

PART 3

PEOPLE



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3.1 ACCESS TO THE MINE

3.1.1 SITE SECURITY

When developing a suitable security system and procedures for an operation, the mine operator should consider the following factors:

- the nature and size of the operation;
- the location of the operation with respect to the nature of the surrounding community and environment;
- the likelihood of mischief or sabotage; and
- the integrity and reliability of proposed hardware and design.

3.1.1.1 EXTERNAL SECURITY

The normal operation could require:

- only one permit of entry;
- a lockable gate at the point of entry;
- appropriate fencing around the perimeter of the site; and
- “danger” signs attached to the perimeter fence.

3.1.1.2 INTERNAL SECURITY

Checklist for buildings and offices

- Are all doors or gates to enclosed hazardous areas kept locked, for example, chemical stores, electrical switchboards, explosives magazines?
- Is there adequate night lighting to allow safe building access?
- Are all site buildings lockable, including windows?
- Where access to buildings is required outside normal hours, are procedures in place to ensure personnel do not work alone?
- Is the movement of portable equipment recorded?
- Are there product dispatch security and gate pass procedures in place?

- Are alarm systems in place? If so, are all personnel aware of procedure?
- Are critical business documents secured?
- Is petty cash secured?
- Are measures in place to prevent theft of company property?
- Are data security notices placed on terminals?

Checklist for yard areas

- Is perimeter lighting operative and adequate?
- Are barriers, lights and other protective devices in place around excavations, manholes, ditches, settling ponds, interceptor pits or other openings into which a person can fall?
- Are signs erected to warn of potential hazards, for example, “danger, deep water”?
- Is regular surveillance provided?
- Are security officers licensed?
- Are lock-up/unlocking procedures adequate?
- Are yard areas clean and tidy, and free of trip/fall hazards?

Checklist for mobile equipment

- Are vehicles able to be garaged under lock and key?
- Are ignition keys secured when not in use?
- Are procedures in place to prevent “hot wiring”?
- Are warning signs in place?

Checklist for computers

- Is there a security system and back-up of records and documentation?

3.1.2 VISITOR CONTROL

- Ensure there is only one point of entry to your business for people other than your employees.
- Erect warning signage at the entrance to the site, indicating that quarrying activity is in progress and that all visitors must report to the site office.

- Erect appropriate traffic-movement signage, indicating the destination of the road, for example, site office, crushing plant, workshop) and direction of travel if one way.
- If large and heavy vehicles (haul trucks etc) are operating, erect signage indicating that these vehicles have right of way and that light vehicles should take care.
- Erect signage indicating where visitors should park their vehicles so that, for example, they do not park near pit faces or in areas where heavy plant is operating.
- Identify the site office or reception area where visitors are to report on arrival. This is to prevent them walking around the site and possibly into high-risk areas, for example, blasting areas, over pit faces etc.
- If the office is often unattended, install a bell or similar device that the visitor can ring and that can be heard from the usual work areas.
- All visitors should be accompanied by a supervisor, requested to sign the visitors, book, and be inducted.
- Visitors could wear some form of identification colour.

3.1.2.1 VISITOR INDUCTION PROCEDURE

Visitors should be inducted to ensure they understand the site safety procedures, site emergency procedures and environmental guidelines.

Visitors should comply with these procedures, which may include:

- wearing some form of identification colour;
- site-specific roles and responsibilities;
- job/work instructions;
- hot work permits;
- manual handling procedures;
- control of hazardous/dangerous materials;
- personal protective equipment;
- lockout/danger tag procedures;
- machine-guarding procedures; and
- confined space entry permits.

3.1.2.2 PERSONAL PROTECTIVE EQUIPMENT

All visitors should wear appropriate personal protective clothing (complying with Australian Standards) when it is a requirement of that workplace.

3.1.2.3 SUPERVISION

Visitors should not enter any other site-designated work areas, other than those required to carry out their current business unless otherwise authorised by the person in charge.

Visitors should be escorted or supervised by a company employee at all times while on site to ensure they do not enter unauthorised areas.

3.1.2.4 VEHICLE SAFETY

Visitors should not operate company plant, equipment or vehicles unless accredited and authorised to do so.

They should comply with all traffic signs and rules appropriate to that workplace.

3.1.2.5 CHILDREN AND PETS

Under no circumstances should visitors bring children or pets into any work location.

3.1.3 WITHDRAWING PEOPLE IN DANGER

A manager should anticipate, plan for and withdraw all persons from a mine or part of a mine found to be dangerous; organise an appropriate investigation of the danger; and undertake necessary remedial action. In such a situation it is important that a report be prepared and be made available to all people employed in the mine

3.1.4 CONTRACTORS

3.1.4.1 CONTRACT RISK ASSESSMENT

Below is an example of how contract control measures may be gradually increased to ensure greater reliability in the contractors OH&S Management System.

- *Very low risk*—Loss or damage to personnel highly unlikely to occur.
Minimum level of management:
 - restricted access to work area;
 - induction to the work area/emergency procedures; and
 - arrival and departure from the work area monitored.
- *Low risk*—Loss or damage to personnel not likely to occur.
Minimum level of management:
 - induction to work area or site/emergency procedures;
 - conformance with site's safe working standards for contractors; and
 - arrival and departure from work area monitored.
- *Medium risk*—Loss or damage to personnel is known to occur. Specific risks that require special precautions may be identified.
Minimum level of management:
 - contractor supervisor appointed;
 - full induction to work area and/or site for all employees;
 - contractor selection process applied;
 - hazards formally identified and risks control measures developed;
 - JSAs conducted as appropriate;
 - conformance to all site safe working procedures;
 - regular inspections/audits by principal; and
 - arrival and departure monitored.

- *High risk*—Loss or damage to personnel commonly occurs with this type of work.

Minimum level of management:

- a contractor supervisor plus a systems safety OH&S adviser appointed;
- full induction to work area and/or site for all employees, based on job specific risks;
- contractor selection process applied rigorously;
- hazards formally identified and risks control measures developed;
- JSAs conducted for almost all tasks;
- full participation by principal in risk assessments;
- regular scheduled inspections and audits by principal; and
- arrival and departure monitored.

3.1.4.2 CONTRACTOR SELECTION

Regardless of the level of risk, there are some general requirements which apply to all categories of contractors:

- the contractor safety record and technical and commercial ability is of high standard;
- relevant insurances, licences, registrations and certificates are held by the contractor and their employees;
- pre-job safety discussion/site induction where specific safety requirements are outlined, relevant hazards indicated and emergency procedures explained, including first aid provision and fire protection;
- supervision of the contractor should be arranged so that a responsible person ensures compliance with site procedures;
- the contractor:
 - is responsible for their own property while on site;
 - should possess suitable and good quality plant and equipment;

- should employ workers who are competent, trained and properly qualified to perform their designated task;
- employs workers who understand the procedures and work methods of the company;
- employs drivers and plant operators over 18 who are authorised and licensed to drive or operate plant equipment;
- employs workers who wear required personal protective equipment at all times;
- provides any suitable induction training; and
- ensures workers comply with any relevant principal procedures when working with the principal employees;

The principal's intent in the selection process should be to:

- satisfy itself that the contractor is capable of performing the job to be undertaken in a safe and healthy manner (ie to the standards set by the principal);
- brief the contractor on the job sufficiently to enable him/her to effectively devise (and cost) a work method and safety management;
- plan to complete the specific job safely and without risk to health;
- evaluate tenders to select the most appropriate contractor, having assessed risks inherent in the job, the contractor's method of work, OH&S capability and safety management plan;
- assess the degree and nature of the principal's proposed involvement in the site operations activity to ensure its duty of care is fulfilled;
- satisfy itself that responsibilities and responsibilities for specific tasks are clearly set down (nobody should be left in doubt about who should do what and who can make decisions on issues, and especially actual and potential problems.

3.1.4.3 CONTRACTOR CONTROL

The principal should have a system in place to monitor the contractor's work performance and adherence to health and safety requirements. The system should provide for a competent person to supervise the contract.

Their duties could include:

- jointly investigating injuries and accidents;
- undertaking site audits;
- undertaking site inspections;
- analysing results of monthly reports;
- recommending improvements to the health and safety program; and
- providing a written report on the health and safety performance at the completion of the contract.

REFERENCE DOCUMENTS

"Getting Started With OH&S Visitors, Contractors and Other Persons", National Occupational Health and Safety Commission.

"Boral OH&S Manual", Boral.

"QuarrySAfe–Occupational Health and Safety Resources Manual", QuarrySAfe Group Health and Safety.

"Guidelines for Contractor Occupational Health and Safety Management for New South Wales Mines" – MDG 5003, Dept Mineral Resources.

3.2 PEOPLE WORKING ALONE

Working alone/out of hours is work carried out in a area where normal means of contact (eg verbal, sight) with other staff are not generally available, so that the potential risk of any existing hazard(s) is increased to an extent where extra precautions need to be taken.

The manager is responsible for evaluating the risks associated with any person working alone, and must instigate measures designed to minimise those risks. Where a person working alone becomes injured at his or her workplace, the manager should have in place such measures to minimise the time that an injured person may be unattended. These measures may include, but not be restricted to, any or all of the following points.

- Supervisors, or other designated people, should visit the person's workplace more frequently than is normally the case, as it is deemed necessary.
- The person working alone should make contact with another person at frequent pre-arranged intervals. If the person working alone fails to make contact at the arranged times, the other person must then try to make the contact.
- The manager should promote and maintain a system or culture within the workforce whereby employees check on one another at regular intervals. Checking may be carried out by face-to-face contact, sighting from a distance or calling up on a two-way radio or telephone.
- Where applicable, the manager should provide a personal alarm system for persons working alone.

