

MINE SAFETY NEWS

Department of Mineral Resources

<http://www.minerals.nsw.gov.au>

June 1999

NEWS

A NEW INVESTIGATION UNIT

A newly formed Investigation Unit in the Department of Mineral Resources will soon open for business. Legislation to establish the Unit was enacted by Parliament in December 1998.

The Investigation Unit, which has taken twelve months to establish, is the first of its kind in Australia. It has been given wide powers to probe in depth to find the causes of all fatal accidents, and selected serious accidents and dangerous occurrences in quarries and coal and metalliferous mines throughout the State.

The Department is planning an extensive campaign to let industry know about the new Unit and how it will operate.

How the Investigation Unit came about

The Mine Safety Review recommended the creation of a discrete accident and analysis unit within the Department of Mineral Resources to set new standards, conduct investigations into selected matters, participate in legal proceedings and disseminate information to industry.

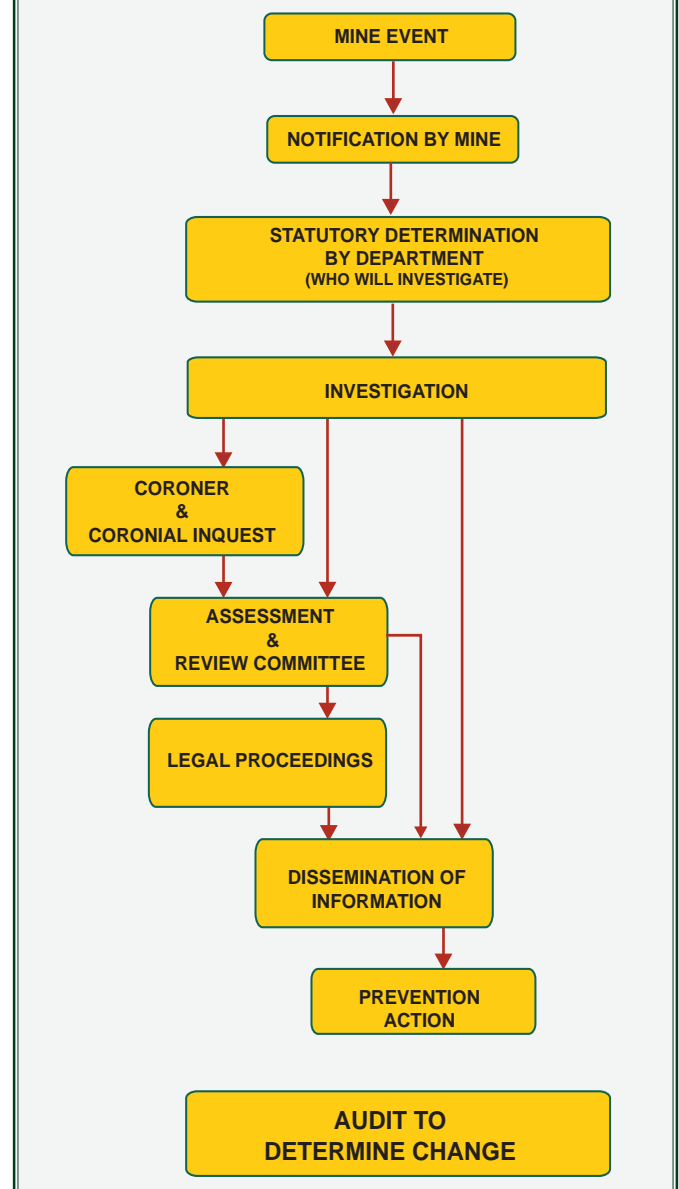
The recommendations of the Mine Safety Review were reinforced by the findings of the Gretley Inquiry. The findings included a recommendation that a special unit investigate all fatal accidents, selected serious accidents and incidents, and the involvement of the Department. The Inquiry also recommended the training of inspectors in how to conduct investigations and gather evidence for legal proceedings.

Why an Investigation Unit?

The objective of the Unit is to improve safety by maximising the impact and the benefits of investigations, by identifying deficiencies in safety systems and by analysing contributing factors to accidents. The Unit will investigate all fatalities and "prescribed matters", which include gas and dust explosions and inrushes of water and materials. It can also take over other investigations that may be of significance.

The Investigation Unit is autonomous within the Department and reports directly to the Director General. It is separate from the Department's Inspectorate, and will be able to conduct independent investigations without conflicts of interest, and removed from issues which involve the Department and stakeholders at that time. It will be staffed by a manager and four specialist officers dedicated to the

DEPARTMENT OF MINERAL RESOURCES ACCIDENT RESPONSE PROCESS



The response process which the Department will follow in the event of an accident or serious incident.

