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# Guideline for the management of acute workplace injury and illness

## First Aid in NSW coal mines

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**MDG 1016**

**Produced by Mine Safety Operations Division,  
New South Wales Department of  
Primary Industries**

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*Note: This publication is currently being reviewed*



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# FIRST AID IN NEW SOUTH WALES COAL MINES

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Guideline for the management of  
ACUTE WORKPLACE INJURY AND ILLNESS

MDG 1016



# FOREWORD

The 'First Aid in New South Wales Coal Mines: Guideline for the Management of Acute Workplace Injury and Illness' (First Aid Guideline) was developed following a request by the Joint Safety Review Committee during the formulation of new regulations under the Coal Mines Regulation Act, 1982, as amended.

The intent of the new regulations is to require coal mines to implement a First Aid System at the mine. The guideline was developed from the Queensland "Code of Practice for First Aid in the Workplace", issued 20 May 1994 by the Department of Employment, Vocational Education, Training and Industrial Relations, Division of Workplace Health and Safety. It will be the basis of the Code to be issued by the Chief Inspector of Coal Mines and which is to be used in the preparation of the mines First Aid System.

The guideline provides practical advice to NSW coal mine employers regarding first aid facilities and services at NSW coal mines. It would be expected that all Managers of NSW coal mines would review this guidance material to assess existing facilities and services to determine their future adequacy under the proposed legislative change.

Guidance materials were previously available from the Joint Coal Board via Order 108 "First Aid Facilities".

Legal documents referring to first aid in NSW which are relevant to coal mining are:

- ▶ *The Occupational Health and Safety (First Aid) Regulation 1989*
- ▶ *Coal Mines Regulation (General Welfare and First Aid - Underground Mines) Regulation, 1984*
- ▶ *Coal Mines Regulation (General Welfare and First Aid - Open Cut Mines) Regulation, 1984*

The Coal Mines Regulation references will change when the revised Coal Mines Regulation is implemented in 1999.

First Aid facilities and services form part of the OH&S management system for coal mines (refer chart attached over page). The first aid facilities and services are typically considered in the process of hazard and risk identification and in the development of emergency response protocols. This Guideline is structured to assist coal mines personnel to effectively address first aid issues.

The preparation of this document involved the input and support of Rob Barker (United Mine Workers Federation), Hinea Clark (Joint Coal Board), Liz Sanderson (Drayton Coal and the NSW Minerals Council), and Geoff Simpson and Leo Roberts (Department of Mineral Resources). Noel Pye assisted in a consulting role. Additional comments were obtained from other coal industry representatives. All these contributions are gratefully acknowledged.

The Joint Coal Board contributed to financing the publication of the First Aid Guideline and this support is gratefully acknowledged.

The document will be reviewed as required, particularly when the conversion of the document to a Code of Practice is imminent.

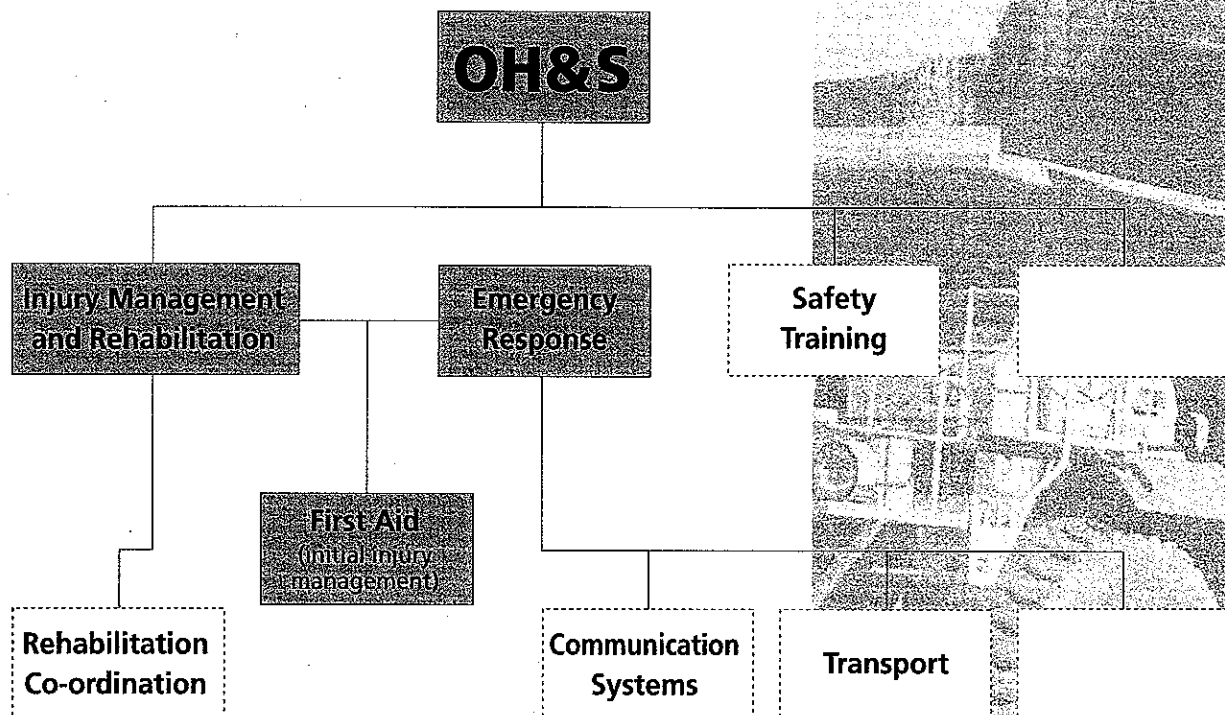
**Bruce McKensy**  
*Chief Inspector of Coal Mines – October 1998*

Comments on any aspect of this guideline will be welcomed and should be submitted in writing to:

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# A TYPICAL ILLUSTRATION OF WHERE FIRST AID IN A COAL MINE FITS WITHIN OH&S MANAGEMENT SYSTEM



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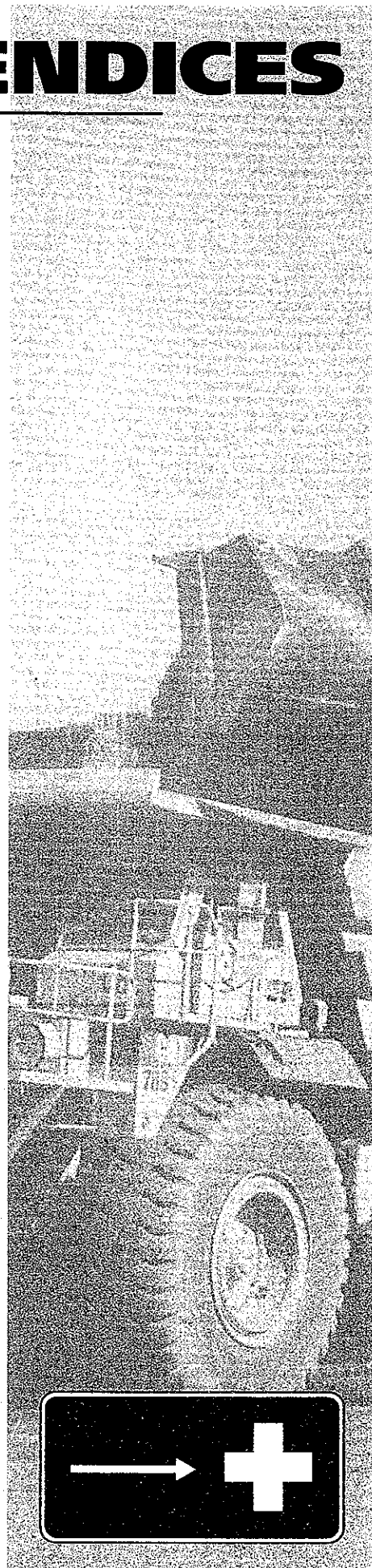
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# 1. INTRODUCTION

This guideline of practice is called the 'First Aid in New South Wales Coal Mines: Guideline for the Management of Acute Workplace Injury and Illness'. For ease of reference, it may be called the 'First Aid Guideline'.

This Guideline applies to all coal mines and declared plants defined as a workplace - see the glossary on this page for a definition.

This guideline provides practical guidance to an employer about first aid facilities and services at coal mines or declared plants. It provides information about:

- ▶ *selection;*
- ▶ *provision;*
- ▶ *maintenance; and*
- ▶ *use.*

First aid facilities and services are provided for treating persons suffering injury or work-related illness at a workplace.

However, measures should be introduced to eliminate or reduce the risks of the injury or illness occurring.



## Glossary - what the terms mean

In this Guideline you will find a number of words or terms which have very specific meanings. Here is a list:

**"at work"** means any place where employees are required to be while performing work for the employer.

**"contractor"** means a person engaged for hire or reward other than an employee.

**"consultation"** means the sharing of information and exchange of views on health and safety issues between employers and employees and their representatives about first aid.

**"employee"** means a person who performs work for an employer.

**"employer"** includes a person who, in the course of business, engages the services of another person in the performance of any work and also includes a self-employed person.

**"first aid"** means the initial treatment or emergency treatment of an ill or injured person at the workplace until transfer to the definitive carer is achieved. The proper management of first aid is the incorporation of those services, facilities and personnel needed to deliver first aid in a timely and effective manner.

**"first aid facilities"** means:

- ▶ a first aid kit;
- ▶ emergency response kit;
- ▶ a first aid room; and
- ▶ first aid equipment, for example, oxygen equipment and a stretcher.





**"first aid personnel"** means any person who holds a current first aid certificate.

**"first aid qualification"** means:

- ▶ A current Senior First Aid Certificate (or equivalent) or Occupational First Aid Certificate issued by an organisation as in the list in Appendix 10 or as subsequently amended and issued by WorkCover New South Wales;
- ▶ A qualification equivalent to; Medical Practitioner, Registered Nurse and NSW Ambulance Officer.

**"first aid requirements"** means the requirements for first aid facilities, services and personnel at a workplace;

**"first aid services"** means any procedure or method associated with the provision of first aid at a workplace;

**"hazard"** means a source or potential source of injury or illness;

**"occupational health service"** means a specialised service for the purpose of conserving, promoting and restoring the health of a person at a workplace;

**"practicable"** means practicable having regard to:

- ▶ the nature of the employment or, as the case may be, the particular aspect of the employment concerned; and
- ▶ the severity of any potential injury or harm to health or safety that may be involved, and the degree of risk that exists in relation to such potential injury or harm; and
- ▶ the state of knowledge about the injury or harm to health or safety that may be involved, about the risk of that injury or harm to health or safety occurring, and about any ways of preventing, removing, or mitigating that injury, harm or risk; and
- ▶ the availability and suitability of ways to prevent, remove or mitigate that injury or harm to health or safety or risk; and
- ▶ whether the cost of preventing, removing or mitigating that injury or harm to health or safety or that risk is prohibitive in the circumstances;

**"risk"** means the likelihood of a hazard resulting in an injury or illness together with the seriousness of the injury or illness;

**"workplace"** means any mine as defined in section 5 of the Coal Mines Regulation Act 1982 or any declared plant as defined in section 145a of the Coal Mines Regulation Act 1982.



## 2. AN EMPLOYER'S RESPONSIBILITY

An employer must provide adequate first aid facilities and first aid personnel.

First aid requirements should be determined by identifying the types and likelihood of workplace injuries and illnesses.

### Consulting with employees

Employees and or their representatives should be consulted on proposed changes to the workplace and any work activities affecting or likely to affect health and safety.

Employees' representatives possessing appropriate skills, knowledge or experience must be consulted regarding (and be given an opportunity to participate in) the development and revision of a first aid system.

The relevant draft provisions of the Coal Mines (General) Regulation 1999 are detailed in Appendix 1.

### Role of health and safety representatives

An employee workplace health and safety representative must be permitted to:

- ▶ *inspect the workplace for which that person is the representative;*
- ▶ *report in writing to the employer's representative about all matters which in the representative's opinion concern the health and safety of persons at the workplace;*
- ▶ *participate in the activities of a health and safety committee, where a committee is established.*

Consultation should occur as early as possible when planning the introduction of any changes to facilities or in a review of existing facilities. This will enable changes arising from the consultation to be incorporated.

For consultation to be effective, the employer should ensure that:

- ▶ *procedures for consultation are developed and disseminated widely at the workplace;*
- ▶ *the employer and employee health and safety representatives will have access to relevant information on first aid at the workplace;*
- ▶ *the employer and employee health and safety representatives will have sufficient time to consider the implications of any information acquired.*

### Confidentiality of information

First Aid personnel should be aware that the purpose for which they are collecting personal health information is to help in the treatment and recovery of an injured worker. The type of information collected should be consistent with the information required for a Workplace Register of Injuries or other relevant work injury forms.



Records produced as a result of administering first aid and the Register of Injuries are the property of the employer. Access to that information should be available to the individual appointed first aid personnel and the employee or the employee's representative.

In the course of their duties, doctors, nurses and qualified ambulance personnel may collect more detailed personal health information to assist in the ongoing treatment and management of an employee injured at the workplace.

Other personal information disclosed about the health of an employee and not relevant to the workplace should be regarded as strictly confidential.

## Keeping records

Forms for recording work injuries and work-related illnesses including first aid treatment should be kept at, or near, first aid stations.

Records must be maintained for any workplace injury or illness. These records are to be retained at the workplace. A useful guide for recording workplace injury and disease is provided in AS1885.1 - Describing and reporting occupational injury and disease. The minimum information required is demonstrated in Appendix 2.