All tasks to be carried out whilst working alone/out of hours should be assessed for hazards and potential risks. These aspects should be considered together with the health, experience and training of the individuals concerned. Additional training and instruction may be required before working alone/out of hours is allowed.

Staff working alone/out of hours should ensure that:

- they are aware of high-risk hazards in their work area and are familiar with the appropriate safety equipment that may be required;
- all practical measures are taken to minimise risk during execution of their work;
- the agreed communications with their supervisor's approved nominee are adhered to; and
- if performing shift work for extended hours, take appropriate rest periods (break after working for eight-hour period).

3.3 LABOUR HIRE

Labour hire agencies should do all things reasonably practicable to ensure their contract employees are not put at risk of injury or disease whilst working for a client.

The employment relationship between agencies and their contract employees is different from a normal employer/employee relationship. The difference stems from the fact that agencies do not employ persons to carry out work for them, but for a client. The agency does not supervise the tasks the contract employee will be performing, or control the workplace where they are required to perform the work. Consequently, some agencies may believe that obligations of employers do not apply to them or cannot be practically carried out.

Nevertheless, this type of employment relationship does not diminish the responsibilities of agencies to do all things reasonably practicable to ensure their contract employees are not put at risk of injury or disease whilst working for a client.

Clients of the agency become the “host employer” once they employ contract labour. Whilst 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 these contract employees while they are working for them.

REFERENCE DOCUMENTS

1998, “Boral OH & S Manual”.

“Guidelines for Managing Health and Safety in the Labour Hire Industry”, Work Cover South Australia.

“Occupational Health And Safety Manual”, Pioneer Concrete NSW P/L.

“PLDC Health and Safety Management Procedures” – Penrith Lakes Development Corporation.

“QuarrySAfe Occupational Health and Safety Resource Manual”, QuarrySAfe Group Health and Safety South Australia.

3.4 EMPLOYEE MANAGEMENT

3.4.1 EMPLOYEE SELECTION

An organisation is only as good as its employees and hiring is a key process. High turnover, absenteeism and inefficiency because of a poor match between people and job requirements increase the cost of doing business. Through selection of the right person for the job, these factors can be moderated.

The selection process should:

- determine if the employee can carry out the tasks required of a job without undue harm to themselves or others;
- establish base-line information on an employee's health status;
- determine whether reasonable accommodation is required to enable an employee to carry out the function of the job; and
- comply with equal employment opportunity considerations.

3.4.1.1 DEVELOPING SELECTION CRITERIA

- Carry out Job Safety Analysis (JSA) to determine accurate details of the physical and mental demands of the tasks required, including strength and flexibility requirements.
- Ensure job specification is up to date and consistent with requirements of the job.
- Formulate selection criteria that is consistent with the job specifications, that is, only includes skills and experiences that are required (on a regular basis) to carry out the duties of the position.
- Distinguish between essential criteria, those that the person must satisfy to be able to do the job, and desirable criteria, those that will help to do the job.
- Assess whether formal qualifications (academic, trade etc) are essential to the performance of the job.

- Ensure length of experience, age required etc are essential, and justifiable, for performance of the job, and not set arbitrarily or based on stereotypes.
- Ensure there are no unnecessarily restrictive English language qualifications on jobs that do not require them.
- Be specific. (For example, does "communications skills" refer to talking on the phone to customers, writing reports for management, instructing technical operators, inter-cultural skills or teamwork?)
- Determine how criteria will be assessed: interview, referees report, work record and testing.

Language

People employed in a mine (whether as managers, supervisors, employees or contractors) should be able to communicate readily in the event of danger, receive instructions and provide safety and health information, to enable compliance with relevant safety systems in place.

3.4.1.2 APPLICATION FORMS

- Ensure language and length is relevant to the performance of the job.
- Do not include any invasive or irrelevant questions.
- Predetermine to what use the information collected will be put and ensure no discrimination.
- Ensure strict confidentiality.

3.4.1.3 ADVERTISING

- Consider benefits to the organisation of a multi-skilled workforce by advertising all positions internally (as well as externally).
- Determine the best method for reaching the widest pool of applicants possible. For example, use of ethnic, media, informal networks, community groups, and organisations, industry groups, trade and journals.

- Ensure the information in the advertisement matches the selection criteria.
- Do not use stereotyped or discriminatory language or discriminatory requirements. For example, “front end loader operator, age 30-45 years”.
- Include name of a contact person in the advertisement and ensure they have information (presented in a clear and consistent way) prepared about the position.

3.4.1.4 REVIEWING APPLICATIONS AND SHORT-LISTING

- Cull (short list) on essential qualifications first, then on desirable, prioritising criteria and determining method first.
- Don't make assumptions about qualifications/experience, how people could handle particular situations or how others may react.
- Seek more information if necessary. The aim is to find the best person for the job.
- Be consistent. Document decisions made and reasons for them.

3.4.1.5 INTERVIEWING

- Aim to allow applicants to demonstrate what they can offer the organisation, not to simply confirm expectations or to see how applicants perform under pressure.
- Check need for any specific arrangements, for example, physical access and interpreters).
- Have questions prepared in advance.
- Ensure consistency and fairness in questioning.
- Focus on the real needs of the job. Don't make assumptions or stereotype individuals.
- The selection committee is entitled to ask applicants whether they can fulfil the requirements of the job (travel, work overtime, perform the physical functions); but such questions must be asked of all applicants.
- It is appropriate to ask people with disabilities whether they require any adjustments to perform the job.

- Allow interviewee time to make his/her point. Allow silence. Rephrase or clarify if necessary.
- Do not make assumptions about a person's ability to do the job based on physical characteristics.
- Do not ask invasive and irrelevant questions, for example: Do you intend to have a family?).
- If necessary, rephrase to gain the essential information you require and ask of all applicants, for example: Can you commit yourself to the organisation for 2 years?.
- Keep records of questions and answers.

3.4.1.6 REFERENCE REPORTS

- Applicant offers referees, or is able to comment on choice of referees, for example, supervisor's report.
- Be consistent in use of referees. Ideally, use a standard referee reporting form that matches the selection criteria.

3.4.1.7 ASSESSMENT

- Assessment should match the requirements of the job.
- Check that assessments are up to date and relevant.
- Check for any bias or indirect discrimination, for example, an assessment for potential trades apprentices which examines prior knowledge of the trade rather than aptitude.

3.4.1.8 MAKING THE DECISION

- Focus on the selection criteria.
- Rank applicants according to performance against essential and desirable qualifications.
- Assess all information: application form, interview, referees reports and tests.
- Record decisions made and reason for them.

- Avoid value judgments and ensure report and process is kept confidential.
- If requested, provide constructive feedback to unsuccessful applicants on their performance against the selection criteria.
- resignation; and
- exit interview.

REFERENCE DOCUMENTS

“Best Practice: Recruitment and Selection”, Human Rights and Equal Opportunity Commission.

“Boral OH&S Manual”, Boral.

3.4.1.9 MEDICAL EXAMINATION

- It is appropriate to have employees medically examined if potential health risks could be high for employees with particular health problems, for example, jobs which involve heavy lifting for people with spinal injury or disease.
- The medical examiner should have the job specification so any recommendation made relates specifically to the job.
- Ensure only information relevant to the position is sought, and avoid invasions of privacy irrelevant to the job requirements.
- Selection committee and examiner to be aware of technical equipment and other reasonable adjustment provisions for people with disabilities.
- Where there is concern about ability to perform a job, examiners to seek expert advice and assessment from vocational specialists in disability organisations.
- Ensure strict confidentiality.
- Applicants to be advised of results.

3.4.1.10 EMPLOYEE APPOINTMENT

Some of the key items that should be addressed at the appointment and induction of all new employees are as follows:

- familiarisation with workplace;
- introduction to co-workers and management;
- relocation assistance;
- position description and responsibilities;
- establishment of records;
- career path;
- development and competency needs;
- performance review;

3.5 TRAINING AND DEVELOPMENT

The minerals industry should use a formalised approach for examining mine operating needs so that operators may then select effective means (including training) for improving performances. Training schemes should incorporate safety and health training with both skills and task training, in order to establish a workforce that will be efficient and safety-conscious. Employees should have a record of their training, that could be accepted by managers at mines to which they transfer.

3.5.1 MINE OPERATORS RESPONSIBILITIES

Mine operators should implement a training scheme which will:

- identify what skills, knowledge or competencies are to be acquired before an employee starts the job, and analyse the training needed for that job;
- set objectives to develop, maintain or improve employment-related skills, knowledge or competencies of employees;
- let trainers determine the pre-existing skills and knowledge of trainees;
- design the training for the skills to be acquired and how to impart them;
- show how the training will be conducted; and
- let trainers evaluate the training.

3.5.2 TRAINING PROGRAM REQUIREMENTS

- A formalised training scheme should include a range of tasks and outcomes, and should:
 - provide induction training for new entrants to the industry;
 - give additional training for persons moved to new work;
 - train and employ persons on the surface before they proceed to work underground;

- train under close personal supervision when starting work, especially underground, or when undertaking new tasks;
- give skills maintenance training to each person employed at a mine; and
- require that records of the training of each person be kept.

- Training should focus on a job and task performances 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 should be included in mine training programs, and should include briefing techniques for updating individuals, miners, supervisors, production managers and general managers on changes in work practices, new equipment operating procedures, and changes in the working environment generally.
- Mine instruction and training schemes should be reviewed regularly.

3.5.3 TRAINING NEEDS ANALYSIS

Conducting training needs analysis will help to ensure that the people in your organisation get the type of training they need.