THIS ISSUE

The new investigation unit	1
Year 2000, computers and the mining industry	3
Draft of new coal regulations for public review	4
New safety legislation in Queensland	4
Mine site drugs and alcohol	5
Power supplies warning	6
Safety through competence	8
Wollongong quarrying seminar	9
Safety Alerts	9
The inspectorate area managers	10
Area manager, western/central	10
Area manager, south-east	10
Area manager, north	10
Mine Safety Council	11
Vale Peter Diamantes	11
New minerals council chairman	11
Publications	11
Major mining events	12
Departmental addresses	12

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investigation of all fatalities and other major accidents.

Investigations and outcomes

In its investigations, the Unit will probe extensively to gather quality information to identify causes and events leading up to any accident or serious incident. It will have the power to examine the role of the mine where an incident has occurred, as well as suppliers and other people relevant to the accident. It will also examine the involvement of the Department leading up to an accident.

The Investigation Unit may recommend prosecution and will participate in legal proceedings as required. Staff will also provide information for the Coroner and participate in Coronial Inquests.

The outcomes of investigations will be passed on to industry for information, when appropriate, and will also be used to develop industry guidelines. Investigation Unit staff will audit mine sites to ensure that guidelines have been implemented.

Investigation standards will be raised by the use of a procedures manual which will formalise investigation procedures. The manual will also be used for training in high standard investigation procedures.

The Unit will involve employees, mine management, unions and other stakeholders in gathering information to bring about the changes that will make mining safer.

For further information contact Stede Coundouris, Manager, Investigation Unit, on (02) 9649 8959, fax (02) 9649 5631, or e-mail coundous@minerals.nsw.gov.au

HOW THE UNIT WILL RESPOND TO ACCIDENTS

All serious mine accidents will be reported by the mine manager to a Regional/District Inspector. The relevant Inspector will go to the mine to ensure the safety of personnel, to oversee rescue, to serve notices where applicable, to ensure the accident site is secured and to prepare a preliminary report.

The preliminary report will enable the Department to decide who will complete the investigation. This may be the Inspector on site or the Investigation Unit.

The Investigation Unit will respond to all accidents which have resulted in fatalities. It will assess the seriousness or consequences of other accidents as to whether it should respond.

Once the Investigation Unit arrives on site, it will take over the management of the mine investigation with the assistance of the Inspector. Teams may be formed subject to the complexity of the task.

A report will be issued documenting the findings.

(The investigation process is summarised on the flowchart on page 1).

Should the Mine Manager notify the Investigation Unit?

The Mine Manager is not obliged to notify the Investigation Unit of an accident. The responsibility of notifying the Unit rests with the Inspector or Area Manager.

Who will be involved in an investigation?

The Investigation Unit will require the assistance of all those who can provide information about the events leading up to the accident, and the accident itself, to identify the causes and contributing factors.

Verbal notification

To assist mine managers in reporting an accident, the Department has prepared a form called an 'Oral Notification Checklist'. This form identifies details which will assist the Department in resourcing, and to activate the Investigation Unit. Mine managers can obtain these forms from the Department.

YEAR 2000, COMPUTERS AND THE MINING INDUSTRY

About eighty per cent of the mining industry uses computers, making it one of the highest computer users of any industry in Australia. With such widespread use, the potential for computer problems with the advent of the year 2000 is even higher than for other industries. Computer chips are embedded in almost every appliance, machine and device used, and their use can impact on virtually every action.

The magazine *Australian Mining* (May 1999) reported the results of a recent survey by the National Australia Bank which showed that mining is the industry group least prepared for the year 2000 problem. Of the 8,000 mining businesses surveyed, not one was fully prepared. In sharp contrast, the industry considers itself the least affected by potential year 2000 problems, even though it is the highest user of computer equipment of any industry.

Because potential computer problems could impact critically on safety as well as other

areas of mining, the year 2000 issue must be addressed by every mine site and mining business.

Duty of care

There are serious legal implications for failing to address the potential hazards of the year 2000 problem.

The State Government has been advised that company failure to take reasonable steps to address potential year 2000 problems may be a breach of care and diligence duty.

Company directors are advised to do three things:

- Ensure that all new acquisitions – and not just computer products – are year 2000 compliant and will continue to perform properly after 1 January 2000.
- Seek assurances from all suppliers that their products are compliant. Try to incorporate a compliance warranty in any agreements.
- Undertake a compliance program.

Start now

If a business has not started to deal with year 2000 issues, it is important to start with areas that are considered critical. Mining companies



A computer operated mine site control room

which have already dealt, or are dealing, with similar issues may be able to provide information or solutions to problems. It may also be possible to work with other mines to resolve mutual problems together.