## Use of first aid records

A copy of a first aid record should accompany the injured or ill person when the person is being transferred to a local medical service or hospital. An employee should be given a copy of their first aid record or have access to that record on request. The employer must retain a copy of first aid records to meet the provisions outlined above.

This information may also be used:

- ▶ *to identify areas likely to give rise to injury or work-related illness and review safety procedures for preventing further problems;*
- ▶ *to identify where first aid facilities and services are most needed;*
- ▶ *to implement safer and healthier work practices;*
- ▶ *as evidence of implementation of this guideline;*
- ▶ *to determine the need for education and training programs about safe and healthy work systems and procedures; and*
- ▶ *for purposes of workers compensation in accordance with the Workplace Injury Management and Workers Compensation Act 1998.*

## Information about first aid

Employers should ensure that all employees are informed about first aid facilities and services.

Information should be complete, easy to understand and accessible. That means taking into account the following for all target groups:

- ▶ *literacy levels,*
- ▶ *language factors and*
- ▶ *capabilities.*



Where appropriate, verbal methods (explanations, demonstrations), visual methods (videos, posters) and plain English or other appropriate languages should be used.

Employers need to ensure all employees know what to do, where to go and from whom to seek first aid.

Employers must provide information about first aid facilities and services to all employees when they begin employment.

Current information about specific risks in the workplace and changes affecting the provision and use of first aid facilities and services should be available to all employees.

Employers may provide information through:

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

Employees must be advised of the:

- ▶ *availability of first aid facilities and services;*
- ▶ *location of the nearest first aid facility;*
- ▶ *names and work locations of first aid personnel;*
- ▶ *procedures to be followed when first aid is required; and*
- ▶ *infection control procedures as appropriate.*



### Display up-to-date telephone emergency numbers

Employers should ensure up-to-date lists of the telephone numbers of emergency personnel and organisations are clearly displayed near central telephone and radio communication systems.

Key emergency personnel and organisations to be included on a list are:

- ▶ *the ambulance service;*
- ▶ *a doctor with whom arrangements have been made for emergency care;*
- ▶ *the nearest hospital with an accident and emergency department;*
- ▶ *the Poisons Information Centre;*
- ▶ *emergency services, i.e. Mines Rescue Service;*
- ▶ *District Check Inspectors; and*
- ▶ *critical incident debriefing services with which the site has an agreement.*

WRITE TELEPHONE DETAILS HERE

## Regular reviews

Employers should ensure that first aid facilities and services are regularly reviewed and audited in consultation with first aid personnel and employee representatives. Such reviews and audits should cover:

- ▶ *the effectiveness of first aid services; and*
- ▶ *the distribution of relevant information.*

Any changes determined as a result of the review and audit should be considered in consultation with employees. Changes, documentation and information should be implemented in accordance with section above titled 'information about first aid'.





# 3. FIRST AID REQUIREMENTS

First aid requirements can be determined using a risk management approach. This is a systematic method to:

- ▶ *identify causes of work injury and work-related illness;*
- ▶ *assess the risk of work injuries and work-related illnesses occurring;*
- ▶ *choose appropriate first aid facilities and services; and*
- ▶ *evaluate first aid facilities and services.*

Determining first aid requirements at a workplace will involve decisions in a range of areas including the:

- ▶ *selection, provision, and maintenance of first aid facilities and services;*
- ▶ *qualifications, selection and training of first aid personnel; and*
- ▶ *policies, procedures and processes associated with the use of first aid facilities and services.*

## Ways to identify potential injuries & illnesses

Employers have several ways of identifying potential sources of injury or illness. Selection of the appropriate method will depend on the work processes and hazards involved.

Methods may range from a simple checklist for a specific piece of equipment or substance to a more open-ended appraisal of a group of related work processes. A combination of methods may provide the most complete results.

Methods of identifying workplace hazards include:

**A walk-through survey** of the workplace. For complex work processes the use of an expert may be required.

**Review of "near miss" incident, accident and injury data** about the workplace helps identify problem areas. The use of data should not be the only way of identifying hazards. For reliable use of data there must be a suitable reporting, investigating and recording system and a certain number of incidents. However such data may cover past occurrences for that particular workplace and may not reliably indicate potential injuries and illnesses.

**Work process evaluation** can determine and evaluate the tasks associated with work processes that give rise to hazards.

**Consultation with employees** is a simple, effective means of identifying hazards at the workplace. Employees have the experience to assess what can go wrong and the reason it occurred.

**Material Safety Data Sheets and Product Labels** are an important source of information about the hazardous properties of chemical substances and their control. This includes appropriate first aid procedures.

**Specialist practitioners and representatives** of industry associations, unions and government may be of assistance in gathering and distributing health and safety information regarding workplace hazards, injuries and illnesses and in determining appropriate first aid resources.





Hazards that may result in injury or work-related illness should be identified in relation to the need for first aid facilities at the workplace. Effects may be direct injury effects or those arising from longer term exposure to the hazards. First aid will more likely be required for the effects of direct injury. These may include cuts, abrasions, fractures, burns, foreign bodies in the eyes, crush and compression injuries.

Likely injuries and work-related illnesses can be listed in order of potential severity, to create a priority order in which first aid requirements are identified.

## How to assess if injuries or illnesses might occur

To assess the risk of potential injuries, work-related illnesses and incidents, an employer should determine the:

- ▶ *frequency of exposure to causes of injury and illness at work;*
- ▶ *duration of exposure; and*
- ▶ *potential severity of outcomes.*

**1. Frequency of Exposure.** This is how often a risk may result in an injury, illness or incident. This may range from frequent to extremely unlikely depending on the nature of the hazard. Past injury records for the industry, occupation, type of plant or equipment, or work process may help determine the frequency of injury. For workplaces with less than 50 employees the use of statistical records may not be a reliable indicator of risk.

**2. Duration of Exposure.** This is the proportion of working hours during which an employee is exposed to a particular hazard. This can range from brief to continuous exposure to the hazard.

**3. Outcome.** This can range from simple bruises to fatal injuries. The expected severity of injury or work-related illness may be determined from experience within a workplace or information on the industry.

Assessment of these three factors will determine the likelihood of injuries or illnesses associated with a particular work process. Assessment requires good judgement and awareness of the potential risks of injury, illness or incidents occurring. This should be a consultative process with employees.

Prevention of injury or illness at the workplace is an objective of safety management systems in NSW Coal Mines. The development of quality first aid services and facilities is complementary to the development of prevention strategies.

### ***"PREVENTION IS BEST"***

***Don't rely on first aid provisions - prevention is the better alternative.***

Measures for eliminating or reducing, as far as practicable, the risks of injury and illness should be introduced. First aid aims to minimise the severity of injury or illness after it has occurred - it is not a preventative measure.



### **FINDING OUT MORE**



*Risk Management Handbook for the Mining Industry is a good reference source for hazard identification in the workplace. It is published by the Department of Mineral Resources. Publication reference is MDG1010.*

## Choosing first aid facilities and services

In choosing first aid facilities and services, you should consider the:

- ▶ *nature of the work in respect to hazards and risks;*
- ▶ *size and layout of the workplace;*
- ▶ *location of the workplace; and*
- ▶ *number and distribution of employees.*

### 1. Nature of the Work

Certain work environments have greater risks of injury and illness because of the nature of the work performed. This is an important criteria for deciding first aid requirements. Different first aid facilities may be required for different activities. For example, underground operations may require different first aid facilities to surface operations.

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 and, where applicable, the provision of poison antidotes. Additional first aid training for treatment of injuries specific to a workplace may also need to be provided.

Additional modules need to be considered for addition to a basic first aid kit and first aid room for treating specific injuries and illnesses such as burns, lacerations and poisoning. Examples of additional modules for treating these type of injuries are contained in Appendix 6. First aid personnel should be trained in the management of such injuries.

### 2. Size and layout of the workplace

Concerning the size and layout of a workplace, consider:

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

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:

- ▶ *the workplace is far from accident and emergency facilities;*
- ▶ *small numbers of employees are dispersed over a wide area;*
- ▶ *access to treatment is difficult; and*
- ▶ *a workplace has multiple floor levels.*

*You may need first aid to be AVAILABLE in more than one place.*



### 3. Location of the workplace

The distance of the workplace from ambulance, hospital and medical centres should be considered. Where medical aid cannot be reached within 30 minutes, access to a person trained in Occupational First Aid is necessary.

Section 4 provides further information about more advanced first aid trained personnel. The final decision depends on a combination of factors such as employee numbers, first aid personnel and the type of work. The needs of each workplace may be assessed with assistance of recognised and reputable external service providers as well as an assessment of the nature and seriousness of injuries likely to occur.

The time taken for medical aid to reach the casualty is more significant than distance. In remote areas additional first aid facilities and services should be provided. Where poor roads and adverse weather conditions apply, facilities for aerial evacuation - standardised to the provider's requirements - should be included when first aid facilities are planned. Efficient communication systems should be available for ensuring optimum response times.

### 4. Number and distribution of employees

The risk of injury or work-related illness is proportional to the number of employees.

Where there are separate work areas, it may be appropriate to locate first aid facilities centrally and provide first aid kits in each work area. To provide first aid facilities in all working areas, other factors should be considered, including:

- ▶ *whether employees work alone or in groups;*
- ▶ *employees' access to telephone and emergency radio communications;*
- ▶ *the nature of the work being performed; and*
- ▶ *location and remoteness of employees within the workplace.*

In some situations, the provision of small and more portable first aid kits to employees should be considered. Employees should be informed about the contents of these kits, their location and access arrangements.

Appropriate first aid facilities and personnel must be available whenever employees are at the workplace, including when overtime or shift work is being performed. Where members of the public may be present, access to first aid facilities and personnel should be made available when required.



# 4. FIRST AID PERSONNEL

First aid personnel undertake the initial treatment of employees suffering injury or illness at work. The initial first aid treatment provided to the worker should be consistent with the level of training and competence of the first aider.

First aiders should not be responsible for ongoing medical care. Where appropriate the first aider should recommend the worker seek medical advice.

This Guideline does not specify the number of employees who should have first aid skills but it does recommend that all employees should receive some basic first aid skills instruction, to help them to respond appropriately to an ill or injured worker.

This Guideline recommends that there should be a sufficient number of first aid personnel employed on all shifts with a Senior Level First Aid Certificate.

Where a first aid room is available for managing injuries and work-related illnesses, appointment of personnel certified in Occupational First Aid would be appropriate.

*All employees should have some basic first aid training.*

## Skills of a person with a senior first aid certificate

A person possessing a current Senior First Aid Certificate (or equivalent qualifications) should be able to:

- ▶ *undertake the initial treatment of injuries and illnesses occurring at the workplace; and*
- ▶ *record details of first aid given.*

Responsibilities of a person possessing a current Senior First Aid Certificate may also include:

- ▶ *maintaining a first aid kit matching the level of training undertaken and the requirements for the particular workplace; and*
- ▶ *ensuring first aid skills are maintained at an acceptable level, for example, by attending annual refresher courses in cardiopulmonary resuscitation (CPR).*

Senior First Aid Certificates are valid for three years from the date of issue.

## Skills of a person with an occupational first aid certificate

A person possessing a current Occupational First Aid Certificate will have:

- ▶ *broad first aid management skills including maintenance of a first aid room and use of first aid equipment; and*
- ▶ *broad knowledge of the hazards of the working environment and current workplace health and safety legislation.*



Responsibilities of a person with a current Occupational First Aid Certificate may also include:

- ▶ *providing advice to the employer about first aid facilities and services including first aid kits, rooms and procedures;*
- ▶ *maintaining a first aid room, first aid equipment and first aid kits; and*
- ▶ *ensuring first aid skills are maintained at an acceptable level, for example, annual refresher courses in CPR and training in the correct use of any additional equipment provided.*

Occupational First Aid Certificates are valid for three years from the date of issue.

## Who can provide training

First aid training may be carried out by an employee of an organisation approved by the WorkCover New South Wales to provide First Aid courses, as listed in Appendix 10 or as subsequently amended by that authority.

The validity of some first aid certificates may be subject to specific requirements, for example;

- ▶ *refresher training; and*
- ▶ *evidence of proficiency in cardiopulmonary resuscitation.*

The need for further training may be necessary when workplace changes are likely to alter the hazards and thus the type of potential injuries or work related illnesses. These needs may be identified as part of a review of first aid facilities and services, or as a result of the introduction of updated first aid equipment into the mining industry.

