Petroleum and geothermal energy safety information sheet

Exploration drilling, development and production (general)

This information sheet will assist people with understanding the management of safety regulations associated with the Petroleum and Geothermal Energy Resources Act 1967, and the implications for the petroleum industry in Western Australia.

Note: This document is for guidance only and the definitive statutory requirements are contained in the Petroleum and Geothermal Energy Resources Act 1967, Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010 and Petroleum and Geothermal Energy Resources (Occupational Health and Safety) Regulations 2010.

Q. Slightly different regulations appear to apply where there are production operations under the Petroleum and Geothermal Energy Resources Act 1967 as well as pipeline operations under the Petroleum Pipelines Act 1969. Why is more detailed documentation required for a pipelines operation compared with other operations?

A. The variance in regulations allow for the introduction of geothermal activities into the Petroleum and Geothermal Energy Resources Act 1967 on top of the existing drilling and production operations, whereas the Petroleum Pipelines Act 1969 has a narrower, more specific scope to cover hydrocarbon transmission. This enables the safety management systems (SMS) relating to safety and health to be tailored suitably for the activity and circumstance, according to the operation to be undertaken, and potential for a major accident event, according to the level of risk for the operation.

Q. Do all SMSs require the same level of detail? For example, when drilling for core samples relating to hydrocarbons or conducting a small survey, is the SMS documentation required the same as that for large rigs drilling multiple deep wells for hydrocarbons, or large production facilities?

A. The operator is required to supply an SMS for acceptance that complies with regulation 5 of the Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010. The level of detail should be relative to the size, scope, complexity and level of risk associated with the operation to be undertaken. It is considered impractical for an operator to submit the same level of documentation for an operation lasting a few days or weeks with a low number of personnel involved as that required for an ongoing production facility or an exploration drilling program for multiple wells.

Q. Are there any clauses allowing an exemption from the requirement for a regulated SMS?

A. Due to the highly volatile nature of hydrocarbons, with the potential for multiple fatalities in the event of an incident, there are no exemptions from the requirement for an SMS for petroleum activities.

Exemptions are available within the Petroleum and Geothermal Energy Resources Act 1967 relating to geothermal activities that are excluded by “application of the Act” from the Petroleum and Geothermal Energy Resources Act 1967.

Note: See section 7(4) of the Petroleum and Geothermal Energy Resources Act 1967 and Resources Safety’s information sheet on geothermal exploration drilling, development and production.

Q. What is the meaning of the term “validation”?

A. In the context of petroleum and geothermal energy operations, validation is an assessment of the design, construction, installation, operation and maintenance as a whole, or as elements of an activity, against appropriate standards and requirements. Validation must establish a level of assurance acceptable to the Minister that the subject of the validation is fit for its intended purpose, and that the operation includes measures that will protect the safety and health of persons engaged in the operation and other protected persons. It may be undertaken by an independent third party.
The validation process may also include measuring and testing of equipment and systems against standards and requirements. The validation must focus on compliance with the SMS, fitness of purpose of design, plant and equipment, or both as appropriate. When requested or required, a validation must be of an independent third-party nature.

Note: See regulation 41 of the Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010 for more details.

Q. When is a validation required?
A. A validation is required for all proposed facilities and all significant changes to existing facilities, including decommissioning, or when requested by the Minister in writing.

Validation is not required when an SMS renewal of acceptance is sought five years after acceptance of an SMS for a facility or operation provided the facility or operation has not undergone significant change or modification or been involved in a major incident event.

Q. What does a validation cover?
A. Validation covers the scope that has been agreed between the operator and minister through terms of reference. The scope may include hardware, structures and equipment, and the associated standards and codes that form the validation criteria.

Q. Will verification from an operator on the hardware, structures and other items be considered as validation?
A. No. Validation is considered to be an independent review, carried out by a competent person, of the codes and standards used for design, construction and installation of an agreed set of structures, equipment and systems. This process helps to provide assurance that the facility incorporates measures to protect the health and safety of people involved in the operation and other protected persons.

