

PART 1:

**REFERENCE MATERIAL
AND INFORMATION**

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Note: The reference material and information in Part 1 is a guide to help you prepare your Safety Management Plan (SMP). It will help to “get you started” and give you a base to seek further information. Other sources of information are listed on the websites of your inspectorate and the Institute.

This Part tells you what the topic covers.

These sections have the same numbering as the Templates in Part 2, so *14. Fitness for Work* in this Part is supported by templates in section 14 of Part 2 for example.

Part 2 also contains some guidance that adds to how you might go about each topic and this extra material is contained in Part 2 to help you when you come to deal with the relevant template.

1. POLICY & PLANNING

An occupational health and safety (OH&S) policy is a statement by the mine/quarry/extractive industry operation about its commitment and intent to manage and improve occupational health and safety. In publishing and displaying the policy the site sends a clear message that it has a commitment to OH&S management. It also provides direction for setting its occupational health and safety objectives and targets.

The site's OH&S policy forms part of its SMP. It should promote a reduction in accidents, illness and incidents at work.

The reasons for having a written health and safety policy are:

- to provide the starting point for developing your SMP
- to state clearly what the employer intends to do in its commitment and support for a sound OH&S program
- to assist the site in preventing accidents. The policy will make a commitment to removing and preventing the cause of injuries and illness
- to ensure that the right human and financial resources are made available to comply with health and safety legislation
- to assist in achieving OH&S objectives.

The policy is a statement of the intent and commitment of the employer about the health and safety of the workers. Some important points to consider when writing the policy are:

- involving employees
- promoting the health and safety of employees
- protection from hazards
- complying with legislation.

Your policy statement could include the following references:

- the commitment of the employer to provide a healthy and safe work place for employees so that health and safety exists in everyday work activities

- the employer's duty to take all reasonable actions to prevent illness and injury to an employee: eg (a) addressing training needs of employees in the use of safe work procedures; (b) supplying proper supervision and enforcement of safe work procedures
- the employer's commitment to consult and cooperate with all levels of the site to put in place the OH&S policy
- the need for everyone to be responsible for a healthy and safe workplace
- the need to review at least every year, and update the policy to be current with workplace changes and legislation
- the requirement that all employees are responsible for their health and safety.

The policy should be:

<input checked="" type="checkbox"/> up to one page in length	<input checked="" type="checkbox"/> kept up-to-date
<input checked="" type="checkbox"/> clearly stated and easily understood	<input checked="" type="checkbox"/> communicated to all employees
<input checked="" type="checkbox"/> signed by the Chief Executive Officer, Senior Site Person and employee representative	<input checked="" type="checkbox"/> adhered to in all work activities
<input checked="" type="checkbox"/> representative of goals	<input checked="" type="checkbox"/> well displayed around the site

A key to making sure that the policy works in your site is to involve everyone in the process. That means the policy is drafted with input from people from all levels of the company. To put your policy into effect, make sure that:

- everyone in the workplace knows about the policy
- everyone understands their roles and responsibilities
- accountability is clearly set out
- enough human and financial resources are provided
- a process is put in place to set up and review programs and procedures.

2. RESPONSIBILITIES

To make your SMP work each person must understand exactly what their responsibilities are and that they know they will be held accountable for carrying out these responsibilities. Some responsibilities are detailed in legislation and some will relate to how your operation works. Legislated responsibilities cannot be passed on to someone else. A job or task can be, but not responsibilities.

Responsibilities cannot be given to someone who does not have the authority, skills or knowledge to carry out the work. When this program is completed, all employees at your operation will know of their health and safety responsibilities and what others are accountable for. These responsibilities should be used in the development of your training plan (refer *Program 13: Training*).

Responsibilities and accountabilities should be discussed with employees or their supervisors and signed-off when an agreement has been reached.

In the mining/quarrying/extractive industry, the general “duty of care” provisions in health and safety legislation places obligations on employers and employees. These obligations apply to everyone at any mine/quarry/extractive industry operation.

The individual has a right and an obligation to work safely. If an unsafe situation develops or becomes apparent in the workplace, with a work system or with equipment, the correct action should be taken to guard against the hazard and to report it immediately to a supervisor or another designated person.

Purpose

- to ensure everyone is aware of their health and safety responsibilities and accountabilities
- to ensure all tasks to manage health and safety have been allocated
- to ensure that the allocated tasks ‘fit’ within the level of authority, skills and knowledge of the individual

Hint: *There is little point in heaping tasks onto people if there is not the time or opportunity to do them. Putting them on paper will not make them happen. A supervisor already working long hours may not be able to find the time to write health and safety reports unless some other tasks are given to others or he/she is given help.*

Adding new tasks without removing old ones is one of the biggest problems in health and safety. A new set of responsibilities and additional tasks are given to people with little thought as to how they will be able to do them.

As noted legislative responsibilities are non-negotiable – actual work/tasks are.

Explain each item listed under the individual's /group's responsibility.

Ask for feedback to make sure they understand.

3. DOCUMENT CONTROL

Documents are a key part of any management system and should be set up to meet the needs of the mine/quarry/extractive industry site.

The range and detail of procedures that form part of the SMP depend upon the type of work, the methods used, and the skills and training needed by people involved in carrying out the activity.

Processes and procedures should be set out, properly documented and updated.

Having SMP documentation raises employee awareness of what is needed to achieve an organisation's OHS objectives. It also helps to evaluate the system and OHS performance.

The amount and quality of documents will depend on the size and type of site. Where SMP programs are joined with the site's overall business management system, OHS documents should fit into existing documentation.

Because OHS documents communicate standards for the site and regulate action, they should be current, comprehensive and issued by a reliable source.

Each site should ensure that:

- (a) documents are marked with version, date and the appropriate organisation, division, function, activity, or contact person
- (b) documents are regularly reviewed, updated as necessary and approved by authorised personnel before issue
- (c) current documents are available at all locations where operations essential to the effective functioning of the system are performed
- (d) outdated documents are promptly removed from all points of issue; and
- (e) documents kept for legal or historical reasons are identified.

Documents can be kept in hardcopy, film or electronically as long as they are easy to access, easy to understand and useful.

Records and information management

Records are a means by which the site can demonstrate compliance with the ongoing SMP.

They can include:

- (a) external (eg legal) and internal (ie OHS objectives and performance) requirements;
- (b) permits to work;
- (c) hazard identification and risk assessments;
- (d) OHS training activity;
- (e) inspection, calibration and maintenance activity;
- (f) monitoring data;
- (g) details of incidents, complaints and follow-up action;
- (h) product identification including composition;
- (i) supplier and contractor information; and
- (j) OHS audits and reviews.

The range of information can be broad and complex. Good management of these records is a key part of managing the SMP.

Storage facilities

Storage facilities should be set up to ensure these records can be filed and are easy to access.

Responsibility

A person or persons on site should be responsible for maintaining records. Information management duties can be given to anyone at your mine. Management should have the authority to modify, destroy or publish the information.



* Remember to check with the relevant government authority to determine the statutory period for holding records.

4. CONSULTATION

Good communication and consultation is the key to having a SMP that is agreed to and understood by those who use it. It is important to remember that communication is a “two way street”. Everyone must understand the message.

You will need to use consultation as the basis for developing your SMP. Legislation commonly requires it and it is also good sense. The good sense part comes in when you apply the 80/20 rule – 80% of information will come from those who do the job, 20% from those who provide a “fresh pair of eyes”.

Each contributes to the whole. It does matter that something is left out – you won’t have the complete picture without it. It is about respecting other people’s views and recognising the contribution that everyone can make. The effectiveness of the programs will rely on everyone in the workplace being involved. For this reason you will need to think about and put into place, ways of ensuring that consultation and communication continue to happen.

The most common way is to set up a health and safety committee. These committees are made up of workplace representatives who review and recommend improvements in the management of health and safety. In smaller operations, the whole site may make up the committee or a person may represent the workforce (employee representative).

Ways of communicating legislative updates, general health and safety information, changes to programs and procedures, and safety alerts will also need to be planned, documented and put in place. This is to ensure that the right information reaches the right people at the right time.

There are many other ways of involving the workplace in health and safety.