## Role for occupational health service

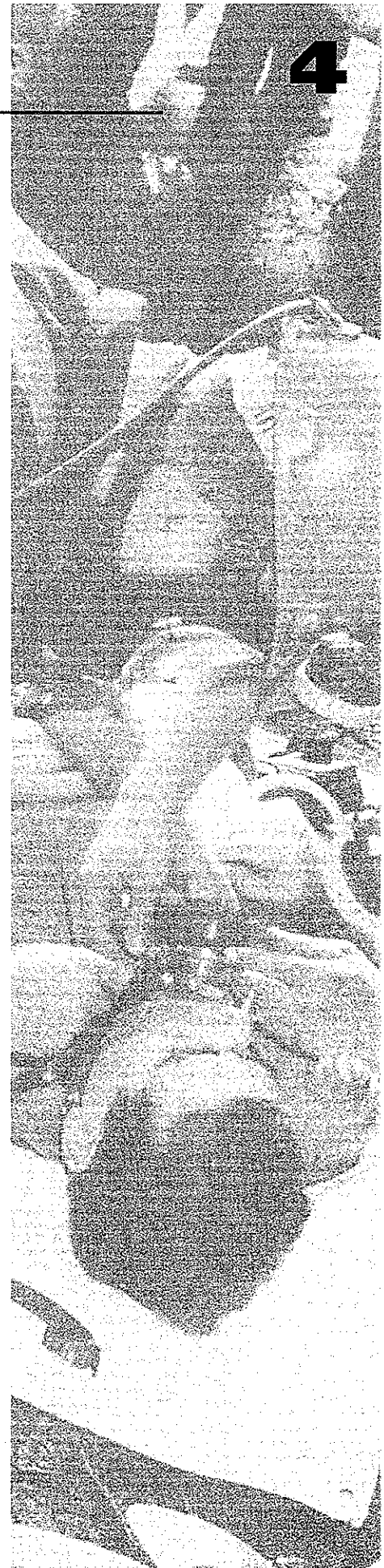
In certain high-risk situations with hazardous work environments, remote workplaces, or organisations with a large workforce, an occupational health service could be considered. This could include employing an occupational health professional with relevant first aid experience, such as a registered nurse, occupational therapist, or physician.

The responsibilities of an occupational health professional could include first aid responsibilities:

- ▶ *advising on first aid facilities and services such as first aid kits, rooms, procedures;*
- ▶ *maintaining a first aid room, first aid equipment and first aid kits in accordance with an acceptable standard; and*
- ▶ *coordinating the training of other first aid personnel.*

Other responsibilities could include:

- ▶ *conducting workplace assessments;*
- ▶ *coordinating health assessments;*
- ▶ *providing ongoing occupational health care for employees;*
- ▶ *conducting training and health promotion activities; and*
- ▶ *coordinating rehabilitation of ill and injured employees.*





# 5. FIRST AID KITS

First Aid kits should contain a range of items to assist in any situation where First Aid treatment is needed, from very minor injuries to life threatening occurrences.

People with First Aid training should use the kits and they should be dedicated to First Aid equipment only. They could be wall mounted cabinets, cupboards in a First Aid room or portable packs. However, determining the type, location and contents of such kits will be a decision for each workplace based on the assessment of risk described in Section 3.

Appendix 3 provides suggestions on the contents of first aid kits.

*Make sure your First Aid kit only contains First Aid equipment.*

## Taking responsibility for the kit

An employer should ensure a person with a Senior First Aid Certificate or higher qualification is responsible for any first aid kit including:

- ▶ *recommending actions regarding use, contents, modifications and maintenance;*
- ▶ *ensuring a first aid kit is accessible when employees are at work;*
- ▶ *checking and replenishing contents; and*
- ▶ *ensuring equipment and contents are within the "use by" dates.*

The employer must ensure the contents of first aid kits are appropriate for the types of injuries and work-related illnesses likely to occur at the workplace.

## Locations for the kit

First aid kits should be provided for employees working:

- ▶ *in remote areas from which access to accident and emergency facilities may be difficult or delayed (including returns); and*
- ▶ *away from their employer's establishment.*

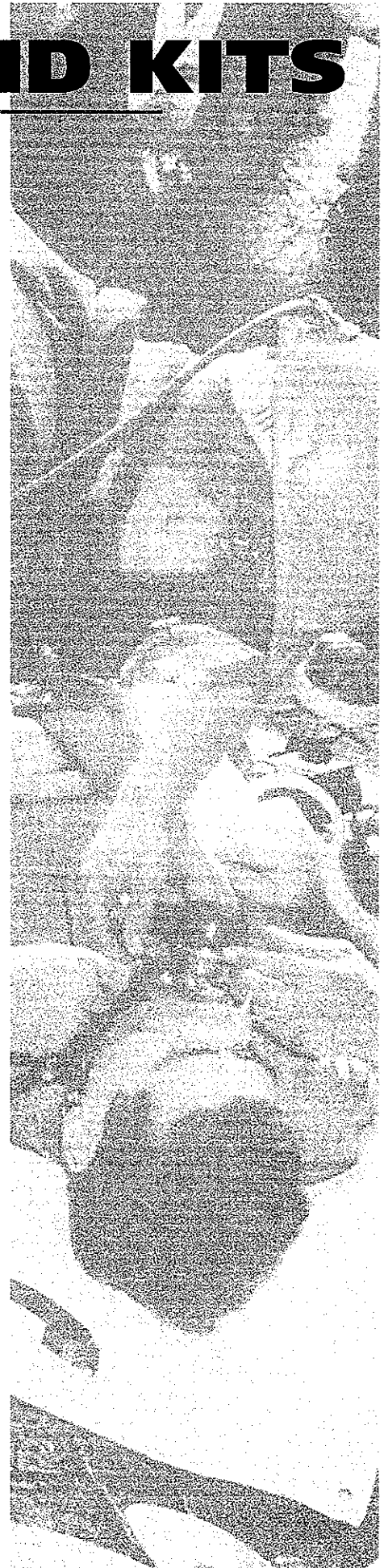
Until the revised regulations are enacted (anticipated 1999) reference should be made to the Coal Mines Regulation (General Welfare and First Aid - Open Cut and Underground) Regulations 1984 for advice on locations of First Aid Kits.

## Contents of the kit

The contents of a first aid kit listed in Appendix 3 are appropriate for work environments where the risk of serious injury or illness and the demand for first aid is standard.

In work environments where specific injuries and illnesses such as burns, lacerations and poisoning may occur, additional first aid kit contents should be provided and appropriately trained personnel appointed. Examples of additional first aid kit modules for treating specific injuries and work-related illnesses are provided in Appendix 6.

Appendix 6 also contains recommended additional contents of a first aid kit for working in remote locations.





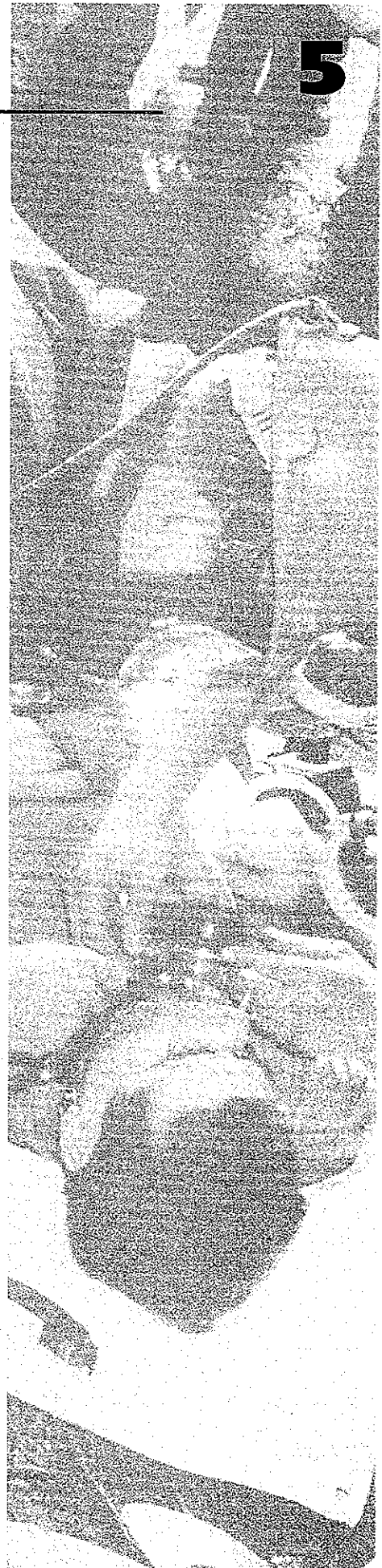
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## Size, shape and type of kit

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 the contents including any additional items.

Appendix 7 provides a checklist for assessing the appropriateness of a first aid kit in a workplace.

The first aid kit should have a white cross on a green background prominently displayed on the outside. See Appendix 8 for examples of suitable first aid signs.



# 6. EMERGENCY RESPONSE KITS

Emergency Response Kits are designed for fast and easy access of equipment for emergencies. They contain only essential items to assist in critical life threatening situations, such as profuse haemorrhaging or where CPR is needed. Their use is intended for the first person on the scene of an emergency who may be waiting for First Aid or Site Rescue Personnel to arrive with a full range of equipment.

## Taking responsibility for the kit

See Section 5

## Locations for the kit

Emergency Response Kits could be placed in all mobile plant, field vehicles, and amenities sheds. However determining the location and contents of such kits, or the need for such kits, will be a decision for each workplace based on the assessment of risk as described in Section 3. However for underground, an Emergency Response Kit should be placed in each working section, and any other remote area deemed necessary by risk assessment.

## Contents of the kit

Appendices 4 and 5 offers suggestions on contents of these kits for both open cut and underground mining.



# 7. FIRST AID ROOMS

The employer must provide a first aid room at the workplace.

Until the revised regulations are enacted (anticipated 1999) reference should be made to the Coal Mines Regulation (General Welfare and First Aid - Open Cut and Underground) Regulations 1984 for advice on locations of First Aid Rooms.

## Taking responsibility for the First Aid Room

A person with a current Occupational First Aid Certificate should be responsible for the room and its contents, assessing requirements and maintaining facilities and equipment.

The room and first aid personnel responsible for its facilities and equipment should be readily available when employees are at work, and should be contactable by telephone or radio.

## Location of the First Aid Room

The first aid room should be close to motor vehicle access to assist with transporting injured or ill employees to medical assistance. Entrances and corridors should be wide enough to permit transport of injured or ill persons supported by a stretcher, wheelchair, carrying chair or other people. The room should have close access to toilets and a telephone. Suitable seating should be provided close to the first aid room if employees have to wait for treatment.

## Facilities and equipment in the First Aid Room

The room should be large enough to accommodate furniture and equipment. There should also be enough space for people to work. The room should have an impermeable floor covering and be effectively ventilated, heated and lit.

Facilities and equipment for first aid rooms are listed in Appendix 9.

The room should be clearly identified as a first aid room by a suitable sign with a white cross on a green background. See Appendix 8 for examples of suitable first aid signs. A notice should be attached to the door of the first aid room showing clearly:

- ▶ *the name of the person in charge;*
- ▶ *the name of the person on duty;*
- ▶ *locations of the nearest first aid personnel; and*
- ▶ *emergency telephone numbers. (see section 2)*

## Keep the First Aid Room clean

The room should be kept clean and properly maintained. All surfaces should be easy to clean. Arrangements should exist for safely disposing of refuse, contaminated materials and sharp instruments. Local authority by-laws may apply for the disposal of contaminated waste material.

Infection control procedures in the workplace are important for all workers, and especially in first aid situations. Appendix 11 contains advice on infectious disease and infection control in the workplace.

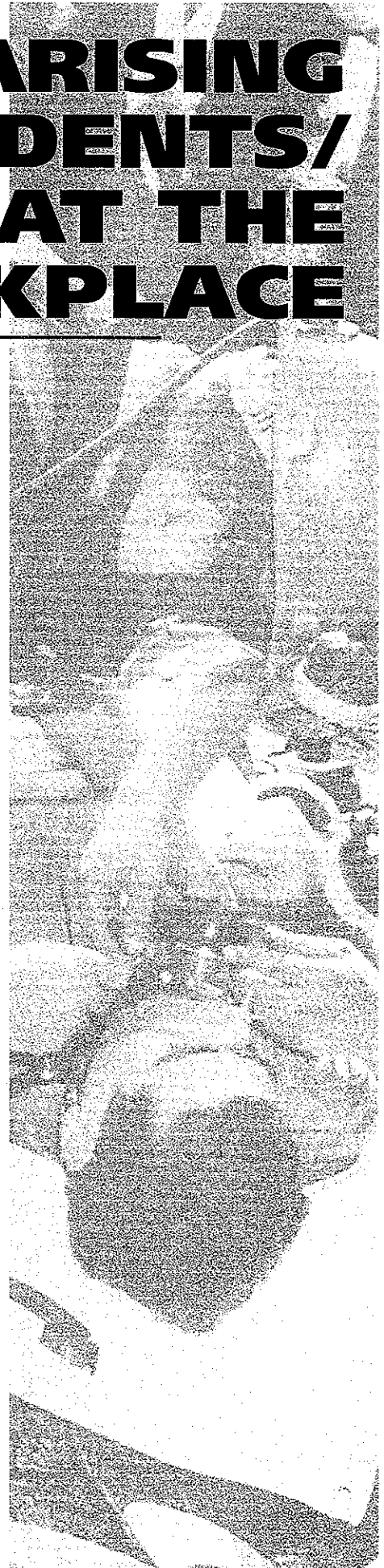


# **8. ISSUES ARISING FROM INCIDENTS/ ACCIDENTS AT THE WORKPLACE**

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Coal Mining Employees may be involved in or exposed to traumatic incidents and may subsequently suffer psychological effects. These may represent a condition called Critical Incident Stress.

The treatment of Critical Incident Stress is beyond first aid. First aid personnel should be aware of this and recommend that employees seek professional help if they suspect they are experiencing this type of stress.