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

A training needs analysis involves analysing 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 organisation needs.

There are a number of stages to a training needs analysis:

Analyse the workplace

This includes analysing:

- the work environment; and
- the activities that people are expected to perform at work.

Assess the current approach to job organisation

This includes assessing:

- selection and recruitment procedures;
- the way jobs are designed;
- the way equipment and tools are selected; and
- the way work procedures are designed and managed.

Analyse jobs

- Study a job and identify all the tasks, equipment, materials, work processes and the associated hazards.

Forecast job changes

- Make predictions about the way jobs may change and how changes may affect the health and safety of staff:
- Identify the skills, knowledge and attitudes needed to prevent health and safety problems.

Assess the current approach to health and safety at work

- Identify the actual health and safety competencies that people in the organisation already have.
- Compare these existing competencies to those needed to prevent health and safety problems.
- Work out deficiencies that health and safety training would reduce or eliminate.

Management training needs

These training needs include:

- occupational health and safety legislation;
- health and safety principles and practice;
- management systems;
- assignment of health and safety roles and functions;
- workplace hazard identification;
- risk assessment and control;
- keeping health and safety records;
- communication; and
- dealing with hazardous events.

Supervisors training needs

Supervisors need to be able to carry out any health and safety roles and functions which have been assigned to them. They may need training to:

- recognise hazards in the workplace and conduct health and safety inspections;
- select and apply appropriate risk-control measures;
- investigate incidents or dangerous occurrences;
- produce clear and accurate investigation reports;
- communicate effectively;
- consult effectively;
- conduct effective on-the-job training;
- ensure employees understand and follow workplace procedures;
- assist the employer to comply with provisions of the legislation;
- deal with hazardous events; and
- maintain health and safety records.

A shared approach to training, where managers, supervisors and health and safety representatives attend training together, can produce good results. Most health and safety issues need managers and employees to work together to successfully resolve those issues, and so it makes sense to have a joint approach to training. Joint training can supplement specific training that relates to the respective health and safety roles and functions within the organisation.

3.5.4 TYPES OF TRAINING

The type of training that each person in the organisation needs depends on:

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

3.5.4.1 INFORMAL TRAINING

An important provider of training may be a supervisor or experienced worker who has skills and knowledge in health and safety. Such a person can provide information and training to others at work.

For this informal training to be effective, the supervisor or experienced worker needs to undertake trainer-training to develop the skills to train others in the workplace.

TAFE colleges and private training providers may offer trainer-training courses, which generally run for three to five days.

3.5.4.2 FORMAL TRAINING

There are basically four types of safety training courses available:

Licence or certificate courses

Certain jobs require an operator to hold an officially recognised certificate or licence to do a task like operating a winder. The mine operator may be required in some instances to determine the competencies of loader drivers, truck drivers and others. The mine operator may take the opportunity to have operators attend the appropriate course and be assessed by a qualified assessor. Advice on such courses can be obtained from the National Mining Industry Training Advisory Board or branch office in your State.

Accredited and approved courses

Courses like introductory training courses for health and safety representatives are classified as accredited under legislation. Some States and Territories use the term "approved" for these courses. Courses for managers and supervisors may also be classified as accredited in some States and Territories. Accredited and approved courses have to meet certain criteria determined by the relevant Commonwealth, State or Territory health and safety authorities.

Short courses

Short courses are usually designed for a specific group of people such as operators of equipment, employees, supervisors and managers.

The most common types of short courses are:

- general introductory courses on topics such as hazard management;
- management and supervisory training courses on legal obligations and managing health and safety in the workplace;
- courses on specific issues, such as hazardous substances, manual handling, confined spaces and workplace ergonomics; and
- courses for employees with non-English-speaking backgrounds, giving a general introduction to basic health and safety principles.

Vocational and professional courses

Traineeship and apprenticeship courses normally include health and safety modules as part of the course. There are also two-to-four-year health and safety courses for training health and safety professionals and managers. These courses usually involve part-time study at a college or university over two to four years and result in a qualification in health and safety.

Most training can be provided by:

- employer organisations;
- unions;
- health and safety organisations;
- TAFE college and universities; and
- private occupational health and safety consultants/trainers.

Many employers send their supervisors to these organisations for training. Training can also be provided in-house by these organisations.

3.5.5 SPECIFIC TRAINING REQUIREMENTS

3.5.5.1 INDUCTION TRAINING

Health and safety education should start with employee induction when an employee joins the organisation or is transferred to a new job. It has been found that inexperienced workers, in general, are involved in accidents at a higher rate than others. While experience can only be gained through time, both health and safety education and job skills training can be used to improve this record. Induction sessions normally cover such items as explanation of the function of the work unit, organisational relationships, administrative arrangements, and miscellaneous policies and rules.

Induction training program

New or transferred employees need training that enables them to:

- understand the hazards of their work;
- notify their supervisors of identified hazards;
- understand workplace consultative arrangements, including the role and functions of health and safety representatives

and health and safety committees;

- understand and follow health and safety procedures applying to their workplace;
- understand their responsibilities under the legislation;
- understand general safety rules and policies such as:
 - hazard communication and chemical safety procedures;
 - hearing conservation;
 - electrical safety and lockout/tagout;
 - emergency plans: routes and assembly locations;
 - procedures for safety violations, accidents, near-miss;
 - proper lifting and ergonomic techniques; and
 - equipment safety;
- Induction training for new employees could include:
 - a tour of the work area;
 - an explanation of local amenities;
 - introductions to fellow employees;
 - introduction to health and safety representatives;
 - description of general workplace hazards and risk control measures;
 - an explanation of the location and use of firefighting equipment;
 - details of emergency exits; and
 - issue of personal protective clothing and equipment (if required).

Follow-up on induction

No one can learn everything about a job in one day or one week. There must be regular follow-up of a new or transferred employee to ensure that the job is understood and safe working practices are being adhered to. Feedback from fellow employees and immediate supervisors should also be considered. Initial follow-up should be at least daily until the person in charge is satisfied that the employee has grasped all the features of the job. After the first week or two, follow-up may

have to continue on a weekly basis for up to three months, depending on the nature of the job and the workplace.

On the job training

It is important to be confident that all employees understand their roles, and that management's expectations of how particular tasks will be carried out can be satisfied. It is worth building the following steps into induction arrangements:

- describe the job or task in detail;
- check previous experience of the employee;
- demonstrate key aspects of the job;
- identify possible hazards and risk-control measures;
- demonstrate safe operating procedures;
- watch the employee perform the job and suggest corrections as required;
- ask the employee to describe potential hazards; and
- repeat these steps unless it is clear the employee understands the health and safety implications of the job/task.

Assessment of understanding

Questions should be asked to test whether an employee has grasped the essential features of the job and workplace. This can also highlight aspects of the induction program that need further attention. Questions should be asked in such a way that employees have to respond with information rather than just a yes or no. Where appropriate, a written questionnaire could be used.

3.5.5.2 HEALTH AND SAFETY TRAINING

In all organisations, no matter how large or small, everyone needs some training in health and safety matters:

- the employer;
- 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; and
- visitors.

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:

- How does this change affect health and safety?
- 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; and
- 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 you are going to invest in training over the next 6 to 12 months.
- How much time you will devote to training.
- What the most cost-efficient way is for you to make this investment.
- Whether 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.
- Whether to send a group of people to the training course.

- Whether to arrange for a trainer to come to the work site and deliver training to a group of workers.

calculations amended or the complete structure redesigned.

Planning for safety and health training

Training programs are best planned if everyone at work:

- has basic information about the relevant laws and regulations;
- 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; and
- takes part in a training needs analysis to find out what training each person needs.

REFERENCE DOCUMENTS

“Getting Started”, Health and Safety Training, Victorian WorkCover Authority.

“Organising Health and Safety Training for Your Workplace”, National Occupational Health and Safety Commission.

“A Basic Occupational Health and Safety Program”, Canadian Centre for Occupational Health and Safety.

“Boral OH&S Manual”, Boral.

3.5.5.3 FIRST AID TRAINING

As far as practicable, every new employee should be instructed in first aid facilities and practices at the mine. The mine operator should have enough employees trained in first aid to assist in an emergency, with refresher courses held regularly to keep such people up to date. Holders of First Aid Certificates should be re-examined at least every three years.

People employed in a first aid centre should receive instruction and training in artificial resuscitation techniques, as well as in first aid at a level commensurate with the availability of external first aid assistance and the likelihood of serious injuries.

3.5.5.4 METAL FABRICATORS' AND WELDERS' TRAINING

Personnel on a mine site performing arc welding, oxygen/acetylene/LPG cutting/welding for the fabrication/repair of structures/equipment must be properly trained in that work. That work must be performed so as not to endanger the health and wellbeing of the employee and fellow employees.

For any work that will change the structural integrity of a structure, original plans must be re-examined and the engineering design

3.6 HEALTH AND FACILITIES

3.6.1 HEALTH SURVEILLANCE

Mining operations encompass the disturbance, removal, washing, sifting, crushing, leaching, roasting, evaporation, smelting, refining, palletising of any rock structure, stone, fluid or mineral-bearing substance.

Workers in the mining industry may be exposed in varying degrees to mineral dusts, process fumes, diesel exhaust emissions, and a wide range of hazardous chemicals, either used during mineral processing or in the maintenance and repair of plant and equipment.

Inhalation of mineral dusts such as silica or asbestos remains a concern in the mining industry and thus a health surveillance program is focused primarily on monitoring respiratory symptoms. Audiometric testing is also undertaken as mine workers are typically exposed to very high noise levels and may be at risk of acquiring noise-induced hearing loss.