For further information on year 2000 issues contact John Waudby, Senior Inspector of Electrical Engineering, on (02) 4954 7899, fax (02) 4954 8019, or e-mail wardbyj@minerals.nsw.gov.au ■■■

A YEAR 2000 PROJECT CASE STUDY

One mining company started work on their year 2000 project in 1997, based on a 'project charter' and 'desired result'.

Project charter and desired result

The project charter details are:

- ▼ The Y2K project is a critical top priority business issue.
- ▼ All potentially affected systems will be assumed to be non-compliant until proven otherwise.
- ▼ Line managers are responsible for the resolution of Y2K issues in their areas of responsibility.
- ▼ A documented record of all exposures, assessments, testing and remediation or contingency plans will be maintained for all areas of the company.
- ▼ Y2K issues are recognised to extend beyond the immediate production facilities. This includes, but is not limited to, suppliers, customers, contractors, joint ventures and regulators.
- ▼ Health and safety and protection of the environment will be paramount considerations.

The Board of the company looked for a desired result that:

- ▼ Identified and remedied the impacts of potential Y2K problems by 30 June 1999 while maintaining operational continuity.

Project progress

A project team was formed at the mine. The team has representatives from the Ore Processing, Underground, Finance, Supply and Logistics, and Information Technology Departments.

The project team records each step in a gant chart. A detailed document commitment schedule was also set up which uses a computer network and logging system.

The company contracted with a specialist company with a very large database of year 2000 compliant equipment and the necessary skills and resources to assist the mine in this very large project.

So far the project team, with the assistance of the contracted company, has completed the initial supplier assessment. From the assessment, letters were sent to suppliers seeking confirmation of Y2K compliance. Responses have been reviewed, and to date the majority of appliances on site have been Y2K compliant.

The next step was a detailed risk analysis on all the various components on the mine site. It included areas such as the open cut, the ore processing department and underground operations, with some overlap with stores.

As a result of the risk assessment and the assessment of the supplier letters, the team has started a detailed testing program. (This was delayed while the company sought up-to-date operating systems for the SCADA systems for both surface and underground operations.) A 'clean management' program was also put in place for PLC embedded logic and for any components as they come on site. As part of this, surface and underground inspectors sign off on any components prior to their introduction to the site.

At this stage, the company's year 2000 program will be completed by the anticipated date.

DRAFT OF NEW COAL REGULATIONS FOR PUBLIC REVIEW

New regulations are planned for the Coal Mines Regulation Act. The present regulations will be repealed on 31 August, and the replacement ones are expected to come into effect on 1 September 1999.

The draft regulations have already been reviewed by the public and the Joint Safety Review Committee, and resulting submissions have been taken into account. As well, recommendations from the Gretley Inquiry have been incorporated into the draft.

A further public review is under way and from this the final draft of the regulations will be prepared. Copies of the latest draft have been circulated throughout industry and to unions and other stakeholders for comment.

At present there are 35 regulations under the Act, and under the proposed arrangements, these will be reduced to three. The three new regulations are:

- ✓ A General Regulation covering all coal mines and declared preparation plants,
- ✓ An Open Cut Regulation, and
- ✓ An Underground Regulation.

The changes to the regulations will:

- ✓ Consolidate the present regulations and remove archaic and redundant provisions,
- ✓ Move some regulations from requirements to codes or guidelines,
- ✓ Remove unnecessary regulations from the open cut coal mining sector,
- ✓ Take into account recommendations from the Moura and Gretley Inquiries and the Endeavour Colliery investigation, and
- ✓ Introduce system oriented approaches to safety management which will ultimately lead to full scale introduction of Mine Safety Management Plans.

The Department has already urged industry to move towards the new arrangements, as far as is possible, and to amend operations and documentation to be consistent with the intent of the new regulations. Taking these steps now will make the transition process from 1 September more manageable.

In a further step, a new regulatory model will be developed in the future which will complete the transition of responsibility for safety from government to industry.

For further information about the proposed regulations contact Chris Ellicott, Manager Regulatory Development, on (02) 99901 8412, fax (02) 9901 8584, or e-mail ellicotc@minerals.nsw.gov.au

NEW SAFETY LEGISLATION IN QUEENSLAND

The Queensland Government has approved milestone legislation in the improvement of safety and health standards in the Queensland mining industry.

The new legislation contains the most significant changes to mining legislation since 1925, when the present Coal Mining Act was introduced. Developed through government, industry and unions in Queensland working together, plus Australian and overseas consultation, the legislation demonstrates a solid commitment from all concerned to prevent accidents and to safeguard the health of all those involved in the mining and quarrying industries.

The Queensland Minister for Mines and Energy, Tony O'Grady, MLA, believes that this 'tough legislation' will send a strong message to everybody associated with the mining industry.

