Guide for development and submission of a   
safety report

as required under

*Dangerous Goods Safety Act 2004*

Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007

November 2019

FOREWORD

The safety report represents the key demonstration by an operator to the government that the operator is aware of the risks associated with their operations and that there is a rigorous system in place to manage those risks. Because of this importance, the effort required by the operator to develop the report and the government to review and approve the report is significant.

Whilst often seen as purely a legislative requirement, the Department views safety reports as somewhat more than that. It contains commitments that the operator has made and hence to be held to but also one of the key tools used by major hazard facility (MHF) operators to improve safety and build a progressive and positive safety culture within their organisation. Looking at significant MHF incidents and accidents here in Australia and around the world, a lack of understanding of the risks within an MHF by the workforce and management is often one of the root causes of the accident. First and foremost, the safety report is a communication tool to all stakeholders – employees, management and government - about the hazards, risks and their control within the MHF.

Development of safety reports requires specific expertise and knowledge and deals with accident and incident events that, whilst catastrophic, have generally very low probability of occurrence and are extremely rare within the experience of the people doing the analysis. It is easy to miss events, over focus on one hazard type to the expense of other, just as important hazards.

A series of guides have been developed to assist operators to meet their commitments under the Western Australian *Dangerous Goods Safety Act 2004* (the Act) and Dangerous Goods Safety (Major Hazard Facility) Regulations 2007 (the Regulations) for the development and subsequent management of their safety report. These guides have been based on the experiences of the Inspectors and are an attempt to address common points of confusion and difficulty that have arisen previously. Importantly, these guides cannot cover all situations. They are also a guide which show a means of compliance but not the only means of compliance. I must emphasise that despite these guides, the best source of information is talking with the Inspectors directly. This does not mean that Inspectors should be used as de facto consultants – the onus for developing a compliant safety report lies totally with the operator. However, the development of the safety report forms the cornerstone of the relationship between operator and regulator that will last for the lifetime of the operation.

The guides also present both operators and regulator with the opportunity to quickly and easily address areas of uncertainty and confusion that affect all of us.

Steve Emery

Acting Chief Dangerous Goods Officer

November 2019

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# Reference

The recommended reference for this publication is:

Department of Mines, Industry Regulation and Safety, 2019, Guide for development and submission of a safety report Department of Mines, Industry Regulation and Safety, Western Australia, XX pp.

ISBN (paperback)

(web)

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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 operator of a classified major hazard facility (MHF) licensed under the *Dangerous Goods Safety Act 2004* and
* you are required to develop and maintain a safety report under the Dangerous Goods Safety (Major Hazard Facility) Regulations 2007.

## The Act

The *Dangerous Goods Safety Act 2004* (the Act) sets objectives to licensees for the safe operation of major hazard facilities licensed under the Act that prevents injury or harm to personnel and other protected persons entering the licensed area of the facility.

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

## Regulations

Dangerous Goods Safety (Major Hazard Facility) Regulations 2007 (the Regulations) provide more specific requirements for a range of operations.

Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 provide information relating to the storage and handling of dangerous goods and also the management of incidents and hazards.

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 or required to develop and comply with a safety report as prescribed by the Regulations. [r. 25(2)(d)].

# Introduction

This document provides guidance to operators of MHFs for the development of safety reports under the Act and the Regulations.

The purpose of this document is to provide guidance as to the form of a safety report which is acceptable to the Chief Dangerous Goods Officer (Chief Officer) [r. 25(2)(d)].

Each safety report must be submitted for approval by the Chief Officer in the Department of Mines, Industry Regulation and Safety (the Department).

## Structure and scope

This Guide reflects the four areas of a safety report 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.

## Concordance table

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

Completion of this concordance table during the development and internal review of the safety report by operators should verify that:

* sufficient information has been included
* 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 approval of the safety report by the Department.

## Classification and scope of a major hazard facility

The operator of an MHF must give notification to the Chief Officer as soon as practicable if more than the critical quantity of Schedule 1 substances is likely to be at the facility [r.14], and the operator has not been given notice under r. 21(1) of the Chief Officer’s decision whether to classify the place as an MHF.

This notification must be in writing, state the relevant date and contain the notifiable information for the place as it exists, or as the operator expects it will exist, on the relevant date [r.17 (2)].

The notification should also include details of the MHF; that is, include registered dangerous goods pipelines, jetty, dock, pier or conveying system, and not Schedule 1 dangerous goods.

On receiving the notification from the operator, the Chief Officer must decide whether or not to classify the place as a MHF [r. 19(2)].

The *Dangerous Goods Safety Act 2004* does not apply to pipelines carrying dangerous goods to which the *Gas Standards Act 1972, Petroleum Pipelines Act 1969* or *Petroleum (Submerged Lands) Act 1982* apply [s. 6(1)].

These pipelines should be covered by separate safety documentation as required under the relevant legislation.

# Preparation of safety report documentation

A safety report is a legislative requirement to be approved by the Chief Officer and must be in force for all MHF operations before the storage, handling or processing of Schedule 1 substances in excess of the critical quantity, commences at the facility.

## Planning and liaising with the Department

It is strongly recommended that operators meet with dangerous goods officers (DGOs) prior to the commencement of a new safety report or a five yearly update of a safety report. The process for reviewing and gaining understanding of safety report documents is extensive and cannot be completed quickly. By meeting with Department, as early as possible and frequently, operators will be able to review and discuss the proposed operations to be conducted on the facility as well as the operator’s approach to managing those operations.

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

Developing this interaction with the Department early in the process provides the basis of a good working relationship and an understanding of requirements between the operator and the Department.

## Content of the safety report

Fundamentally the safety report should demonstrate two key points.

First it should describe the systems used by the operator to determine:

* how hazards associated with dangerous goods (DG) are identified and risk assessed
* how this risk is reduced so far as reasonably practicable (SFARP).

Second, it should show the outcomes of applying those systems regarding:

* what hazards are on site that have the potential to result in a major incident
* what is the risk associated with those hazards
* SFARP demonstration.

The safety report covers facilities and operations within the area defined as an MHF and the surrounding areas that may be impacted by a major incident at the facility (Section 3.1). The safety report is not required to cover the occupational safety and health requirements under the *Occupational Safety and Health Act 1984*.

The safety report should cover the following:

* 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 report, address for delivery of communications regarding the safety report and other administrative requirements (Section 3.1).
* Facility description – provides a concise overview of the facility, its configuration, locality and surrounding land use, function and control systems identified as a result of the risk assessment (Section 3.2).
* Risk assessment – provides a detailed description of the risk management methodology in place for the facility, a summary of the risk assessment workshops, details of identified major incidents, SFARP demonstrations and consequence analysis and frequency (Section 3.3).
* Safety management system (SMS) – provides a detailed description of the management systems in place to maintain the safety of the facility, the workforce and the surrounding environment. This includes performance standards for safety critical controls (SCCs) and supports the findings from the formal safety assessment (Section 3.4).

