

Managing risks in mining

June 2016

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 clause 9 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 2011*.

The primary duty of care and ensuring health and safety

Persons conducting a business or undertaking (PCBUs), including mine 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 the mine operator has responsibility for the safety of its direct and indirect employees and any other workers at the mine whose work is directed or influenced by the mine operator, for example contractors and their staff.

Management of risks

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

- complying with any **specific requirements** under the WHS laws
- identifying reasonably **foreseeable hazards** that could give rise to health and safety risks
- ensuring that a **competent person** assesses the risk
- **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**, any risks that it is are not reasonably practical to eliminate
- maintaining **control measures**
- reviewing **control measures**.

The mine operator's responsibilities include developing and implementing a safety management system that is used as the primary means of ensuring, so far as is reasonably practicable:

- the health and safety of workers at the mine, and
- that the health and safety of other people is not put at risk from the mine or work carried out as part of mining operations.

The safety management system (SMS) for a mine is the primary means of ensuring the safe operation of a mine. It brings together a number of procedures and policies to enable a mine 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 language. Some workers may require a translation. The SMS must form part of the overall management system for operating the mine.

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.

Identify 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.

Assess 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 collectively must be competent in both general risk management processes, including the hierarchy of control, and be competent to conduct 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 personally 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

In 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 in identifying hazards and the selection of appropriate control measures. Completing the risk assessment as a small group that includes PCBU and worker representatives, can help to meet the need to consult as well as providing a more comprehensive assessment. The involvement of workers may also increase the level of acceptance of any changes that may be needed to the way they do their job.

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 afterward 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 safety management system for the mine or for a principal mining hazard management plan. At some mines 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 mine operator it must be included as part of the mine's safety management system and the mine record. If the risk assessment is prepared by a PCBU that is a contractor to the mine, it must be included in the contractor's health and safety management plan.

Select and apply controls

Eliminate risks so far as is reasonably practicable

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

- eliminate the risks to health and safety so far as is reasonably practicable, and
- if it is not reasonably practicable to eliminate risks to health and safety - minimise those risks so far as is reasonably practicable.

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

Consideration must be given to various control options and the control that most effectively eliminates the hazard or minimises the risk in the circumstances must 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 undertaking 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 floor 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 risk controls must be applied to minimise the risks associated with the hazard.

The hierarchy of risk controls is the range of ways of controlling risks, 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
Substituting	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 240v power)
Isolating	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)
Engineering controls	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)
Administrative controls	Safe work procedures, site rules, signals, etc
Personal protective equipment	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
- suitable for the nature and duration of the work, and
- 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 risks to health and safety so far as is reasonably practicable.

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

These circumstances include if:

- the control 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 safety management system indicates that a control measure is deficient
- a recommendation from a health monitoring report indicates that a worker is required to be moved from a hazard or assigned to different work
- any incident occurs that requires the regulator to be notified.

A change in the workplace could include a change to:

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

A health and safety representative or, in a coal mine a safety and health representative, may request a review if it is reasonably believed that:

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

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

Recording certain reviews of control measures

If the review of control measures has occurred after an incident occurs, and the regulator had to be notified of the incident, then a record of such a review needs to be made.

The mine operator must keep the following records regarding these reviews:

- the causes or likely causes of the incident
- the work, health and safety issues arising from the incident
- recommendations to prevent a repeat of that type of incident
- whether action was required to review or revise a control measure and the outcome of any such review or revision
- a summary of any changes to the safety management system and any affected principal mining hazard management plan or principal control plan.

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 mines and mining 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 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 mine safety legislation include where the codes indicate that:

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

However, in relation to workplaces that are mines, 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 mining operations.

More information

Visit the Mine Safety [website](#) for guidance on identifying and controlling hazards in the mining industry.

© State of New South Wales through the Department of Industry, Skills and Regional Development 2016. You may copy, distribute and otherwise freely deal with this publication for any purpose, provided that you attribute the NSW Department of Industry, Skills and Regional Development as the owner.

Disclaimer: This publication provides a general summary of some of the provisions under the Work Health and Safety Act 2011, the Work Health and Safety (Mines and Petroleum Sites) Act and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 as interpreted by the NSW Department of Industry, Skills and Regional Development at the time of writing (May 2016). Compliance with the legislation is a legal requirement. This publication does not provide or purport to provide legal advice. Users are reminded of the need to ensure that the information upon which they rely is up to date by checking the currency of the information at the Department of Industry, Skills and Regional Development website or with the user's independent legal advisor.

PUB15/23 v2