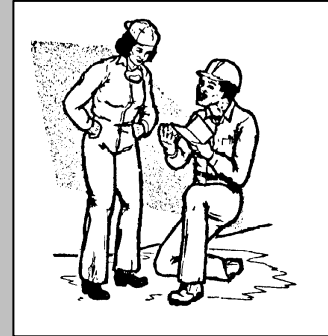


Plate 4.1 Safety committee meeting

Teams that are set up to carry out activities such as safe work procedures, risk assessments and workplace inspections are some practical examples of how consultation can be applied. You will no doubt find other ways of involving people with expertise and experience to review and develop programs as part of the consultative process.

Purpose

- to ensure good consultation on workplace health and safety using both formal and informal channels of communication
- to ensure everyone in the workplace has the opportunity to participate in the development and implementation of the SMP and health and safety issues
- to assist in developing a sense of ownership and cooperation with the SMP.



5. RISK MANAGEMENT

Risk assessment (or more correctly the risk management process) can be applied to the workplace overall; a specific job, piece of equipment, machinery, or a particular activity of your operation.

Risk management forms the basis of all health and safety management. The law requires you to keep your workplace safe. It may also specifically require you to use a risk management process to do so.

There are four basic steps to Risk Management:

1. **Identifying** the hazards – involves recognising things which may cause injury or harm to the health of a person, eg flammable material, ignition sources or unguarded machinery;
2. **Assessing** the risk – involves looking at the possibility of injury or harm occurring to a person if exposed to a hazard;
3. **Controlling** the risk – by introducing measures, which will remove or reduce the risk of a person being exposed to a hazard; and
4. **Monitor** the effectiveness of the control measures – involves the regular review of the control measures to ensure that they are suitable.

It is important to regularly review these steps, for example, when the work environment changes, new technology is introduced, or standards change.

1. Hazard identification

There are a number of ways of identifying potential sources of injury or illness. Selection of the right procedure will depend on the type of work processes and hazards involved.

Procedures may range from a simple checklist for a piece of equipment or substance, to an open-ended appraisal of a group of related work processes. A combination of methods may provide the best results.

Methods of identifying workplace hazards include:

- developing a hazard checklist;
- conducting walk-through surveys;
- reviewing information from designers or manufacturers;
- analysing unsafe incidents, accident and injury data;
- analysing work processes;

- ☑ consulting with employees;
- ☑ examining and considering material safety data sheets and product labels; and
- ☑ seeking advice from specialists, consultants and representatives.

Some hazards exist in the work process, such as mechanical hazards, noise, or the toxic properties of substances. Other hazards result from equipment machine failures and misuse, structural failures, control or power system failures and chemical spills.

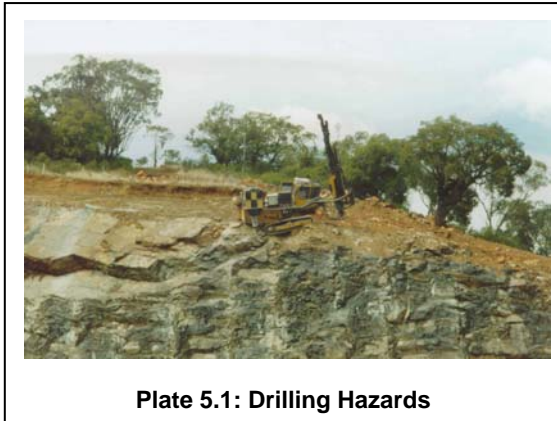


Plate 5.1: Drilling Hazards



Plate 5.2: Stockpile hazards

It is useful to consider these types of hazards when identifying work related hazards to ensure that a wide range is considered. The table below lists some types of hazards together with some specific examples. At the end of the first step of the risk assessment you should have a list of hazard sources, the way in which that hazard occurs, the areas of the site or work process where it occurs, and the people exposed to that hazard. The hazard prompt list below will help in identifying hazards and developing inspection sheets.

Types of hazards include	Specific examples
Gravity	falling objects, falls of people
Nip points	caught between
Struck by	being hit
Kinetic energy	projectiles, penetrating objects
Hazardous substances	skin contact, inhalation
Thermal energy	spills and splashes of hot matter
Extremes of temperature	effects of heat or cold
Radiation	ultra violet, arc flashes, micro waves, lasers
Noise	hearing damage
Electrical	shock, burns
Vibration	to hands and body
Biological	micro-organisms
Stress	unrealistic workload and expectations

Once a hazard has been identified it needs to be assessed for the related risk.

2. Risk assessment

“THE COMBINATION OF THE LIKELIHOOD OF A SPECIFIC UNWANTED EVENT AND THE POTENTIAL CONSEQUENCES IF IT SHOULD OCCUR”

By applying risk assessment to the hazards identified in the first step, you will rank the hazards on the potential injury or harm and the likelihood of these occurring. List these from the most to the least serious, eg from death by crushing to abrasion. The potential for fatal injury should be considered for each hazard type identified.

In assessing risks, consideration should be given to the likelihood of injury or disease, the duration of exposure to injury or disease sources and the likely severity of the outcomes.

Likelihood	Frequency of injury – how often is the hazard likely to result in an injury or illness? Duration of exposure – how long is the employee exposed to the hazard?
Consequence	Outcome – what are the consequences or potential severity of injury?

Incomplete data or incomplete information regarding hazards of a work process may complicate the task. Risk assessment requires good judgment and awareness of the potential risks of a work process. Any person undertaking the risk assessment must have knowledge and experience of the work process.

An assessment of the risk will help determine the consequences (potential injury or illness) and assist the identification of methods to reduce the risk.

Risk assessment should include:

- assessing the training or knowledge needed to work safely
- looking at the way the jobs are performed
- looking at the way work is organised
- determining the size and layout of the workplace
- assessing the number and movement of all people at the site
- determining the type of operation to be performed
- reviewing procedures for an emergency evacuation (eg accident, fire and rescue)
- looking at the storage and handling of all materials and substances; and
- work environment factors.

RISK ASSESSMENT RATING - Example

Risk = Likelihood (Probability) x Consequence

Likelihood		Consequences	
A	Common or repeating occurrence	1	Fatality
B	Known to have occurred – “has happened”	2	Permanent disability
C	Could occur or “heard of it happening”	3	Medical/hospital or lost time
D	Not likely to occur	4	First aid or no lost time
E	Almost impossible	5	No injury

RISK ASSESSMENT MATRIX

Likelihood	A	B	C	D	E
Consequences					
1	1	2	4	7	11
2	3	5	8	12	16
3	6	9	13	17	20
4	10	14	18	21	23
5	15	19	22	24	25

RISK RATING

High Risk	1 – 6
Medium Risk	7 – 15
Low Risk	16 – 25

(Note : we conduct our risk assessment with the current controls in place)

Using the Risk Assessment Rating Table and Matrix you will have a risk rating for each of the hazards found. The higher the risk rating the more likely people will be injured.

Example

During a site inspection it was found that the walkway around the jaw crusher had no handrail or guards in place to stop people from falling into the crusher.

Using the risk assessment rating:

- *The likelihood of injury was **A** - This was because it is the main walkway from one part of the site to the other, with people often exposed to a potential fall into the crusher.*
- *The consequence was **1** - If someone was to fall into the crusher when it was working they would more than likely be killed.*

By transferring these ratings to the Matrix:

Likelihood A * Consequence 1 = Risk Rating of 1 (or HIGH)

Once you have identified the hazards and placed them in order of risk, you need to put in place controls to manage the risks of those hazards.

3. Risk control

There is a hierarchy of controls or preferred order of control measures, which range from the most effective to the least effective. The hierarchy of control measures is:

Elimination - removing the hazard or hazardous work practice from the mine. This is the most effective control measure;

Substitution - replacing a hazard or hazardous work practice with a less hazardous one;

Isolation - stopping persons from interacting with the hazard eg machine guarding, remote handling;

Engineering Control - if the hazard cannot be removed, replaced or isolated, an engineering control is the next preferred measure. This may include changes to tools or equipment, providing guarding to machinery or equipment.

Administrative Control - includes introducing work practices that reduce the risk. This could include limiting the amount of time a person is exposed to a particular hazard; and

Personal Protective Equipment - should be considered only when other control measures are not suitable or to increase protection.

There may be circumstances where more than one control measure should be used to reduce exposure to hazards.

By using the above controls you will be able to remove or reduce the exposure of the hazard to employees. When setting-up these controls it is always better to remove the risk rather than just issue employees with PPE.

4. Regular monitoring:

Constantly reviewing control measures is important to ensure they continue to be relevant and stop or control exposure to hazards or hazardous work practices.