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

* location of the MHF and the functionality of plant and equipment installed
* types of safety studies undertaken
* results of those studies with regard to the identification of potential major incidents, the control measures in place and that the risk level is SFARP
* implementation of safety management controls of those studies.

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

It is the responsibility of the operator to specify what is required for safety and legislative compliance, including:

* clearly defining the operation
* identifying the process of how the operation will be conducted safely
* showing SFARP justification
* summarising the operation within the safety report.

Compliance to the safety report will be audited by the Department on a periodic basis. It should cover all operations likely to take place, including those of contractors and subcontractors.

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

The operator is required to ensure the safety report is updated to include any significant changes for new or increased risks, equipment or operational changes, variation in the quantities of Schedule 1 substances stored at the facility. Such changes need to be managed in accordance the operator’s management of change processes and with r. 30.

The safety report should also be updated to reflect non-significant changes. Changes assessed as being non-significant should be recorded in a suitable change log referenced in the safety report.

A five yearly review of the safety report must be undertaken by the operator and approved by the Chief Officer (Section 3.1.4).

## Referencing within safety reports

There will be many requirements to reference the operator’s procedures and other documentation summarised within the safety report.

As many operators now maintain all documentation in online databases, it is suggested that, where possible, these referenced documents are hyperlinked to provide ease of access.

All documents (e.g. procedures, technical studies) within a safety report need to be clearly referenced.

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

* explicitly identified in the safety report
* identified in some manner as being linked to the safety report
* available to the Department for review as part of the overall review and assessment of the safety report
* able to be used as the basis for audit 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 report and all changes are recorded and available for review
* subject to the same internal compliance quality assurance and quality control as the parent safety report to ensure that referenced documents meet the legislation and are being complied with.

The safety report should include a concise overview of the content of the referenced internal procedure or process document. A single sentence under the heading of a regulatory requirement that includes the referenced document is insufficient content for the safety report.

## Workforce involvement

The operator should ensure that members of the workforce are involved in the development or revision of the safety report for the MHF [rr. 23(2)(e), 24(2)(b)] (Section 3.4.7).

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

## Safety report – supporting documentation

The Chief Officer may require the submission of further information before making a decision on the approval of a safety report [r. 27].

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

* any procedures or plans referred to within the safety report 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
* assessments that risks have been reduced to so far as reasonably practicable (SFARP)
* hazard and operability study (HAZOP)
* hazard identification study (HAZID)
* safety integrity level assessment (SIL)
* layers of protection analysis (LOPA)
* failure mode effects analysis (FMEA)
* fire and explosion risk analysis (FERA)
* engineering studies and analyses
* external certification
* industry technical references.

## Safety report – level of detail

The safety report is a roadmap to ongoing safety processes and risk management for the facility and should be seen as a standalone document. It must be auditable, that is, make statements that the operator can objectively prove have been achieved. While the safety report will reference other documents, all readers should be able to understand the operations of the facility, the associated risks and systems in place without referring to those documents.

Some common issues identified in safety report submissions are:

* inadequate identification of major incidents
* not clearly linking major incidents with the controls used to eliminate or minimise their occurrence
* inadequate demonstration of SFARP and of how risk targets have been met – especially cumulative risk
* vague statements rather than specific facts about the facility
* 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
* inconsistencies between written descriptions and figures or drawings
* lack of review or quality assurance processes
* illegible drawings or figures
* preparation in isolation without managerial, workforce input and technical input
* assuming that compliance to a standard is sufficient
* using the risk assessment process to justify a plan or design
* writing the safety report as though the Chief Officer is the intended audience rather than the workforce.

# The safety report

## Introduction

The introduction covers the administrative requirements for the document and gives an overview of the structure of the safety report and the expectations of senior management.

The introduction should include details of the ownership and boundaries of the facility, including references to all the dangerous goods (DG) licences and registered DG pipelines as defined under r. 88 of the Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 covered by the safety report.

### Scope and objectives

Briefly outline the scope and objectives of the safety report including:

* details of legislation covering the operation of the facility
* demonstration that the operator has an integrated management system capable of systematically and continuously identifying, assessing and eliminating or minimising the hazards and risks to persons at or near the MHF
* commitment from management that the approved safety report, including the risk assessment, will be reviewed at regular intervals and updated as required.

Regulation 13 covers the requirement for an MHF to operate in accordance with a safety management system in an approved safety report.

### Definitions and abbreviations

Definitions and abbreviations need to be included for any acronyms or terms used in the safety report, either in the introduction or the appendices. Operators should ensure that all significant definitions are included including such things as “serious harm” and “acceptance criteria” If definitions and abbreviations are in the appendices, then this should be noted in this area of the introduction.

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

### Approval and custodian details

The safety report is a document prepared and submitted by the operator who must be a person who has control or management of the place (including control of contractors and sub-contractors).

Include the address for delivery of communications relating to the safety report.

### Management of the safety report

The safety report is a dynamic instrument requiring monitoring and updating as and when the operator identifies the need to incorporate significant changes in the way safety is being managed on the facility, or new or increased risks identified.

The safety report should be maintained as a controlled document.

It is important that the operator ensures that any proposed revisions consider the timelines in the Regulations and that the revised safety report can be reviewed and approved by the Chief Officer prior to any changes taking place on the facility.

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

* The operator of an MHF must review and submit a revised safety report:
  + before the occurrence of any significant changes to the facility or systems [r. 30(1)(a)]
  + as soon as practicable after a dangerous goods incident or major incident occurs at the facility [r. 30(1)(b)]
  + as soon as practicable after becoming aware of a change in land use or zoning for the area surrounding the facility [r. 30(1)(c)]
  + as soon as practicable after receiving information provided under a direction given under r.31(1), namely that the Chief Officer considers that the proximity of two major hazard facilities to one another is such that an incident at one could cause a major incident at the other [r. 30(1)(d)]
  + as soon as practicable after receiving a request by the Chief Officer [r. 30(1)(f)].
* The safety report is required to be updated and re-submitted five years after the last review under regulation r. 30(1)(e)(i); or if no interim reviews have been conducted, five years since the safety report for the facility was first approved under r. 27(1) [r. 30(1)(e)(ii)].

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

## Facility description

### General

The safety report facility description is an overarching description of the facility and its surrounding area. It should aim to describe the operations being conducted and installations on site 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.

Details should be included for the management of:

* normal operation – most operations 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 facility.

### Notifiable information

Schedule 2 of the regulations contains specific details of required notifiable information. It is not appropriate to include all of that information within the facility description section of the safety report, however the operator should identify the need to include all these requirements and where they are located within the safety report. It is suggested that the use of a table listing the relevant clauses in Schedule 2 be used to demonstrate this as shown in Table 1.

