



Department of Energy, Mines,
Industry Regulation and Safety



GUIDE

Dangerous goods and hazardous chemicals in petroleum, pipeline and geothermal energy operations

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Reference

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Foreword

Western Australia's work health and safety (WHS) legislation came into force in March, 2022. This resulted in the amendment of the various petroleum Acts and the repeal of the associated regulations so that all onshore and offshore petroleum, pipeline and geothermal energy operations are now subject to the requirements of the:

- *Work Health and Safety Act 2020* (the WHS Act)
- Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations 2022 (WHS PAGEO Regulations).

A key responsibility for the WorkSafe Group (WorkSafe) of the Department of Energy, Mines, Industry Regulation and Safety (the Department) continues to be the ongoing risk management and safety requirements for the onshore and offshore petroleum, pipeline and geothermal energy operations. To support these requirements, the guides previously developed have been updated to provide support and assist operators to meet their commitments under the WHS Act and WHS PAGEO Regulations.

Application

This Guide is a non-statutory document provided by WorkSafe to assist persons subject to duties under the WHS Act and requirements to conduct audits of the safety management system as prescribed by the WHS PAGEO Regulations.

It has been developed to provide advice and guidance to operators to meet the WHS Act and the WHS PAGEO Regulations requirements administered by WorkSafe.

Who should use this Guide?

You should use this Guide if you are:

- the operator of onshore or offshore petroleum, pipeline or geothermal energy operations under the WHS Act
- responsible for managing dangerous goods and hazardous chemicals in relation to petroleum and geothermal energy operations.

WHS legislation

Under the WHS Act, the WorkSafe Commissioner is responsible for performing the functions and exercising the powers of the regulator. Each safety document must be submitted for acceptance by the regulator.

WorkSafe assists the regulator in the administration of the WHS Act and the WHS PAGEO Regulations, including the provision of inspectors and other staff to oversee compliance with the legislation.

The WHS PAGEO Regulations provided for transitional provisions in relation to facility operators and safety cases in place or submitted before the commencement of the WHS legislation.

Dangerous Goods legislation

A key focus of the *Dangerous Goods Safety Act 2004* (DGS Act) is the duty to minimise risk from dangerous goods. This duty not only applies to persons conducting a business or undertaking (PCBUs) and workers, but to all persons, including members of the public. This duty is placed on everyone involved with dangerous goods and goes beyond the workplace duties of the *Work Health and Safety Act 2020*. Public safety is one of the most important features of the Act.

The DGS Act is supported by the following regulations:

- Dangerous Goods Safety (Explosives) Regulations 2007 (DGS Explosives Regulations)
- Dangerous Goods Safety (Security Sensitive Ammonium Nitrate) Regulations 2007
- Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007 (DGS Storage and Handling Regulations)
- Dangerous Goods Safety (Road and Rail Transport of Non-explosives) Regulations 2007
- Dangerous Goods Safety (Major Hazard Facilities) Regulations 2007
- Dangerous Goods Safety (General) Regulations 2007

The Chief Dangerous Goods Officer reports to the Minister and is the decision-making authority under the DGS Act.

The DGS Act and Regulations are actively enforced by dangerous goods officers and breaches are likely to result in remediation notices to improve safety requirements, and in serious cases can lead to prosecution or the suspension of a licence.

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1 Introduction

This Guide has been developed to provide operators with assistance to meet their obligations when managing dangerous goods and hazardous chemicals in petroleum and geothermal energy operations.

It sets out an overview of the arrangements that operators should have in place to ensure that the presence of dangerous goods and hazardous chemicals within petroleum and geothermal energy operations do not adversely affect workers and other people.

For the purpose of this Guide, the term “safety case” is used to cover all of the safety documents referred to in the WHS PAGEO Regulations.

The term “facility” covers offshore and onshore facilities and pipelines, including above ground structures.

The objective of the Guide is to provide clarity on areas of the legislation which may be ambiguous or open to interpretation.