Engineering controls should be regularly tested to ensure they work. Performance testing and evaluation standards should be set up.

ADDITIONAL RESOURCES

NSW DPI has published a practical guide to risk management called the Pocket Guide.

6. WORKPLACE INSPECTIONS & HAZARD REPORTING

Workplace inspections are one of the best tools for finding problems and assessing their risks before accidents or other losses occur. A well-managed inspection program can meet goals such as:

1. Identifying potential problems that were not anticipated during design or task analysis. Standards overlooked during design, and hazards not found during job/task analysis, become more apparent when inspecting the workplace and workers.

2. Identifying equipment deficiencies. Among the basic causes of problems are normal wear and tear and abuse or misuse. Inspections help managers find out if equipment is getting worn to a substandard condition, an inadequate capacity or is being used improperly.



Plate 6.1: Walkway hazard

3. Identifying improper employee actions. Since inspections cover both conditions and practices, they help people spot substandard methods and practices that may cause loss.

4. Identifying effects of changes in processes or materials. Processes frequently change from the original design. As different materials become available, or as original materials are restricted, changes are made. The changes occur gradually and their total effects may go unnoticed. Inspections give managers, supervisors and others regular opportunities to concentrate on current materials and current problems to see what's going on.

5. Identifying inadequacies in remedial actions. Remedial actions are usually taken for specific problems. If they are not properly developed, they can cause other problems. If they are not properly implemented, the original problem recurs. Inspections give follow up feedback on how well the remedial actions are working.

6. Providing management self-appraisal information. The inspection is an excellent opportunity for appraising management and supervisor performance. It is a means for examining the way things are being managed, giving you a picture of:

- Well conditioned equipment or key items that are about to break down
- Efficient layout or poor use of space
- Tools in order or scattered where they must be searched out when needed
- Materials ready for use or buried behind and under things where they have to be dug out

- ☑ Safe work areas or ones with slip and trip hazards, unprotected points of operation, sharp points or edges, and health hazards
- ☑ Clean work areas or ones that will required shut down and clean-up the next time an executive or a customer is scheduled to visit.

7. Demonstrate management commitment through visible activity for health and safety. Any management person worthy of the title, whether supervisor or executive, checks regularly to see that people have the things they need to get the job done. Commonly, the ‘things’ are job knowledge, equipment and materials, as well as a healthy and safe workplace.

Inspection, detection and correction activities are hard to beat as ways of showing employees that their health and safety is important. When the manager makes regular safety tours and general inspections and when the supervisor does informal and formal inspections, people know that others care and that standards are important. They are prompted to play a part in the safety program and to take pride in the work they do, in their safety and their work.

Two broad categories are ‘informal’ inspections and ‘planned’ inspections. Both are important. Both are discussed below, with major emphasis on planned inspections.

Informal inspections

This type comes so naturally that it needs very little explanation. It is simply the awareness of people as they go about their regular activities. Properly promoted and used, it can spot many potential problems as changes occur and work progresses.

Informal inspections have limitations. They are not systematic. They miss things that take extra effort to find. Supervisors constantly have things on their minds. Preoccupied, they sometimes don’t realise what they are seeing. They may notice a few specific isolated hazards, but not the total picture. They may forget to follow-up. To overcome this problem, some supervisors carry a pocket notebook with memory “ticklers”. These are notes of problem items to check on and remedial actions to be taken. When items are corrected they are crossed out.

Some sites have formalised the informal inspection by installing a hazard reporting system.

Planned inspections

As valuable as informal inspections are, they are not enough. They do not meet all needs for inspection. There are also critical needs for planned inspections – such as critical parts/items inspections, housekeeping evaluations and general inspections.

Regular inspections of all aspects of the workplace – plant (fixed and mobile), vehicles, buildings, yards and site – are necessary to pick-up and deal with hazards before they result in accidents.

Workplace inspections are part of ongoing risk assessment and help in identifying which parts of your SMP are working well and those that aren't working well. These are all part of continually improving your SMP and in turn the safety of those in your workplace.

What's to be inspected, how often, what do you need to look for, who's doing the looking and what has to be done with the information collected will make up your inspection program.

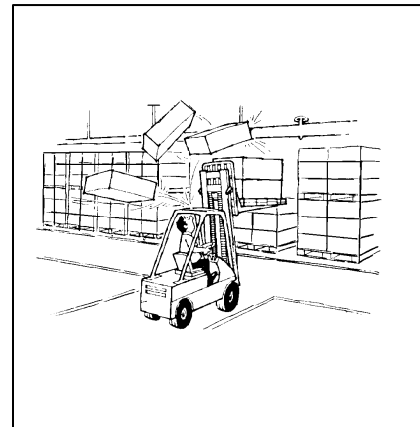
Conducting the Inspection. Here are some key points that will help make inspections more effective.

1. Refer to a map and checklist. Cover the area systematically. Be thorough. Follow the planned route so you give each area the appropriate attention and look at the appropriate items. Without checklists, people often become interested in the process and fail to see the problems. (Refer to General Workplace Inspection Checklist – www.dpi.nsw.gov.au/safety)

2. Record the positive. Make brief notes of what you have looked at and found to be satisfactory.

3. Look for off-the-floor and out-of-the-way items.

Without endangering yourself or others, make sure you get a complete picture of the whole area. Look in closed rooms and cabinets. Ask operators to start up machines not in use (but in workable condition). It's often items outside normal operations that cause problems. Spend enough time looking for the things that might be missed in routine supervision and informal inspections.



4. Take immediate temporary actions. When any serious risk, hazard or danger is found, do something right away. See that the proper supervisor shuts down operations if the dangers are out of control. Put up barriers to isolate hazards. The action should be appropriate to the risk, but should always remove, lower the risk or correct the problem. If a manager or outside inspector is doing the inspection, the area supervisor should make sure the problem is properly understood, is valid and the response is prompt.

5. Describe and locate each item clearly. Write down a concise simple description of the problem. Give an exact location. Use established names and markings to pinpoint locations. Photograph to aid the written descriptions. Always write a full description on the spot. Don't rely on memory or even on short notes. Also, remember that other people may need to locate the item in your absence.

6. Prioritise the hazards. It enables managers to give priority, in the budgeting of personnel and material resources, to the most important problems.

7. Determine the basic causes of unsafe actions and conditions. The same things will occur over and over again unless the basic causes of the problems are uncovered.

Answer the “why” questions:

- Why does the unsafe condition exist?
- Why did the person perform in an unsafe manner?

Dig out the basic causes (personal factors and job factors) behind the symptoms (unsafe practices and conditions). Never accept a “quick-fix” without answering the question, “does it address the basic causes?”

Purpose

- to identify hazards in all areas of the workplace through a series of planned inspections to enable them to be dealt with promptly
- to involve the “experts” in the workplace in ongoing risk assessment
- to provide records of the identification and correction of hazards for comparison (continuous improvement) and trend spotting (recurring problems).

7. WORK ENVIRONMENT & HEALTH SURVEILLANCE

WORK ENVIRONMENT

Mining/quarrying/extractive industries operations can include the exploration, disturbance, removal, washing, sifting, crushing, leaching, roasting, evaporation, smelting, refining, pelletising, rehabilitation and decommissioning of operations relating to any rock structure, stone, and fluid or mineral. Workers in this industry may be exposed to mineral dusts, diesel exhaust emissions, and a wide range of hazardous chemicals, either used during mineral processing/treatment or in the maintenance and repair of plant and equipment.

It is possible to measure physical, chemical and biological hazards. These activities are referred to as work environment monitoring. Examples are dust, heat, noise, vibration, radiation, fumes and bacteria.

Much research has been done to determine what are considered to be safe levels of these hazards and this data has been set down in various standards and legislation. Requirements for initial testing and ongoing monitoring of the levels of these hazards present in the workplace has also been determined and are set down in these documents along with guidelines, guidance notes and Codes of Practice. Some of the preliminary testing may be done by those in the workplace but much of the testing requires specialist equipment and expertise.

Dust

All dusts that can be breathed in must be considered harmful in some degree. Even where there may be only slight danger to the lungs, there is very likely some adverse effect on the lungs, particularly to asthmatics or sufferers of hay fever.