Table 1 – Notifiable information

|  |  |  |
| --- | --- | --- |
| **Dangerous Goods Safety (MHF) Regulations 2007** | **Requirement** | **Included in safety report** |
| sch. 2 cl. 2(a) | Operator of the place is a corporation |  |
| sch. 2 cl. 2(b) | Operator of the place is an individual |  |
| sch. 2 cl. 2(c) | Location of the place |  |
| sch. 2 cl. 2(d) | Land use and zoning for the area surrounding the place |  |
| sch. 2 cl. 2(e) | Each kind of dangerous goods at the place |  |
| sch. 2 cl. 2(f) | Nature of the business or other operation conducted at the place |  |
| sch. 2 cl. 2(g) | Number of employees at the place |  |
| sch. 2 cl. 2(h) | Plans showing the layout of the place and where dangerous goods are located |  |

### Operator details

Include the details of the operator as required in schedule 2 cl. 2(a) or cl. 2(b) relevant to a corporation or an individual operating the facility.

### Operating experience and nature of business

Summarise the operating experience and nature of the business as required in sch. 2 cl. 2(f) in relation to the operator.

This should be a concise overview of past experience and current operations.

### Codes and standards

List the principal Australian, international and industry standards used for the design and operation of the MHF. This may be included in this section of the safety report or as appendices to the document. If the preferred structure is to use appendices, note this here in the facility description.

### Site information

The relevant information required under this section should include:

* location of the facility, include maps, aerial photos and other useful information
* zoning and site history
* land use for the facility and the surrounding area
* infrastructure supporting the area
* regional population density
* on-site population density and the personnel distribution across the facility
* consultation processes in place both onsite and offsite
* topographical and meteorological information for the region
* related facilities (jetty, pipeline rail)
* interfaces with third parties such as vessels, delivery trucks, port authorities, any other MHF sites in the vicinity

### Site access and security

Provide details of the site access, preferably using route maps for clarity.

Describe the security provisions in place at the facility to prevent unauthorised access to the site or to critical or restricted areas of the plant [sch. 4 cl.3].

Cross reference this section to the section in the SMS covering the procedures and plans in place to manage security (Section 3.4.25).

### Dangerous goods and Schedule 1 substances

Include details of the dangerous goods and Schedule 1 substances at the site [sch. 2 cl. 2(e) and cl. 2(h)].

These details should include the name of each of the Schedule 1 substances held on site, the quantity, and the means of storage.

### Plant description

Provide an overview of the plant including:

* design philosophy and technology selection, include a summary of key design parameters cross-referencing key technical documents
* include a process overview of the facility (e.g. using diagrams to illustrate the process flow)
* define the boundary point of interfaces with other facilities, vessels, trucks, trains or pipelines that are facilitating delivering of dangerous goods, power, water and utilities to the facility
* define the physical, electrical, isolation and instrumentation controls in place for the monitoring and management of the boundary point interfaces
* details of management of possible upstream and downstream impacts (e.g. sudden changes in pressure, the equipment in place to safely manage these changes)
* utility systems available (fuel gas, instrument air system, utility water and potable water systems, nitrogen, diesel storage systems and power generation).

### Plant layout

Detail plant layout at the site, including buildings and hazardous areas. The description should be supported by diagrams showing the plant layout which includes separation distances between buildings and storage areas, evacuation muster points.

Use the plant layout diagram to indicate the location of dangerous goods stored on site. Use of the dangerous goods site plan required by the Dangerous Goods Safety (Storage and Handling of Non-Explosives) Regulations 2007 sch. 3 cl. 9 may be made here.

Include an inventory of the dangerous goods stored on site and which of these equate to Schedule 1 substances under the legislation.

Cross reference to the section of the SMS dealing with handling and storage (Section 3.4.15).

### Safety 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 facility that will enable ongoing safe operations.

This description should be specific to the facility and include details of any safety critical controls (SCCs) identified as part of the risk assessment. The facility description should include cross references to the relevant major incidents and performance standards within the risk assessment and SMS sections of the safety report as appropriate.

Note – the following wording is an indication only and should not be considered as a standard inclusion in the safety report. Details included should be a concise overview and not include a full list of the individual controls in place.

| Indication of content detail for control systems and structural integrity management |
| --- |
| * Instrumentation and control systems – describe the instrumentation and control systems installed. * Functional safety systems – describe any functional safety system in place for the facility. * Leak detection systems – describe the leak detection systems in place. * Fire and gas detection systems – describe the systems in place for the detection of a fire or gas leaks within the facilities. * Emergency shut down facilities – include a description of the emergency shut down facilities installed. * Pressure relief and blowdown systems – describe what pressure relief and blowdown systems are present on the facility. * Redundancy of safety systems – indicate what redundancies of safety systems are installed and how they would be brought on line as and when required. * Corrosion management – describe the corrosion management system in place, what processes are in place for monitoring corrosion. * Scrubbing systems – describe the process in place in relation to eliminating toxins * Bunding – describe the bunding system in place as secondary containment for leaks. |

### Emergency response

The facility description should include details of the hardware in place for the management of emergencies. Include details for mustering, evacuation and escape from the facility, 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 risk assessment (Section 3.4.24).

## Risk assessment

The safety report must summarise the various analyses and risk assessments undertaken in sufficient detail to provide evidence that the requirements in r. 23 have been addressed. This section of the safety report should therefore include a comprehensive summary of the assessments, analyses and results that have been documented as part of the facility risk assessment.

The risk assessment summary should demonstrate that:

* all hazards relative to dangerous goods have been assessed for their potential to cause a major incident
* all major incidents have been identified and documented
* the nature of harm and the consequences of each major incident has been appropriately assessed
* the likelihood of each major incident has been appropriately assessed
* risk control measures, for prevention and mitigation have been applied
* the effectiveness and reliability of the risk control measures have been assessed
* the operator has in place a risk tolerability criteria against which all risks have been assessed and reduced to a level that is tolerable and SFARP
* details of the procedures and processes in place to achieve tolerability should be included as a reference, this may be in the form of a cross reference to the relative section of the safety management system
* the cumulative risk of the various hazards meet the acceptance criteria

The consequences of the risks considered should include the:

* impact on fitness for purpose of the facility
* safety and potential for serious harm
* impact on the surrounding community, property and the environment

It is important that the subsidiary risk studies are transparent, clearly linked to this risk summary and associated major incidents.

### Scope

The scope should reference the facility operation covered by the risk assessment, the interaction with Schedule 1 substances and the types of risks covered in the assessment process including loss of integrity on the facility, operation of the facility and work environment.

### Methodology

Due to the complex and unique nature of many MHFs, often more than one type of process is required to ensure that all hazards are identified and risks are appropriately controlled.

This section should outline the risk assessment methodology, including the processes, to:

* determine the acceptance criteria
* ensure appropriate participation and competence of personnel involved
* identify dangerous goods hazards
* identify major incidents
* select risk control measures
* analyse the consequence of each major incident
* analyse the probability and assess the risk of each major incident
* assess the adequacy of each risk control measure
* assess the cumulative risk of the facility
* enlist participation in the risk assessment process – outline the participants identified to attend risk assessments based on their level of experience, competence and involvement in the operations of the facility. This should include a broad range of workforce participation to ensure adequate levels of consultation and communication which is an essential part of the risk management process.
* conduct 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 report
* describe the process used to ensure the various assessments remain current and reflect current knowledge and operations. This may include a cross reference to the section of the safety management system that describes the identification and management of hazards and risk assessments.