The objectives of the health surveillance program for mine employees are:

- to assess the health status of employees on a regular basis by progressively collecting relevant health information;
- to analyse collected data to detect adverse health effects at the earliest opportunity; and
- to enable appropriate and timely corrective action to be taken in order to safeguard the health and wellbeing of employees.

It is the employer's responsibility to protect employees against health hazards in the workplace. Therefore, where employees may be exposed to airborne contaminants, or any other health risks, all possible preventative measures, such as engineering, work method, administrative or combination risk controls, should be implemented.

The following health risks could be present in your operation.

3.6.1.1 QUARTZ SILICA

Prolonged or repeated exposure to fine airborne crystalline silica dust may cause severe scarring of the lungs, a disease called silicosis. The risk of

developing and the severity of silicosis depends on the airborne concentration of respirable size silica dust to which an employee is exposed and duration of exposure. Silicosis usually develops gradually over 20 years or more of exposure. Particles with diameters less than 1 micrometre and freshly cleaved particles (for example, those produced by sandblasting) are considered most hazardous. Several reliable studies have found silicosis in employees with exposure to considerably less than 1 mg/m³ respirable quartz.

The early symptoms of silicosis (cough, mucous production and shortness of breath upon exertion) are non-specific, so the development of silicosis may not be detected until advanced stages of the disease. Silicosis may continue to develop even after exposure to crystalline silica has stopped. Evidence of silicosis can normally be seen on an X-ray.

Silicosis can vary in severity from minimal to severe. In cases of mild silicosis, there is typically no significant respiratory impairment, although there is X-ray evidence of lung injury. In severe cases, significant and increasingly severe respiratory impairment develops. There is no proven effective treatment for the disease. Life expectancy may be reduced, depending on the severity of the case. Death is not usually a direct result of silicosis, but cardiac failure (or pulmonale) may occur as the heart has increasing difficulty pumping blood through the scar tissue in the lungs. Silicosis may be complicated by the development of bacterial infections, including tuberculosis.

"Accelerated" silicosis results from exposure to high concentrations of crystalline silica over a period of five to 10 years. The disease continues to develop even after exposure stops and is often associated with auto-immune diseases, for example, scleroderma (a skin disease involving thickening of the skin).

"Acute" silicosis (also referred to as "silicotic alveolar proteinosis") is rare in humans, but can develop if very high concentrations of crystalline silica dust are inhaled over a relatively short period (1–2 years) and has occurred in occupations such as sandblasting or tunnelling where exposure controls were minimal. Acute silicosis may result in death within a few years, often with tuberculosis as a complication.

Inhalation of quartz has also been associated with a number of other, less well characterised, harmful effects including effects on the kidney (glomerulonephritis), the liver, the spleen and immune system disorders (progressive systemic sclerosis, scleroderma or rheumatoid arthritis).

The International Agency for Research on Cancer (IARC) has concluded that crystalline silica in the form of quartz or cristobalite from occupational sources should be classified as carcinogenic to humans (Group 1), known to cause human cancer. This conclusion was drawn on the basis of a relatively large number of human population studies that together provide sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica. In many (although not all) of these studies, lung cancer risks were elevated and could not be explained by other factors. Recent reviews have tended to conclude that if exposures are controlled to prevent silicosis, they will probably prevent cancer. The risk of developing silicosis depends on the airborne concentration of crystalline silica, the particle size and the duration of exposure.

3.6.1.2 NOISE

It is essential that all individuals be convinced that noise does produce a hearing loss and that it can be prevented by active cooperation between employer and employee.

The consequences of noise exposure are not as obvious as those from accidents. For example, the consequences when a piece of metal enters an eye are immediately obvious, whereas the results of noise exposure are not obvious until it is too late. Therefore, education becomes exceedingly important to convince the individual about what can happen to his/her ears if they are not protected.

- Hearing loss is a gradual process, and the individual may incur considerable hearing loss without realising it. At the outset, hearing loss takes place without any external signs; therefore, continual reminders help employees to develop the habit of hearing protection.
- Proactive steps taken by the employer and union representatives, such as posters, discussions and films, reinforce the

understanding of how damaging it can be to become lax about protecting one's ears.

3.6.1.3 ASBESTOS

Asbestos fibres can have serious effects on your health if inhaled. There is no known safe exposure to asbestos. The greater the exposure, the greater the risk of developing an asbestos-related disease.

The amount of time between exposure to asbestos and the first signs of disease can be as much as 30 years. It is known that smokers exposed to asbestos have a much greater chance of developing lung cancer than just from smoking alone.

Asbestos can cause asbestosis, a scarring of the lungs that leads to breathing problems and heart failure. Workers who manufacture or use asbestos products and have high exposures to asbestos are often affected with asbestosis.

Inhalation of asbestos can also cause lung cancer and mesothelioma, a rare cancer of the lining of the chest and abdomen lining. It may be linked to cancer of the stomach, intestines and rectum as well.

As noted earlier, the symptoms of asbestos-related diseases may not become apparent for many decades after exposure.

Symptoms are:

- shortness of breath;
- a cough or a change in cough pattern;
- blood in the sputum (fluid) coughed up from the lungs;
- pain in the chest or abdomen;
- difficulty in swallowing or prolonged hoarseness; and/or
- significant weight loss.

3.6.1.4 ISOCYANATES AND POLYURETHANE

In recent years in Sweden, new hazards have been found to be associated with certain chemical products and with plastic/rubber materials

that are manufactured with isocyanates and which contain PUR (polyurethane). These risks were discovered by measuring with a new and improved method. This may also occur with binding agents in mineral wool or in some types of the plastic Bakelite. When PUR is heated, toxic compounds are produced— isocyanates—which can harm the respiratory system. When heating plastics and resins made from urea and phenol or formaldehyde (which does not contain PUR) an isocyanate (methyl isocyanate) can be formed. The levels may be high, so high that they cause asthma. Measurements made in the past with old methods have almost always shown low levels of isocyanates. New measuring methods show that the levels can be very high. The reason is that the old methods do not detect all the different isocyanates that can be generated when materials containing PUR are heated.

High levels of isocyanates can cause asthma. There are suspicions, moreover, that the respiratory system can be affected by very short-term exposures to high concentrations. In the worst-case scenario, few breaths of smoke from something containing PUR can be sufficient to harm the airways.

When materials containing PUR are heated, for example, in heat treatment, weld, torch-cutting, sawing, cross-cutting, grinding or soldering, or when heating material in some other way, a large number of different compounds are formed. These include isocyanates. It is sufficient for the temperature to become high at a single point for isocyanates to be formed. It is estimated that breakdown can begin at about 150–2000°C and sometimes at higher temperatures. Isocyanates are odourless, but sometimes other substances are formed which do have an odour. If polyurethane plastic is heated to the point of discolouration, isocyanates are formed—but the plastic may also be emitting isocyanates even before discolouration occurs.

Isocyanates can give rise to a range of symptoms. The most usual ones consist of respiratory problems, for example, nasal congestion, runny nose, dry cough or nose bleeding. Diffuse symptoms such as eye irritation, headaches or feeling heavy-headed also occur. Lung function may be impaired, which is most noticeable in the form of heavy breathing in conjunction

with physical exertion or loss of stamina. It may sometimes be difficult to identify impaired lung function oneself, but a doctor can measure it. The symptoms may arise at work, but they may also only be noticeable several hours after work. They usually disappear after a few days away from work.

Severe cases may involve asthma, which is lifelong. Every time one is exposed to isocyanates, one can suffer an asthma attack. Asthma may also mean that the airways become more sensitive to dust and odours. This means that an asthma attack can be triggered by such things as perfume, exhaust emissions or solvents.

Isocyanates can also cause contact dermatitis.

3.6.1.5 LEAD

Exposure to lead fumes, lead dust or dust of lead compounds may result in the absorption of some lead into the body. Indications of exposure may present as tiredness and difficulty concentrating. Lead poisoning may present with muscular weakness, change in sleeping habits, irritability and abdominal discomfort with colicky pain.

Health evaluation with a blood test and sometimes a urine test as well should be performed every 3–12 months, depending on exposure and the results of previous tests.

Individuals with elevated blood lead levels may have to be transferred to other jobs where there is no exposure to lead until their blood lead levels fall.

3.6.1.6 MEDICAL PROCEDURE

Valid techniques for use in health surveillance are those of acceptably high sensitivity and specificity which can detect adverse effects related to the nature and degree of exposure to hazardous agents and substances in a mine. Health surveillance procedures should be safe, easy to perform, non-invasive and acceptable to employees. Depending upon the potentially hazardous agents and substances present, some or all of the following procedures may be required:

- work history;
- respiratory questionnaire;
- lung function test;

- audiometric test; and
- chest X-ray.

Note: the health assessments conducted for the purpose of the Health Surveillance Program are not designed to determine whether or not an employee is medically fit for work. Prospective employers are required to use their own guidelines and make their own decisions on the suitability of employees for a particular job.

3.6.1.7 DRIVERS

Drivers of heavy goods vehicles and vehicles carrying dangerous goods require examinations.

The purpose of these examinations is to:

- ensure drivers remain fit to perform the tasks required of them;
- detect the early onset of medical conditions and refer for treatment before an employee's ability to drive is impaired;
- ensure drivers do not suffer from a condition that could affect their level of consciousness and thus endanger themselves and other users of the road; and
- provide an opportunity to counsel drivers on health maintenance.

The health evaluation should include a comprehensive medical history and physical examination. Eyesight, hearing, urine and lung function tests will be included, and, depending on risk factors, an electrocardiogram and/or exercise stress test will be done.