Dust particles of size ranging from 0.001 to 0.1 mm (1 to 100 microns) are a threat to health when they become airborne. They reduce visibility, create an uncomfortable environment (irritation of eyes, ears, nose, throat and skin) and possibly result in damage to the tissues of the lungs. Included in these potentially harmful dusts are silica, asbestos, carborundum, diatomite, and talc – each of which can produce its own form of lung damage when dust control is inadequate.

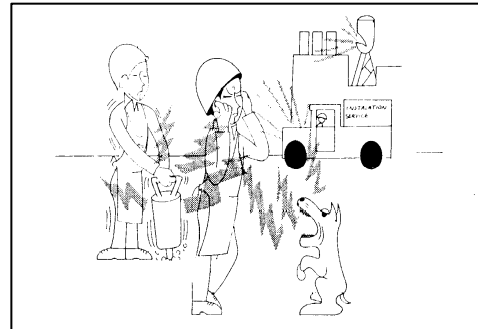


The most common harmful dust is that which contains silica; it would appear that the harmfulness increases with the increase in the percentage of silica in the dust. Also, the dust that is considered most harmful is that which is less than 5 microns in size. That is, particles smaller than 0.005mm. As this dust is not visible to the eye, it does not follow that because dust cannot be seen there is no danger.

Noise

Sound is what we hear. Noise is unwanted sound. The difference between sound and noise depends upon the listener and the circumstances. Rock music can be a pleasurable sound to one person and an annoying noise to another. In either case, it can be hazardous to a person's hearing if the sound is loud and if he or she is exposed long and often enough.

Measuring noise levels and workers' noise exposures is the most important part of a workplace hearing conservation and noise control program. It helps identify work locations where there are noise problems, employees who may be affected and where additional noise measurements need to be made.



Noise surveys are conducted in areas where noise exposure is likely to be hazardous. A noise survey involves measuring noise levels at selected locations throughout an entire plant or in workplaces underground to identify noisy areas. This is usually done with a sound level meter.

Vibration

Operators and passengers of earth-moving equipment such as haul trucks, dozers, loaders and tractors are exposed to whole body vibration. Piles, heart disease and backache can result from rough rides in poorly suspended vehicle cabins and seats.

Workers operating hand-held machinery may suffer, particularly in cold climates, from the vibration syndrome. This is typified by aches in arms and shoulders, loss of nerve conduction and vibration white finger. This condition, also known as dead finger, can lead to gangrene in hands and fingers. Similarly, workers using pneumatic chipping hammers, rivet machines, pneumatic rock drills and chainsaws, may experience vibration white finger and vibration syndrome.

The rapid motion of an object such as a pneumatic drill, chainsaw, tractor seat, or the seat of mining or earth-moving equipment causes vibration.

Vibration can cause permanent damage to health including:

- bone damage, rubbing of bones and joints causing inflammation, especially along the backbone;
- stomach and digestive problems from shaking of organs and the abdominal cavity;
- heart problems, varicose veins, varicocele and piles due to constant variation in blood pressure; and
- disruption of the nervous system resulting in weakness, fatigue, loss of appetite, irritability, headache, insomnia and impotence.

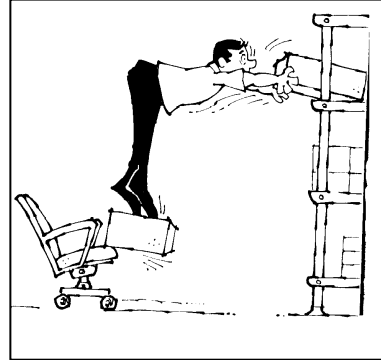
Ergonomics

Manual handling is not just about lifting heavy objects it includes any activity requiring the use of force exerted by a person to lower, push, pull, hold or restrain a person, animal or thing.

Placing boxes and other items on shelves, painting, gardening, cleaning, writing and typing are some examples of manual handling tasks.

Manual handling injuries include:

- strains and sprains;
- neck and back injury;
- slips, falls and crush incidents;
- cuts, bruises and broken bones;
- hernia; strained heart muscles; and
- occupational overuse syndrome (OOS), once known as repetitive strain Injury (RSI).



The employee should be informed and trained in:

- safe manual handling methods;
- specific manual handling hazards;
- safe work procedures;
- using manual handling aids; and
- the right to ask for help.

Most manual handling injuries can be prevented by education, training, and supervision. Safe work procedures should be prepared by employers with the help of employees to care for the special needs of young and new workers.

Radiation

Ultraviolet radiation (UV) from the sun or welding arcs is the most common source of radiation in above ground mines and quarries.

Although exposure to small amounts of UV radiation can have beneficial effects, such as vitamin D synthesis in the skin, overexposure can cause serious acute (short-term) and chronic (long-term) health effects.

Consideration may be given to different outdoor work programs, and to the opportunity to undertake alternative tasks when the sun is most intense. Canopies and shade covers are also essential in limiting operator exposure.

The use of personal protection is also important in reducing the effects of solar UV radiation.

It is also important to ensure that the use of personal protection itself does not create a secondary hazard to the worker. For example, loose clothing worn near outdoor machinery, such as a post-hole digger/auger, may cause a secondary hazard. Heat stress may also be a secondary hazard when wearing some types of protective clothing and performing heavy manual labour.

HEALTH SURVEILLANCE

It is not always possible to remove the hazard altogether. Where hazards and their risks are controlled only, one way of measuring how successful the control strategies have been is to monitor the effect on people and their health. An example in mining/quarrying would be dust and lung function testing.

Monitoring people's health following exposure to the hazards should never however, be seen as a control in itself but only as an indicator of the effectiveness of the controls you have put into place.

Another form of health surveillance involves monitoring people's health to ensure that they remain fit to perform their tasks where their health may directly impact on the health and safety of others. An example would be the health of the drivers of heavy goods and dangerous goods vehicles.

Health surveillance may also give people early warning of medical conditions that can be treated before they become a problem, affect their health or prevent them from working.

Inhalation of mineral dusts such as silica or asbestos, remains a concern in the industry. Therefore a health surveillance program is aimed at monitoring respiratory symptoms. Audiometric testing is also done when a mine/quarry/extractive industries workers are exposed to very high noise levels and may be at risk of noise induced hearing loss.

8. SAFE WORK METHOD STATEMENTS

Health and safety management is effective when there is a system set-up for identifying hazards in a process, assessing the risk of these hazards and devising measures to control the risk. One of the most important control measures is the preparation of work method statements, work instructions and technical procedures (called safe work procedures). These go towards ensuring that the necessary planning is done and facilitate the provision of written instructions on how to perform tasks in those processes where a lack of control could result in safety problems.

Safe Work Method Statements also known as Safe Work Procedures (SWP) should be developed for operating all equipment and machinery, and tasks that have safety implications.

Mining/quarrying/extractive industry operations should identify potential hazards and assess the risks arising out of work processes. Documented procedures and work instructions are then developed where necessary to manage work processes, machinery and equipment, and materials in a safe manner. Employees who perform the tasks should be involved in the development of those procedures.

The documented procedure should contain clearly written and easy to understand instructions. Employees will not always follow written procedures because of incorrect or poorly written procedures. SWPs need to be accurate and sufficiently detailed.

A suggested method of developing a SWP for a task is to carry out a step-by-step analysis of the task. SWP is a course of action designed to review job methods (or steps), identify hazards, assess the risk of those hazards and develop safe work practices (also referred to as a *Job Safety Analysis, JSA, or Job Hazard Analysis, JHA*).

The SWP technique is an effective way of encouraging and allowing employees to take part in safety assessment and accident prevention. Through SWPs, they can make an important contribution towards the setting up and maintenance of safety procedures and practices. It can also be regarded as part of the “consultative” process, which is required under occupational health and safety and mine/quarry legislation (refer *Program 4.0 Consultation*).

Description

In this context, a “job” is a number of steps performed in a sequence to complete a work task. For example, repairing a head-pulley on a conveyor, operating a dozer on a highwall bench, assembling equipment or dealing with a breakdown.

The SWP is the breaking down of a job into steps and writing down any potential hazards that you can identify in each step. This is done so that ways of controlling those hazards can be found and the control measures implemented.

There are five basic steps to completing a safe work procedure:

1. Choose the job

In choosing which jobs should be looked at, it is useful to begin with those jobs that have a high accident rate or where high risk is present. Remember that “new jobs” will have no accident or hazard history and the potential for injury or work-related illness may not be recognised unless a SWP is performed before the new job is begun.