Figure 1 provides an overview of the risk assessment process.

### Major incidents

The operator must identify all hazards relating to dangerous goods and assess them for the:

* probability of the hazard causing a major incident
* nature of harm to people, property and the environment

This section should list all identified major incidents for the facility and include details of

* the causal factors
* the risk control measures that have been applied
* residual risk levels and that risk tolerability is reduced so far as reasonably practicable (SFARP).

Cross references should be included to identify the areas of the safety report that cover those controls and the relevant performance standards developed for each safety critical control.

The *Identification of MAEs, control methods and performance standards (including bowties)* guide assists with this requirement.

### Safety critical controls, performance standards and bowtie diagrams

The risk assessment description must summarise all of the risk control measures that the operator has identified to reduce the risk of a major incident to an appropriate level. Each of these risk control measures is considered a safety critical control (SCC).

Demonstration of adequacy of the SCC should be included in the safety report. Consideration should be given to the availability, reliability and independence of each SCC. This can be performed through benchmarking exercises, layers of protection analysis and functional safety assessments

Operators should include a list of the performance standards that have been developed to validate that each SCC is monitored, tested and maintained to meet its defined functionality requirements.

Bowtie diagrams displaying each major incident with the associated preventive and mitigating controls in place is one method to assist in summarising the SCCs for major incidents.

Further details are included in *Identification of* *MAEs, control measures and performance standards.*

Figure 1 Overview of the risk assessment process



### Demonstration of so far as reasonably practicable

The risk assessment must demonstrate that the operator has reduced the risks associated with identified major incidents SFARP. This should include a detailed description of the necessary prevention, detection, control and mitigation measures implemented. Definitions of these categories are as follows:

|  |  |
| --- | --- |
| Prevention (P) | Measures that are provided to stop a cause from being realised as a major incident (e.g. measures that eliminate the likelihood of a loss of containment). |
| Detection (D) | Measures that are provided to identify a situation where the prevention measures have failed (e.g. leak detection). |
| Control (C) | Measures that are provided to prevent or control the size of an incident and limit the extent or escalation potential (e.g. emergency shutdown and ignition prevention). |
| Mitigation (M) | Measures that are provided to protect people, property and the environment from harm following an incident (e.g. safe escape and evacuation from the work areas). |

Operators should include details of their definition of serious harm and risk acceptance criteria. Summaries of the risk assessment studies should demonstrate that the various major incidents and cumulative risk meet the acceptance criteria.

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.

### Risk assessment studies

The risk assessment studies should provide a detailed summary of the potential consequences from the major incidents. This should include items such as overpressure, thermal radiation contours, and toxic plume dispersion. Particular information should be included of the impact to occupied buildings and beyond the boundaries of the facility.

It is recommended that quantitative or semi-quantitative risk assessments be adopted to estimate the risk. The risk to individuals and work groups from both an individual event and cumulative perspective need to be considered. The results of these studies should be summarised in this section.

This section should include a current summary of the risk analysis studies and workshops run as part of the assessment. The summary should include the type of risk assessment studies and workshops conducted on the facility detailing the facilitator, the location and date of the study or workshop, the results of the study and details of the risk assessment report (document number and title).

*Hazard identification* and *Risk assessment and management including operational risk management* guide can assist with this requirement.

## Safety management system

Safety management in major hazard facilities is the systematic practice of identifying hazards relating to dangerous goods, assessing the risks and implementing risk control measures to minimise the risk.

The SMS description should define the system in sufficient detail to demonstrate the SMS satisfies r. 24 and schedule 4 of the Regulations.

The entire SMS does not need to be included in the safety report. However, it should provide sufficient information to demonstrate that the SMS adequately manages the risk control measures.

The SMS cannot be generic. It should be tailored to address the specific safety issues at the facility.

Some of the key characteristics required are:

* the SMS should have a risk based focus that reflects the hazards that are present and supports the operation of the facility
* a key requirement is that the SMS is fit-for-purpose. It should not be over-complex but must be sufficiently comprehensive to cover the full range of operations at the facility
* the SMS should show improvement through learning and review
* the implementation and maintenance of the SMS must be within the practical capabilities of the facility’s workforce.

The description should summarise:

* the operator’s management system in place
* any certification of the system
* how any errors, deviations and breakdowns in control measures and corresponding parts of the SMS need to be tracked to provide data on the actual safety performance of the facility to show overall improvement in the system
* when developing systems, procedures and operational controls it is essential that the human factors that contribute to them be fully considered.

### Management commitment, leadership and safety policy

Effective leadership and visible management commitment are critical to the successful implementation and improvement of the SMS as well as the cultivation of the organisation’s safety culture.

The SMS description should include an overarching statement describing how these requirements will be achieved and include some examples of management participation and involvement in the setting and achievement of performance standards, objectives and targets for the safe operation of the facility.

### Compliance

The SMS description should include a statement to the effect that all personnel are required to comply with and enforce the provisions of the relevant legislation and the approved safety report.

### Management system overview

The SMS description should provide details of:

* the operator’s management system in place
* any certification of the system
* how the documentation is made available to all personnel as and when required.

### Sources of information

Specify how the operator manages and maintains regulatory compliance for the safety report. This should cover an overview of the various areas monitored for changes in legislation, standards (both Australian and international) and importantly chemical information for the dangerous goods stored on site.

Any changes identified should be managed through the organisations management of change process (Section 3.4.18).

These requirements should be monitored by ongoing internal audits to ensure only current information is available.

### Management structure and resources

The management and organisational structure should be defined, documented and communicated by the operator to the workforce and other key stakeholders.

This can be demonstrated by organisational charts showing position titles rather than actual names of personnel (this enables the current status of the safety report to be maintained in the event of staff movements between positions).

Include details of how the operator manages resources for the effective and safe operation of the facility, including the use of contractors and sub-contractors. Include details on staffing philosophy; e.g. FIFO, residential, location of engineering support, control room personnel. This may include reference to annual work program reviews and budgets. List referenced internal documents to support this requirement.

### Accountabilities and responsibilities

The safety report description should include details of how accountability and responsibility for the operation of the facility, both under normal day-to-day operations and in the event of an emergency is assigned and managed.

The chain of responsibility for emergency events may be included here or under the section of the safety report covering emergency response and the emergency response plans in place (Section 3.4.24).

### Workforce consultation and communication

The operator should outline how they maintain effective workforce involvement, participation and consultative mechanisms for safety, the control of workplace hazards and risks, and in the development of the safety report [rr. 23(2)(e), 24(2)(b)].

Detail the methods of consultation and communication in place 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 [sch. 4 cl. 4(1)(2)].