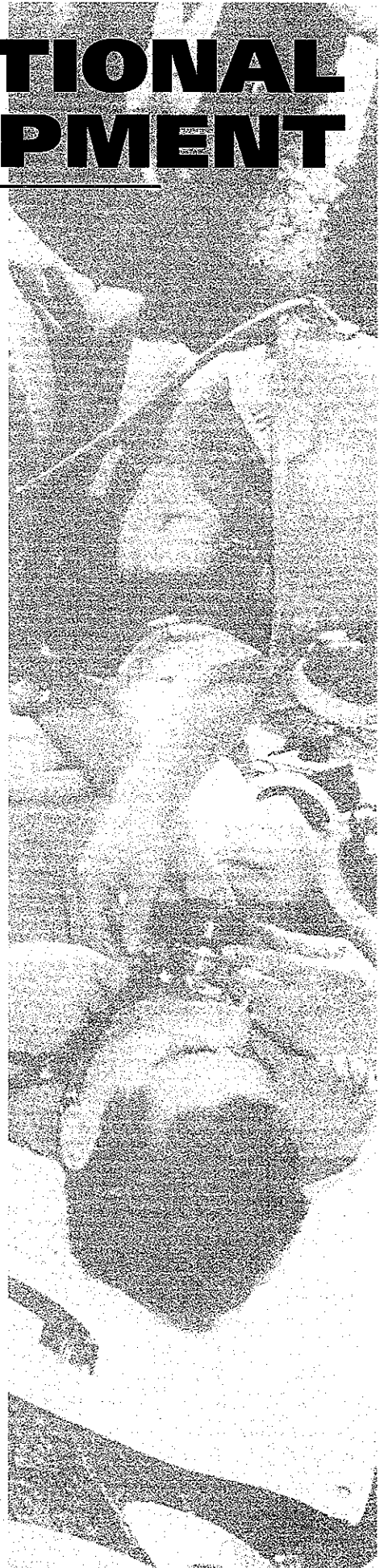


# 9. ADDITIONAL EQUIPMENT

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Should additional equipment / facilities be necessary because of the type of workplace, the employer should consider existing legislation / approvals / competency requirements.

For example, analgesic gas is likely to be applicable in coal mining circumstances, particularly in underground mining. In providing such a resource the site should have appropriate technical (medical) advice and approvals, as well as procedures to effectively control the accessibility and use of the gas.



# APPENDICES

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## **Appendix 1**

Draft Sections of the Coal Mines (General) Regulation 1999

## **Appendix 2**

Recommended First Aid Record Form

## **Appendix 3**

Recommended Contents of a First Aid Kit

## **Appendix 4**

Recommended Contents Emergency Response Kit – Open Cut Mines

## **Appendix 5**

Recommended Contents Emergency Response Kit – Underground Mines

## **Appendix 6**

Recommended Other Considerations

## **Appendix 7**

Checklist for First Aid Kits

## **Appendix 8**

First Aid Signs

## **Appendix 9**

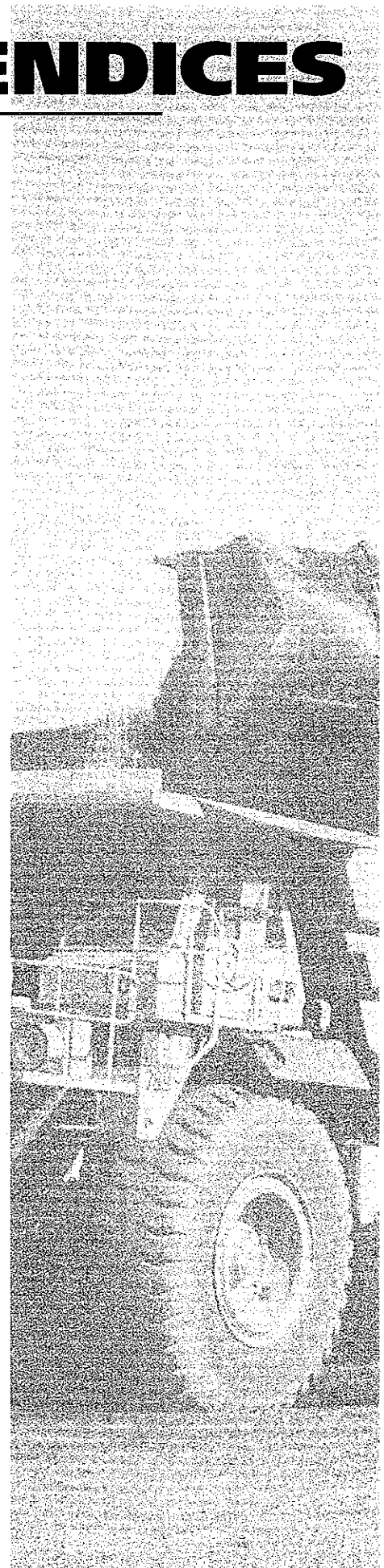
Facilities and Equipment of a First Aid Room

## **Appendix 10**

WorkCover New South Wales Endorsed Providers of approved  
First Aid Courses

## **Appendix 11**

Infection Control





# APPENDIX 1

## Draft Sections of the Coal Mines (General) Regulation 1999

### *Definitions*

In this Regulation, 'Chief Inspector', 'District Inspector', 'District Check Inspector' and 'Manager' means a person so defined in the Coal Mines Regulation Act 1982.

## First Aid and General Welfare

### FIRST AID

#### *First aid systems*

1. A manager must develop and implement a first aid system.
2. A first aid system must:
  - ▶ *provide for the provision of appropriate facilities, competent persons and procedures regarding the nature of the work undertaken at the mine or declared plant and the work environment, and*
  - ▶ *include such requirements as may be specified by the Chief Inspector.*
3. A first aid system must include provisions for audits of the system's operation and for periodic reviews (at intervals not exceeding 2 years) of the system's effectiveness.
4. A first aid system must be documented and the relevant document or documents must be kept at the mine or declared plant.
5. The requirements of a first aid system so far as they are relevant to persons working or travelling at a mine or declared plant, must be effectively communicated to those persons.

#### *Employees' representatives to be consulted*

Employees' representatives possessing appropriate skills, knowledge or experience must be consulted regarding (and be given an opportunity to participate in) the development and revision of a first aid system.

#### *Copy to be sent to district inspector and district check inspector*

A mine manager must send a copy of the first aid system and any revisions to the district inspector and the district check inspector within 7 days of their being put into effect.

#### *Competency and training of personnel*

A manager must ensure that the persons required to perform duties as part of a first aid system are competent to carry out those duties and are given appropriate training and retraining.



# APPENDIX 1

## GENERAL WELFARE

### *Bath and change houses and sanitary facilities*

1. Adequate bath and change houses and sanitary facilities (above and below ground) must be provided in appropriate locations and be maintained in a hygienic state.

2. In complying with subclause (1) a manager must have regard to any guidelines provided by the Chief Inspector.

### *Personal protective equipment*

1. Appropriate types and quantities of personal protective equipment must be provided to all persons required to work or travel at a mine or declared plant.

2. Such equipment must be maintained in good working order.

3. Persons provided with any such equipment must be trained in its use.



# APPENDIX 2

## Recommended First Aid Record Form

### *Personal Details*

Name: ..... Age: .....

Address: .....

Occupation: .....

Known illness including medications: .....

### *Incident/Accident Details*

(circumstances of incident/accident)

Date: ..... Time: ..... Location: .....

Work process being performed: .....

Description of incident/accident: .....

### *Injury/Illness Details*

(observable abnormalities including conscious state, skin state, rate of respiration, pulse, temperature, ability to move limbs, patient complaints)

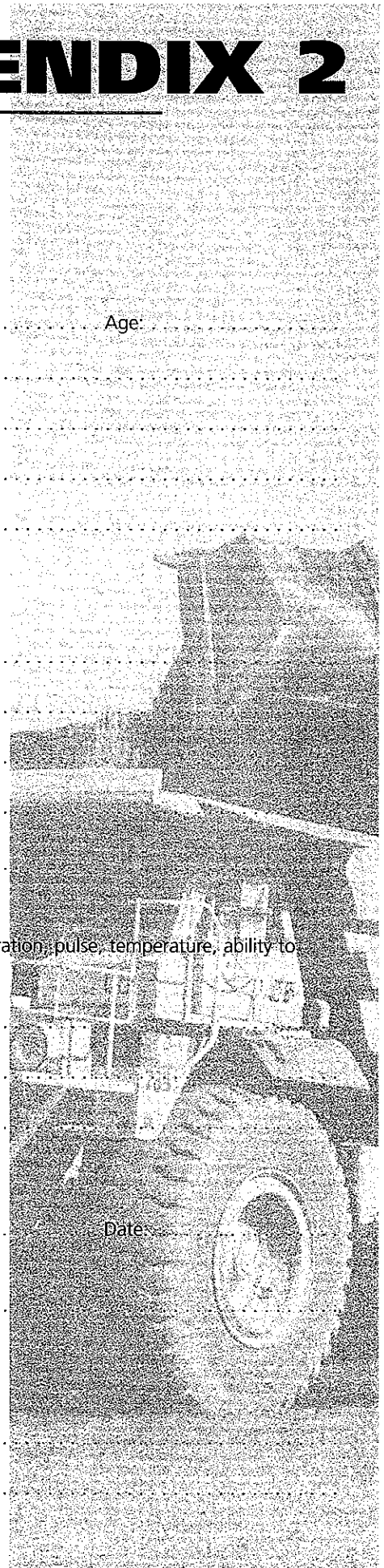
### *First Aid Treatment*

Name: .....  
(print name of person completing this form)

Address: .....  
(please print)

### *Referral details - if applicable*

Signature



# APPENDIX 3

## Recommended Contents of a First Aid Kit

DESCRIPTION OF APPLIANCE OR REQUISITE	QUANTITY	USE/FUNCTION/COMMENTS
<b>RECOMMENDED MINIMUM</b>		
Adhesive plastic dressing strips, sterile, packets of 50	2	Minor wound dressing
Adhesive dressing tape, 2.5cm x 5m	1	Secure dressings, strappings
Bags, plastic: small, medium, large	2 of each	Waste disposal for amputated parts
Dressings, non-adherent, sterile, 7.5cm x 7.5cm	5	Wound dressing
Eye pads, sterile	5	Emergency eye cover
Gauze bandages: 5 cm & 10 cm	3 of each	Retain dressings, bandages for sprains
Gloves, disposable, single	10	Infection control
Rescue blanket, silver space	1	Treatment of shock
Safety pins, packets	1	Secure bandages, slings
Scissors, blunt/short nosed, min length 12.5 cm	1	Cutting dressings, clothing
Splinter forceps (disposable), packet	1	Remove foreign bodies
Sterile eyewash solution, 10 ml single use ampules or sachets	12	Emergency eye wash (single use only to avoid contamination)
Swabs, pre packed, antiseptic, packs of 10	1	Wound cleaning
Triangular bandages, minimum 90 cm	8	Slings, support, padding
Wound dressing, sterile, non-medicated, large	10	Bleeding control, cover wound
First aid pamphlet	1	

### Possible Further Items

Sharps disposal container	Possible contaminated items
Resuscitation mask (tear away disposable)	For use by qualified personnel for resuscitation purposes
Probe (disposable)	Splinter removal
Soap (cold pack disposable)	General cleaning

### Notes

1. The recommended contents are based on the NSW OH&S (First Aid) Regulation 1989, attached to the NSW OH&S Act 1983.

2. The quantities are those "For factories and construction sites at which 25 or more persons work and for other places of work at which 100 or more persons work" - the recommended quantities are regarded especially appropriate for underground kits.

3. The possible further items are for site consideration.

4. Mild analgesics (such as available in supermarkets) may be appropriate in kits, such as in remote underground locations. Where included there is the issue of control of such medications. The WorkCover advice attached to this appendix ("Analgesics in First Aid Kits") provides guidance in the establishment of site policy regarding analgesics.



NSW DEPARTMENT OF MINERAL RESOURCES  
Minerals and Energy House, 29-57 Christie Street  
St Leonards, NSW 2065, Australia  
P.O. Box 536 St Leonards 1590  
Phone (02) 9901 8888 · Fax (02) 9901 8777  
DX 3324 St Leonards · [www.slnsw.gov.au/mineral\\_resources](http://www.slnsw.gov.au/mineral_resources)

*The following information is for guidance only and addresses issues raised in inquiries to WorkCover NSW (as at July 1996). Each coal mine/company will need to consider its policy on the provision of simple analgesics, and seek advice as appropriate.*

## **Analgesics in First Aid Kits**

The Occupational Health and Safety (First-Aid) Regulation, 1989 does not make the provision of analgesic preparations mandatory. Sections 4 (e) and 7 (2) (g) (xviii) permit the provision of appropriate first aid requisites in first aid kits and first aid rooms respectively.

The Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) controls the supply of analgesic preparations. In a workplace simple analgesics such as paracetamol 500mg tablets or aspirin 300mg tablets may only be kept in pack sizes of 25 tablets or less (no more than 1 pack in any first aid kit). Analgesics must remain in their original packaging with the required warning and caution information. Such products are freely available in a variety of retail outlets. In larger pack sizes or when compounded with other active ingredients, supply is controlled under poisons schedules. These are not suitable for supply as first aid requisites.

There is no apparent legal barrier to the provision of simple analgesics (in single packs exempt from the poisons schedule) in first aid kits since they could broadly be interpreted to be first aid supplies.

It is possible that some question of responsibility may arise if any medication is advised by a first aid officer. First aid officers must act within their level of training and experience. It should be noted that instruction on the use of simple medications is not part of the basic first aid course for persons required to be in charge of first aid kits. It is suggested that simple analgesics be provided only on direct request by an employee, or be accessed directly by the employee, and should be recorded in the first aid register. Persons holding Occupational First Aid certification and qualified to be in charge of a first aid room have received training in the administration of non-prescription medication. These persons may administer simple analgesics which are exempt from poisons scheduling for short-term use.

