



**NSW
Resources
Regulator**

GUIDE

MANAGING RISKS IN MINING AND PETROLEUM OPERATIONS

**Work Health and Safety (Mines and Petroleum Sites)
Legislation**



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About this guide

This guide provides a summary of obligations to manage risk under the *Work Health and Safety Act 2011* and the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* (collectively referred to as the WHS laws). It provides guidance on complying with the requirements in clauses 9-12 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 as well as the requirements to manage risk in part 3.1 of the Work Health and Safety Regulation 2017.

The primary duty of care and ensuring health and safety

Persons conducting a business or undertaking (PCBUs), including mines and petroleum site operators and contractors, have a primary duty to ensure the health and safety of workers they engage, or whose work activities they influence or direct. This means that a mine or petroleum site operator has responsibility for the safety of its direct and indirect employees and any other workers at the petroleum site whose work is directed or influenced by the petroleum site operator, such as contractors and their staff.

Managing risks

A PCBU at a mine or petroleum site, including the operator, must manage risks to health and safety associated with operations at the site by:

- complying with any specific requirements under WHS laws
- identifying reasonably foreseeable hazards that could give rise to health and safety risks
- ensuring that a competent person assesses the risks
- eliminating risks to health and safety so far as is reasonably practicable
- minimising risks so far as is reasonably practicable by applying the hierarchy of control measures, if it is not reasonably practicable to eliminate those risks
- maintaining control measures
- reviewing control measures.

The operator's responsibilities include developing and implementing a safety management system (SMS). The system is used as the primary means of ensuring, so far as is reasonably practicable, the health and safety of workers, as well as other people, at the operation.

The SMS is the primary means of ensuring the safe operation. It brings together several procedures and policies to enable an operator to follow a systematic approach to achieving and monitoring an effective level of health and safety.

The SMS must be documented. It must be understandable and accessible to those who need to read it. It should be written in plain English. Some workers may require a translation. The SMS must form part of the overall management system for operating the site.

Specific requirements

Any specific requirements of the WHS laws must be complied with, for example:

- a requirement not to exceed an exposure standard
- a duty to implement a specific control measure.

Identifying hazards

A duty holder, in managing risks to health and safety, must identify reasonably foreseeable hazards that could give rise to risks to health and safety.

Assessing the risks

A risk assessment must be undertaken by a competent person or group of people who have acquired, through training, qualification or experience, the knowledge and skills to carry out the task. The person, or group of people, must be competent in both general risk management processes, including the hierarchy of control, and in conducting the particular risk assessment having regard to the nature of the hazard. Sometimes a person will facilitate a group risk assessment even though they are not competent in the task. A risk assessment group might include the workers who operate particular machinery, other workers involved in the activity and engineers who select the machinery and establish its operating settings and maintenance arrangements.

When conducting the risk assessment, they must consider:

- the nature of the hazard
- the likelihood of the hazard affecting someone's health and safety
- the severity of the potential health and safety consequences.

Consulting with workers

When identifying hazards and deciding how to control risks, the PCBU must consult workers who will be directly affected by this decision. Their experience will help to identify hazards and the selection of appropriate control measures. Completing the risk assessment as a small group that includes the PCBU and worker representatives can help to meet the need to consult as well as provide a more comprehensive assessment. Involving workers may also increase the level of acceptance of any changes needed.

Record keeping

A record of the risk assessment must be kept. It must include the name and competency of the person or people who undertook the assessment, as well as the control measures implemented to eliminate or minimise the identified risks.

The requirement to keep records only applies to a risk assessment of the overall activity, such as assessments carried out in relation to the development of the SMS for the site or for a principal hazard management plan (PHMP). At some sites, individual workers may undertake a quick assessment before each shift or new task. These individual records do not need to be kept if there is an overall risk assessment of the activity.

If the risk assessment was prepared by the operator, it must be included as part of the operation's SMS and the operation's site record. If the risk assessment was prepared by a PCBU that is a contractor to the operation, it must be included in the contractor's health and safety management plan.

Select and apply controls

Eliminate the risks so far as is reasonably practicable

After identifying hazards through a risk assessment, the operator or other PCBU must:

- eliminate the risks to health and safety, so far as is reasonably practicable, and
- minimise those risks, so far as is reasonably practicable, if they cannot be eliminated.

There are many ways to control risks. Some control measures are more effective than others.

Consideration must be given to various control options. The control that most effectively eliminates the hazard or minimises the risk in the circumstances should be selected. This may involve a single control measure or a combination of different controls, that together provide the highest level of protection that is reasonably practicable.

Some problems can be fixed easily and should be done straight away, while others will need more effort and planning to resolve. Actions for those requiring more effort should be prioritised, focusing first on those hazards with the highest level of risk.

The most effective control measure involves eliminating the hazard and associated risk. The best way to do this is by not introducing the hazard into the workplace. For example, the risk of a fall from height can be eliminated by doing the work at ground level, such as placing an excavator boom as low as possible to the ground before carrying out repairs.

Eliminating hazards is often cheaper and more practical to achieve at the design or planning stage of a product, process or place used for work. For example, a noisy machine could be designed and built to produce as little noise as possible, which is more effective than providing workers with personal hearing protection.