2. Work out the job steps

In working out the job steps it is useful to “work through the job” listing each step and making notes of what is done. Use the SWMS form (Part 2: Form 8A) to do this. You may have an existing form or design one that relates to how you do SWPs.

3. Observe the job

The steps of the job can then be looked at separately to identify any potential or existing hazards for each step and the key factors related to safety. Write down any hazards or hazardous processes observed.

4. Assess the risk for each identified hazard

(refer *Program 5.0 Risk Management*).

5. Find risk controls

For each risk rating for the identified hazard, the relevant safety information and method of controlling the risk must be identified and then included in the new written safe work procedure to remove or control the hazard. You should try to remove the risk (redesign the way the job is done) as the preferred control.

Purpose

A completed SWP can be used for specific job instruction and is ideal for training since it shows an employee how to do the job in the best (and safest) way. It also standardises the job procedure so that everyone learns to do the job in the same safe way.

The SWP can help the manager/supervisor to learn about the job to be supervised, even if they have not actually done the job.

The completed SWP is a record showing that the mine has conducted hazard identification, risk assessment and risk control as is commonly required by health and safety legislation.

The SWP should be used as a checklist when doing safety inspections or audits, as it tells the person conducting the inspection or audit what should be happening on any job. The SWP

provides a “yardstick” during any incident investigation, as it forms a reference to methods and practices.

Employees will take more interest in a task if they are asked to help in its analysis. Useful suggestions for increasing the safety factors and job restructuring may be offered, for example:

- some part of the work environment may need to be changed (materials, lighting, work area layout, ventilation, protective equipment);
- the number of times the job is done may be reduced; and
- a complete change of a job method may be identified.

Safe work procedure records

A copy of the completed SWP should be kept on the job so it is handy for reference. The original SWP document should be filed at a central location. Because a SWP produces permanent instructions, it should be a continuing activity. The SWP has to be kept up-to-date or the benefits will be lost over time. Incorrect information or an out-of-date SWP can be dangerous.

In reality, changes are not needed very often but when they do occur, everyone concerned with the job should be told of the changes and instructed in the new procedures. The SWP for a particular task should be repeated if:

- an accident occurs on a job covered by a SWP;
- a job step is changed;
- a job process is changed; or
- a safety inspection shows that the job is not being performed according the SWP.

Safe work procedure pitfalls

There are three main pitfalls in developing SWPs that could prevent them being as effective as they might otherwise be. These are:

- not listing all the hazards;
- listing the hazards but taking no action; and
- making vague action recommendations.



Plate 8.1: Unsafe work procedures whilst repairing conveyor head pulley drive

9. EMERGENCY PLANNING

While the main purpose of your SMP is to prevent accidents happening through the identification, assessment and control of the risk of those hazards, it needs to be recognised that unplanned incidents (emergency events) can occur.

Each site needs to plan for these incidents. In this section the focus will be on those incidents that are classified as emergency situations. These are incidents that could be assessed as unlikely to occur but with potential high consequences. A set of plans (known as the emergency response plan) and procedures for how to deal with these events must be developed and regularly tested to ensure that the effects of these unplanned events are minimised.

The emergency response plan for most small operations will be the same but the size and detail should fit with your particular site.

Emergency response plans may include, but not be limited to, the following:

- Warning and alarm systems – installation, availability and testing requirements
- Emergency procedures – who does what when an emergency occurs (including evacuation)
- List of key emergency personnel
- Emergency rescue equipment available on site
- Details of emergency services available
- Information requirements of emergency services
- Internal and external communication plans
- Training plans
- Drills and simulation exercises.

Purpose

The purpose of the emergency response plan is to:

- minimise the level of risk to life, property and the environment as a result of an emergency situation,
- identify the resources – people, equipment, information and knowledge – necessary to ensure that when used effectively, minimise that risk, and
- provide guidance for all employees – what to do in emergency situations.

Planning for emergencies

All potential emergency situations need to be identified and emergency procedures documented for preventing and lessening injury and illness.

Risk assessment

Identifying potential emergency situations is the key to having effective emergency response plans. Developing the plan begins with risk assessment. The results of risk assessment will show:

- how likely an event is to happen;
- what means are available to stop or prevent the event; and
- what is necessary for the given event.

You may use the high-risk areas identified from completing hazard identification and risk assessment (refer *Program 5: Risk Management*).

The risk assessment may result in a list that may include:

- Fire
- Explosion
- Flood
- Significant collapse of workings of the mine
- Major trauma (injuries)
- Medical emergency (general and specific such as heart attack)
- Hazardous material or chemical spill
- Mobile plant or vehicle collision
- Illegal acts such as bomb threat or un authorised entry

Any of the above can be related. For example if a dump truck goes over a highwall there may be explosion, fire, collapse of the highwall, injury and hazardous material spill.

Identifying emergency events

At the planning stage it is important to include employees who may have had experience in emergency work, such as volunteer fire fighters, volunteer rescue service or first aiders. They can help identify emergencies and the response procedures needed. Other emergency events may be known from previous experience or local knowledge, such as bushfire or flooding. Also look at other risk assessments that you have done such as safe work procedures, workplace inspections and accident investigations.

All these various sources of information can help you determine what will be an emergency event. An emergency event will have major impacts at the mine and will require actions because of these impacts.

Example

Prolonged heavy rainfall may cause flooding of the local river that runs near the mine/quarry/extractive industry site. A 1 in 100-year flood may occur causing the site to be cut-off from road access and communications. Response may include flood level monitoring, early warning and protection measures (such as sandbagging) and evacuation if continued flooding becomes a threat to life.

Table 1 lists some possible major impacts and required actions based on these events.

Possible major impacts	Required actions
<ul style="list-style-type: none"> • sequential events (for example fire after explosion) • evacuation • casualties • damage to equipment and machinery • loss of records/documents • disruption to work 	<ul style="list-style-type: none"> • declare emergency • sound the alert • evacuate persons from the danger area • close down main power supply • call for external help (such as ambulance) • start-up rescue operations • attend to casualties • fight fire

Table 1: Emergency event impacts and actions

Emergency resources

The final consideration is a list and the location of what emergency equipment is needed.

Table 2 lists some possible emergency equipment and locations.

Emergency equipment	Location
<ul style="list-style-type: none"> • medical supplies (first aid kits) 	<ul style="list-style-type: none"> • main office • weighbridge / workshop • mobile plant
<ul style="list-style-type: none"> • fire fighting equipment: <ul style="list-style-type: none"> – extinguishers – fire hose reel – bush fire kit 	<ul style="list-style-type: none"> • office and plant, mobile plant • workshop and main office • workshop store and main gate
<ul style="list-style-type: none"> • ambulance 	<ul style="list-style-type: none"> • offsite ambulance service
<ul style="list-style-type: none"> • emergency chemical spill kit 	<ul style="list-style-type: none"> • No 1 feed bin
<ul style="list-style-type: none"> • trained personnel 	<ul style="list-style-type: none"> • all employees senior first-aid trained • two persons trained in heights rescue and confined space rescue

Table 2 Emergency equipment and locations

Preparing an emergency procedure

The emergency response plan will be made up of procedures for the identified emergencies.

Emergency response is about making rapid decisions due to time and the circumstances.

Normal communication and decision-making may not work.

The emergency response plan should have specific duties, responsibilities and authorities.

Some of these are:

- who reports the emergency
- who starts the emergency response plan
- who has overall control
- who establishes communication
- who alerts emergency personnel
- who orders evacuation
- who alerts external emergency services
- who provides first aid
- who advises relatives of casualties
- who sounds the all-clear



To ensure good emergency response, you should:

- develop an evacuation procedure
- develop procedures for emergency response for your specific major emergency events (eg flood, fire, explosion, medical, tyre fire)
- install and maintain all necessary fire fighting and emergency equipment
- train all emergency personnel as required
- appoint first aid officers
- provide a site plan of the operation, including exits, safe evacuation paths, location of fire fighting and emergency equipment, emergency phones and evacuation assembly areas
- identify the local emergency services (fire, ambulance, police, SES, VRA) and how to contact them.

Emergency training

Employees need to be trained to deal with emergency events. All employees should be trained and educated so they know what to do for their role and responsibilities in the event of an emergency.

There should be a schedule developed for training and refresher training for all employees for all emergency events identified. Emergency drills should be conducted at least every 12 months to make people aware of their immediate actions, how to raise the alarm, the position of fire fighting equipment and the location of emergency assembly areas.