3.6.1.8 RECORD-KEEPING

Comprehensive records should be kept of all medical examinations, and results should be strictly confidential.

REFERENCE DOCUMENTS

“Health Effects of Quartz Silica”, Canadian Centre for Occupational Health and Safety.

“Questions and Answers About Asbestosis Exposure”, National Cancer Institute.

“Asbestosis”, American Lung Association.

“Do You Work With Isocyanates and

Polyurethane?”, Joint Industrial Safety Council, April 1999, ISBN91 – 7522 – 638 – 3.

“What Kind of Industrial Noise is Harmful?”, Hearing Health, House Ear Institute, www.hei.org

“Boral OH&S Manual”, Boral.

“Approved Procedures for Health Surveillance of Mine Employers”, WA Department of Minerals and Energy.

3.6.2 FITNESS FOR WORK

3.6.2.1 DRUGS AND ALCOHOL

Where employees or other persons working on or visiting a mine site are under the influence of alcohol or drugs and are compromising the safety of themselves or other employees, the mine operator has the right, and legal obligation, to take action to ensure a safe and healthy workplace is maintained.

Policy

Dealing with drug and alcohol problems requires the formulation of a policy. It should apply to all employees and be developed by management and employees.

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

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

Details of the policy in induction and ongoing training should be included. Post the policy on notice boards and include it on electronic networks for all staff to refer to.

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 comply with company drug and alcohol guidelines;
- personal stress reduction methods;
- ways of dealing with harmful alcohol and drug use;
- who to approach in the workplace for assistance with a drug or alcohol problem;
- skills for managers, supervisors, health and safety representatives and OHS committee members in identifying drug and alcohol use and in how to manage the issue in their workplace;
- the legal position (rights and penalties) of staff and management in relation to drug and alcohol use and drug testing; and
- the counselling, treatment and rehabilitation services available in the workplace and externally. Post contacts with phone numbers on notice boards.

Approaching a worker 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; and
- 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/or
- by a fellow employee or peer.

The policy should state the chain of responsibility 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 in terms of their approach to safety and general work performance rather than their apparent alcohol or drug use.

The policy could contain a statement from the organisation including:

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

Procedures

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

Employees who have such a problem may be provided the same opportunities to obtain help and assistance as would a sick or injured 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 an appropriate task can be allocated.

The following procedure could apply:

- lost time should be deducted from their annual sick leave entitlement;
- the employee should be required to be interviewed by the manager to determine the extent of the problem;
- where the manager deems it appropriate, the employee should attend an appointment with a professional organisation where further assistance can be provided; and
- at all times, the confidentiality of the employee should be maintained.

Where there is an ongoing disregard for the operations policy on this matter, the Code of Discipline should be invoked.

REFERENCE DOCUMENTS

“Guidelines for Drugs, Alcohol and the Workplace”, WorkCover, South Australia.

“Occupational Health and Safety Resource Manual”, QuarrySAafe Group Health and Safety Services, South Australia.

3.6.3 FIRST AID AND MEDICAL TREATMENT

Workers should be informed about first aid facilities and services. Information should be complete, easy to understand and accessible. Language factors and the literacy levels of target groups should be taken into account when workers are informed about the provisions at the workplace. Where appropriate, verbal methods (explanations, demonstrations), visual methods (videos, posters) and plain English or other appropriate languages should be used. All workers should know what to do, where to go, and from whom to seek first aid.

Information about first aid should include an accident plan. This plan should:

- specify the “response” procedures to be followed in an accident situation; for example, notify supervisor, telephone for medical assistance);
- allocate specific tasks involved in such procedures to individuals; for example, supervisor to telephone the ambulance;
- include emergency transportation arrangements; for example, who has a driver’s license, location of available vehicle for use;
- detail the location of first aid facilities at the workplace, including details of personnel responsible for these facilities; and
- specify the role of the first aid provider. In specifying the role of the first aid provider, it is important to remember that this person should not administer assistance beyond that for which they are qualified and have maintained competency.
In particular:
 - the first aid providers should be instructed not to exceed their training and expertise in first aid; and

- other staff, such as supervisors, should be instructed not to direct first aid providers to exceed their first aid training and expertise.

For example, if the first aid provider is not certified to perform CPR, the plan should not require this person to perform CPR.

Information about first aid facilities and services and the accident plan should be provided to workers on commencement of employment. Current information about specific risks in the workplace and changes affecting the provision and use of first aid facilities and services, and procedures detailed in the accident plan should be available to all workers.

Information may be provided through:

- induction programs;
- information and awareness seminars;
- training courses;
- newsletters;
- notice board announcements;
- policy and procedure manuals; and
- company memoranda.

Workers should be advised of other matters including:

- the availability of first aid facilities and services; and
- infection-control procedures.

Up-to-date lists of the telephone numbers of emergency personnel and organisations should be clearly displayed near central telephone or radio communication systems. Key emergency personnel and organisations to be included on such a list are:

- the nearest ambulance service;
- the nearest doctor with whom arrangements have been made for emergency care;
- the nearest hospital with an accident and emergency department;
- the Poisons Information Centre; and
- emergency services.

3.6.3.1 FIRST AID FACILITIES

The choice of first aid facilities and services should be based on the risk-assessment process. In making this decision, consideration should be given to:

- nature of the work;
- size and layout of the workplace;
- location of the workplace; and
- number and distribution of workers.

A first aid room should be of sufficient size to treat more than one person at the same time, with entrances at least 1.2 m wide, to allow stretcher access. Signpost first aid rooms in accordance with AS 1319-1994 Safety Signs for Occupational Environments, and display the name of the first aid room attendant.

Rooms should be well-lit and ventilated, have at least two power points, a sink and a wash basin with hot and cold running water. Access to toilet and shower facilities is also important.

A work bench or trolley, first aid supply cupboards, lined containers for soiled dressings, an armchair, two upright chairs, a folding stretcher and folding chair, a desk and telephone should be provided. Keep emergency and resuscitation equipment, which attendants must be able to operate and maintain, in first aid rooms.

3.6.3.2 NATURE OF THE WORK

Certain work environments have greater risks of injury and illness, due to the nature of the work being performed. This is an important criterion for deciding first aid requirements, as different first aid facilities may be required for different activities. For example, factories may require different first aid facilities to mines.

Where highly toxic or corrosive chemicals are stored or used, additional first aid facilities should be provided particularly if specified in the relevant Material Safety Data Sheet (MSDS). Facilities may need to include emergency showers and eyewash stations. Additional first aid training in the treatment of injuries specific to a workplace may also need to be provided.

Additional items may need to be added to a basic first aid kit and first aid room for treating specific injuries and illnesses such as burns, eye injuries

and poisoning. The suggested contents of a basic first aid kit are listed further on.

3.6.3.3 SIZE AND LAYOUT OF THE WORKPLACE

In relation to the size and layout of a workplace, consideration should be given to:

- the nature of work being performed at different work areas;
- the distance an injured or ill person has to be transported to first aid facilities;
- the ease with which this can be undertaken; and
- the level of first aid available throughout the workplace.

The first aid facilities and services should be located at points convenient to the workforce and where there is a significant risk of an injury occurring.

A workplace with a large physical area may require first aid to be available in more than one location, for example, when:

- small numbers of workers are dispersed over a wide area;
- access to first aid facilities is difficult; and
- a workplace is on more than one floor.

3.6.3.4 LOCATION OF THE WORKPLACE

The distance of the workplace from ambulance, hospital and medical centres should be considered.

If it takes more than half an hour to get medical aid to an injured or ill person, access to a person trained in more advanced first aid may be necessary. The final decision depends on a combination of factors such as worker numbers, first aid personnel and the type of work.

The time taken for medical aid to reach the injured or ill person is more significant than distance. For workplaces in remote areas, additional first aid facilities and services should be provided. In these areas, consideration may need to be given to the following when planning first aid facilities:

- road quality and access;

- potential for flooding; and
- evacuation facilities.

Efficient communication systems should be available for ensuring optimum response times.

3.6.3.5 NUMBER AND DISTRIBUTION OF WORKERS

The risk of injury or work-caused illness can be influenced by the number of workers.

Where there are separate work areas, it may be appropriate to locate first aid facilities centrally and provide portable first aid kits in each work area.

Where workers work away from their workplace, other factors will need to be considered, including:

- whether workers work alone or in groups;
- workers' access to communications, such as telephone or emergency radio; and
- the nature of the work being performed.

In these situations, consideration should be given to providing small and more portable first aid kits to workers. Workers should be informed about the contents of these kits, their location and access arrangements.

Consideration should be given to circumstances in which the workplace is not a building, for example work vehicles. In such situations, the choice and extent of first aid facility provided should depend on the risk-assessment process.

Where work occurs on more than one shift, first aid facilities should be available whenever there are workers at work. The number of workers working overtime is often less than a regular shift, but additional hours of work heightens fatigue. This may increase the risk of accidents and injuries. When overtime or shift work is being performed, appropriate first aid facilities and services should be available for the number of workers working each shift.

In determining appropriate first aid facilities and services, decisions will also need to be made about the following:

- first aid personnel;
- first aid kits;
- first aid rooms; and

- infection control in the workplace.

The next step in the risk-management approach is the implementation of chosen first aid facilities and services.

3.6.3.6 FIRST AID KITS

A person with a senior first aid qualification, at least, should be responsible for first aid kits including:

- recommending actions about use, contents, modifications and maintenance;
- ensuring a first aid kit is accessible whenever workers are at work;
- checking and replenishing contents; and
- ensuring equipment and contents are within the "use by" dates.