Some of the key points if the legislation are:

- Emphasis on the duty of care obligations of employers and employees.
- On-site management of risks involved in mining.
- Specific provision for employee involvement in safety on work sites.
- Setting up government, union and industry advisory councils to advise the Minister.
- Joint employer and employee planning for safety and health by developing management systems.
- Penalties, including imprisonment.
- A major monitoring and enforcement role for the Inspectorate.

The legislation sets standards for safety and health rather than prescribing how industry should do things. Under it, the people who have the authority to remove hazards and to reduce risk can be held accountable. Similarly, responsibility is placed on those who have the most knowledge of how detection and removal of hazards should be achieved.

NEW SOUTH WALES

Mining and Quarrying Industry

1999

OCCUPATIONAL HEALTH & SAFETY

CONFERENCE

Sunday 8 – Tuesday 10 August, 1999

TERRIGAL CROWN PLAZA HOTEL,

Terrigal

To register, contact the NSW Minerals Council, (02) 9267 6488

MINE SITE DRUGS AND ALCOHOL — PASMINCO'S APPROACH

The issue of drugs and alcohol in the workplace has recently received widespread publicity. The effects of these on safety is well known, and one company, Pasmaenco Ltd at Broken Hill, has developed a mine site policy and is now trialling an introductory drug and alcohol program.

Policy Objectives

The company understands that it has a duty of care, both legally and morally, to all those working or visiting the Pasmaenco Broken Hill mine site under the OH&S Act 1983 and the Mines Inspection Act 1901.

When Pasmaenco decided to introduce a drug and alcohol program, it had several objectives. It wanted to:

- ✓ Create a safe and healthy environment for employees and others free from the hazards associated with the inappropriate use of drugs and alcohol.
- ✓ Provide education and awareness training for personnel to overcome inappropriate use of drugs or alcohol.
- ✓ Ensure that a rehabilitation process is provided for personnel with difficulties with drug and/or alcohol related issues.
- ✓ Foster an attitude that it is not acceptable to come to work under the influence of alcohol or any other drug that will prevent performing duties in a safe manner.
- ✓ Ensure that the company meets its legal and moral obligations by providing a safe working environment for its employees, contractors and the general public.
- ✓ Ensure that personnel are aware that repeated breaches of the policy may lead to termination of employment.

Pasmaenco's policy sets out that alcohol testing is to be done by breath test and drug testing by urine sample. Positive results are to be confirmed by pathology analysis and breaches remain on personnel records for two years.

A 0.02% blood alcohol level has been set as the acceptable limit for reducing risk. Blood drug limits have been set individually for different groups of drugs. For instance, opiates, barbiturates, cocaine and methadone are set at 0.3 ug/ml, and cannabis at 0.10 ug/ml. These limits are consistent with those established in the Australian Standards.

The policy clearly sets out the processes that the company is to follow for personnel registering a positive testing result for drugs or alcohol, and for subsequent positive tests. Rehabilitation principles and guidelines are an integral part of the policy.

Drug and alcohol policy trial

The company introduced the three month trial on 1 March 1999, following a hearing in the Industrial Relations Commission. The agreed conditions of the trial were:

- The policy operates on the basis of a blood alcohol level of 0.05%.
- For individuals with a reading of between 0.02% and 0.05% the following apply:
 - ▼ Remain at work, but not permitted to begin normal duties until the reading is below 0.02%.
 - ▼ No disciplinary action of any kind, including personnel record notes, will apply to employees within this range for the period of the trial.
- The company and unions are to meet regularly to assess the operation of the policy.
- The OH&S committee, which is made up of management and workforce representatives, is to be part of the review at the end of the trial.

Before the trial was introduced, the company conducted an education and awareness program for all employees. Topics in the program included:

- How alcohol and drugs affect the body, and the affect of these on work performance.
- Recognition of the health and safety implications of drug and alcohol abuse.
- Recognition of the early indication of drug and alcohol abuse.
- The procedures that the company would follow if an employee proved to have drug or alcohol levels above the agreed limits.



A mobile miner tunnelling at Pasmaenco's Broken Hill mine

Following the trial

The drug and alcohol policy trial period ended on 1 June 1999. A conciliation conference before Justice Walton of the New South Wales Industrial Relations Commission is taking place on 17 June, at which it is hoped to resolve outstanding matters before full implementation of the policy at the mine site. The main concerns of the company and the unions (CMUE) are outlined below.

Throughout the trial, the company was concerned that the frequency and adequacy of testing fully discharged the moral and legal obligations of the company's duty of care and due diligence requirements. Data collected to date has underpinned this concern, and the company now wishes to increase testing to two drug tests and two alcohol tests each day for randomly selected full time employees, and one per day for contractors. It would also like the capacity to randomly test one of the 26 work groups of employees in conjunction with individual employee testing. This proposal has the support of the company's OH&S committee. (All employees are encouraged to self test before presenting for work. They were also given the opportunity during the introductory phase of the policy to obtain drug self-test kits from the local community health centre. The centre guaranteed confidentiality and provided expertise (such as professional counselling) that is not provided at the mine site.)