Verification is considered to be the process of confirming that the agreed set of structures, equipment and systems actually meet the specified standards.

Q. In the past, conditions were attached to the licence such as The Schedule of Onshore Petroleum Exploration and Production Requirements 1991, the Schedule of Geothermal Exploration and Production Requirements 2009, and The Schedule of General Requirements for Occupational Health and Safety 1993. Are these still applicable?
A. As the schedules for both petroleum and geothermal energy operations also cover other areas such as reservoir management, schedules will still be attached to a licence as a condition. Over time these will be updated to reflect the introduction of the new regulations, with the clauses relating to safety revoked and removed.

The 1993 schedule for occupational health and safety has already been removed as it is covered by the introduction of the Petroleum and Geothermal Energy Resources (Occupational Health and Safety) Regulations 2010, and the requirement for an acknowledgment of the duties and obligations of duty of care to be included in the SMS submission, as per regulation 10 of the Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010.

Note: Regulations in law will take precedence over conditions stipulated on a licence.

Q. What is the meaning of “dangerous occurrence”?
A. As described in regulation 42 of the Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010, a dangerous occurrence includes a fire or explosion and anything that has the potential to cause death, serious injury or a period of incapacity from work for one or more days of a person engaged in the operation or other protected person.

It includes instances such as near misses from falling objects, discovery of corrosion or defects that have the potential to rupture or leak, and damage and failure or defects in safety critical equipment.
Q. The regulations relating to risk assessment only appear to cover major accident events. Does this mean other events are not considered?

A. The intent of any risk assessment is to first identify all hazards (both hydrocarbon and non-hydrocarbon) and then carry out the risk assessment to determine their level of risk and consequences (e.g. major accident event, lost time injury or LTI, medical treatment injury or MTI). The control and mitigation measures will then be determined. The outcome will likely be a hazard register that identifies all hazards and their causes, risk levels, major accident event, control measures and links to the SMS.

Regulation 11 of the *Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010* requires all potential major accident events to be included in the submission of documentation to the reviewing authority, rather than the entire hazard documentation for the operation.

The identification, risk assessment, control and mitigation measures for all hazards and risks to the health and safety of persons engaged in the operation and other protected persons is an ongoing process.

Q. May activities commence while an SMS is being developed?

A. Under regulation 5 of the *Petroleum and Geothermal Energy Resources (Management of Safety) Regulations 2010*, it is an offence for a person to engage in activities without an accepted SMS in force for the operation. There is a fine that can be applied as a continuing offence imposed per day, from the time the offence was deemed to occur.

*Note:* “SMS in force” is defined as an SMS or revised SMS that has been accepted by the Minister for Mines and Petroleum. “Person” includes a public body, company, or association or body of persons, corporate or unincorporated.

Q. What is an SMS?

A. An SMS is a documented system for managing the safety and health of people involved in the activities to be performed and other protected people, such as visitors to an operation, facility or site location. It typically comprises two documents — a safety manual and an emergency response manual.

In some circumstances, such as an additional well that is to be drilled either in or close to a production facility, a bridging document may also be required to addresses the interface process between the operator and contractor. The documentation for the safety and emergency response manuals is required when two or more SMSs are in force at one location.

The documents should demonstrate that:

- decision-making, command and communication arrangements are clear to all involved parties for normal operational activities and emergencies
- hazards will be managed
- potential incidents will have an appropriate, coordinated and efficient response from all parties.

Q. What do the safety and emergency response manuals contain?

A. These documents are submitted by an operator in a form acceptable to the Minister. They need to demonstrate, in sufficient detail for the size and scope of the project, that the safety management and emergency response systems in place are appropriate to eliminate or reduce to as low as reasonably practicable (ALARP) the risk of an incident.

For further guidance on the SMS content, see the guides and evaluation checklists available for petroleum and geothermal energy operations at [www.dmp.wa.gov.au/ResourcesSafety](http://www.dmp.wa.gov.au/ResourcesSafety) in the safety guidance section.