The emergency response plan should be reviewed (and where necessary revised) after an incident or emergency event.

10. MAINTENANCE

Poorly maintained, untidy, run down and unpainted machinery indicates a lack of care and responsibility. This can lead to unsafe conditions and procedures. Any breakdown of equipment and machinery can be costly and affect your business. Unplanned maintenance is usually ad-hoc and done in poor conditions. A program of planned maintenance can avoid these conditions and improve health and safety at the mine/quarry/extractive industry site.



Advantages of planned maintenance

- ☑ Routine checks by operators can prevent breakdowns and early wear which are costly and may place people at risk.
- ☑ Maintenance personnel are able to reduce or eliminate risks to themselves by planning lockout procedures, access, materials handling and other procedures in advance.
- ☑ Repairs are more likely to be permanent rather than temporary patch-ups, which may not be reliable and often end up as the 'permanent' solution until the next breakdown.
- ☑ Production personnel are less likely to be exposed to risks when machinery malfunctions demands manual intervention.
- ☑ Down time is planned and results in less disruption of personnel and production.
- ☑ Maintenance costs are controlled and which allows for the best use of resources.

Health and safety requirements

Health and safety legislation commonly places a general duty on mines/quarries to maintain machinery and equipment in a safe operating condition.

Controls, emergency stops, access and guarding systems must be maintained in full functional order. Priority for this should be no less than for maintaining any other part of a machine. Machines that are designed to function automatically should be maintained in this condition to avoid the need for operators to intervene manually and place themselves at risk.

Equipment that is solely or mainly for the health and safety of employees must have a high priority for maintenance. These include:

- all personal protective equipment
- air filters and air conditioners in dusty or hot work environments
- seats, seat-belts and controls on mobile machines
- windows
- dust seals etc.

Routine maintenance tasks checklists

Checklists should be prepared and used for routine tasks (see below). These should include all tasks and be based on machinery and equipment manufacturer recommendations and your own experience. The use of these checklists will provide information for operators, supervisors and managers.

Daily checks should include:

- oil levels for lubrication and hydraulics
- coolant levels
- fuel levels
- filters checked for cleanliness
- operation of instruments
- functioning of controls
- effectiveness of brakes and other safety devices
- electrical connections and switches
- condition of tooling
- reporting leaks, wear, damage, presence and effectiveness of guarding.

Safe work procedures must be observed while carrying out the above maintenance tasks.

Suggested aids in planning maintenance

- manufacturers' handbooks and maintenance schedules
- records of maintenance work performed on major plant items
- site plant register
- external diagnostic services eg SOS (scheduled oil sampling)
- site maintenance schedules/checklists
- computer-based schedules which include reminders and completion of audit reports.

Breakdown maintenance

Unplanned maintenance activities often present a greater risk of injury than the normal operation of plant and machinery. For this reason greater control and supervision is required. It would be an advantage to have a plant breakdown procedure or checklist. Issues, which should be addressed, include:

- who is responsible for maintenance activities?
- who will supervise?
- how will communication and consultation with employees occur?
- how will plant and machinery be made safe?
- what procedure will be used for hazard identification, risk assessment and risk control?
- what specific safe work procedures and permits will be used, eg lockout, hot work, confined spaces?
- how will safe access be provided, eg fixed access, scaffolding, elevating work platforms?
- how will heavy or bulky items be moved eg cranes, fork lifts, trolleys?
- how will services be provided eg light, compressed air, electricity, water, ventilation?
- how will spills of flammables, combustibles or pollutants be controlled?
- what emergency equipment will be required eg fire extinguishers, breathing equipment, rescue harness, first aid kit?
- how will pedestrian and vehicle access be controlled?
- what facilities will be needed for temporarily storing tools, parts and scrap?
- what will be needed to properly clean up after the job?
- what start-up precautions will be needed eg all guards replaced, all adjustments made, all controls working properly, all emergency stops operational, observation and close supervision?

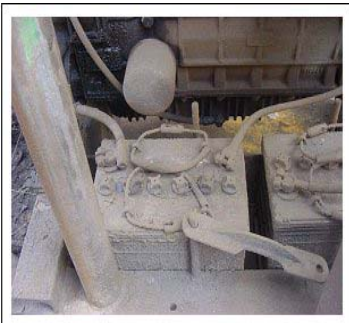


Plate 10.3: Planned maintenance will prevent electrical failure by maintaining batteries in good condition.

11. ACCIDENT & INCIDENT REPORTING

Introduction

A key part of a SMP is to identify hazards and to evaluate accidents and near-miss incidents, so that the chances of the same or similar incidents happening again can be removed or at least reduced. To achieve this requires good investigation and keeping of records to monitor progress.

What is an accident?

An accident may be described as any event that results in human injury or illness.

What is an incident?

For the purpose of preventing accidents, an incident is an unplanned event that causes injury or illness, or damage to machinery and equipment, or the possibility of injury or damage. An event that does not cause injury or damage is called a *near miss* or *near hit*.



Accident and incident reporting

Why do we need to know about workplace injuries, illnesses and damage?

1. It is a legal requirement for people to report them and for the site to record them.
2. When people are injured or become ill it is important that they receive the right treatment.
3. The information that needs to be recorded can be valuable in determining the how, when, why and where of accidents that can be used to stop further accidents from happening.

Certain information must be recorded to meet your health and safety legal requirements. Health and safety legislation requires that some types of accidents and incidents must be reported to the relative statutory authority and fully investigated. In most states of Australia all

accidents, incidents and near misses that happen at mines and are described in legislation must be reported to the relevant statutory authority within specified timeframes. There are generally accident/incident report forms available from those authorities for doing this.

Workers' compensation legislation generally requires employers to keep a register of injuries, and in some cases to report injuries to the relevant authority. You must be aware of the legislation that applies to your operation and what your reporting requirements are.

Everyone in the workplace must be able to report and/or record their injuries or illnesses. These information records must be kept for a defined period of time.

Accident and incident investigation

Accident investigation is a process of gathering facts and breaking them down by continually asking 'why'. Only then can you identify the underlying causes, put controls in place and prevent it happening again.

Because accidents are never caused by a single factor, it is important to identify all the causes and put in the right controls.

Example

The reason the operator's arm became trapped was the conveyor was not guarded properly and there was no procedure for safely doing this job. This highlights the need for:

- adequate guarding on all conveyors;
- development of safe work procedures; and
- training all operators in hazard identification.

You can decide which other types of accidents or incidents need investigation either individually or when trends start to show up.

What should be investigated?

All accidents and incidents should be investigated to the degree suggested by the level of risk. This investigation should take place as soon as possible after the incident happens. Getting the investigation started quickly is important as crucial evidence can be disturbed or destroyed as time passes. Important information from people involved in or witnessing the accident or incident may be lost if the investigation is not started as soon as possible.

Investigations should not be confined to the immediate scene. Information from safety records, safe work procedures, manufactures handbooks and authoritative (eg government) publications may indicate particular areas of concern.

Who investigates?

The manager and/or supervisor responsible for the area where the incident occurred should investigate each accident or incident. Involving an employee or employee representative who knows the work area in the investigation will help to identify the causes and corrective actions required.

Incidents that are reported to statutory authorities may require the involvement of the mine manager and experts from outside the site. Anyone who carries out an investigation should have some training.

It is advisable that more than one person carries out accident and incident investigation.

Where to from here?

The investigation should have concluded the following:

- identified the cause(s) of the accident or incident;
- identified and implemented the necessary corrective action;
- implemented or modified controls necessary to avoid a repeat of the accident or incident;
- recorded the changes in safe work procedures from the corrective actions; and
- determined who is responsible for completing the corrective actions.

Purpose

Accident and incident investigations are aimed at preventing future accidents and incidents, it is not about blame. This should be stressed to employees who are interviewed in an investigation, so that all relevant information can be gained.

12. CONTRACTOR MANAGEMENT

Contractors and sub-contractors play a major role at many small mines/quarries/extractive industry operations. Contractors carry out work that employees of the site are unable to do such as electrical installations, complex mechanical repairs, change out of large earthmoving rubber tyres and specialist welding of alloys. Contractors may undertake tasks that your employees do not have the skills or equipment to do such as drilling and blasting.