The union members have opposed increased testing. Members have accepted the trial period level of testing, and would accept this on an ongoing basis if the company also accepts it.

For further information contact Terry Plush, Superintendent – Human Resources, or Steve Pavlich, Senior OH&S Officer, Pasmaenco Broken Hill Mine, on (08) 8088 8727, or e-mail PavlichS@pasmaenco.com.au

“ Readers may care to look up the Mines Inspection Act General Rule 1994, Part 2— Management of Mines, Clause 14. Clause 14 refers to 'Intoxicating liquor and drugs' on mine sites. ”

TABLE 1

REVOKED APPROVALS — INTRINSICALLY SAFE POWER SUPPLIES		
AUSTDAC 24 volt	1 ampere	MDA Exia 14111
AUSTDAC 18 volt	1.25 ampere	MDA Exia 14111
AUSTDAC 14 volt	1.5 ampere	MDA Exia 14111
AUSTDAC 12 volt	2 ampere	MDA Exia 14111
AUSTDAC 24 volt	700 milliampere	MDA Exia 11261
AUSTDAC 18 volt	800 milliampere	MDA Exia 11261
AUSTDAC 18 volt	800 milliampere	MDA Exia 11088
AUSTDAC 18 volt	800 milliampere	MDA Exib 11088
MM Mining 24 volt	1 ampere	MDA Exia 14230
MM Mining 18 volt	1.25 ampere	MDA Exia 14230
MM Mining 12 volt	1 ampere	MDA Exia 14230
MM Mining 12 volt	2 ampere	MDA Exia 14230
MM Mining 12 volt	2.35 ampere	MDA Exia 14230
Siemens 12 volt	1.5 ampere	MDA Exib 1462
Siemens 5 volt	6 ampere	MDA Exib 1462
Siemens 13 volt	1 ampere	MDA Exib 1416

POWER SUPPLIES WARNING

Several intrinsically safe power supplies have had their Departmental approvals revoked (see Table 1). This came about after problems were identified when some AUSTDAC approved power supplies were being assessed for supplementary approval and certification.

Intrinsic Safety

Intrinsic safety is a way of providing electrical explosion protection. It is recognised and used worldwide in industries where explosive mixtures of gas may be present. Intrinsically safe circuits are widely used in underground coal mines for longwall control and communication systems, telephone systems, other communication systems, conveyor signal and control systems and gas monitoring.

Intrinsically safe circuits and apparatus are designed so that the energy in a spark from the circuit cannot ignite an explosive mixture of gas (methane in coal mines). Further, the surface temperature of intrinsically safe apparatus and circuit components is limited to a level that cannot ignite gas or coal dust. The energy required to ignite the most explosive mixture of methane is 300 microjoules (Australian Standard AS2380.7 – Electrical equipment for explosive atmospheres - Explosion protection techniques. Part 7 – INTRINSIC SAFETY i).

The energy in a spark is dependent on such factors as voltage, current, time and how the spark is formed. The source of energy for a spark in an intrinsically safe circuit is generally made up of two components, the power source and the energy stored in the components, cables and other devices that make up the intrinsically safe circuit.

Intrinsically safe power supplies

With intrinsically safe power supplies it is critical that the power supply cannot provide sufficient energy to generate a spark that could ignite methane. It is also critical that the power supply's cables and devices cannot store sufficient energy to ignite methane when both that energy and energy from the power supply are released into the spark at the same time.

Intrinsically safe power supplies can be either "passive" or "active". Passive power supplies

use a current limiting resistor to limit the output energy. These circuits are electrically well defined.

Active power supplies use electronic switching devices to limit the output energy. When these electronic switching devices operate, a pulse of current passes into the intrinsically safe circuit. If this pulse is of sufficient current and length of time it may ignite gas. Generally the performance of active power supplies is not well defined.

Approved intrinsically safe power supplies have conditions or recommendations which specify the maximum capacitance and inductance that can be connected to the power supply. If these parameters are exceeded, the circuit cannot be considered intrinsically safe. Recent tests have shown that it may be possible for an explosive mixture of gas to be ignited under such circumstances.

Departmental precautions

Table 2 lists power supply types and/or equipment with which the Department has concerns. The Department is trying to resolve various issues with manufacturers.