### External communication

Communication with stakeholders located in the areas adjacent to the facility is a key process required to be put in place by the operator.

Describe the processes and procedures in place that define the type and level of interaction with external parties such as regulatory bodies, industry associations, community groups, local government departments, emergency services and the general public. Examples of information to be provided are:

* the use of dangerous goods at the facility
* the potential consequences
* the exercises and testing of alarms to be undertaken at the facility
* the actions members of the community should take if a dangerous situation or major incident occurs.

Show how the operator will record these interactions and how they are retained within the records management system [sch. 4 cl. 4(3)(4)].

### Hazard identification and risk management

The SMS should demonstrate the key methods of hazard identification and risk management for the facility. The process should be robust and fully detail the characteristics of the risk management system in place including the general requirements for the organisation to implement and maintain procedures to:

* identify all hazards related to dangerous goods
* assess the risks
* implement the control measures
* establish periodic evaluation of the effectiveness of the controls.

Following the hazard identification, an assessment of the risk is completed. The safety report should include details of the risk methodology used and reference the operator’s relevant internal documents [r. 23].

The SMS should clearly indicate how the risk control measures are assessed for adequacy, effectiveness of control implementation and periodic review. The industry practice for this process includes identification of safety critical controls, equipment and processes and discusses their management.

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

Hazard identification and risk management methodologies are not specified in this Guide, but can be found in *Hazard identification* and *Risk assessment and management including operational risk management* guides and the *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 – Guide.*

A summary of those requirements relevant to the facility should be included in this area of the safety report.

### Performance standards for safety critical controls

The operator should describe the process and methodology for the development of performance standards for each of the safety critical controls that have been listed as controls for the major incidents identified in the risk assessment.

The performance standards should be cross referenced to the relevant potential major incident, and the relevant sections of the facility description and risk 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
* the system used to implement the performance standards
* the assurance system in place for monitoring the compliance with the performance standards
* the system in place for the review and verification that the identified requirements under these standards are still viable.

The guide *Identification of MAEs, control methods and performance standards (including bowtie diagrams)* assists with this requirement.

### Safety objectives, targets and plans

The operator should have in place procedures and processes for the setting, completion and review of the risk improvement objectives which need to be set for the facility. In this context, an objective is an overall long-term goal and a target is a specific improvement step set as a means of achieving the objectives.

### Records management and document control

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 facility.

The main difference between controlled documents and a record is that while SMS documents are periodically reviewed and revised, a record constitutes the evidence of the completion of an activity and, as such, is not revised or altered.

Include details of where documents are located and that they are readily available to personnel as and when required.

The *Records management including document control* guide can assist in this area

### Facility design

Management of the facility design should be included with a brief outline of design development, resources and responsibility. It should cover the systems and processes used to ensure the ongoing adequacy of the design and construction, and also consider items such as design life management, life extension, periodic design review, verification or validation, positive material identification, material certification, proof testing, non-destructive testing and as built drawings.

Operators should also consider and document a process for the decommissioning of all or part of a facility, including, for example, the development of a decommissioning plan and supporting procedures for interfacing with the ongoing operations of some parts of the facility during the decommissioning.

### Safe operating procedures

Schedule 4 cl. 2 of the Regulations lists certain procedures that must be included in the safety report for the safe operation of plant.

The SMS must include a section on safe operating procedures for the facility, including the permit to work procedure (PTWP).

The overview of the PTWP should include the purpose of the procedure and summarise the key responsibilities, competency requirements and the process and how the documentation is made available to all personnel as and when required.

Other safe operating procedures that should be included in this section of the SMS are:

* pre-work checks
* plant isolation/tagging/lock-out system
* bridging, or bypass, suppression
* placarding and hazard identification
* loading and unloading
* alarm management
* control and access to hazardous areas
* a general overview of documentation of work practices for routine, semi-routine and non-routine work instructions and operations procedures
* interaction between operations and construction activities

The operator should reference their internal documents to limit inclusion of excess detail for each of these activities listing document title and ID number.

### Dangerous goods safe storage and handling

The requirements for the safe storage and handling of dangerous goods are covered in detail in the *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations – Guide*.

Operators should reference this document to ensure they have all the appropriate procedures in place for the management of this safety critical area including the development and review of safety data sheets and safety information required by the production of dangerous goods.

The dangerous goods risk assessment for non-Schedule 1 substances should be referenced in the safety report.

### Training and competency

A process must be in place to ensure personnel allocated responsibilities under the SMS are competent to fulfil these duties [sch. 4 cl. 1]. This includes the selection process and training.

A comprehensive training process must be in place for all employees to ensure an acceptable level of competence. These training requirements should be aligned to the responsibilities outlined in individual position descriptions. The process should also include identification of specific training needs for specialist positions such as hazardous area management and corrosion management.

The training process should include:

* a training needs assessment which will provide a comprehensive listing of the training required for each position within the organisation to enable each employee to perform their duties effectively and in compliance with all the SMS requirements
* how training records are maintained
* assessment of competency of employees for the tasks they are to perform
* how the training process will be audited to provide assurance and ongoing improvement.

A reference list of the operator’s internal procedures and processes for employee selection, training and competency, training record systems and internal auditing should be included.

### Contractor management

Contractors can introduce unsafe conditions, processes, practices, standards and materials and need to be subject to safety controls to ensure their practices do not jeopardise facility safety.

The operator of a facility has ultimate responsibility for the safe operation of the site and should have an effective system in place for selection and management of contractors at a site. Relevant procedures and processes that manage contractors should be referenced in this section.

### Management of change

A formal system for the management of change at a facility is required to ensure that changes are not introduced which could inadvertently compromise the safety of the facility and impact on employees, the community and the environment.

Management of change should be applied to:

* any change to the safety report
* any change that causes a change in the safety report
* any change to procedures, processes or standards
* organisational change
* capital projects
* modifications of existing facilities
* changes to operating conditions outside the standard working parameters.

The operator should have in place formal written procedures for management of change which include a clear description of the type of changes which will cause the procedures to be implemented.

The *Management of change* guide will assist with this requirement.

### Procurement and control of materials and services

The SMS should have written procedures and processes for procurement of all goods and services for the operation of the facility, including equipment, devices, hardware and software.

The procedures should require that suppliers provide all relevant safety information, including the provision of SDS. The system should also ensure that suppliers are aware of the relationship between their products or services and the hazards associated with the processes of the facility.

The purchase procedure for all supplies and services critical to the nature of the facility’s business should ensure that purchase documents contain, where applicable:

* precise identification of the product or service to be delivered
* product acceptance criteria
* specific references to drawings, specifications and standards which should be used as part of the contract.

Procedures should include:

* checking compliance of delivered products and services against the procurement specifications
* documentation, segregation and disposal of non-conforming products
* provision of safe storage and handling facilities for all hazardous materials and equipment (Section 3.4.15)
* an inspection system for all materials and equipment stored, to ensure that these are not issued in a deteriorated or unserviceable condition (Section 3.4.20).