The health and safety management of contractors does not start and finish on checking that their workers' compensation insurance premium is paid up. Your duty of care extends to the health and safety of all people who undertake tasks at the mine – full time, part time and casual employees, contractors and their employees, sub-contractors and consultants. They, in turn have certain responsibilities to you as the employer (principal) and it is in pulling these two sets of responsibilities together that a program for contractor management can be developed.

Managing contractors' health and safety does not necessarily mean telling them how to do their job. It's about establishing the health and safety standards for the mine, as set down in your mine safety management plan, which everyone has to meet. If the contractor is able to meet your standards through their own safety management plan, then all you need to do is to monitor them. If however, the contractor does not have their own safety management plan then it would seem reasonable to expect that they will comply with the one you have.

The level of risk that is involved in work to be done can assist in determining the level of control that needs to be used over the contractors

Purpose

- to ensure fulfilment of “duty of care” obligations for the health and safety of contractors and their employees
- to provide a systematic risk assessment based approach to the management of contractor health and safety
- to structure contracts which have the power to impose health and safety standards
- to provide evidence of due diligence through documentation of the contractor health and safety management process.

For high risk contracts, that is contractors who undertake tasks that have risks that have been assessed as “high” such as drill and blast activities, the contractor should prepare a safety management plan. All large contractors should have their own safety management plan that they can easily “customise” to suit your operations.

This safety management plan could contain, but not be limited to:

- health and safety policy statement
- organisational chart showing key personnel
- responsibilities, authority and training of people with safety functions
- list of personnel with evidence of required skills and competencies
- employee and sub-contractor selection, placement and training methods/programs
- health and safety training previously attended by personnel prior to job start (including specific induction)
- accident investigation (procedure, documentation)
- injury/illness reporting (procedure, documentation)
- workplace inspections and auditing (procedure and documentation)
- hazard reporting (procedure, documentation)
- employee communication/consultation/participation eg tool box talks, health and safety committee
- scope of works
- safe work procedures/job hazard analysis process (to be developed/modified as project proceeds)
- static plant (certification reports)
- mobile plant safety certification (re inspection prior to coming on site and maintenance protocol)
- hazardous substances control (listing and MSDS register)
- personal protective equipment and clothing (policy and register)
- health and safety and environment controls (eg noise, vibration)
- rehabilitation (process and documentation)
- emergency response and evacuation (procedures, documentation)
- disciplinary action (policy and procedures)

Labour hire

OHS legislation commonly requires every employer to ensure so far, as is reasonably practicable, that employees at work are safe from injury and risks to health. Labour hire agencies must do all things reasonably practicable to ensure their contract employees are not put at risk of injury or illness when working for a client.

The employment relationship between agencies and their contract employees is different from a normal employer/employee relationship. The difference is that agencies do not employ people to carry out work for them but for a client. The agency does not supervise the tasks the contract employee will be doing or control the workplace where they do the work.

Therefore some agencies may believe that employer obligations do not apply to them or cannot be practically carried out.

Nevertheless, this does not diminish the responsibilities of agents to do all things reasonably practicable to ensure their contract employees are not put at risk of injury or illness when working for a client.

Clients of the agency become the 'host employer' once they employ contract labour. While it is the legal responsibility of the agency to ensure the health and safety of their contract employees, the host employer has an equal responsibility to contract employees working for them.



Plate 12.1: Contractor hauling overburden at a slate mine

13. TRAINING

Why train?

One of the requirements of both common law and health and safety legislation is that employers must provide competent and trained staff; where 'competent' means both knowledgeable and experienced – and should also mean having the capability and attitude to do the task correctly. A very high number of serious injuries happen to new employees, people undertaking new or different work and sometimes after having a long period of leave.

Training is a means of sharing knowledge and developing skills and attitudes. It is one way of influencing behaviour and improving health and safety.

What is a training program?

Mine and quarry operators should implement a training program, which will:

- identify what skills, knowledge or competencies an employee should have before starting a job, and analyse the training needed for that job;
- develop, maintain or improve employment-related skills, knowledge or competencies of employees;
- let trainers determine what skills and knowledge new people have;
- design the training for the skills needed;
- show how the training will be conducted; and
- let trainers evaluate the training.

Training program requirements

Framework

A formal training program should include a range of tasks and outcomes and should:

- provide induction training for new people to the industry (and site);
- give additional training for people moved to new work;
- train under close personal supervision when starting work, and new tasks;
- give skills maintenance training to each person employed at a mine/quarry/extractive industry operation; and
- require that records of the training of each person be kept.

Induction training

Induction training is usually the first introduction to the site. It is usually a formal training session and basic on-the-job training, which can be conducted by a supervisor/manager.

Job and task performances

Training should focus on a job or task rather than on an occupation.

Diagnostic maintenance skills

For employees involved with equipment and changing work site conditions, training should include techniques for identifying potential malfunctions, hazardous conditions and unsafe work situations.

Refresher training

Refresher training should be included in operational training programs, and should include briefing techniques for updating individuals, supervisors, production managers and Senior Site Persons on changes in work practices, new equipment operating procedures and changes in the working environment generally.

Reviews of training schemes

Site instruction and training programs should be reviewed regularly.



Types of training

The type of training that each person at the site needs depends on:

- each person's role and responsibilities at work
- each person's occupation (eg plant and machine operators and people who handle hazardous substances need specific training)
- the hazards identified during an inspection of your workplace
- the type and occurrence of injury and disease at work.

Health and safety training

At all operations, no matter how large or small, everyone needs training in health and safety matters, this will include:

- the employer, including managers
- the supervisor
- all employees – casual, part-time and full-time
- students on work experience
- new employees
- contractors who work on your site
- the health and safety committee representative
- members of the health and safety committee.

Purpose

The basic aim of health and safety training is to impress the principles of good health, accident and incident prevention and safe behaviour upon employees so that they will apply these principles to their work.

The need for health and safety training at work is continuous. As circumstances at work change, there will always be the need to ask the questions:

1. How does this change affect health and safety?
2. What health and safety instruction and training do I need to provide now?

Typical times when you need to ask these questions are:

- whenever you take on someone new at work – health and safety is an important part of induction training
- whenever you buy new machinery or equipment or new substances such as chemicals
- whenever people's jobs change
- whenever you change the layout of your work environment
- whenever there are new health and safety regulations, standards or laws that affect your industry
- if there has been an accident, injury or health and safety incident at work.

There is a need to make some decisions such as:

- How much money are you going to spend in training over the next 6 to 12 months?
- How much time will you give to training?
- What is the most cost efficient way for you to make this investment?
 - to send one employee to the health and safety course and a train-the-trainer course and then schedule time for him/her to train others at work?
 - to send a group of people to the training course?
 - to arrange for a trainer to come to the mine and deliver training to a group of workers?

Planning for safety and health training

Training programs are best planned if everyone at work:

- has basic information about what the laws and regulations are
- has the opportunity to talk about health and safety concerns
- uses the health and safety skills and knowledge they have
- takes part in a workplace inspection and identifies hazards at work
- takes part in a training needs analysis to find out what training each person needs.

Training needs analysis

Conducting a health and safety training needs analysis (TNA) will ensure that the people at your site get the type of training they require to perform their tasks.

It will enable you to ensure that the training is relevant to the job and the changing needs of the workplace.

A TNA involves looking at all aspects of work, including the work environment, the actual jobs people do and the skills and knowledge of each person at work. Once this information is collected, then you can start to plan what training your operation needs.



Plate 13.2: Training employees ensures safe work practices such as guarding and housekeeping

14. FITNESS FOR WORK

Alcohol and other drugs

Where employees or other people, working on or visiting a mine site, are under the influence of alcohol or other drugs and might injure themselves or other employees, the mine/quarry/extractive industry operator has a right and responsibility to take action.

The role of the employer is to find the problem and encourage and arrange access to treatment as well as having an effective system and precautions in place.

Policy

Dealing with alcohol and other drug problems requires a policy. It should apply to all employees and be developed by management and employees. Procedures may be set up to give support to this policy, to identify and deal with cases of alcoholic or drug-addicted employees, and to ensure that these are followed.

The aim of any workplace policy and procedures should be prevention, education, counselling and rehabilitation and it should be a part of the sites overall occupational health and safety strategy.

The policy should be well publicised within the workplace and have a suitable training and education program for all staff.

The policy should be included in induction and on-going training. Post the policy on noticeboards for all people who work at the site to refer to.