The provision of simple analgesics, as described above, as first aid supplies would therefore appear to be a matter of company policy. A relevant consideration is that ready availability and appropriate use of analgesics for symptoms such as headache can keep employees at work who otherwise may need to take sick leave absence. The traditional and widespread provision of simple analgesics in first aid kits is also relevant.

\* Simple Analgesics contain only a single active ingredient but may also contain an effervescent agent.



# APPENDIX 4

## Recommended Contents of Emergency Response Kit – Open Cut Coal Mines

### *List of Contents (minimum)*

Large emergency dressings	x 2
Field dressings No 15	x 4
Triangular bandages	x 4
Plastic bags (large & small)	x 2 of each size
Gloves, disposable, single	x 8
Resuscitation masks (disposable)	x 2





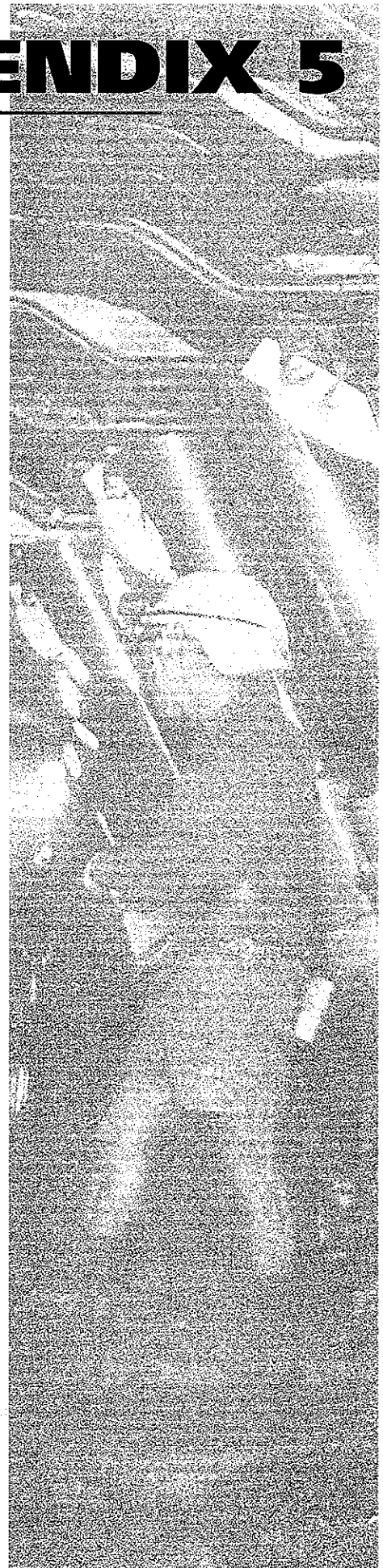
# APPENDIX 5

## Recommended Contents Emergency Response Kit – Underground Coal Mines

### *List of Contents (minimum)*

Gloves, disposable, single	16
Cervical collar (different sizes)	2
Air splints	1 set
Trauma blankets	2
Cold pack	6 disposable
Triangular Bandages	12
Dressings	2 x burn 3 x No. 15 field 2 large x non stick
Adhesive dressing tape	1 x 5 cm
Safety pins	1 x 7.5 cm
Bandages	2 x 5 cm gauze 2 x 5 cm conforming 3 x 7.5 cm conforming 2 x 10 cm conforming 2 x 5 cm crepe 2 x 7.5 cm crepe 3 x 10 cm heavy crepe
Scissors	1 pair universal

Each section of the mine should also have a stretcher, spine board, Jordan lifting frame, entonox, or equivalent, and a set of wooden splints. This is recommended as a standard for all working sections in all mines.



# APPENDIX 6

## Recommended Other Considerations

TYPE OF HAZARDS	ADDITIONAL CONTENTS	COMMENTS
<b>Burn Injuries</b> heat flammable liquids corrosive chemicals non-ionising radiation eg; ultraviolet light, microwaves and laser beams	burns dressings (assorted sizes)	cold water and clean sheeting should be available whole body burns dressings may be appropriate
<b>Eye Injuries</b> all eye injuries  splashes or exposure to vapours: <ul style="list-style-type: none"> <li>▶ acids</li> <li>▶ alkalis eg, caustic soda</li> <li>▶ corrosive chemicals</li> <li>▶ organic solvents eg, thinners</li> </ul>	sterile eye pads and non- stretch adhesive tape; disposable eye wash (at least 100 mls); emergency showers and eyewash stations;	covering injured eye prior to medical treatment;  eye injuries caused by chemical splashes
<b>Other Exposures</b> particles from: <ul style="list-style-type: none"> <li>▶ spraying</li> <li>▶ hosing</li> <li>▶ abrasive blasting</li> <li>▶ welding</li> <li>▶ cutting</li> <li>▶ machining</li> </ul>	surgical spears on applicator sticks	removing surface foreign bodies
<b>Remote Location</b> distance from medical assistance	first aid text  broad crepe bandages  cervical collar large burns sheet thermal blanket  torch/flashlight note pad and pencil	emergency reference manual  for snakebites (sufficient number for bandaging lower limbs) for spinal/neck injury for covering burn areas for treatment of shock (also for assisting portability) for use at night, attracting attention for recording the injured or for recording the injured or ill person's condition and treatment to be given

# APPENDIX 7

## Checklist for First Aid Kits.

The purpose of this checklist is to check the appropriateness of first aid kits. Indicate by ticking (✓) the relevant box. Where the answer to the question is "no", further action may be necessary.

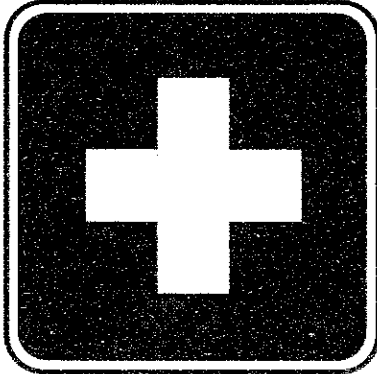
	YES	NO	COMMENTS (IF ANY)	
<b>1. Location and Position</b>				
a. Is the first aid kit located in a prominent and accessible position?	<input type="checkbox"/>	<input type="checkbox"/>		
b. Are employees informed and aware of the location of first aid kits?	<input type="checkbox"/>	<input type="checkbox"/>		
c. Do all employees have access to first aid kits during all work shifts?	<input type="checkbox"/>	<input type="checkbox"/>		
<b>2. Clearly identifiable</b>				
a. Can the first aid kit be clearly identified as a first aid kit?	<input type="checkbox"/>	<input type="checkbox"/>		
b. Is the first aid kit clearly marked with a white cross on a green background in accordance with Australian Standard AS 1319: Safety Signs for the Occupational Environment?	<input type="checkbox"/>	<input type="checkbox"/>		
<b>3. Contents</b>				
a. Are the contents appropriate to the injuries and illnesses at your workplace?	<input type="checkbox"/>	<input type="checkbox"/>		
b. Does the first aid kit contain sufficient quantities of each item?	<input type="checkbox"/>	<input type="checkbox"/>		
c. Is an employee trained in first aid responsible for maintaining the first aid kit?	<input type="checkbox"/>	<input type="checkbox"/>		
d. Are the contents appropriately labelled?	<input type="checkbox"/>	<input type="checkbox"/>		
e. Are the contents within their "use by" dates?	<input type="checkbox"/>	<input type="checkbox"/>		
f. Are the contents adequately stored?	<input type="checkbox"/>	<input type="checkbox"/>		
<b>4. Relevant information</b>				
a. Is there a list of contents provided in the kit?	<input type="checkbox"/>	<input type="checkbox"/>		
b. Are emergency telephone numbers clearly displayed?	<input type="checkbox"/>	<input type="checkbox"/>		
c. Are the extension number, name and location of the nearest first aid personnel clearly indicated?	<input type="checkbox"/>	<input type="checkbox"/>		
<b>5. Training</b>				
a. Have selected employees received training in the use and maintenance of first aid kits?	<input type="checkbox"/>	<input type="checkbox"/>		

# APPENDIX 8

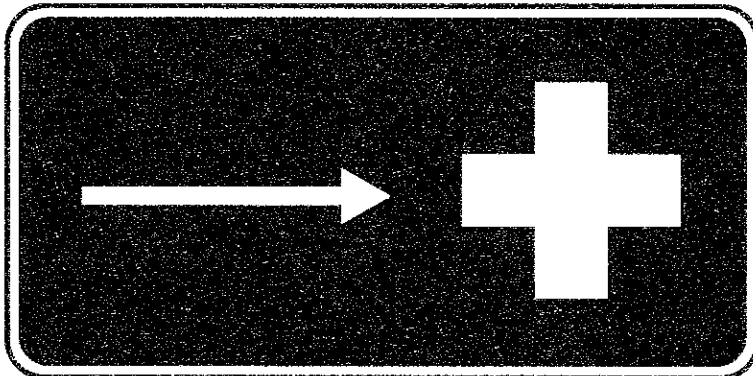
## First Aid Signs

*Examples of suitable first aid signs.*

1. Symbolic First Aid Sign - white cross on green background



2. Symbolic First Aid Sign to indicate direction to First Aid - white cross and arrow on green background



3. English text First Aid Sign



*Note:* Signs may be constructed to suit individual requirements. All signs should comply with Australian Standard AS 1319-Safety Signs for the Occupational Environment.



# APPENDIX 9

## Facilities and Equipment of a First Aid Room

### CONTENTS

examination couch

suitable seating

occupational first aid text/manual

moveable screen or suspended curtain

first aid kit and modules

examination lamp

storage cupboards

oxygen equipment

stretcher

filing cabinet

telephone

refuse containers

workbench or dressing trolley

sink with hot and cold water

### USE/FUNCTION/COMMENTS

waterproof surface, pillow & blankets

chairs with arms  
(to assist lifting a person)

reference purposes

privacy needs

treatment of injured/ill employees

assisting treatment

equipment storage purposes

comply with Australian Standard  
(responsibility of suitably qualified  
person and used by trained staff only)

rescue type

employee files/records of treatment  
(lockable for security purposes)

emergency communication purposes

lined with disposable plastic bag  
(infection control - disposal purposes)

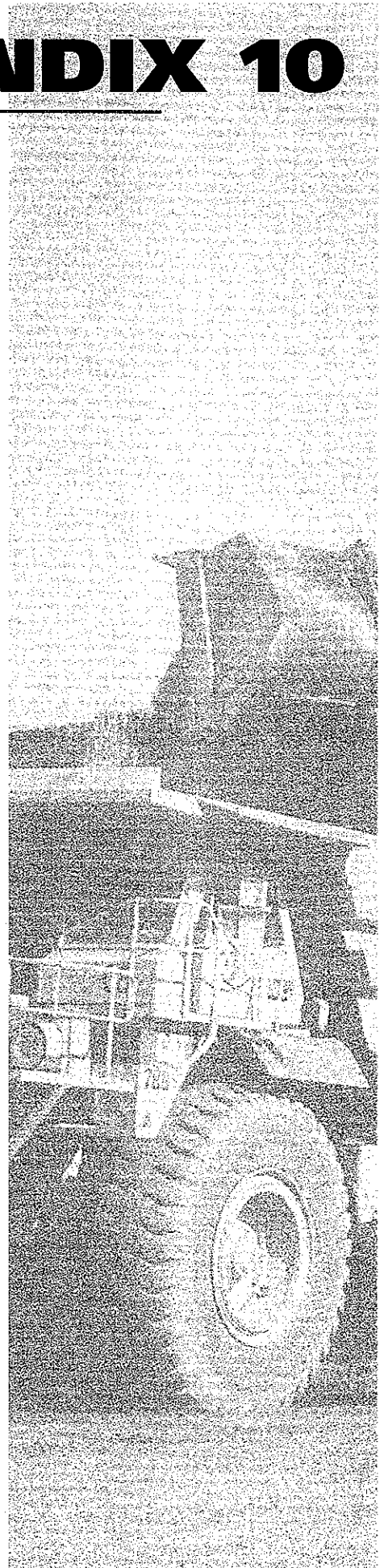


# APPENDIX 10

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## WorkCover New South Wales Endorsed Providers of Approved First Aid Courses

*Note: The document enclosed is current as at June 1998. Updates are available from WorkCover New South Wales.*



# APPROVED FIRST AID COURSES IN NEW SOUTH WALES



June 1998

The *Occupational Health and Safety (First-Aid) Regulation 1989* makes employers responsible for providing first-aid facilities for employees at workplaces in New South Wales.

This leaflet lists organisations which provide first-aid and occupational first-aid courses approved by WorkCover New South Wales.

The Regulation supplements the Occupational Health and Safety Act 1983 and sets the minimum standards for providing first-aid at work.

The main areas covered by the first-aid regulation are....

- first-aid personnel
- the type and contents of first-aid kits and
- provision and contents of a first-aid room

First-aid personnel nominated to be in charge of a first-aid room must be the holder of a current approved occupational first-aid certificate be a registered nurse or a medical practitioner.

A copy of the first-aid regulation and a booklet called 'Providing first-aid at work', explaining the requirements of the First-Aid Regulation is available from the WorkCover NSW Bookshop, telephone (02) 9370 5303.

For further information regarding the first-aid regulation, including advice on course approval procedures, call WorkCover New South Wales on (02) 9370 5300.