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

### Plant integrity management

The operator of the facility should have a system in place to monitor and maintain the integrity of the process, infrastructure and all plant and equipment, where failure could contribute to a loss of control, major incident or near miss. An equipment integrity program should focus on the maintenance of existing plant and equipment, as well as ensuring that newly installed equipment meets the design criteria and standards [sch. 4 cl. 2(1)(b)].

The operator should describe the integrity management plan in place. The integrity management plan should be linked with the maintenance management system to provide an ongoing review of the management and monitoring of the integrity of the facility operations.

This section should 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 facility from time to time.

Review and highlight areas of the facility 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 to the integrity management plan document including the title and document number.

### Maintenance and repair

Describe the operator’s maintenance management system that is in place to ensure the integrity and reliability of the facility operation [sch 4 cl. 2(1)(b)]. The system should include a list of all plant and equipment located at the facility and the scheduled maintenance requirements applicable under the work program.

The maintenance management system should be supported by various work procedures and work instructions. This section should explain the maintenance and repair philosophy, in particular the equipment considered safety critical. Operators must ensure that personnel familiar with the requirements of the machinery and equipment are involved in the development and review of these work program documents [rr. 23(2)(e), 24(2)(b)].

For ageing plant, include details in the safety report of how this is being managed detailing studies completed to maintain this plant.

### Inspection, testing and monitoring

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

The management of identified safety critical controls (as identified in the facility risk assessment) should be covered in this section, with details as to how those controls are managed through the maintenance management system to ensure they are regularly inspected, tested against appropriate standards and tested to monitor their application in the event of an emergency.

Describe the process in place to determine the frequency of the inspection, testing and monitoring. 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.

### Incident and hazard management

Outline the operator’s system for the management of incident and hazard reporting and investigation, and summarise the system with reference to the internal procedures and processes used.

Details should be included for the process of management of incidents or near miss occurrences which are considered to be reportable incidents under the Act [s. 9], or that may trigger a review of the safety report after a major incident or dangerous goods incident [r. 30(1)(b)].

Reportable incidents should be notified to the Department initially by email or phone call

Following the initial report a dangerous goods incident report form must be completed and lodged with the Department within 21 days of the incident occurring. The report form is located on the Department website at the following link

[Dangerous goods incident report – form](http://www.dmp.wa.gov.au/Safety/Dangerous-goods-and-explosives-2406.aspx)

This report details root and contributory causes and actions to be taken to prevent or minimise incident recurrence.

All personnel, including supervisors, 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. The *Reporting dangerous goods incidents – guideline (6th edition)* assists with this requirement.

### Emergency response

The SMS must include a description of the emergency response plan (ERP) and how it will be implemented. The ERP must be site specific and fit for purpose, and should be linked into the organisation’s overall crisis management plan [sch. 4, cl. 2(2)].

The operator 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
* emergencies are resourced through internal and external resources, if applicable
* the ERP contains details of 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
* consultation and communication has taken place with:
  + any neighbouring hazardous facilities
  + local police, fire and other emergency services, local government departments
  + managers of any sensitive environmental sites
  + facilities accommodating large numbers of people (e.g. commercial or shopping centres, motels, recreational facilities)
  + facilities provided for members of the community who may be more vulnerable to the consequences of an emergency (e.g. schools, childcare centres, hospitals and nursing homes)

The operator 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 must demonstrate that the major incident emergencies covered in the risk assessment are included in the emergency response plans.

The *Emergency response plans* guide assists with this requirement.

### Site security and access control

Operators should ensure that systems are in place to monitor and control security and access to sites [sch. 4 cl. 3].

Site security control philosophy should be described and referenced.

A security plan should be developed for the facility. The security plan should be integrated with other areas of the management system, such as induction requirements and the emergency response plan. The security plan should summarise roles and responsibilities, access control systems and management of visitors and contractors on the site.

### Safety management system audits

This is a key element of the SMS and operators must have an audit system in place that is clear, objective and evidence-based to show outsiders that the operator conforms to the SMS [sch. 4 cl. 5(2) -(3)].

The Chief Officer may direct the operator to engage an approved auditor to conduct an audit and report to the Chief Officer [s. 46].

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

It should 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.

The *Audits, review and continual improvement for major hazard facilities* guidewill assist with this requirement.

### Review and continual improvement

The operator is required to have procedures in place to ensure monitoring of the effectiveness of the risk control measures and compliance with the safety management system [sch. 4 cl. 5(2) - (4)].

This section should include a summary of the process used to monitor developments in safety, including awareness of incidents in the industry, learnings from other incidents, changes in standards and in legislation.

The results of the review should be documented and be formally communicated to management for review and identification of actions. These actions should 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, review and continual improvement are significant areas of the safety report and should focus on:

* verifying that the safety report is appropriate and fit for purpose
* validating that the operator is complying with the safety report
* effectiveness of risk control measures
* identifying and managing continual improvement.

It is expected that these processes be robust, comprehensive and continuous. It is important that details contained within the safety report are comprehensive and concise.

The operator should ensure that they have a process in place to regularly verify that their audit, 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 operator’s audits, review and continual improvement requirements.

The *Audits,* r*eview and continual improvement of major hazard facilities* guide assists with these requirements.

# Submission and assessment of the safety report

## Application for approval of a safety report

Once the safety report for a facility has been developed and approved by the operator, an application for the approval of the safety report must be made to the Chief Officer in an approved form [r. 26(a)].

The purpose of this document is to provide guidance as to the form of a safety report which is acceptable to the Chief Officer (refer to r. 25(2)(d)).

When submitting the safety report for approval by the Chief Officer for the first time, the application must be accompanied by the relevant fee [sch. 3 cl. 1].

## Consultation on the submitted safety report

The Chief Officer is required to consult with the operator on the submitted safety report before deciding to refuse, approve or withdraw an approval of a safety report.

If the Chief Officer is not satisfied that the submitted safety report meets the requirements of the Regulations, the operator of the facility must be given notification in writing of the proposed decision and the reasons for that decision [r. 29(1)].

The written notification to the operator must also include an invitation to the operator to review the safety report and resubmit the amended report to the Chief Officer before a date specified in the notice [r. 29(1)(b)].

If the Chief Officer still decides to refuse approval or withdraw approval of the safety report as amended and resubmitted by the operator, notice of that decision must be given to the operator in writing, including the reason for the decision, and inform the operator of their right to have the decision reviewed under [s. 67].

## Revision of safety reports

An operator of a facility must review and update the safety report, including the risk assessment and safety management system within the safety report [r.30 (1)]:

* before implementing a significant change to:
  + any plant, process or substance used at the facility, including the introduction of any new plant, process or substance
  + the layout of the facility or where dangerous goods are to be stored, handled or transported within the facility
* as soon as practicable after a dangerous goods incident or major incident occurs at the facility
* as soon as practicable after becoming aware of a change in land use or zoning for the area surrounding the facility
* as soon as practicable after receiving information provided under a direction given under r. 31(1)
* as soon as practicable after a request by the Chief Officer
* on the operator’s own initiative to review the safety report, risk assessment or safety management system for the facility.