The contents of first aid kits should be appropriate for the types of injuries and work caused illnesses likely to occur at the workplace. The contents of a first aid kit listed further on are appropriate for work environments where the risk of serious injury or illness and the demand for first aid is low.

In work environments where specific injuries and illnesses such as burns, eye injuries and poisoning may occur, additional first aid kit contents should be provided and appropriately trained personnel should be appointed. Where burns have been identified as potential injuries, supply of water and additional dressings should be considered. Eyewash stations should be considered where potential eye injuries have been identified. Provision of emergency showers should be considered for workplaces where chemical splashes may occur.

First aid kits should be provided for workers working:

- in remote areas from which access to accident and emergency facilities may be difficult or delayed; and
- away from their employer/person in control of the workplace's establishment.

At least one first aid kit should be provided for each workplace. A first aid kit may be of any size, shape or type. It should be large enough to house all of the contents, including any additional items.

CONTENT OF FIRST AID KITS	KIT A	KIT B	KIT C
Adhesive plastic dressing strips, sterile, packets of 50	2	1	1
Adhesive dressing tape (2.5 cm x 5 cm)	1	1	-
Bags, plastic, for amputated parts:			
Small	2	1	1
Medium	2	1	1
Large	2	1	-
Dressing, non-adherent, sterile (7.5 cm x 7.5 cm)	5	2	-
Eye pads, sterile	5	2	-
Gauze bandages:			
5 cm	3	1	1
10 cm	3	1	-
Gloves, disposable, single	10	4	2
Rescue blanket, silver space	1	1	-
Safety pins, packets	1	1	-
Scissors, blunt/short nosed, minimum length 12.5 cm	1	1	-
Splinter forceps, stainless steel	1	1	-
Sterile eyewash solution, 10 ml single-use ampoules or sachets	12	6	-
Swabs, prepacked, antiseptic, packs of 10	1	1	-
Triangular bandages, minimum 90 cm	8	4	1
Wound dressings, sterile, non-medicated, large	10	3	1
First aid pamphlet (either St John, Red Cross or other approved)	1	1	1
Resuscitation face mask (Laerdal)	1	1	1
Burns card (AIP)	1	1	1

Location of first aid boxes

- No employee should be more than 100 metres from a first aid box, and no more than one floor above or below a first aid box.
- All boxes should be in close proximity to running water.
- All boxes should be marked according to AS 1319-1994 Safety Signs for the Occupational Environments sign 471-white cross on green background.
- All vehicles should carry a first aid kit.
- All boxes should be marked with the name of the first aider in charge of the box and the usual work location.

- A list should be maintained of all boxes and their location at each box site.

Content of first aid kits

There are three types of first aid kits (A, B and C). In any workplace, the total number of workers at any time determines the content of the required kit.

- Kit A more than 100 employed
- Kit B less than 100, but more than 10
- Kit C less than 10 and company vehicles

3.6.3.7 REPORTING OF FIRST AID TREATMENT

Where first aid treatment is provided to any person, the person's particulars and other relevant details should be recorded in a first aid register, the quarry diary or a first aid treatment notebook.

Reporting first aid treatment is especially important for minor injuries where a doctor's visit is not required, as it provides the evidence that a person was injured at work and will protect their rights to compensation should a claim be lodged in the future.

REFERENCE DOCUMENT

"Advisory Standard for First Aid", Queensland Department of Employment, Training and Industrial Relations.

3.7 MANUAL HANDLING

3.7.1 INTRODUCTION

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 instruction, 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 inexperienced workers.

Most manual handling injuries are strains and sprains, and the most frequently injured part of the body is the back. Some manual handling back and neck injuries can cause workers long months of pain and rehabilitation. Serious strain injuries may require surgery and occasionally may cause life-long disability and loss of career.

3.7.2 WAYS TO REDUCE THE RISK

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 inexperienced workers.

It is the employer's responsibility, as far as possible, to provide a safe working environment, which includes:

- safe plant and equipment;
- safe protective equipment;
- manual handling aids if necessary; and
- rest or exercise breaks during tiring or repetitive tasks.

Reducing hazards should be part of the safe work procedure for each task in the workplace.

3.7.3 SAFE WORK PROCEDURES

It is the employer's responsibility to provide the employee with safe work procedures, and with education, training and supervision for manual handling tasks.

Each manual handling job or task should have its own safe procedure. Some safe procedure steps include:

- the task should be planned before work begins;
- employees should be trained in the skills required;
- employees should be told about potential hazards;
- the way should be cleared to avoid bumping into or tripping over things; and
- suitable protective clothing should be provided and worn.

Safe work procedures should reduce lifting, carrying, pushing, pulling, lowering, throwing, holding, or tasks requiring the use of force. They should:

- remove unnecessary tasks;
- prevent double handling;
- prevent heavy carrying;
- provide rest breaks during heavy or repetitive work;
- provide shelf storage for heavier objects at waist level, smaller objects on high or low shelves; and

- provide such mechanical aids as trolleys, hoists, levers, adjustable height workbenches and seating, hooks and jacks, tools and equipment kept within easy reach.

Specific tasks may be to:

- lighten loads (break loads into smaller quantities);
- reduce bending, twisting, reaching movements;
- use two people to carry bigger loads; and
- prevent muscle strain and fatigue. This includes warming up before working, allocating time for rest breaks, and allowing time to gradually get used to a new job.

Statistics show that most of the victims of back strains are below the age of 20 or above the age of 60. This points to inexperience and lack of supervision and training in the former group, and to an accumulation of minor damage and decreasing physical resilience in the latter. As a rough rule of thumb, persons should not lift unassisted, weights greater than about 20kg. Reference should be made to the Manual Handling Code of Practice–Worksafe Australia. Observation of the few golden rules of lifting listed below could dramatically reduce the injury rate.

Dos and Don'ts

Dos

- Bend the knees, but not beyond a right angle.
- Keep the back straight, but not vertical.
- Lift using the strong thigh and calf muscles.
- Keep the centre of gravity of load and body in line with the feet.
- While carrying, clasp the load close to the body.

Don'ts

- Do not turn the body or head while lifting. Lift, then pivot on feet.
- Do not jerk or snatch. Slowly accelerate the load.
- Do not use the weak back muscles to lift.

REFERENCE DOCUMENTS

1991, Code of Practice for Manual Handling, NSW WorkCover Authority.

Manual Handling, CSIRO Minerals.

Manual Handling in the Meat Industry, WorkSafe Western Australia

1998, Boral OH&S Manual.

3.8 PERSONAL PROTECTION

Personal protective clothing and equipment (PPE) is often treated as if it were the only control measure needed to prevent occupational injury and disease. There are, however, other far more effective steps which should be taken first to control hazards at work.

Using PPE does not remove or even control a hazard. It just limits exposure. The hazard still exists. This means that the workplace is not intrinsically safe.

Properly used, PPE limits the exposure to a particular hazard, and although protective equipment is often calibrated, tested and certified to a certain level of effectiveness, it is still difficult to measure what level of protection is actually being achieved by the wearer. For example, if a noisy machine is replaced by a quieter machine, the new sound level can be measured. You can find out what level of noise employees are exposed to and determine whether this is safe. On the other hand, if earmuffs are issued to employees instead, the amount of noise getting through the earmuffs into employees' ears cannot be measured. All that can be measured is the damage done by the noise. Clearly, it's much more effective to control the hazard so that the PPE is not needed.

All employees who may be required to wear personal protective equipment should be instructed and trained to ensure that they understand when it should be used, how it should be maintained and its limitations.

3.8.1 USE OF PROTECTIVE CLOTHING AND EQUIPMENT

All employees who may be required to wear personal protective equipment should be instructed and trained to ensure that they understand when it should be used, how it should be maintained and its limitations. Other factors include the following.

- Selecting and using PPE can be an effective part of the health and safety program in the workplace, but it will only work if it is:
 - selected carefully;
 - used and maintained properly; and
 - monitored carefully.

- Employers and contractors must provide all equipment.
- Personal protection devices must be worn in all designated hazardous areas.
- Adequate protection for the entire body should be available.
- Sampling or testing should be carried out at each work site to gauge the level of exposure of staff to hazards and to determine if exposure is safe.
- Equipment and machinery should be built and installed in line with Australian engineering practices.
- It is better to install reliable engineering equipment than to rely on personal protection equipment.
- Australian Standards set out technical standards which all items of PPE should meet, and the Australian Standards sign appears on all items of PPE which are manufactured according to the relevant standard. There is an item of PPE on the market for just about every part of the body. These include the following:
 - *Headwear*: to protect the head from chemicals, the sun, or blows from falling objects—safety helmets, hats, balaclavas or hoods.
 - *Eye protection*: to protect the eyes from chemicals, the sun, flying objects—safety glasses, sun glasses or chemical goggles.
 - *Ear protection*: to limit exposure to damaging levels of noise—earmuffs, earplugs.
 - *Hand protection*: to protect hands from cuts and abrasions, and chemicals—gloves.
 - *Feet protection*: to protect the feet from chemicals, and blows from falling objects—rubber boots or steel-capped boots.
 - *Body protection*: to protect the body from bad weather, chemicals, the sun, falls and flames—bluey jackets, aprons, overalls, shirts, trousers, safety belts and harnesses.

- *Respiratory protection*: to prevent breathing in too much of a poisonous substance-air-purifying respirators which reduce the amount of poisonous substances in the air being breathed, and supplied air respirators which provide clean air.

On its own, PPE will not be effective in reducing workplace injury and disease. Its use must be part of the overall health and safety strategy in the workplace. The effectiveness of most types of PPE is drastically reduced if they are not used constantly.