## PROVIDERS OF APPROVED FIRST AID COURSES

In accordance with the *Occupational Health and Safety (First-Aid) Regulation 1989*, first-aid personnel appointed to be in charge of a **First Aid Kit** at a place of work where more than 25 people regularly work at any one time must hold a **Current Approved First Aid Certificate**.

The following organisations conduct First Aid Training courses which are approved by WorkCover.

AGENCY/APPROVAL NO	ADDRESS	CONTACT	TELEPHONE
Accidental First Aid Training FA 9435	16 Healey Circuit Huntingwood NSW 2148	Booking Officer	(02) 9672 1855 Fax: (02) 9672 1942
Adair Fire & Security Consultants FA 9764	PO Box 547 Pennant Hills NSW 2120	Training Manager	(02) 9787 5177 Fax: (02) 9787 5153
Ambulance Service of New South Wales FA 9010, FA 9113	PO Box 105 Rozelle NSW 2039	Graeme Malone	(02) 9320 7731 Fax: (02) 9320 7809
Assist Personal Development FA9873	118 Woonoona Ave Wahroonga NSW 2076	Scott Paterson	0414 988311 Fax: (02) 9489 0714
Asfast First Aid Training & Supplies FA9547	PO Box 3116 North Nowra NSW 2541	Jane Byrne	(02) 44231 740 (phone/fax)
Australian First Aid Professionals FA 9771	72 Hunter Street Stockton NSW 2295	Raylene Hoitink	(02) 49282036 Fax: (02) 49284030
Australian Rail Training FA 9217	Passenger Services Training Unit PO Box 202 Petersham NSW 2049	Barry Smithurst	(02) 9752 8910 Fax: (02) 9752 8951

AGENCY/APPROVAL NO	ADDRESS	CONTACT	TELEPHONE
Australian Red Cross (NSW Division) FA 8902	Level 6 159 Clarence Street Sydney NSW 2000	Robina Bonwick or Local Regional Centre	(02) 9229 4100 Fax (02) 9229 4165
Australian Ski Patrol Association Inc FA 9007	15 Hilton Park Road Tahmoor NSW 2573	Gary Grant	(018) 484 835 Fax: (02) 46818 609
Camden Rural Fire Service FA 9650	PO Box 183 Camden NSW 2570	Richard Cotterill	(02) 46471 738 Fax: (02) 46471 587
Cass Training FA 9763	PO Box 1799 Coffs Harbour NSW 2450	Mrs Van Der Vegt & Mrs Wills	(02) 66511 866 Fax: (02) 66511 114
Castle First Aid Training Consultants FA 9766	7 Cedar Close Port Macquarie NSW 2444	Stephen Burg	(02) 65838368
Catholic Education Office, Diocese of Wollongong FA 9437	Locked Bag 8802 South Coast Mail Centre NSW 2521	Peter Keyes	(02) 42296 011 Fax (02) 4228 7654
Cobar First Aid Pty Ltd FA 9545	6 Nullamutt Street Cobar NSW 2835	Rodger F Howard Kate Howard	(02) 68363 424 (phone/fax)
College of Paramedical Education NSW FA 9770	PO Box 755 Parramatta NSW 2124	Jason Bendall	(02) 9687 9821 Fax: (02) 9351 3868
Corporate Training Solutions FA 9761	26 Valleyfield Court Wattlegrove NSW 2173	Barry O'Regan	(02) 9825 2635 (phone/fax)
David Kirkwood First Aid Training FA 9436	PO Box 1041 Wollongong NSW 2500	David Kirkwood	0412 029 341
Eden Technology High School FA 9542	Barclay Street Eden NSW 2551	Harry Jones	(02) 64961 541 (02) 64962 144
EmergAid FA9546	6 Ellesmere Road GyMEA Bay NSW 2227	Linda Hill	(02) 9525 4408 (phone/fax)
Emergency Life Support FA 9541	6 Calyptra Road Umina NSW 2257	Bryan Reid	(02) 43425 777 Fax: (02) 43436 091
First Aid Plus FA 9540	P O Box 37 Harbord NSW 2096	Gary Beauchamp	(02) 9905 0155 Mobile 018 247 227 Fax: (02) 9905 6619
Global First Aid FA 9768	PO Box 512 Gladesville NSW 2111	Kevin Thomas	(02) 98090780
Group 4 Securitas FA 9324	199 Parramatta Road Flemington NSW 2140	Bill Clark Rod Lee	(02) 9748 9777 Fax: (02) 9748 9740
Hawthorne Institute of Education FA 9656	Locked Mail Bag 12 Hawthorne VIC 3122	Mr C Wal Butters	1800 629 207
Health Services International P/L FA 9431	PO Box 405 Wyong NSW 2259	Ian Broad	1800 067 650 Fax: (02) 43622 438
Illawarra Area Health Service FA 9004	P O Box 246 Nowra NSW 2541 56-60 Wattle Road Flinders NSW 2529	Ellen Newman Louise Fullerton	(02) 44213 210 Fax: (02) 44214 967 (02) 42964 333 Fax: (02) 42972258
IMC First Aid FA 9652	PO Box 289 Tuncurry NSW 2428	Ian Cerff	(02) 65556 163

AGENCY/APPROVALNO	ADDRESS	CONTACT	TELEPHONE
Impact Training Services FA 9430	PO Box 655 Dapto NSW 2530	Jeffrey Knowles	(0412) 420 920
Incident Training Services FA 9544	366 Burns Bay Road Linley Point NSW 2066	John Fahey	(02) 94279100 Fax: (02) 94189206
Institute of Community Studies FA 9215	P O Box 722 Baulkham Hills NSW 2153	Course Register	(02) 9624 3356 (phone/fax)
Jeanne Auld First Aid FA9767	PO Box 1031 Griffith NSW 2680	Jeanne Auld	015 178549 Ph: (02) 69621100
Life Support & Safety Training Services FA 9327	3 Dent Street Epping NSW 2121	Peter Price	(02) 9439 2216
M & J Buchtmann Consultants FA 9649	PO Box 88 Kingswood NSW 2747	Maureen Buchtmann John Buchtmann	(02) 47311 134 Mobile: (019) 915 277 Fax: (02) 47312 258
Medilife FA 9328	Medilife Head Office & Administration Centre 62-64 Wigram Street Harris Park NSW 2150	Training Co-ordinator	(02) 9891 4884 Fax: (02) 9891 9088
Medixcare FA 9326	48 Yanderra Grove Cherrybrook NSW 2126	Norm Spalding Julie Spalding	(02) 9875 1905
National Safety Council- Senior First Aid FA 9006	64-66 Smart Street Fairfield NSW 2165	Training Co-ordinator	(02) 9726 7188 Fax: (02) 9726 7141
New South Wales State Emergency Service FA 9216	PO Box MC6126 Wollongong NSW 2521	Kevin Dent Rick Stone Gary Grant John Young	(02) 42262 444 Fax: (02) 42262 167
PADI Australia FA 9429	PO Box 713 Willoughby NSW 2068	Dean Cox	(02) 9417 2800 Fax: (02) 9417 1434
Paramedical Services Pty Ltd FA 9214	PO Box 56 Campbelltown NSW 2560	Garry Mikhail Peter Mangles Lawrence Horder	(02) 9824 0311 Fax: (02) 9601 3049
Parasol - EMT PTY LTD FA 9432	PO Box 74 Queanbeyan NSW 2620	Ian Wilson Peter McKie	(06) 291 4742 Fax: (06) 291 1022 Mobile: (018) 623 926
Protect-A-Life FA 9655	15 Rutherglen Drive St Andrews NSW 2566	Sandra King	(02) 9820 5475 (Phone/Fax) Mobile: (015) 506 396
Qantas Aviation Health Services FA 9320	Qantas Jetbase Mascot NSW 2020	Denise Feledy	(02) 9691 8094 Fax: (02) 9691 8341
Ready 2 React FA9765	PO Box 369 Concord NSW 2137	Diana Batkin	Ph: (02) 9743 3825 Fax: (02) 9743 0046 Mobile: (0411) 375551
Regional First Aid Trainers FA 9434	P O Box 120J Coffs Harbour Jetty NSW 2450	Tom Gourley	(02) 66516 788 (phone/fax)
Reviva First Aid & Resuscitation Training FA 9872	PO Box 969 Kogarah NSW 2217	Ory Defina	(02) 9553 6446 Phone/Fax

AGENCY/APPROVALNO	ADDRESS	CONTACT	TELEPHONE
Royal Prince Alfred Hospital CSAHS FA 9218	Booking Officer Nurse Education Centre Queen Mary Building Grose Street Camperdown NSW 2050	Training Co-ordinator	(02) 9515 3152 Fax: (02) 95153317
Royal Volunteer Coastal Patrol FA9648	11 Westborne Drive Nowra NSW 2541	CDRE Ian Bates	(02) 44221 798 (phone/fax)
SECTA Pty Ltd FA9874	257 The Broadway Sydney NSW 2007	Wynn McGufficke	(02) 9571 8388 Fax: (02) 9566 2976
St John Ambulance Australia (NSW) FA 8901	6 Hunt Street Surry Hills NSW 2010	Booking Officer	(02) 9212 1088 Fax: (02) 9281 2884
Sports Medicine Australia FA 9657	PO Box 724 Glebe NSW 2037	Di St Clair	(02) 9660 4333 Fax: (02) 9660 1153
Star of Life Emergency Training FA 9658	PO Box 189 The Junction NSW 2291	Larrine Ladd-Hudson	(02) 49 654 333 Fax: (02) 49654 269
Survival First Response (Aust) Pty Ltd FA 9323	PO Box 45 Hazelbrook NSW 2779	Steven Johnson Perry Neckerauer	1800 815 928 Fax: (047) 588 384
TAFE NSW FA 9003	Nursing Co-ordination Unit First Aid Building B Ground Flr Mary Ann Street Ultimo NSW 2007	John Harty or Local TAFE College	(02) 9217 4361 Fax: (02) 9217 4032
The Employers' Federation of NSW FA 9433	313 Sussex Street Sydney 2000	George Monsted	(02) 9264 2000 Fax: (02) 9264 2332
The Royal Life Saving Society Australia (NSW) FA 9543	PO Box 753 Gladesville NSW 2111	Sue Myers	(02) 9879 4699 Fax: (02) 9879 4644
The Vital Link First Aid Training FA 9762	170 Kirby Street Dundas NSW 2177	Lee & Dean Caddis	(02) 9898 0838 (phone/fax)
University of Western Sydney, Macarthur FA 9009	Continuing Education Enterprise Centre PO Box 555 Campbelltown NSW 2560	Ruth Nicholson	(02) 46203 327 Fax: (02) 46289 424
University of Wollongong FA 9760	Northfields Avenue Wollongong NSW 2522	Gerry Holmes	(02) 42215 799 Fax: (02) 42213 700
MHM -Vital Care Australasia P/L FA 9769	Suite 501/ 3 Smail Street Broadway NSW 2007	John Newell	(02) 9211 2170 Fax: (02) 9211 2070
Vital First Aid Training FA 9651	31 Narara Creek Road Narara NSW 2250	Adrian Date	Mobile: 015 667 830 (02) 43246 808 (Phone/Fax)
Waratah First Aid FA 9653	PO Box 555 Coonabarabran NSW 2357	Timothy Collins	(02) 68422 918
We Teach First Aid FA 9654	36 Park Street Goulburn NSW 2580	N J Allen	(02) 48224 495 Mobile: 018 484 510
Wilderness First Aid Consultants FA9008, FA9112	PO Box 320 Katoomba NSW 2780	Margot Hurrell	(02) 478 24419 (Phone/Fax)



AGENCY/APPROVALNO	ADDRESS	CONTACT	TELEPHONE
WorkCare Medical Pty Ltd FA 9539	14 Eldridge Road Bankstown NSW 2200	John Paull	(02) 9790 0361 Fax: (02) 9796 3580

## PROVIDERS OF APPROVED OCCUPATIONAL FIRST AID COURSES

In accordance with Clause 8, sub clause 4 of the Regulation first aid personnel nominated to be in charge of a **First Aid Room** at a place of work must hold a **Current Approved Occupational First Aid Certificate**.

The following organisations conduct Occupational First Aid Courses which are by **approved** by WorkCover.