If the review indicates that one or more of either the safety report, the risk assessment or the safety management system no longer complies with the Regulations, then the operator must immediately amend the safety report, the risk assessment or the safety management system so that it does comply with the relevant regulation [rr. 23(2), 24(2) and 25(2)]. If a review indicates changes are required to the safety report, it is recommended that the operator contacts the Department as early as practicable as outlined in Section 2.1 of this Guide.

Once the safety report has been updated, the revised document should be submitted to the Chief Officer for approval [r. 26].

If review of the safety report in connection with any of the above requirements does not indicate that the safety report, the risk assessment or the safety management system requires amendment, then the operator of the facility must give the Chief Officer written notice that they have reviewed the safety report for the facility and no amendment is required [r. 30(4)].

## Revision after five years

The operator is required to conduct a review of the safety report for the facility as soon as practicable after the expiry of:

* five years since the last review under r. 30
* if a review has not been conducted, five years since the safety report for the facility was first approved under r. 27(1)

The five yearly review of the safety report should include:

* detailed review and update, where required, of the risk assessment, taking into account the effects of any major incidents that have occurred during the period
* review and update of the facility description to reflect any significant changes to the plant or facilities during the previous five years of operation
* review and update of the SMS for changes in procedures, processes or standards

Once the safety report has been updated, the revised document should be submitted to the Chief Officer for approval [r. 26].

If review of the safety report in connection with any of the above requirements does not indicate that the safety report, the risk assessment or the SMS require amendment, then the operator of the facility must give the Chief Officer written notice that they have reviewed the safety report for the facility and no amendment is required [r. 30(4)].

## Notice of approval or withdrawal of a safety report

The Chief Officer may approve the safety report for a facility if they are satisfied that it complies with the Regulations [r. 27(1)].

Approval of a safety report may be withdrawn by the Chief Officer if it is considered that the safety report no longer satisfies the requirements of the Regulations [r. 28(1)]. However, the Chief Officer cannot withdraw approval of a safety report if:

* the operator of the facility to which the safety report relates has amended the safety report under r. 30(3)(d) and applied for approval of the amended safety report under r. 26(1) [r. 30(3)(e)]
* the Chief Officer has not given the operator notice under r. 29(2) that the Chief Officer refuses to approve the amended safety report [r. 28(2)(b)].

All decisions connected with the approval or withdrawal of a safety report must be given in writing by the Chief Officer and include reasons for the decision [r. 29].

## Refusal to approve or withdrawal of approval of the safety report

Before the Chief Officer refuses to approve or withdraws approval of a safety report, the operator of the MHF to which the safety report relates must [r. 29(1)(2)]:

* be given written notice of the Chief Officer’s decision to either refuse approval or withdraw approval of the safety report and the reasons for the intended decision
* be invited to make a submission to the Chief Officer in relation to the intended decision
* have any submissions made to the Chief Officer considered.

If, following consideration of any submissions made by the operator, the decision of the Chief Officer is to refuse approval or withdraw approval of the safety report, then notice of that decision must:

* be made to the operator in writing
* include the reasons for the decision
* advise the operator that they have the right to have the decision reviewed under s. 67 of the Act.

Appendix 1: Legislative provisions

The sections of the *Dangerous Goods Safety Act 2004* and parts of the Dangerous Goods Safety (Major Hazard Facility) Regulations 2007 that are applicable to this Guide are listed below.

*Dangerous Goods Safety Act 2004*

Part 1 – Preliminary

s. 3 Terms used and abbreviations

Part 2 – General duties as to dangerous goods

s. 8 Duty to minimise risk from dangerous goods

s. 9 Duty to report certain situations

Division 4 – Audits of dangerous goods sites

s. 46 Audit may be directed by Chief Officer

Part 7 – Legal Proceedings

s. 67 Review of decisions under this Act

Dangerous Goods Safety (Major Hazard Facility) Regulations 2007

Part 1 – Preliminary

r. 4 Terms used

Part 2 – Main offences

r. 13 Major hazard facility to operate in accordance with safety management system in approved safety report.

Part 5 – Safety reports

r. 23 Risk assessment, operator of major hazard facility to prepare

r. 24 Safety management system, operator of major hazard facility to prepare

r. 25 Safety report, operator of major hazard facility to prepare

r. 26 Safety report, application for approval of

r. 27 Safety report, approval of by Chief Officer

r. 28 Withdrawal of approval of safety report

r. 29 Chief Officer to consult etc. before refusing to approve or withdrawing approval of safety report

r. 30 Safety report, review of by operator of major hazard facility

Part 6 – Miscellaneous

r. 31 Major hazard facilities near to one another, Chief Officer may direct one to give information to the other

Schedule 1 – Threshold quantity for Schedule 1 substances

cl. 1 Threshold quantity for substances

cl. 2 Threshold quantity for categories of substances

Schedule 2 – Notifiable information

cl. 1 Term used: material safety data sheet

cl. 2 Notifiable information

Schedule 4 – Procedures to be included in safety management system

cl. 1 Skills etc. of employees, procedures to ensure

cl. 2 Operation etc. of plant, etc. procedures for

cl. 3 Security, procedures to ensure

cl. 4 Safety information, procedures to ensure employees are given

cl. 5 Risk control measures, procedures to ensure monitoring of, etc.

Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007

r. 88 Some pipelines to be registered

Schedule 3 – Dangerous goods site plan

cl. 9 General information in plan

Appendix 2: Glossary

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

**Community**. All people living or working outside the facility who would be likely to suffer personal injury or property damage if a major incident occurred at the facility

**DG.** Dangerous goods

**DGO.** Dangerous goods officer

**EERA.** Evacuation escape and rescue analysis

**ERP.** Emergency response plan

**Facility.** A major hazard facility as classified by the Chief Officer

**HAZID.** Hazard identification study

**HAZOP** . Hazard and operability study

**KPI.** Key performance indicators

**LOC.** Loss of containment

**LOPA.** Layers of protection analysis

**Major incident.** An incident involving or affecting a Schedule 1 substance (Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007) as defined in r. 4 of the Regulations that causes serious harm to people, property or the environment

**Operator.** A company or individual engaged in the operation of a major hazard facility who has the control and management of the place

**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

**PPI.** Positive performance indicators

**PTWP.** Permit to work procedure

**QRA.** Quantitative risk assessment

**Safety critical control.** Any item of equipment, system, process, procedure or other control measure the failure of which can contribute to a major incident

**SCC.** Safety critical control

**Schedule 1 substance.** A substance listed in Schedule 1 Table 1, or a substance belonging to a category of substances listed in Schedule 1 Table 2 of the Regulations