In addition, following further work on intrinsically safe power supplies, the Department has taken several precautions. It has:

- ✓ Modified its approval procedures for intrinsically safe power supplies,
- ✓ Identified issues with several brands of power supplies,

- ✓ Issued a Safety Alert (SA 99/01, 5 February 1999) to industry recommending that all intrinsically safe power systems are reviewed to ensure that intrinsic safety properties are not compromised,
- ✓ Held meetings with mine electrical engineers to discuss intrinsically safe power supplies and to identify problems associated with assessing such systems and the availability of intrinsically safe power supplies.
- ✓ In cooperation with Londonderry Occupational Safety Centre, held industry forums for mine electrical engineers and manufacturers to discuss the issue of intrinsically safe power supplies, and to identify problems associated with testing active power supplies, assessing intrinsically safe systems and the availability of intrinsically safe power supplies.
- ✓ Initiated an independent review of its approvals system,
- ✓ Commenced a review of all intrinsically safe approvals (approximately 1200).

Action from here – the Department

The Department is continuing to review its approval files to see if other types of power supplies require further assessment. At the same time it is working closely with WorkCover's Londonderry Occupational Safety

TABLE 2

Centre to gather further information about intrinsically safe power supplies to identify those with problems.

The Department is also liaising with manufacturers of intrinsically safe power supplies, mine electrical engineers and interstate agencies to identify safety issues and to find solutions to those issues.

The Department cannot guarantee that other intrinsically safe power supplies will not have their approval revoked. It is possible that approvals will be revoked immediately if there is a clear safety issue, or over a period of time if minor non-conformances to AS2380.7 are identified.

Action from here – industry

Users of intrinsically safe power supplies should confirm with the manufacturer of their particular equipment that the parameters specified on the approval documents would not, if tested in accordance with Clause 5.5, Australian Standard AS2380.7, ignite gas in the spark test apparatus.

Users should review all their installed intrinsically safe circuits and ensure that any such power supplies are used in accordance with the approval conditions and/or recommendations.

MANUFACTURER	I.S. POWER SUPPLY TYPE / I.S. EQUIPMENT	APPROVAL NO.
AT FLAMEPROOF	PART NO. A3-10272	MDA Exia 14022
AT FLAMEPROOF	SERIES 556	MDA Exia 11310
AUSTDAC	LPU44 LIGHTING & POWER UNIT	MDA Exedmi 14238
AUSTDAC	PSU01 12V DC	MDA Exib 11088
AUSTDAC	PSU01 12V DC	MDA Exia 11088
AUSTDAC	PSU01 12V DC	MDA Exia 11261
AUSTDAC	MODULAR RADIO SYSTEM TYPE RFM 2000	MDA Exia 14117
EICKHOFF	TYPE Ins1	MDA Exib 1546
EICKHOFF	TYPE iNS5	MDA Exib 1605
EICKHOFF	TYPE Insb5	MDA Exi 1543
FORCED POTATO	QUAD POWER SUPPLY 18V, 0.2A, & 12.5V, 2A	MDA Exib 14163
FORCED POTATO	TYPE 33 I.S. POWER SUPPLY 7.5V, 2A; 12.5V, 1.5A; 2.0A, 18V, 1A	MDA Exib 14085
MEGATECH	TYPE Ini5	MDA Exib 1731

Intrinsically safe power supplies with which the Department has concerns. It is liaising with manufacturers for more information.

Manufacturers of mining machines, longwall systems and intrinsically safe systems should review any intrinsically safe systems associated with their equipment.

Guidance on the design and assessment of intrinsically safe circuits and the determination of external parameters is

contained in Appendices A and C of Australian Standard AS2380.7. Part 7 – Intrinsic Safety i.

For further information contact John Waudby, Senior Inspector of Electrical Engineering, on (02) 4954 7899, fax (02) 4954 8019, e-mail waudbyj@minerals.nsw.gov.au

Testing intrinsically safe power supplies

Testing of intrinsically safe equipment is carried out by recognised testing stations. In Australia it is carried out by Workcover's Londonderry, New South Wales, Occupational Safety Centre and by Queensland's SIMTARS.

There are basically two methods of determining if equipment is intrinsically safe – actual testing using the spark test apparatus, or assessment using published ignition curves.

To ensure the intrinsic safety of equipment, tests and assessments used to determine if gas can be ignited require a factor of safety of 1.5. This factor of safety can be achieved by increasing voltage or current or by using a more sensitive test gas. Standard practice worldwide is to apply the factor of safety on the test gas when the spark test apparatus is used.

It should be noted that for methane, a test gas with a factor of safety of 1.5 is specified in AS2380.7 as Hydrogen = 52% and Air = 48% or Hydrogen = 85% and Oxygen = 15%. It is important to realise that neither of these mixtures equates to the most readily ignitable mixture of Hydrogen.