2 Dangerous goods

Dangerous Goods Safety Act s. 6

Relationship with other laws

WHS PAGEO Regulations Pt. 5 Div. 5

Dangerous goods

The requirement to manage dangerous goods at a facility is outlined in Part 5 Division 5 of the WHS PAGEO Regulations. Because these regulations align with some of the regulations in the DGS Storage and Handling Regulations, compliance with the DGS Storage and Handling Regulations will meet the requirements of WHS PAGEO Regulations.

2.1 Dangerous goods and petroleum pipelines

The DGS Act does not apply to a pipeline covered by the *Gas Standards Act 1972*, *Petroleum Pipelines Act 1969 (PP Act)* or *Petroleum (Submerged Lands) Act 1982 (PSL Act)*.

This means that where a facility is a petroleum pipeline, licensed under the PP Act, the DGS Act and associated regulations do not apply.

Part 5 Division 5 of the WHS PAGEO Regulations applies the same requirements to petroleum pipeline facilities that the DGS Storage and Handling Regulations applies to all other dangerous goods sites in Western Australia, including petroleum facilities other than pipelines. WorkSafe Petroleum Safety inspectors (inspectors) will administer the WHS PAGEO Regulations to petroleum pipeline facilities.

These regulations impact on the safety of emergency personnel, such as responders from the Department of Fire and Emergency Services (DFES). The application of these regulations to the relevant parts of petroleum pipelines will consistently provide the same level of communication to DFES responders as for all other sites throughout Western Australia.

2.2 Dangerous goods and non-pipeline petroleum facilities

The DGS Act applies to all petroleum and geothermal energy operations where the facility is not a petroleum pipeline licensed under the PP Act. For these facilities, the operator must comply with the requirements of the DGS Act and Regulations. This may include licensing under the DGS Storage and Handling Regulations or the DGS Explosives Regulations.

Guidance documents are available on the [Department's website](#) to assist operators to meet these requirements.

Petroleum facilities which already comply with the DGS Storage and Handling Regulations will also comply with the WHS PAGEO Regulations. Hence, the WHS PAGEO Regulations do not apply additional requirements to non-pipeline petroleum facilities.

The Department's dangerous goods officers will continue to provide regulatory oversight to those non-pipeline petroleum facilities that are dangerous goods sites under the DGS Act. WorkSafe Petroleum Safety inspectors will provide regulatory oversight of the dangerous goods requirements of the WHS PAGEO Regulations for sites licensed under the PP Act.

2.3 Dangerous goods requirements – all facilities

Operators must ensure dangerous goods on site are correctly stored and labelled. The current safety data sheet (SDS) must be readily accessible to workers and DFES officers. The intent is to provide adequate and consistent information to emergency response personnel for all sites in Western Australia.

Facilities that have quantities of dangerous goods that exceed the “placarding quantity” must comply with Division 5 Subdivision 2 of the WHS PAGEO Regulations, which requires that:

- appropriate HAZCHEM placards are displayed
- appropriate signage is in place for dangerous goods stored in bulk, packages or intermediate bulk containers
- the SDS are available for all dangerous goods on site.

2.4 Dangerous goods – emergency management and planning

WHS PAGEO Regulations r. 139

Fire control equipment required on site

WHS PAGEO Regulations r. 140

FES emergency response guide required for some sites

WHS PAGEO Regulations r. 141

Manifest and dangerous goods site plan

WHS PAGEO Regulations r. 142

SDS for dangerous goods

The operator must ensure that there is adequate fire control on the site for the relevant type of facility. This equipment must be in proper working order, and may range from a deluge system for areas of an offshore facility or a compressor station to an appropriate fire extinguisher for a simple onshore pipeline metering station.

In the case of natural gas pipelines, the intent of the regulations is clearly not to require fire monitors or deluge along the entire length of the pipeline. Instead, the ability to isolate any part of the pipeline facility is critical. In the event of a gas loss of containment incident resulting in fire, the section of the pipeline can be isolated to minimise the radiant heat, and associated knock on effects, while waiting for the remaining gas to burn off.