3.8.2 SELECTION OF PERSONAL PROTECTIVE CLOTHING AND EQUIPMENT

The most important consideration in the selection of PPE is the nature of the hazard. For example, in order to select appropriate hearing protectors, the precise characteristics of the noise in the workplace needs to be identified. The correct types of hearing protectors can then be identified for the main frequencies of noise in the workplace.

In the case of respiratory protection, the range of airborne chemicals must be identified and their concentrations measured. Different types of respirators and different types of filters protect against exposure to different chemicals. For example, an acid gas filter is not appropriate when there are dangerous levels of ammonia in the air.

As well as the detailed hazard evaluation, you must consider the following:

- Relevant Australian Standards, Codes of Practice and Regulations. A number of Australian standards provide guidance on the selection of appropriate PPE (for example, AS 1270 1983 Hearing Protection Devices; AS 1715 1982 Selection, Use and the Maintenance of Respiratory Protective Devices).
- The range of PPE required for a specific workplace environment to protect against more than one hazardous element. If several different items of PPE are needed, the constraints on wearing them all at once must be taken into account. For example, if a respirator and safety glasses are needed, a full-face respirator may be the best option. Safety glasses may not sit properly and may also prevent proper sealing with a half-face respirator. Likewise, if a safety helmet and hearing protection are both required, special types of equipment may be your best option. Some safety helmets come with earmuffs already attached to the helmet. If the noise reduction characteristics of these models are appropriate, these helmet and earmuffs combination can be more comfortable and effective than helmets and earplugs.
- The use of PPE must be carefully monitored.

Common problems with PPE may include the following:

- *Lack of protection as claimed on equipment*: If equipment is not manufactured to strict standards and is not carefully maintained, it will not perform the job it is supposed to do. Make sure that all PPE used in your workplace is marked with the Australian Standards symbol, and is maintained according to the manufacturer's specifications. It is an employer's responsibility to ensure that this is carried out.
- *Discomfort and difficulty working*: PPE is often uncomfortable, making it difficult to work effectively. This may cause stress, increase the time spent working in dangerous environments, and make it less likely that PPE will be used to the full extent it should be. By using PPE only as a last resort for protection, it is possible to reduce the amount of PPE needed, and the length of time it has been worn.
- *Inability to see or hear properly*: Some equipment or clothing may limit employees' field of vision or hearing range. As well as making it difficult to work effectively, if employees can't see or hear properly, then they may be unable to see or hear warnings. There may, therefore, be more risks from the other types of accidents on the job.
- *False sense of security*: Wearing PPE may give a false sense of security, so that not all of the other, far more important, necessary precautions are taken. For example, safety gloves will not be much protection if a

chemical is dripping down an employee's arm. It is essential that all other control measures are followed, even if PPE is worn.

- *Diverts attention:* Use of PPE may divert attention from more effective control measures, such as redesign of processes and substitution of materials. It is essential that other control measures continue to be tried even when PPE is in use. (For example, earmuffs might continue to be used by operators of a very noisy machine, even when a cheaper, quieter machine is available simply because PPE has become the approach to occupational health and safety.)
- *Infection:* Infection may result unless PPE is personally issued and fitted; cleaned regularly and thoroughly; maintained properly; and employees are trained in its use. (For example, sharing respirators is certainly one way to spread colds and flu, and wearing dirty earplugs can cause ear infections.)

Remember: The use of personal protective clothing and equipment does not remove the hazard. All it does is to reduce the risk of injury or disease as long as it is selected carefully, used and maintained properly and employees are trained in its use.

3.8.3 HEAD PROTECTION

3.8.3.1 SAFETY HELMETS

Any persons likely to bump their heads or to be hit by falling objects must wear protective helmets. These are compulsory for all employees, contractors and visitors in designated Safety Helmet Areas.

Types of helmets needed at different sites are set out in AS 1800 1981 The Selection, Care and Use of Industrial Safety Helmets and AS 1801 1981 Industrial Safety Helmets (incorporating amendment 1). Managers should determine conditions and sites where head protection is not required.

Attachments such as earmuffs, visors, lamp brackets and cable clips can be fitted to safety helmets.

Bump/laceration hats must not be substituted for safety helmets where these are required.

Wide-brimmed hats will be required for employees working outdoors for the protection from heat stress.

Hoods may be required on their own or in conjunction with respiratory protection for certain hazards, for example, heat stress environments, abrasive blazing.

3.8.3.2 HAIR NETS

Staff with long hair or beards that could be caught in machines should tie hair back or wear protective hair nets.

3.8.3.3 EYE PROTECTION

Safety spectacles with side shields should be used in all areas where there is the possibility of eye damage from flying particles.

Goggles should be used when extra eye protection is required, for example, grinding.

Face shields provide additional protection for high temperatures, high density/impact particles or against chemical splashes, for example, washing concrete trucks with diluted hydrochloric acid.

Eye-protection equipment should comply with:

- AS 1336: Recommended Practices for Eye Protection in the Industrial Environment;
- AS/NZS 1337: Eye Protectors for Industrial Applications; and
- AS/NZS 1338: Filters for Eye Protectors;

Mine operators may choose:

- conditions under which eye protection aids are worn in mines; or
- sites in which eye protection aids are worn in mines, or both.

However, employees may request provision of eye protection in any location with high air velocities, or for specified tasks.

3.8.3.4 HEARING PROTECTION

Hearing protection must comply with Australian Standards:

- AS 1269–Occupational Noise Management; and
- AS 1270–Acoustics–Hearing Protectors.

Earmuffs are the hearing protection choice in most workplaces. They are available in light, medium and high-performance models, depending on the degree of sound attenuation required. Selection is also on basis of attenuation of the different frequency components of the offending noise. Replacement cushions are available, as are absorbent liners, to minimise irritation from sweat. Earmuffs suitable for wearing under welding helmets are available.

Earplugs should be available as an alternative for people who experience difficulty with earmuffs, as long as they provide sufficient sound attenuation for the work situation. The types that can be inserted into the ear using a small tag attached to the external part of the plug are preferable to the types that have to be rolled between the fingers.

Earplugs will give the stated protection ONLY if they are correctly inserted into the ear canal.

3.8.3.5 RESPIRATORY PROTECTION

Respiratory protection must comply with Australian Standards:

- AS/NZS 1716–Respiratory Protective Devices; and
- AS/NZS 1715–Selection, Use and Maintenance or Respiratory Protective Devices.

Careful assessment of the respiratory hazard must be made to ensure the correct degree of protection is given to employees.

Disposable Respirators are available in different thicknesses, and must be discarded when resistance to breathing increases or when breakthrough of vapours is suspected (for example, increase in smell of filtered air).

Caution: Single-strap disposable respirators are not to be used in the workplace unless they conform with AS/NZS 1716. Verify this by the markings on the mask or by contacting your supplier of the masks.

Half and Full-Face Respirators are to be used in conjunction with the appropriate filter for the hazard in question. Use only filters (or cartridges)

with the same brand name as the respirator mask. Powered Air Purifying Respirators (PAPR) provide a purified positive pressure air stream by drawing air through filters using a battery-operated pump worn on the person.

Air Line Respirators provide a pure air supply from a remote air source. Use these where the oxygen content of the atmosphere is deficient or uncertain.

Self Contained Breathing Apparatus (SCBA) are to be used when maximum respiratory protection is required and there is space for the employee to carry out the task required while wearing air tanks. Time of use will be limited by tank capacity.

Self-rescuer masks

Managers should gauge the risk level at all sites and then determine when, where and what type of breathing protection to provide. Managers also should stipulate:

- conditions and mine areas in which self-rescuer masks (protective mouth and nose pieces made of chemical gauze to filter air) should be used, carried, or worn;
- distribution point(s) and availability of self-rescuer masks;
- purposes for which self-rescuer masks are to be used; and
- testing and maintenance requirements for self-rescuer masks.

Respirators

Particle size ranges are important when considering respiratory protection. Large particles usually are unable to enter lungs, while very small particles are inhaled and exhaled without being retained in the lungs. Other particles in the respirable range (see figure 1) can be dangerous if they enter and remain in the lungs.

Filter-type respirators are not suitable for sites with depleted oxygen levels. A comprehensive guide to selection, use and maintenance of respiratory protective devices is in AS/NZS 1715: 1994 Selection, Use and Maintenance of Respiratory Protective Devices and AS/NZS 1716: 1994 Respiratory Protective Devices.

TABLE 3.1 GAS AND VAPOUR FILTERS

TYPE	APPLICATION
A	Vapours of organic solvents (boiling point >65°C)
B	Acid gases (chlorine, hydrogen sulphide, hydrogen cyanide)
E	Sulphur dioxide
G	Agriculture low vapour pressure pesticides
K	Ammonia
Hg	Mercury
NO	Oxides of nitrogen
AX	Organic vapours (boiling point <65°C)

TABLE 3.2 GENERAL CLASSIFICATION FOR FILTERS

TYPE	CLASS	FILTER PERFORMANCE
Gas & capacity vapour	1. (Disposable & Cartridge)	Low (L) absorption
	2.	Medium (M) capacity
	3. (Canister)	High (H) capacity
Particulates	P1	(L) – used for mechanically generated particulates
	P2	(M) – used for mechanically & thermally generated particulates
	P3	(H) – for all particulates, including highly toxic materials

The three main categories of air-purifying respirators include:

- gas filter respirators;
- particulate filter respirators; and
- combined gas and particulate filter respirators.

Filter respirators are available in various configurations with many combinations of face pieces and filters. Some recognised suppliers are listed towards the end of this section.