Passive power supplies are well defined and the published ignition curves are used to determine intrinsic safety. This includes the maximum capacitance and inductance that can be safely connected. A further useful parameter is the ratio of inductance to resistance that can be connected to the power supply. This inductance to resistance ratio is applicable to cables connected to the power supply. It is a valid parameter because it depends on the load inductance and the source resistance.

Active intrinsically safe power supplies are not well defined and intrinsic safety and the maximum capacitance and inductance that can be connected to the power supply has to be determined by test using the spark test apparatus, with a test gas having a factor of safety of 1.5. Because of the nature of active power supplies, it is not possible to determine an inductance to resistance ratio and the values of allowable inductance and capacitance are often lower than for passive power supplies. A guide to voltage and current parameters of active power supplies is given below.

Voltage (Volts)	12.00	12.50	13.00	13.50	14.00	15.00	24.00
Current (Amperes)	2.31	1.49	1.09	0.86	0.70	0.45	0.11

SAFETY THROUGH COMPETENCE

'Safety through competence', the theme of the Department's ninth Mechanical Engineering Safety Seminar, took up a key focus of the Department's Mine Safety and Environment Division – that industry develops employee competencies on minesites to help reduce injury and fatalities.

The seminar, held in March, attracted about 140 mine employees, manufacturers and suppliers of equipment, and safety practitioners.

Risk assessment

The first session of the seminar was on risk assessment systems and provided examples of how difficult problems were successfully overcome. Ian Bartholomew of Bulga Coal Management Pty Limited gave an account of how the company overcame a difficult and potentially dangerous dragline problem at its Bulga opencut coal mine in the Hunter Valley using risk assessment and control measures.

Two years after the installation of a dragline at Bulga, attempts to overcome a pressure problem in a sealed ballast compartment in the dragline led to a fire which took 40 minutes to extinguish, even though the company had used its existing risk assessment procedures prior to, and during, the incident. Consequently it organised a team consisting of the company's engineers, Inspectors from the Department of Mineral Resources, and manufacturer's representatives to look into the cause of the fire.

The team developed risk procedures for depressurising the other dragline ballast tanks so that hazards were controlled. The team needed equipment that was fit for purpose, so they designed a drill to help depressurise the tanks under controlled conditions.

When the time came to depressurise the tanks, all the procedures from the risk assessment were put in place, including standby fire and rescue personnel. All equipment was tested, and the system was integrity tested.

A steel socket was welded to the floor plate of the machine house and a ball valve attached. The drilling machine was attached to the top of the ball valve. The system was pressurised

to check for leaks prior to drilling. After the plate was drilled, the ball valve was shut and checked for pressure leaks.

Ian described risk assessment as a valuable tool, and recommended its use to all engineers as it helped to provide a structured process to deal with all problems, both expected and unexpected.

Training

In the second session, talks aimed to give different views of training and some of the issues that arise.

Carl Tinsley outlined how Dartbrook Coal had developed and set up competency training, the first to apply the Mining ITAB system. The company has now reached the level of issuing Qualifications up to Certificate II level.

Darrel Adam from the Joint Coal Board (JCB) spoke on the revised JCB Order 34 guidelines, which emphasise the need not only to train employees, but to assess the training. Under the new guidelines, training is to be competency based, of a recognised standard, and should be portable. Training should meet the needs of the mine site, and applies to all employees on that site.

Competency training helps to demonstrate that management is meeting its duty of care.

John Winchester from consultants Farthing West gave a cross organisation view of training for improved productivity and safety. His view is that even with competent employees, breakdowns occur in cross functional links in an organisation. Most people in organisations do not understand system flows. The biggest productivity gains can be made if those in the organisation understand how the different functions interrelate. A key aspect of such change is the involvement of everyone in the process.

Effective communication

The keynote speaker at the seminar was Helen Joyce from the New South Wales Adult Migrant Education Service. She spoke on the what, who and how of communicating effectively. Helen recently worked on a project which examined the literacy, numeracy and communication requirements of coal mines, giving her an excellent background into the sort of problems that can be encountered in communicating and training for mines.

She believes that communication and training are vital for the development of a highly

skilled workforce at a time of rapid technological and industry change.

The language used in the workplace, called a workplace register, may be different from everyday language and culture. This difference may affect the ability of those for whom it is not a first language to understand it. Engineers, for instance, have a technical language.

In providing training for the workplace, it is necessary to find an alternative way to explain the subject so that trainees understand. It is important to:

- Use simple language
- Repeat items (such as new words, ideas or results)
- Not presume that others can do as we do
- Use interactive exercises, not just verbal training delivery
- Think about our own cultural language setting and expertise.

Spoken language can be modified to get the message over. In preparation, ask:

- ▼ Who is the audience?
- ▼ What are you communicating?
- ▼ How can the information be communicated clearly to the audience?