Similarly, the WHS PAGEO Regulations do not require a manifest to be available along the entire length of the pipeline. The intention of the WHS PAGEO Regulations is that those requirements apply to structures on pipelines such as compressor stations, metering stations and odourising stations. Because these are considered to be parts of a pipeline as defined in the *Petroleum Pipelines Act 1969*, the DGS Act does not apply to these important parts of the facility.

Sites storing or handling more than the manifest quantities of dangerous goods must maintain a manifest and a dangerous goods site plan. These documents must be current to allow an appropriate response by the DFES in the event of an emergency. Sites must review and, if necessary, prepare a revised version of these documents as specified by regulation 141 of the WHS PAGEO Regulations. Operators must ensure the manifest and site plan are kept on site so they are readily accessible to emergency responders.

To ensure compliant access, the manifest and dangerous goods site plan are commonly stored in a red container marked "EMERGENCY INFORMATION". Where additional information is stored in such a container, the manifest and dangerous goods site plan must be prominently accessible.

Depending on the quantity and type of dangerous goods handled, there may be a requirement for a fire and emergency services (FES) emergency response guide (FESERG) for the site, as specified in r. 140 of the WHS PAGEO Regulations. These guides are vital as they provide basic information to DFES for use in an emergency. It includes information on the operator, layout, construction of any structures, dangerous goods present, and equipment and resources to detect or deal with a fire or other dangerous situation. This FESERG must be completed in the format approved by the Fire and Emergency Services Commissioner (FES Commissioner) and contain information relevant to any fire brigade or other person under the control of the FES Commissioner. Agreed FES emergency response guides should be lodged on the [DFES website](#). This information should also be included in the site's emergency response plan.

Specific records are required to be maintained for the site including the manifest and dangerous goods site plan and SDS documentation for all dangerous goods on site. In an emergency, DFES personnel refer to this information to ascertain an appropriate response. The operator should ensure that there are appropriate procedures in place to manage the currency of these records and that they are checked regularly to verify the details are up to date.

3 Hazardous chemicals

WHS PAGEO Regulations Div. 6

Hazardous chemicals

Division 6 of the WHS PAGEO Regulations covers the requirement for management of hazardous chemicals at a facility.

In the safety case, operators should provide an overview of the use, handling and storage of hazardous chemicals at the facility; the hazardous substances generated at the facility; and the pipeline used to convey any hazardous chemicals. This overview should also include any areas that do not apply under the WHS PAGEO Regulations.

3.1 Obligations of suppliers

WHS PAGEO Regulations r. 144

Supply of prohibited and restricted carcinogens

WHS PAGEO Regulations Sch. 1 Table 10.1

Prohibited carcinogens

WHS PAGEO Regulations Sch. 1 Table 10.2

Restricted carcinogens

The obligations of suppliers in relation to the supply of prohibited and restricted carcinogens are detailed in the WHS PAGEO Regulations. Tables 10.1 and 10.2 in Schedule 1 contain lists of these carcinogens. Suppliers must keep a record when they supply a carcinogen, including the:

- name of the person they supplied the carcinogen to
- name of the carcinogen
- quantity supplied.

This record must be kept for at least 5 years after the carcinogen was last supplied to the person.

3.2 Using, handling and storing carcinogens and hazardous chemicals

WHS Act s. 43

Requirements for authorisation of work

WHS PAGEO Regulations r. 145

Using, handling and storing prohibited carcinogens

WHS PAGEO Regulations r. 146

Using, handling and storing restricted carcinogens

WHS PAGEO Regulations r. 147

Using, handling and storing restricted hazardous chemicals

WHS PAGEO Regulations r. 148

Application for authorisation to use, handle or store prohibited and restricted carcinogens

WHS PAGEO Regulations r. 149

Authorisation to use, handle or store prohibited and restricted carcinogens

WHS PAGEO Regulations r. 150

Changes to information in application to be reported

WHS PAGEO Regulations r. 151

Regulator may cancel authorisation

WHS PAGEO Regulations Sch. 1

Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals

The requirements for the use, handling and storing of prohibited and restricted carcinogens and restricted hazardous chemicals are covered in detail in the WHS PAGEO Regulations. Operators should have documented procedures covering these requirements. All carcinogens are a subset of hazardous chemicals.