AGENCY/APPROVALNO	ADDRESS	CONTACT	TELEPHONE
Accidental First Aid Training OFA9608	PO Box 462 Blacktown NSW 2148	Booking Officer	(02)9672 1855 Fax: (02) 9672 1942
Ambulance Service of New South Wales OFA 9104	PO Box 105 Rozelle NSW 2039	Graeme Malone	(02) 9320 7731 Fax: (02) 9320 7809
Australian Red Cross (NSW Division) OFA 8902	Level 6 159 Clarence Street Sydney NSW 2000	Robina Bonwick or Local Regional Centre	(02) 9229 4100 Fax (02) 9229 4165
Medilife OFA 9506	Medilife Head Office & Administration Centre 62-64 Wigram Street Harris Park NSW 2150	Training Co-ordinator	(02) 9891 4884 Fax: (02) 9891 9088
Paramedical Services Pty Ltd OFA 9507	PO Box 56 Campbelltown NSW 2560	Gary Mikhail Peter Mangles Lawrence Horder	(02) 9824 0311 Fax: (02) 9601 3049
St John Ambulance Australia (NSW) OFA 8901	6 Hunt Street Surry Hills NSW 2010	Booking Officer	(02) 9212 1088 Fax: (02) 281 6923
Survival First Response OFA 9709	PO Box 45 Hazelbrook NSW 2779	Steven Johnson	1800 815928 Fax: (02) 47 588384

## SUPPLIERS OF APPROVED FIRST AID PAMPHLETS

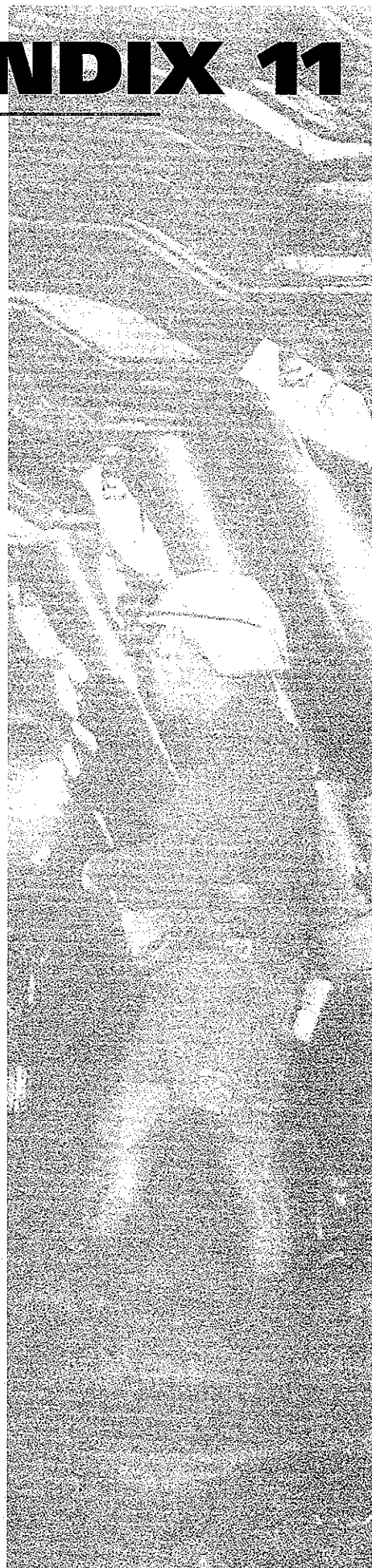
In accordance with clause 6, of the *Occupational Health and Safety (First Aid) Regulation 1989* first aid kits must be provided at each place of work. Each first aid kit must contain specific quantities of first aid items including an **Approved First Aid Pamphlet**. The following organisations are able to provide pamphlets which are approved by WorkCover.

AGENCY\APPROVALNO	ADDRESS	CONTACT	TELEPHONE
Amada Pty Ltd P 9004	25 Roberts Road Greenacre NSW 2190	Graham Mason	(02) 9642 0504 Fax: (02) 9642 5964
Accidental First Aid Supplies P 9009	16 Healey Circuit Huntingwood NSW 2148	Tony De Rooy	(02) 9672 1855
Australian Rail Training P 8903	Passenger Services Training Unit PO Box 202 Petersham NSW 2049	Barry Smithurst	(02) 9752 8910 Fax: (02) 9752 8951
Australian Red Cross (NSW Division) P 8902	Level 6 159 Clarence Street Sydney NSW 2000	Robina Bonwick or Local Regional Centre	(02) 9229 4111
Chemisell Pty Ltd P 9210	PO Box 6612 Wetherill Park NSW 2164	Andrew McGuinness	(02) 9756 1919
Health Services International P 9612	PO Box 405 Wyong NSW 2259	Ian Broad	1800 067 650 Fax: (02) 43622 438
ICI Australia Operations Pty Ltd P 9007	16-20 Beauchamp Road Matraville NSW 2036	Margaret Roach	(02) 9352 2455 Fax (02) 9352 2129
ML International P 9008	PO Box 2134 North Sydney NSW 2060	Jeffery Hurwitz	(02) 9955 9708
Paramedical Services P 9511	P O Box 56 Campbelltown NSW 2560	Peter Mangles	(02) 9824 0311
Parasol EMT P9715	PO Box 2011 Tuggeranong ACT 2900	Peter McKie	(06) 291 4742 Fax: (06) 291 1022
Royal Life Saving Society P9816	PO Box 753 Gladesville NSW 2111	Sue Myers	(02) 9879 4699 Fax: (02) 9879 4644
St John Ambulance Australia (NSW) P 8901	Unit 5, No 2 Anella Avenue Castle Hill NSW 2154	Customer Service Supervisor	(02) 9899 5366
Trafalgar Trading P 9006	PO Box 203 Milperra NSW 1891	Bill Parsons	(02) 9771 6333
Unedit Supplies P9714	70A Harley Crescent Condell Park NSW 2200	Gordon McClelland	(02) 9791 0899 Fax: (02) 9791 0906
We Teach First Aid P 9713	36 Park Street Goulburn NSW 2580	Jim Allen	(018) 484 510 Fax: (02) 48223 684

# APPENDIX 11

## Infection Control

*Note: The Joint Coal Board document "Advice About Infectious Disease" is designed to highlight issues in the coal industry relevant to infection control and should not be viewed as core documentation.*





## JOINT COAL BOARD

### ADVICE ABOUT INFECTIOUS DISEASE

**Of all the known infectious diseases, most interest is currently centered around Hepatitis B and AIDS.**

**Hepatitis B virus (HBV) and the AIDS virus (HIV) are difficult to catch through work activities at a mine site. Nevertheless common sense personal hygiene principles should still be followed.**

You may like to consider the following at your mine site

- x do not** share razors or nail scissors
- x do not** share towels, face washers or drink containers
- x do not** remove band-aids in the showers, or worse still throw the used band-aid on the shower or change area floors. Remove them after showering, and place in a plastic bag or plastic lined rubbish bin
- x do not** share each other's work boots
- x do not** spit or urinate in showers, or underground in public areas. Underground toilets should be used wherever possible
- ✓ all cuts or abrasions should be reported immediately**, and treated by a First Aid attendant. Remember, the attendant must follow specific procedures where blood or body fluids have been spilt, and specific procedures for cleaning blood and tissue spillages.

The logic behind these suggestions is that even though many of the suggestions given are not based on hard scientific evidence (in the case of HIV and HBV), these measures are relatively cheap and simple to follow. As well, they reduce the transmission of far more common conditions such as skin infections.

## Vaccination

Currently there is no vaccination for HIV. Effective vaccines exist for HBV.

Although the risk of spread of HBV in the workplace is slight, it is recommended that First Aiders and anyone who is at high risk of contact with blood and body fluids should be vaccinated.

**Remember, all human fluids and tissues should be treated as being potentially infectious, regardless of where they originate.**

Hepatitis B vaccine will protect you against Hepatitis B, but not against Hepatitis A, C, or the various new Hepatitis virus strains continually being discovered.

*If you believe that you have been exposed to potential infection via blood or body fluids it is important that you seek immediate medical advice.*

**Vaccinations should not be regarded as an alternative to good hygiene and First Aid practices.**

If you would like further information on the topics covered in this pamphlet, contact the Safety Officer at your mine, or your local JCB Health office.

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### JCB Health offices

**Warners Bay**  
472 The Esplanade  
Tel (02) 4948 9011

**Singleton**  
1 Civic Avenue  
Tel (02) 6570 3800

**Corrimal**  
Princes Highway  
Tel (02) 4222 9000

**Lithgow**  
52 Eskbank Street  
Tel (02) 6351 2331

**Sydney**  
44 Market St  
Tel (02) 9291 5673

**JCB Health website:** <http://www.jcb.org.au>





Mine Managers

NSW DEPARTMENT OF MINERAL RESOURCES  
Minerals and Energy House, 29-57 Christie Street  
St Leonards, NSW 2065, Australia  
P.O. Box 536 St Leonards 1590  
Phone (02) 9901 8888 Fax (02) 9901 8777  
DX 3324 St Leonards www.slnsw.gov.au/mineral\_resources

Dear Sir,

**RE: SAFETY ALERT No: SA98-08: INJECTION OF HIGH PRESSURE  
HYDRAULIC OIL (November 1998)  
ADDITIONAL INFORMATION**

Following the distribution of Safety Alert SA98-08 in November 1998 there have been several requests for guidance on an appropriate response if such an incident occurs.

The Department of Mineral Resources has sought comment from medical specialists regarding the response to the injection of hydraulic fluid at high pressure. The Chief Medical Officer of the Joint Coal Board was consulted regarding obtaining additional information.

The Director of the Sydney Hospital Hand Unit has provided advice regarding the specific injury covered in SA98-08, and this is attached. The Director of this specialist hand unit has included in his advice the comment that "The staff at Sydney Hospital Hand Unit would be available 24 hours a day for advice and assistance in expediting treatment of any of your workers suspected of having these injuries." This offer may be particularly useful for more remote mine sites which do not have access to major hospitals and the Accident and Emergency units at those hospitals.

I would like to highlight that the medical advice consistently stated that the injection of fluid (including hydraulic oil, grease, and paint) under pressure is a medical and surgical emergency. The particular incident addressed in SA98-08 was a hand injury. If high pressure injection of fluid occurs at other parts of the body the same level of concern is appropriate.

The appropriate Hand Unit or Accident and Emergency medical service is to be accessed as soon as possible. These are listed in the attached material.

For coal mines I suggest a copy of SA98-08 (November 1998, copy attached), and the additional information provided here, be included in MDG No: 1016, distributed in October 1998 and titled:

*First Aid in NSW coal mines – Guideline for the management of ACUTE  
WORPLACE INJURY AND ILLNESS.*

A divider for a new section, "Accident Information", is enclosed for inclusion in MDG No. 1016.

  
Leo Roberts  
MANAGER TECHNICAL SERVICES

15/2/99.

# ADDITIONAL INFORMATION



## **INJECTION OF HIGH PRESSURE HYDRAULIC OIL: ADDITIONAL INFORMATION RELATED TO SAFETY ALERT No. SA98-08 (November 1998)**

### **Background information**

The high pressure injection of a fluid such as hydraulic oil, grease and paint constitutes a medical and surgical emergency, requiring access to appropriate specialist surgical expertise as soon as possible. This comment is consistent with the document "INJURIES INVOLVING HIGH PRESSURE INJECTION" which was attached to SA98-08 (distributed November 1998).

The injury sustained in a high pressure injection incident is usually worse than it will first appear. The injury is relatively rare and it may be that some medical practitioners or hospital services will not be alert to the severity of an injury of this type.

Dr Ian Isaacs, Director of the Sydney Hospital Hand Unit, has provided advice on the response to 'High Pressure Injuries of the Hand', and this is included as Attachment 1.

The injured person will generally require specialist surgery or hand surgery services. Such services will usually be available through the Accident and Emergency Department at a major public health system teaching hospital or, as appropriate, through a specialist Hand Clinic. Urgent transport to the appropriate service is required. The locations of such services in NSW are indicated in Attachment 2.

Where Emergency Transport is required for a person working in a remote area, a local medical officer or service can usually arrange this more effectively than a work site representative or the injured individual. However, if establishing contact with a local medical officer or service entails any delay, contact can be made direct with the specialist services.

### **Issues for mine site consideration and management**

#### **Prevention**

As indicated in SA98-08 personnel should be made aware of the potential dangers of fluids at high pressure.

#### **Reporting a high pressure fluid injection injury**

Mine site personnel should report any incident where they may have received a high pressure fluid injection.

# ADDITIONAL INFORMATION



## Response to an 'Injection of High Pressure fluid' incident

### First aid response

As suggested in the attached advice of the Director of the Sydney Hospital Hand Unit.

In addition, there should be clear identification of the injected material, and its chemical constituents if possible, for the information of specialist medical services.

### Access to specialist medical services

A person who has sustained a high pressure fluid injection injury requires emergency assessment and/or treatment at specialist medical units (Attachment 2).

### Transport to the emergency medical service

The use of emergency medical transport to the specialist service is warranted with a high pressure hydraulic oil or other fluid injection injury. For people in areas remote from the specialist services, local medical officers or medical services may facilitate and speed up access to emergency medical transport.

Where mine sites have their own medical advisers this document and SA98-08 could be discussed with them as part of establishing the work sites' response to the high pressure injection of hydraulic oil or other fluids.

For NSW coal mines the Joint Coal Board doctors are available for discussion of the topic and the work site response if required.

## Attachments

1. Advice from the Director of the Sydney Hospital Hand Unit regarding "High Pressure Injection Injuries of the Hand".
2. Specialist Hand Units and major Accident and Emergency units in NSW.



# ADDITIONAL INFORMATION

## SYDNEY HOSPITAL & SYDNEY EYE HOSPITAL

Our reference: IJL:ejh/II030299

Your reference: 3rd February 1999

Enquiries to:

Macquarie Street, Sydney, 2000  
G.P.O. Box 1614, Sydney, NSW 2001

**Telephone:** (02) 9382 7111  
**Direct:** (02) 9382 \_\_\_\_  
**Facsimile:** (02) 9382 7320

The Mine Managers  
New South Wales Department of Mineral Resources

**re: High Pressure Injection Injuries of the Hand**

The advice of Sydney Hospital Hand Unit has been sought in updating the protocols for the management of high pressure injection injuries occurring in the hand.

The information that has been distributed is by no means an over-statement of the problems that can arise as a result of such injuries. It needs to be emphasised that high pressure injection injuries to the hands are one of the very few injuries that require prompt and highly specialised treatment to minimise tissue damage and maximise restoration of function. The only effective treatment for high pressure injection injuries is surgical. This invariably will require extensive decompression of the area that has been affected by the injection injuries and this can involve a very extensive area beyond the apparent initial point of entry. The faster the injured worker is able to be transported to a centre that is able to perform this surgical treatment, the better the outcome will be.