The policy could have a statement from the site including:

- its commitment to providing a safe and healthy workplace;
- the consultation process;
- the aims and expected outcomes for the policy; and
- detailed procedures.

Procedures

When developing procedures, management should recognise that alcohol and other drug dependency is an illness that can be controlled and treated.

Employees who have this problem may be given the same opportunities to obtain help as a sick or injured employee. Some studies have shown, on a cost basis that treating the problem is much more successful than dismissing and replacing the employee.

If any person needs to take prescription medicine for an illness, and this may affect their performance at work, they should report it to their supervisor so that they can be given the right task.

Example

The following procedure is an approach to continued alcohol and other drug abuse at the site:

- lost time should be deducted from their annual sick leave
- the employee should be required to be interviewed by the manager to determine the extent of the problem
- if appropriate the employee should attend an appointment with a professional organisation for further help
- at all times the confidentiality of the employee must be maintained.

Where there is an ongoing disregard for the site's alcohol and other drug policy, disciplinary action may be taken.

Alcohol and other drug training

Part of the employer's role is to train people in the application of the alcohol and other drug policy and procedures. Supervisors must have training to be able to identify employees in need of treatment.

Training should cover:

- What constitutes harmful drug and alcohol use
- Dealing with the long-term user and those intoxicated in one-off situations
- The effects of alcohol and drug use on health, safety and work performance
- General statistics on workplace drug and alcohol use and related injuries and incidents
- The consequences for employees who fail to follow alcohol and other drug policy and procedures
- Personal stress reduction methods
- Ways of dealing with harmful alcohol and other drug use
- Who to approach in the workplace for assistance with a alcohol or drug problem
- Skills for managers, supervisor, health and safety representatives, and OHS committee members in identifying alcohol and other drug use and how to manage the issue in their workplace
- The legal position (rights and penalties) of staff and management in relation to alcohol and other drug use and drug testing
- The counselling, treatment and rehabilitation services available in the workplace and externally. Post contacts with phone numbers on noticeboards.

Approaching a worker suspected of being under the influence

The approach taken when dealing with an employee whose work performance appears to be affected by alcohol or other drugs depends on:

- The workplace culture and structure
- The rapport between the authorised person and employee
- The communication skills of the authorised person
- The position of the employee
- The personality of the employee
- Whether it is a case of long-term harmful use, or a 'one-off' situation.

Options for approaching the employee include:

- by their supervisor or more senior manager;
- by a person designated in the workplace policy; and
- by a fellow employee or peer.

The policy should state who is responsible for making approaches if initial contact produces a negative or hostile response. When approaching an intoxicated employee it can be more effective and less confronting to talk of their approach to safety and general work performance rather than their apparent alcohol or drug use.



**Plate 14.1: Alcohol addiction is ranked as the fourth most prevalent disease in Australia
15–30% of all work fatalities are related to alcohol and other drugs.**

15. HAZARDOUS SUBSTANCES & DANGEROUS GOODS

Definition:

A "hazardous substance" is:

- any mixture, element or chemical; or
- any solid, liquid or gaseous substance that has the potential, through being used at work, to harm the health or safety of persons in the workplace.

The National Occupational Health and Safety Commission (NOHSC) has declared a package of standards and codes of practice that, in conjunction with guidance materials, comprises the National Hazardous Substances Regulatory Package. All jurisdictions have given legislative effect to it.

Many hazardous substances are also defined as dangerous goods under the Dangerous Goods Legislation. Dangerous goods are divided into nine classes according to their dangerous properties

CLASSES OF DANGEROUS GOODS

<p>Class 1: Explosives</p> <p>Class 2: Gases</p> <p>2.1 Flammable</p> <p>2.2 Non-flammable, non-toxic</p> <p>2.3 Toxic</p> <p>2.2 Oxidizing gas</p>		<p>Class 6: Toxic and Infectious Substances</p> <p>6.1 Toxic</p> <p>6.2 Infectious</p> <p>Class 7: Radioactive Substances (Category depends on level of radioactivity)</p> <p>Class 8: Corrosives</p> <p>Class 9: Miscellaneous Dangerous Substances</p> <p>Additional Labels</p> <ol style="list-style-type: none"> 1. Subsidiary Risk Label; appropriate Class diamond label but without the Class number 2. Mixed load vehicle (for transport only) 3. Subsidiary Risk Label to be used with elevated temperature substances (UN Numbers 3256, 3257 or 3258) 	
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It may be necessary to obtain a licence to store dangerous goods and/or a requirement to placard your site, depending on the quantity you intend to store.

Process to control the use of Hazardous Substances;

The National Model Regulations for the Control of Workplace Hazardous Substances (NOHSC: 1005 (1994)) applies to all workplaces in which hazardous substances are used or produced, and to all persons with potential exposure to hazardous substances in those workplaces.

The two principal components of the national model regulations are:

- 1. Information provisions** – which address the delivery of specific information, such as labels and Material Safety Data Sheets (MSDS), that the supplier has to provide;
- 2. Assessment and control provisions** – which require employers to identify hazardous substances in the workplace, make an assessment of those hazards and then take appropriate control action.



Plate 15.1 Appropriate storage facilities

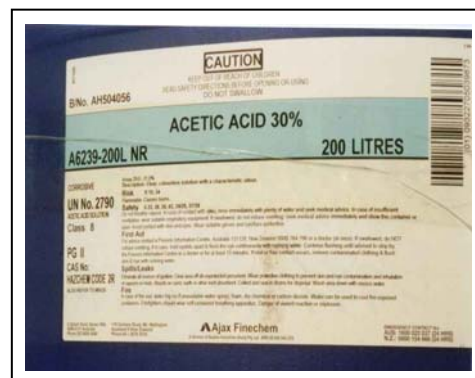


Plate 15.2 All containers must be labelled

Manufacturers and importers of hazardous substances used in workplaces must prepare and make available an MSDS for each substance. Employers and contractors must obtain and make readily available an MSDS for any hazardous substance used in the workplace, and consult with employees who use the hazardous substance and may be exposed to it. Employers need to keep a register of hazardous substances used in the workplace and should always request MSDSs for all hazardous substances they use.

Employers Duties:

- Obtain Material Safety Data Sheets (MSDS) from suppliers for all hazardous substances used in the workplace.
- Compile a Hazardous Substance Register.
- Ensure all hazardous substances are clearly labelled according to Dangerous Goods Class Labels and Hazardous Substances Codes.
- Ensure all employees exposed to a hazardous substance receive appropriate training and instruction.
- Decide whether any improvements should be made to machinery or procedures.
- Decide whether any environmental monitoring should be done.
- Check that emergency equipment and procedures are adequate.
- Carry out a basic risk assessment by:
 - identifying the hazardous substance by examining the label looking for words such as caution, poison, hazardous and dangerous goods labels;
 - reviewing information from MSDS regarding the toxicity and the precautions to reduce risk;
 - examine the workplace and work practices asking:
 - how often are employees exposed to the substance? and
 - are there fumes, dust or other airborne contaminants exposed to employees?
- Take steps to prevent or adequately control exposure to hazardous substances.

16. REGISTERS

Registers of key records that are maintained as part of the SMP enable easy access to important information. They should support a simple way of reviewing an issue such as preventative maintenance. In Part 2, Templates there is a list of typical registers. Use only what is pertinent to your operation.

17. (ANOTHER PROGRAM TO SUIT YOUR SITE or PROGRESS)

18. (ANOTHER PROGRAM TO SUIT YOUR SITE or PROGRESS)

19. (ANOTHER PROGRAM TO SUIT YOUR SITE or PROGRESS)

20. REVIEW (INCLUDING AUDITS & ON-GOING IMPROVEMENTS)

Get your SMP underway before giving this program any attention. One year after you've had a SMP in operation have a look at this Program.

A good review can start with two basic questions asked honestly:

1. what went really well over the last 12 months with our safety / health performance; and
2. in what areas could we do better?

These questions can be asked informally so they have immediate appeal. However, just as a structured (formal) workplace inspection can detect hazards that are not so obvious, so too a structured review will help identify concerns that might otherwise go unnoticed.

The kit has a document titled "Mine Safety Management Plan Assessment" in attachment # 3, which can be used to conduct your structured review.

As time goes by and your experience and level of comfort with a SMP increases you might be wise to engage a fresh set of eyes to have a look for any strengths, gaps or improvement areas.