Authorisation is required to use, handle or store prohibited carcinogens, and to use, handle or store restricted carcinogens in certain applications. The operator must apply to the regulator in writing for authorisation to use, handle or store these carcinogens at the workplace.

The application must include the information specified in regulation 148 of the WHS PAGEO Regulations. Any changes to the information in an application must be given to the regulator in writing as soon as practicable after the operator becomes aware of the change. If the regulator grants authorisation to use a prohibited or restricted carcinogen, they may impose conditions on the authorisation.

The regulator may cancel a granted authorisation if they are satisfied that:

- a condition on the authorisation has not been complied with, or
- the risk to the health or safety of a worker that may be affected by using, handling or storing the carcinogen has changed since the authorisation was granted.

3.3 Statement of exposure to be given to workers

WHS PAGEO Regulations r. 152
Statement of exposure to be given to workers

If a PCBU has been authorised to use, handle or store a prohibited or restricted carcinogen at a workplace and a worker has used, handled or stored these carcinogens, the worker must receive a written statement at the end of their engagement that outlines:

- the name of the prohibited or restricted carcinogen
- the time the worker may have been exposed
- how and where the worker may obtain records of the possible exposure
- whether the worker should undertake regular health assessments and any relevant tests to undertake.

3.4 Records to be kept

WHS PAGEO Regulations r. 153
Records to be kept

If a PCBU has been authorised to use, handle or store a prohibited or restricted carcinogen at a workplace, they must keep:

- a record of the full name, date of birth and address of each worker likely to be exposed to the prohibited or restricted carcinogen
- a copy of each authorisation given to the operator of the workplace, including any conditions imposed on the authorisation.

These records must be kept for 30 years after the authorisation ends.

4 Storage and handling of dangerous goods and hazardous chemicals

A key element to the management of risks in relation to dangerous goods and hazardous chemicals stored at a facility is the correct classification of the hazardous chemicals and then the correct storage to avoid any chemical reactions between the chemicals on site.

[Appendix 2](#) contains a list of publications that detail the classification and storage of hazardous chemicals in the workplace, and provide practical guidance on how to manage health and safety risks associated with hazardous chemicals.

Operators should refer to these documents for assistance in meeting their work health and safety duties and to support their compliance with the DGS Act and Regulations and WHS PAGEO Regulations, regardless of whether they require a dangerous goods licence.

Appendix 1 Glossary

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

Key terms	Meaning
Bulk	Dangerous goods are in bulk if: <ul style="list-style-type: none"> • they are in a container that has a capacity of more than 500 L • there is more than 500 kg of the goods in a container • the goods are not in a container and there is more than 500 kg of the goods in an undivided quantity.
Competent person	A person who has acquired through training, qualification or experience the knowledge and skills to carry out the task. The definition of 'competent person' in the Work Health and Safety (General) Regulations prescribes specific requirements for some types of work such as diving.
DGS Act	<i>Dangerous Goods Safety Act 2004</i>
DFES	Department of Fire and Emergency Services
Emergency response plan	A plan designed to deal with possible emergencies, the risk of which has been identified in the formal safety assessment for the operation.
Facility	<p>Geothermal energy facility – a place at which geothermal energy operations are carried out and includes any fixture, fitting, plant or structure at the place</p> <p>Petroleum facility – a place at which petroleum operations are carried out and includes any fixture, fitting, plant or structure at the place</p> <p>Mobile facility – includes an onshore drilling rig</p> <p>The term facility has been adopted throughout this document to cover offshore and onshore facilities and pipelines including aboveground structures associated with onshore pipelines.</p>
FES Commissioner	Fire and Emergency Services Commissioner
FESERG	Fire and emergency services emergency response guide
Intermediate bulk container	An intermediate bulk container is a rigid or flexible portable packaging for the transport of dangerous goods that: <ul style="list-style-type: none"> • has a capacity lower than the volume specified in regulation 126 of the WHS PAGEO Regulations • is designed for mechanical handling, and • is resistant to the stresses produced in usual handling and transport.
Geothermal energy operation	An operation to: <ul style="list-style-type: none"> • explore for geothermal energy resources • drill for geothermal energy resources • recover geothermal energy, or • any other kind of operation that is prescribed by the regulations to be a geothermal energy operation for the purpose of this definition.