**SDS.** Safety data sheet

**SFARP.** So far as reasonably practicable

**Serious harm.** Significant incident associated with substances in Schedule 1 of the Regulations

**SMS.** Safety management system

Appendix 3: Concordance table

**Concordance Table**

| Ref. | Guide Section | Topic | Safety Report Section / Page no. | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Intro | FD | SMS | FSA |
| *Dangerous Goods Safety Act 2004* | | | | | | |
| s. 3 | 3.1.2 | Terms used and abbreviations |  |  |  |  |
| s. 8 | 3.4.9 | Duty to minimise risk from dangerous goods |  |  |  |  |
| s. 9 | 3.4.23 | Duty to report certain situations |  |  |  |  |
| s. 46 | 3.4.26 | Audit may be directed by Chief Officer |  |  |  |  |
| s. 67 | 4.6 | Refusal to approve or withdrawal of approval of the safety report |  |  |  |  |
| Dangerous Goods Safety (Major Hazard Facility) Regulations 2007 | | | | | | |
| r. 4 | 3.1.2 | Terms used |  |  |  |  |
| r. 13 | 3.1.1 | Major hazard facility to operate in accordance with safety management system in approved safety report |  |  |  |  |
| r. 23(1) | 3.3 | Operator of major hazard facility to prepare a risk assessment |  |  |  |  |
| r. 23(2)(a) | 3.3 | Identification of all hazards relating to dangerous goods |  |  |  |  |
| r. 23(2)b) | 3.3.3 | Probability of hazard causing major incident |  |  |  |  |
| r. 23(2)(c) | 3.3.4, 3.3.5 | Safety critical controls, performance standards and bowtie diagrams |  |  |  |  |
| r. 23(2)(d) | 3.3.2 | Methodology used for risk assessment |  |  |  |  |
| r. 23(2)(e) | 3.3.2, 3.4.7 | Risk assessment – consultation with the workforce |  |  |  |  |
| r. 24(1) | 3.4 | Operator of major hazard facility to prepare safety management system |  |  |  |  |
| r. 24(2)(a) | 3.4.9 | Hazard identification and risk management procedures |  |  |  |  |
| r. 24(2)(b) | 3.4.7 | SMS consultation with workforce |  |  |  |  |
| r. 25(1) | 3.1 | Operator of major hazard facility to prepare a safety report |  |  |  |  |
| r. 25(2)(a) | 3.2.2 | Safety report to contain notifiable information |  |  |  |  |
| r. 25(2)(b) | 3.3 | Safety report identifies risk assessment for the facility |  |  |  |  |
| r. 25(2)(c) | 3.4 | Safety report identifies the safety management system prepared for facility |  |  |  |  |
| r. 26 | 4.1 | Application for approval of a safety report |  |  |  |  |
| r. 27 | 4.5 | Approval of the safety report by the Chief Officer |  |  |  |  |
| r. 27(1)(b) | 3.3.5 | Demonstration of so far as reasonably practicable |  |  |  |  |
| r. 30(1)(a-d) | 4.3 | Review of safety report resulting from significant change, incidents or change in land use |  |  |  |  |
| r. 30(1)(e) | 4.4 | Review of safety report after 5 years |  |  |  |  |
| r. 30(2)- (4) | 4.3 | Review of safety report on operator’s own initiative |  |  |  |  |
| Schedule 2 – Notifiable information | | | | | | |
| cl. 2 | 3.2.2 | Notifiable information |  |  |  |  |
| cl. 2(a)-(b) | 3.2.3 | Operator details |  |  |  |  |
| cl. 2(c)-(d) | 3.2.6 | Location and land use |  |  |  |  |
| cl. 2(e) | 3.2.8 | List of each kind of dangerous goods and relevant SDS on site |  |  |  |  |
| cl. 2(f) | 3.2.4 | Nature of business |  |  |  |  |
| cl. 2(g) | 3.2.2 | Number of employees at the site |  |  |  |  |
| cl. 2(h) | 3.2.10 | Plans showing layout of site and where dangerous goods are located |  |  |  |  |
| Other details relevant to facility description | | | | | | |
|  | 3.2.5 | Codes and Standards |  |  |  |  |
|  | 3.2.7 | Site access and security |  |  |  |  |
|  | 3.2.9 | Plant description |  |  |  |  |
|  | 3.2.11 | Safety control systems, structural integrity and safety critical elements |  |  |  |  |
| Schedule 4 – Procedures to be included in safety management system | | | | | | |
| cl. 1 | 3.4.16 | Skills, etc. of employees, procedures to ensure |  |  |  |  |
| cl. 2(1)-(3) | 3.4.14 | Safe operating procedures |  |  |  |  |
| cl. 3 | 3.2.7, 3.4.25 | Security procedures |  |  |  |  |
| cl. 4(1) | 3.4.7, 3.4.14 | Safety information, procedures to ensure employees are given |  |  |  |  |
| cl. 4(2)-(3) | 3.4.8 | External communication |  |  |  |  |
| cl. 5(2)-(3) | 3.4.26 | Safety management system audits |  |  |  |  |
| cl. 5(4) | 3.4.27 | Review and continual improvement |  |  |  |  |
| Other procedures relevant to safety management system | | | | | | |
|  | 3.4.1 | Management commitment, leadership and safety policy |  |  |  |  |
| 3.4.2 | Compliance |  |  |  |  |
| 3.4.3 | Management system overview |  |  |  |  |
| 3.4.4 | Sources of information |  |  |  |  |
| 3.4.5 | Management structure and resources |  |  |  |  |
| 3.4.6 | Accountabilities and responsibilities |  |  |  |  |
| 3.4.10 | Performance standards for safety critical elements |  |  |  |  |
| 3.4.11 | Safety objectives, targets and plans |  |  |  |  |
| 3.4.12 | Records management and document control |  |  |  |  |
| 3.4.13 | Design, construction and commissioning |  |  |  |  |
| 3.4.15 | Dangerous goods safe storage and handling |  |  |  |  |
| 3.4.17 | Contractor management |  |  |  |  |
| 3.4.18 | Management of change |  |  |  |  |
| 3.4.19 | Procurement and control of materials and services |  |  |  |  |
| 3.4.20 | Plant integrity management |  |  |  |  |
| 3.4.21 | Maintenance and repair |  |  |  |  |
| 3.4.22 | Inspection, testing and monitoring |  |  |  |  |
| 3.4.23 | Incident and hazard management |  |  |  |  |
| 3.4.24 | Emergency response |  |  |  |  |

Appendix 4: Further information

Other guidance available

* *ALARP demonstration*
* *Audits, review and continual improvement for major hazard facilities*
* *Bridging documents and simultaneous operations*
* *Dangerous goods safety (storage and handling of non-explosives) regulations 2007 – Guide*
* *Emergency response plans*
* *Hazard identification*
* *Identification of MAEs, control measures and performance standards (including bowtie diagrams)*
* *Involvement of the workforce*
* *Management of change*
* *Records management including document control*
* *Reporting dangerous goods incidents – guideline (6th edition)*
* *Risk assessment and management including operational risk assessment*