The most important consideration at the work-site is the employer and employees to all be aware of these injuries and their potential problems. Prevention remains the best treatment and the safety procedures that you use within the mines, avoiding exposure to hydraulic lines and teaching employees the proper techniques in handling high pressure hoses and components, are paramount.

A high index of suspicion of this injury must be entertained when a worker reports an accident whilst handling such equipment. Make note that the point of entry may look very small and may not bleed. It will usually be on the working surface of the hand, that is, on the pulps of the fingers or towards the palm. The worker may not complain initially of pain but may have a feeling of numbness and tenseness within the affected part. Within a short period following this injury, however, the part usually becomes quite irritated with the worker complaining of throbbing pain which can seem out of proportion to what is visible to the naked eye. Once the diagnosis has been entertained, there is little to be done apart from expediting that worker's transfer to a surgical facility where he can get treatment with the minimum of delay.

The First Aid procedures would consist of gentle cleaning of the part, resting the patient to avoid anxiety, and elevating the affected limb in a comfortable position so that activity of the extremity is minimal. A resting splint applied gently to the wrist would be an advantage. The patient should not be given fluids or food as they must remain fasted in anticipation of anaesthesia and surgery being required.

The urgency of transfer is of the same degree as would be required for an amputation injury where replantation is being considered. In this regard there are some situations where, due to the isolation of the mine, the Occupational Health & Safety Officer at the site may wish to liaise directly with the Specialist Unit for advice re the transfer. The staff at Sydney Hospital Hand Unit would be available 24 hours a day for advice and assistance in expediting treatment of any of your workers suspected of having these injuries.

Yours faithfully  
  
Ian J. Isaacs FRACS  
**Director**  
**SYDNEY HOSPITAL HAND UNIT**

# ADDITIONAL INFORMATION



## Attachment 2

### Specialist Hand Units and major Accident and Emergency units in NSW

For a hand injury there are "Hand Clinics" at Sydney Hospital (02 93827201) and Royal North Shore Hospital (02 99267111). These services can be contacted by phone and advice sought when a high pressure fluid injection injury has occurred to a hand.

The Accident and Emergency Services at the major public hospitals are likely to be equipped to deal with high pressure fluid injection injuries. In NSW these hospitals are:

- Royal North Shore Hospital
- The Prince of Wales group of hospitals
- Royal Prince Alfred Hospital
- Westmead Hospital
- Liverpool Hospital
- Nepean Hospital
- Concord Hospital
- John Hunter Hospital





To: Mine Managers

NSW DEPARTMENT OF MINERAL RESOURCES  
Minerals and Energy House, 29-57 Christie Street  
St Leonards, NSW 2065, Australia  
P.O. Box 536 St Leonards 1590  
Phone (02) 9901 8888 · Fax (02) 9901 8777  
DX 3324 St Leonards · [www.slnsw.gov.au/mineral\\_resources](http://www.slnsw.gov.au/mineral_resources)

Dear Sir

**RE: INJECTION OF HIGH PRESSURE HYDRAULIC OIL**

The attached SAFETY ALERT No: SA98-08 is distributed to bring to the attention of the mining industry the details of a relatively infrequent type of accident. The accident arose from use of high pressure hydraulic equipment.

Also attached is a UK report which provides additional information which explains in more detail the result of such an event and the need to provide an urgent medical response.

Would you please ensure that the Safety Alert is:

1. displayed on the mine noticeboard for a minimum of 30 days; and
2. be included in toolbox safety talks with all relevant mine personnel.

Yours faithfully

A handwritten signature in black ink, appearing to read "N. Sneddon", written over a horizontal line.

Neville Sneddon  
ASSISTANT DIRECTOR SAFETY OPERATIONS



## Operator of Integrated Tool Carrier Injected with Hydraulic Oil

### Incident

A plant operator was changing the implements on an Integrated Tool Carrier at an underground metalliferous mine. While attempting to retract the locking pins far enough to allow the bucket to be removed, by moving the hydraulic valve lever backwards and forwards, a hose near his left hand ruptured. The oil discharging from the ruptured hose struck the operator's left thumb, bending it backwards and causing severe pain. The operator was wearing gloves at the time and when he removed the glove from his left hand he noticed that his thumb was bleeding.

The initial injury report completed at the mine stated that there was a laceration, swelling to the left thumb and swelling to the left hand.

During a physiotherapy session eight days after the accident, when the thumb swelled up it was realised that hydraulic oil had penetrated the thumb.

### Cause

Wire braiding on the hydraulic hose failed owing to a combination of corrosion and fatigue. At the point of failure the rubber protection was missing.

### Comments and Preventive Action

- Operators of hydraulic machinery should be protected from any potential source of high pressure fluid release.
- It should be recognised that any fluid at high pressure has the potential to cause major injury when injected into the body. The chemicals in the fluid can cause infection as well as dissolve fatty tissue.
- This incident highlights the fact that there was no awareness by the medical profession of the potential for fluid injection when using hydraulically operated systems.
- All relevant personnel should be made aware of the potential dangers of fluids at high pressure and the procedure to be followed if an injection of fluids occur.

For additional information contact Mr. R. Johnson, Inspector of Mechanical Eng. on (08) 80800622.

G. TERREY  
DIRECTOR, MINE SAFETY AND ENVIRONMENT



# HIGH PRESSURE HYDRAULIC OIL INJECTION INJURY

INJURY OCCURED ON THE 21ST JULY 1998



PHOTOGRAPH - 1  
30TH JULY 1998



PHOTOGRAPH - 2  
30TH JULY 1998



PHOTOGRAPH - 3  
31ST JULY 1998



PHOTOGRAPH - 4  
31ST JULY 1998



PHOTOGRAPH - 5  
3RD AUGUST 1998



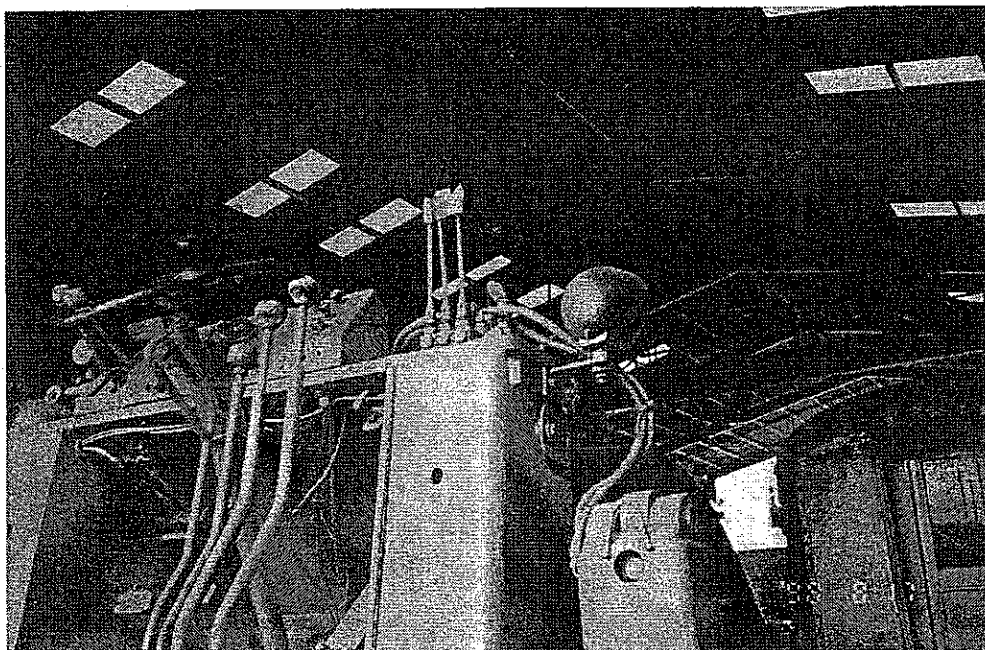
PHOTOGRAPH - 6  
3RD AUGUST 1998



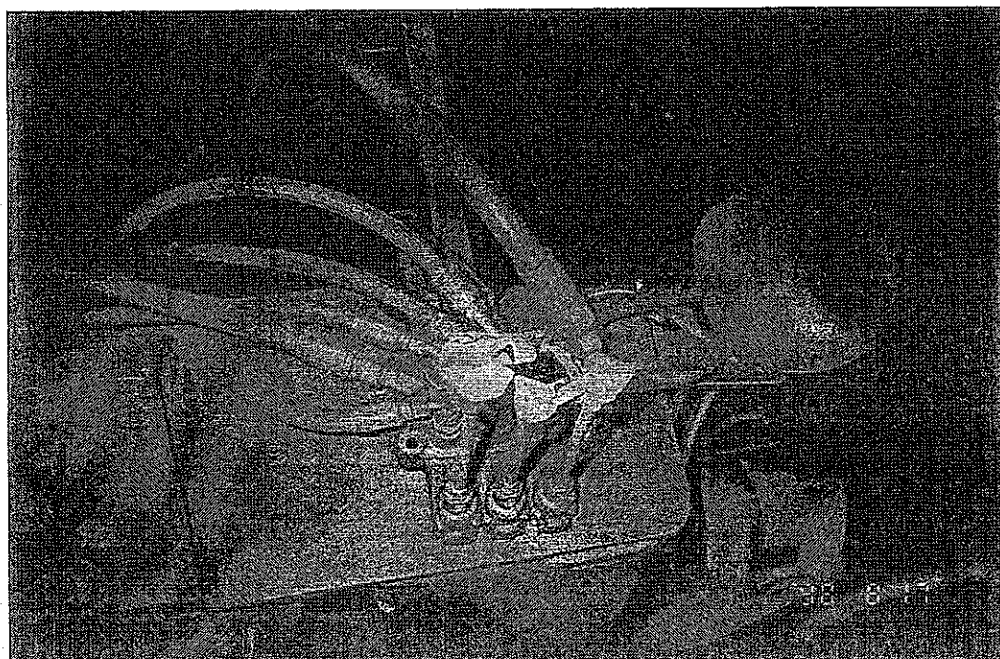
PHOTOGRAPH - 7  
11TH AUGUST 1998



PHOTOGRAPH - 8  
11TH AUGUST 1998



**PHOTOGRAPH 9**  
**CONTROL LEVERS ON IT VEHICLE**



**PHOTOGRAPH 10**  
**CONTROL LEVERS AND HOSES**

## INJURIES INVOLVING HIGH PRESSURE INJECTION

High pressure injection injuries resulting from inadvertent contact with grease gun tips or leaking hydraulic pipes are a rare occurrence (150 reported cases in the 50 years to 1984 in the UK).

When they do occur the speed of treatment is probably the most important factor in limiting the ultimate severity of the injury.

Injury typically involves pressures well in excess of 1500 psi (10.342 bar) punching a hole in the skin and soft tissue. Pressures below 1000 psi (6.895 bar) are unlikely to be energetic enough to cause an injection unless skin has previously been broken or is healing from a recent injury. After the initial injection, the fluid travels in a narrow stream until a structure of sufficient density (i.e., muscle or bone) is encountered. The fluid then rapidly disperses in all directions. Dependent upon the entry pressure, injected fluid can travel a great distance from the initial site of entry.

Damage at this stage is normally related to physical phenomena such as compression, rupture and impact together with the chemical nature of the injected material.

With lesser injections only a small puncture hole may be apparent often with no bleeding and little or no pain. If the material is a low hydrocarbon such as white spirit or kerosene then local anaesthesia can result as fat and myelin nerve sheaths dissolve. With such injections injecting local anaesthetics will potentiate the effects and so must not be administered. With higher distillates such as those typically used as hydraulic mineral oils, the higher viscosity usually results in less lateral penetration but can be more difficult to remove.

After a short period of time, the body's natural defence mechanism is activated and local swelling, pain and heat is noticed. If the material consists of tissue irritants, as would be the case with soluble hydraulic fluids and to lesser extent with their emulsions, this reaction would be faster than if it were just mineral oil.

Urgent surgical treatment is required to reduce the long term implications of this type of injury. First aid treatment is very limited, being mainly restricted to comforting the casualty until qualified medical assistance can be obtained. The general treatment **would include** decompressive surgery and deep cleansing of the wound and affected tissues, removing as much of the foreign material as possible. Relief of pressure on tissues caused by swelling of damaged tissue is continued after the operation by the application of steroids. The wound is closed after cleaning out all necrotic tissue and debris, with loose sutures to help reduce internal pressure.

Obviously, the treatment of this type of injury is highly individualised, depending to a great extent upon the nature of the fluid (its viscosity, chemical nature, etc.) and the impact pressure. One would expect a greater risk of amputation with low viscosity substances but treatment can be over very extended periods (may be years) with greases. Information concerning systemic toxicity of any injected substance is very sparse and not generally of immediate concern in these instances. However, it is worth noting that certain fluids, namely soluble hydraulics, often contain biocides, alkaline anti corrosion inhibitors and other components which can have a toxic effect.

Consideration of the quantity which is likely to be injected, however, and relating this to the proportion of toxic substance it can be seen that very little enters the body so, whilst the possibility of toxic effects cannot be discounted, the treatment of the more acute damage caused by the actual injection should be paramount.

It can't be emphasised too much that the eventual severity of the disability is strongly dependent upon the immediacy of treatment. With rapid, effective and educated treatment there is a reduced risk of amputation or loss of function of the limb. Therefore, personnel must be trained to inform supervisors of any injection injury as soon as it happens and to seek urgent immediate medical attention.