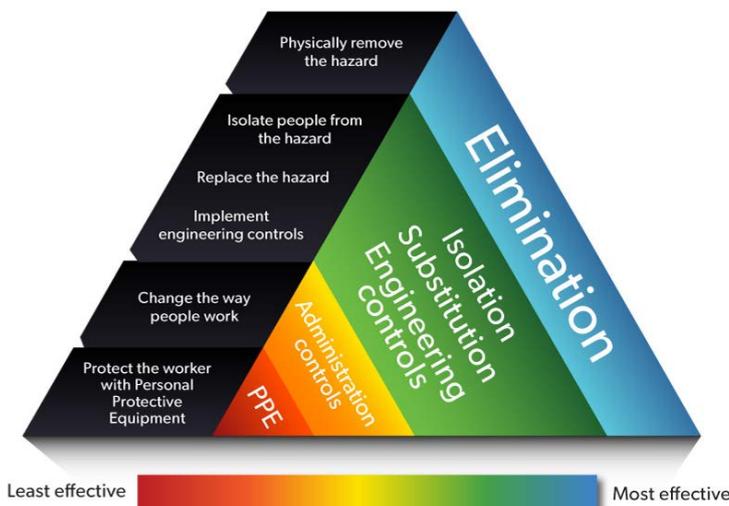
Risks can also be eliminated by removing the hazard completely, for example, by removing trip hazards on the ground or disposing of unwanted chemicals.

It may not be reasonably practicable to eliminate a hazard if doing so means that the task cannot be completed. If it is not reasonably practicable to eliminate the hazard, then eliminate as many of the risks associated with the hazard as possible.

The hierarchy of controls

Where it is not reasonably practicable to completely remove a hazard, the hierarchy of controls must be applied to minimise the risks associated with the hazard.

The hierarchy of controls is the range of ways to control risk, ranked from the highest level of protection and reliability, to the lowest. The WHS laws require duty holders to work through this hierarchy when managing risks.



HIGHEST TO LOWEST LEVEL OF PROTECTION	WHAT THIS MEANS
Elimination	Remove the hazard
Isolation/ Substitution/ Engineering controls	<p>Changing the environment so the hazard can be substituted for a hazard with a lesser risk (e.g. using battery powered tools in wet conditions rather than tools using 240 volt power)</p> <p>Putting the hazard in an environment that prevents a person from being exposed to the hazard (e.g. electrical enclosures that can only be opened with special tools)</p> <p>Putting in place a structure or item that prevents or minimises risks, such as preventing a person from falling, tripping or being struck by a moving part (e.g. interlocks on electrical panels so that power is tripped if the panel is open)</p>
Administrative controls	Safe work procedures, site rules, signals, etc
Personal protective equipment (PPE)	Providing personal protection for each person exposed to the risk

Note: Control measures that effectively control risks with each hazard are often a combination of various levels of the hierarchy of controls.

Maintaining the control measures

Conditions can change and control measures may be affected by those changes. It is important to maintain the control measures so that they remain effective according to WHS laws. This means ensuring each control measure:

- remains fit-for-purpose
- remains suitable for the nature and duration of the work
- is installed, set up and used correctly.

Reviewing control measures

Reviewing control measures, and revising where necessary, is a process required by WHS laws to maintain an environment that is without risk to health and safety, so far as is reasonably practicable.

There is a duty on the operator or other PCBU under WHS laws to review control measures under certain circumstances and revise where necessary.

These circumstances occur if:

- the measure no longer controls the risk (for example, if monitoring or an incident indicates the control measure is not working)
- a change in the workplace is to occur that is likely to change the risks and the effectiveness of the control measure
- a new hazard or risk is identified
- a consultation under the WHS laws indicates a review is necessary
- a health and safety representative requests a review
- an audit of the effectiveness of the SMS indicates that a control measure is deficient
- a recommendation from a health monitoring report indicates that a worker is required to be removed from a hazard or assigned to different work
- any incident occurs that requires the NSW Resources Regulator to be notified.

A change in the workplace could include a change to:

- the workplace itself or the work environment
- the system of work or procedure.

A health and safety representative may request a review if it is reasonably believed that:

- any of the above circumstances have occurred
- control measures have not been adequately reviewed.

Note: If another PCBU has received a request from a health and safety representative to review a control measure, that PCBU must notify the operator of the request.

Recording certain reviews of control measures

If the review of control measures has occurred after an incident, we have to be notified of the incident and a record of such a review needs to be made.

The operator must keep the following records regarding these reviews:

- the causes or likely causes of the incident
- the work, health and safety matters arising from the incident
- recommendations to prevent a repeat of that type of incident
- the outcome of any review or revision of any control measures or any part of the safety management system
- a summary of any changes to the safety management system and any affected principal hazard management plan or principal control plan.

Providing records of certain reviews of control measures

We may write to the operator requesting the records kept by the mine operator in relation to the reviews. Penalties apply if the operator fails to provide the records in the manner and within the time specified in our written request.

More information

A wide range of information is available on managing health and safety risks generally, including the following [codes of practice](#) approved under the *Work Health and Safety Act 2011*:

- How to manage work health and safety risks
- Work health and safety consultation, coordination and cooperation
- Managing noise and preventing hearing loss at work
- Managing risks of plant in the workplace
- Managing the risk of falls at workplaces
- Managing the work environment and facilities
- First aid in the workplace

- Hazardous manual tasks.

It is important to note that those general codes of practice have been developed for all workplaces and do not address the specific requirements for petroleum sites and petroleum operations that apply under the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*. Therefore, the general codes may occasionally be inconsistent with the mine and petroleum site safety laws. To the extent of any inconsistency between a code of practice and the legislation, the legislation must be followed.

Examples of inconsistencies between the general codes and the petroleum site safety legislation exist where the codes indicate that:

- a risk assessment (or keeping records of a risk assessment) is not always required
- the requirement to apply the hierarchy of controls does not apply to all risks.

However, in relation to petroleum sites, clause 9 of the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* requires that a risk assessment must be undertaken (and a record kept), and the hierarchy of controls applied to manage all risks associated with petroleum operations.

Guidance on identifying and controlling hazards in the petroleum industry can be found on our [website](#).