessments required by the project and how the health and fitness for work of personnel and contractors is managed. Include details of any drug and alcohol testing to be undertaken during the project and how results are managed to ensure that no member of the workforce who tested positive for drugs or alcohol is permitted on site.
- Incident and hazard reporting and investigation – reference the procedure in place to ensure that all members of the workforce are aware that every incident and hazard must be reported within the required timeframe along with the method of reporting and to whom. Include information of how investigations and any regulatory reporting will be managed and completion of any resultant actions.
- Safety and health information and reports – describe the method for collation of health and safety information relating to the project and the reporting requirements. This should cover any periodic reporting required to the Department. It is suggested that a list of safety and health KPIs be developed at the beginning of the project that can be used for this requirement.
- Audits, review and continual improvements – describe the audit plan in place for the project and reference this via the document title and number. There should be a management review process in place for periodic review of the results from audits, incident investigations and any other key processes that may impact the completion of the project. Objectives and improvements identified during these processes should be used for continual improvement of projects and where relevant operations.
- Project closeout – detail the process that will be used to close out the project. The process should cover completion and handover of relevant documentation to operations, and completion and submission to the Department of final validation and manufacturer data records (MDR). Include a process for documenting lessons learned during the project and how this informs other projects.

4.1.4 Formal safety assessment

The formal safety assessment details in a bridging document are similar to those of the safety case and should include:

- objectives of the formal risk assessment
- methodologies used during the formal risk assessment, including a copy of the risk matrix
- risk acceptance criteria for the project
- identification of hazards that have the potential to become MAEs
- demonstration that all risks are ALARP
- summary of the results of all risk studies conducted for the project, including document title and number
- hazard register developed for the project which will be reviewed and updated as required following identification of further hazards or additional control measures
- a copy of the current project hazard register to be available on site during the term of the project.

5 Emergency response plan

A project specific emergency response plan should be developed that:

- identifies the various parties to the SIMOPS
- contains the emergency contact details of each of the parties, e.g. name, position and emergency contact number
- includes links to the existing operational emergency response plans
- details the emergency commander, i.e. the person (or position) with ultimate control in an emergency
- details the emergency response team – this should include the positions within the team and the emergency responsibilities assigned to those positions. This information can be a roles and responsibility matrix and an organisation chart showing the chain of command during an emergency
- contains examples of emergency scenarios that may occur during the project
- identifies drills and exercises to be conducted during the course of the project
- specifies emergency response equipment available to the project and where it is located
- identifies evacuation routes and muster points for the project personnel, including alternate routes available
- includes communication systems that are available during an emergency
- details of backup power supply and lighting during an emergency.

For additional information on the development of the emergency response plan refer to the *Emergency planning* guide.

Appendix 1 Legislative provisions

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

Petroleum (Submerged Lands) (Pipelines) Regulations 2007

Petroleum (Submerged Lands) (Diving Safety) Regulations 2007

Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010

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

Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007

Appendix 2 References and acknowledgements

Development of this Guide has used:

- AS ISO 31000 *Risk management – Guidelines*
- IEC ISO 31010 *Risk management – Risk assessment techniques*
- ISO 17776 *Petroleum and natural gas industries – Offshore production installations – Major accident hazard management during design of new installations*
- AS/NZS 2885.6 *Pipelines – Gas and liquid petroleum – Pipeline safety management*
- AS IEC 61882 *Hazard and operability studies (HAZOP studies) – Application guide*
- AS IEC 61511 *Functional safety – Safety instrumented systems for the process industry sector*

Appendix 3 Glossary

ALARP. As low as reasonably practicable.

Bridging document. Links to an accepted safety case or and covers site specific aspects, such as SMS interface issues and additional hazards and risk assessments.

Department. The Department of Mines, Industry Regulations and Safety.

DPP. Diving project plan.

Facility. The term facility has been adopted throughout this document to cover offshore and onshore facilities, vessels and pipelines including aboveground structures associated with onshore pipelines.

FSA. Formal safety assessment.

HAZID. Hazard identification study.

HAZOP. Hazard operability study.

JHA. Job hazard analysis (also known as JSA – job safety analysis, and SWMS – safe work method statements).

MAE. Major accident event – an event connected with a facility, including a natural event, having the potential to cause multiple fatalities of persons at or near the facility (or as defined within the relevant legislation pertaining to a facility).

Major incident. An incident involving or affecting a Schedule 1 substance (Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007) that causes serious harm to people, property or the environment. For the purposes of this document referred to as an MAE.

MDR. Manufacturer data record.

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.

Plan. Safety management plan.

Safety Case. In this document covers all safety management systems, plans and other safety related documents referred to in WA legislation.

Safety critical element. Any item of equipment, system, process, procedure or other control measure the failure of which can contribute to an MAE.

SDS. Safety data sheet.

SIMOPS. Simultaneous operations involving two or more concurrent operations taking place within a facility or in close proximity to a facility where each operation is currently operating under its own accepted safety case.

SPAEE. Significant pipeline accident event – an event that:

- a) is connected (whether immediately or after delay) with work carried out on, or in relation to, a pipeline
- b) causes, or creates a significant risk of causing, human death (for example, because of hydrocarbon releases).

Appendix 4 Further information

Other guides available:

- *ALARP demonstration*
- *Audits, review and continual improvement*
- *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 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*