Key terms	Meaning
Inspector	WorkSafe Petroleum Safety inspector
Operator	A person who has, or will have, the day-to-day management and control of operations at a facility and is registered as the operator of the facility under r. 22(3).
Package	Packaged dangerous goods are dangerous goods in a container that has a capacity of: <ul style="list-style-type: none"> • not more than 500 L, or • not more than 500 kg.
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.
Person conducting a business or undertaking (PCBU)	A PCBU is an umbrella concept capturing all types of working arrangements or relationships. A PCBU includes a company, unincorporated body or association and sole trader or self-employed person. Individuals who are in a partnership that is conducting a business will individually and collectively be a PCBU. A reference to a PCBU includes reference to the operator of a facility.
PP Act	<i>Petroleum Pipelines Act 1969</i>
Petroleum operation	Means an activity that is carried out in an area in respect of which a petroleum title is in force, or that is carried out in an adjacent area, for the purpose of any of the following: <ul style="list-style-type: none"> • exploring for petroleum • drilling or servicing a well for petroleum • extracting or recovering petroleum • injecting petroleum into a natural underground reservoir • processing petroleum • handling or storing petroleum • the piped conveyance or offloading of petroleum
Regulator	The WorkSafe Commissioner is the regulator under the <i>Work Health and Safety Act 2020</i> .
Safety case	Documented provisions related to the health and safety of people at or in the vicinity of a facility, including identification of hazards and assessment of risks; control measures to eliminate or manage hazards and risks; monitoring, audit review and continual improvement.
Safety critical element	Any item of equipment, system, process, procedure or other control measure the failure of which can contribute to a major accident event
SDS	Safety data sheet
WHS Act	<i>Work Health and Safety Act 2020</i>
WHS PAGEO Regulations	Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations 2022

Appendix 2 Further information

Petroleum safety guidance

Interpretive guidelines

- *Development and submission of a diving safety management system*
- *Development and submission of a safety case*
- *Development and submission of an onshore facility safety case – drilling operations*

Guides

- *Audits, review and continual improvement*
- *Bridging documents and simultaneous operations (SIMOPS)*
- *Dangerous goods and hazardous chemicals in petroleum, pipeline and geothermal energy operations*
- *Decommissioning and management of ageing assets*
- *Demonstration of risk reduction so far as is reasonably practicable (SFAIRP)*
- *Diving start-up notices*
- *Emergency response planning*
- *Facility design case*
- *Hazard identification*
- *Health and safety leading and lagging performance indicators*
- *Human factors fundamentals for petroleum and major hazard facility operators*
- *Human factors self-assessment guide and tool for safety management systems at petroleum and major hazard facility operations*
- *Identification of major accident events, control measures and performance standards*
- *Inspections – Land-based drilling rigs*
- *Involvement of workers*
- *Management of change*
- *Nomination of an operator*
- *Records management including document control*
- *Risk assessment and management including operational risk assessment*
- *Validation requirements*

Other Resources

Interpretive guidelines

- [*Codes of practice*](#)
- [*Guide: Dangerous goods safety \(storage and handling of non-explosives\) Regulations 2007*](#)
- [*Guidelines, guides and procedures*](#)
- [*Labelling of workplace hazardous chemicals*](#)
- [*Managing risks of hazardous chemicals in the workplace*](#)
- [*National code of practice for the control of schedule carcinogenic substances*](#)

WorkSafe WA

- [*How to determine what is reasonably practicable to meet a health and safety duty – Interpretive guideline*](#)
- [*Incident notification – Interpretive guideline*](#)
- [*The health and safety duty of an officer – Interpretive guideline*](#)
- [*The meaning of ‘person conducting a business or undertaking’ \(PCBU\) – Interpretive guideline*](#)

Other agencies

- Safe Work Australia, [*Guide to managing risks of exposure to carcinogens in the workplace*](#)



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