Caution: Gas filters will not provide protection against dust, and dust filters will not provide protection against gas.

In the context of respiratory protection, the term “particulate” refers to any solid or liquid particle suspended in air, including dusts, mists, smokes and fumes. The term “fumes” refers to particles resulting from the heating of a solid to such an extent that it vaporises and then condenses into small particles in the surrounding air.

Fumes are not gases and vapours. (“Nitrous fumes” is commonly used in mining terminology to describe oxides of nitrogen gases.)

Classification of filter respirators

Table 3.1 shows types and applications of gas and vapour filters.

Table 3.2 shows the general classification for vapour and gas as well as particulate type filters. There are combination gas and particulate filters (example: 1-P2 filter) which have low absorption capacity for gases and are suitable for mechanically and thermally generated particles.

Particulates can be generated from mechanical activities including grinding, blasting, mixing powders, spraying and sanding. Mechanical particulates include:

- silica dust;
- coal dust;
- lead dust;
- mists; and
- asbestos fibres.

Welding, brazing and smelting create thermal particulates. These include:

- lead fumes;
- zinc oxide;
- welding fumes; and
- chromium fumes.

Respirator selection

Respirator selection is determined by:

- contaminant – nature/type (gas or particulate), toxicity, exposure standards, concentration;
- task – frequency and length of time for completion, location, maintenance; and
- facial size, an operator's acceptance and comfort.

It is important to ensure concentration of contaminants that the wearer breathes in are below the accepted level (usually the threshold limiting value [TLV]).

Selection is done after evaluating the likely range of contaminant concentration.

Do not use filters of one brand in the facepiece of another.

Respirators must fit the face to ensure maximum protection.

Contaminants may be inhaled, bypassing the canister or filter in facepieces that do not fit. Facial hair may prevent an effective fit and seal.

Fit respirators and test them before issuing.

One method to test how well respirators fit is to gauge the wearer's ability to taste a saccharine aerosol. Put 0.83% sodium saccharine solution in water in a nebuliser. Kits are commercially available. Before fit-testing, establish that the wearer is able to detect the aerosol taste. Alternative testing methods are available and may be more suitable for different applications.

Replace gas and particulate filters when:

- masks become difficult to breathe through or if they are damaged and no longer sealed (particulate filters collect dust that inhibits the flow of air); and
- an odour is detected in the inhaled air. Gas filters use sorbents and have a limited life. Half-facepiece gas and vapour respirators are only suitable for contaminants that can be detected by taste, smell or irritation before threshold limit values are reached, or after a predetermined period of time where they are in continuous use. Caution should be exercised if the contaminant is hard to sense.

Maintenance

Generally, all maintenance programs should follow manufacturers' instructions and include:

- cleaning and disinfecting equipment;
- storage;
- repair;
- inspection for defects; and
- an inspection record.

A used gas filter should be marked unusable and disposed of.

Inspect disposable respirators to determine if:

- the filter has holes;
- the straps are strong; and
- the metal nose clips need tightening.

Discard defective respirators.

Inspect reusable air-purifying respirators (half and full-face pieces) to ensure:

- they are clean and have no cracks, tears, holes, scratches or loose lenses, and are not distorted;
- head straps still have elasticity, and are not

torn or broken, and buckles are not serrated or worn;

- no valves are missing, all valves are free of dust and dirt, and valve covers are sealed; and
- correct types of filters are being used, gaskets and threads are not missing or worn, storage is secure, and the service date has not expired.

Half-face piece respirator suppliers list

Generally, use half-facepiece respirators for protection in conditions up to 10 x TLV (1 000 ppm). Greater protection requires the use of a full-facepiece. Do not use P1 filters for protection against highly toxic dusts such as salts of hexavalent chromium and cyanide, beryllium and arsenic.

Most suppliers of half-facepiece respirators can also give details on other types of face protection.

The following suppliers can assist operators in preliminary inquiries.

Disposable Respirators

- Particulate Filters P1 (low capacity)
MSA Australia Pty Ltd
Norton Pty Ltd
3M Australia Pty Ltd
- Particulate Filters P2 (medium capacity)
3M Australia Pty Ltd
- Gas and Vapour Respirators Class 1 (low capacity)
3M Australia Pty Ltd

Replaceable Filter Respirators

- Particulate Filters P2 (medium capacity)
MSA Australia Pty Ltd
Protector Safety Pty Ltd
Sundstrom Australia Pty Ltd
- Gas or Vapour Respirators, Class 1 (full-facepieces with these filters are Class 2)
MSA. Australia Pty Ltd
North Safety Industries Inc.
Protector Safety Pty Ltd
Sundstrom Aust Pty Ltd.
- Gas and Particulate Respirators
MSA. Australia Pty Ltd

Other suppliers include: Draeger Australia Pty Ltd, Fire Fighting Enterprises (Australia) Ltd, James North Australia Pty Ltd, Siebe Gorman Australia Pty Ltd, and Safety Equipment (Australia) Pty Ltd.

This list is not comprehensive and is a guide for operators.

3.8.4 HAND PROTECTION

Hand protection must comply with AS/NZS 2161 1-9 Occupational Protective Gloves.

Gloves are available in many different materials, depending on the protection required (for example: cotton, rubber, PVC, viton, stainless steel mesh, kevlar, leather. Selection must be based on the protection required for the particular hazards involved. They may be of wrist or elbow length).

Barrier Creams should be available at all work locations where materials are handled that are likely to cause skin irritation (for example, solvents, oils, grease).

Industrial hand cleaners care must be taken to use cleaners that will not damage the skin, which may occur if the cleaner is unduly abrasive, has a high pH, or contains solvents.

3.8.5 FOOT PROTECTION

Foot protection must comply with a joint Australian & New Zealand Standards AS/NZS 2210.1 to 9 2000/01 Occupational Protective Footwear.

Safety footwear such as steel-capped boots, shoes or waterproof boots should be compulsory, except where there is absolutely no risk of foot injury (for example: offices, cafeterias or plant control rooms. A wide variety of styles and fittings are available).

Leather spats are available for wearing over shoes/boots to prevent welding sparks from dropping into the footwear.

Staff working on broken ground should wear footwear that gives ankle support and metatarsal protection. AS 2210 does not give complete guidance, and general managers should also refer to Canadian Standard CSA Z195 - M92 Protective Footwear.

3.8.6 BODY PROTECTION

Staff working close to machinery must wear close-fitting and close-fastened garments that cannot get tangled in machinery. Do not wear jewellery or personal ornaments near machinery.

Advice on suitable clothing is in AS 3765.1 1990 Clothing for Protection Against Hazardous Chemicals: Protection Against General or Specific Chemicals and in AS 3765.2 1990 Clothing for Protection Against Hazardous Chemicals: Limited Protection Against Specific Chemicals.

Polyester/cotton blend uniforms should be avoided whenever employees have to perform welding or flame cutting tasks where there is a potential risk of fire (for example: handling LPG, or where heat stress or hot ambient conditions prevail).

Cotton uniforms should be provided in the above situations, and, if necessary, flame-retardant material should be used.

Overalls are required to protect people when engaged in dirty tasks, and may be cotton or disposable.

Aprons may be made from rubber, PVC, or leather, and may be heavy or lightweight. They are required when extra body protection is needed (for example, welding, handling chemicals).

Jackets are required for protection in cold weather, may be "parka", "Bomber" or "Bluey" style, and are made from wool or water-resistant material.

Sleeves, knee pads and elbow pads are all available for extra protection when required.

3.8.7 FALL-ARREST DEVICES

Fall arrest devices must comply with Australian Standards:

- AS/N25 1891 – 1983 Industrial Fall-Arrests Systems and Devices.

Fall-arrest equipment should be designed and used to reduce the possibility of injury if a worker falls.

Safety belts and harnesses, lanyards, safety lines, descent-control units, fall arresters and safety attachments for ladder work are available. Advice may be needed to determine the most suitable equipment for a particular job. Thorough training

in the use of these devices is essential as serious injury can result if they are incorrectly used.

3.8.8 WELDING PROTECTION

The hazards associated with welding require special protection for employees, including:

- welding helmets incorporating a shade filter cover lens;
- leather aprons;
- spats, leggings;
- gloves; and
- respiratory protection when necessary.

REFERENCE DOCUMENTS

Occupational First Aid Manual, St John Ambulance, Australia.

Australian First Aid Manual (Vol 1 and 2), St John Ambulance, Australia.

AS 1270 – 1988 Acoustics Hearing Protectors.

AS 1319 – 1994 Safety Signs for the Occupational Environment.

AS/NZ 1336 – 1997 Recommended Practices for Occupational Eye Protection.

AS/NZS 1337 – 1992 Eye Protectors for Industrial Applications.

AS/NZS 1338 Filters for Eye Protectors.

AS/NZS 1715 – 1994 Selection, Use and Maintenance of Respiratory Protective Devices.

AS/NZS 1716 – 1994 Respiratory Protective Devices.

AS 1800 The Selection, Care and Use of Industrial Safety Helmets.

AS 1801 – 1997 Industrial Safety Helmets (incorporating amendment 1).

AS/NZS 1891 – 1995/2001 Industrial Fall Arrest Systems and Devices.

AS/NZS 2161 – 2002 Occupational Protective Gloves.

AS/NZS 2210 Occupational Protective Footwear.

AS 2430 Classification of Hazardous Areas.

AS 3765 1990 Clothing for Protection Against Hazardous Chemicals.

SAA HB 13 1992 Electrical Equipment for Hazardous Areas.

“Personal Protective Equipment” Section B4, Princeton University Health and Safety Guide.

“Boral OH&S Manual”, Boral.

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