Topical safety matters

A series of short papers on topical safety matters for mechanical engineers completed the seminar. Papers were on:

- Stability of LHDs,
- Introduction of fire protected diesel personnel vehicles to BHP Illawarra collieries,
- Diesel maintenance,
- Lock-out/tag out equipment, and
- Conveyor safety – AS 1755.

For further information on mechanical (and electrical) engineering seminars, contact Steve Stewart, Event Organiser, on (02) 9901 8413, fax (02) 9901 8584, or e-mail stewarts@minerals.nsw.gov.au

For further technical information contact Leo Roberts, Manager Technical Services, on (02) 9901 8550, fax (02) 901 8584, or e-mail robertsl@minerals.nsw.gov.au ■■■

WOLLONGONG QUARRYING SEMINAR

The quarrying industry in New South Wales will see big changes over the next few years. The impact of the Olympics on business before, during and after the Games, regulatory change, altered tax systems, and a move to competency training are among the major issues which will impact on the industry.

Spelling out how such big picture events would affect the industry, and providing industry support through wide ranging information, were the aims of the seminar held by the New South Wales Branch of the Institute of Quarrying on 14-16 May in Wollongong. Lively question times after each session gave the 120 attending seminar the opportunity to challenge speakers and to obtain more information.

Peter McGhee, Chairman of The Institute of Quarrying (NSW Branch), opened the seminar. He noted that leading hands to general managers, with State wide representation from smaller quarries to large metropolitan quarries, were among the seminar participants.

Graham Terrey, Director of Mine Safety and Environment, Department of Mineral Resources, spoke on impending legislative change affecting the quarrying industry, and announced plans for a small mines campaign which starts in September. The campaign aims to change the ways small mines think about safety, and to improve their poor safety record.

Stede Coundouris, Senior Inspector of Mines, will run the Department's Investigation Unit, an important feature of the Department's new approach to safety. Stede explained how the Unit will operate when it begins work later.



Danny Duke, Vice President, Institute of Quarrying, introduces the second workshop at the seminar



Consultant Susan Fields (standing right) during one of the consultative workshops. Among those in the work group are (standing, from left) Greg Goodsir and Carl Berglin, and sitting (from left) Tony Ingram and Graham Terrey

Two workshops were also held during the seminar. The first looked to large and smaller industry participants for their comment and suggestions on proposed guidelines and a draft workbook for mine safety management systems for extractive industries. The second workshop explored industry's reaction to the Extractive Industries Training Package.

The Institute organised the weekend seminar with time for relaxation as well as work. Partners and families were encouraged to

attend, with outings and child care arranged. The seminar also provided a great opportunity for networking with industry members.

Some seminar participants chose to join in site visits to the Australian Steel Mill Services plant at Port Kembla and the Cleary Brothers' Museum on Saturday afternoon.

To obtain information about The Institute of Quarrying Australia or to find out how to become a member, contact Danny Duke, Vice President, on (02) 9928 3653. ■■■

SAFETY ALERTS: March 1999 – June 1999

Report No	Date	Title
SA99-04	11 March 1999	Bench collapses under truck
SA99-05	12 March 1999	Light vehicle fires
SA99-06	11 February 1999	Worker overcome by toxic fumes
SA99-07	14 May 1999	Failure of drift haulage rope
SA99-08	18 March 1999	Contact with live 415 volt conductors
SA99-09	8 March 1999	Chemical explosion in laboratory fume cupboard
SA99-10	8 March 1999	Collapse of dust stockpile onto loader

Safety Alerts are issued by the Department so that industry can take steps to prevent further occurrences of particular incidents or to avoid potential incidents. To obtain a copy of any of the alerts listed above, or to be added to the mailing list to receive future Safety Alerts, contact Steve Stewart on (02) 9901 8413, fax (02) 9901 8584, or e-mail stewarts@minerals.nsw.gov.au

Mechanical Engineers MINE WINDER SAFETY SEMINAR

TUESDAY 31 AUGUST 1999

AT

PENRITH PANTHERS LEAGUES CLUB

Enquiries: Steve Stewart, Department of Mineral Resources, (02) 9901 8413

THE INSPECTORATE AREA MANAGERS

The four Area Managers play an important role in the Department of Mineral Resources' Inspectorate. They lead the teams of Inspectors in their particular regions (see diagram) in the management of safety and mineral resources use. Three of the Area Managers are introduced in this issue. The fourth, Paul Healey, the newly appointed Area Manager for the Hunter, will be introduced in the September issue of the newsletter.

Area Managers are key players in the reforms taking place within the Inspectorate and industry. They are instrumental in bringing about the changes in the role of Inspectors and in communicating to industry its changing responsibilities for mine site safety. These two areas of change have come about through recommendations made in the independent New South Wales Mine Safety Review, and through those coming out of the inquiries into the Gretley and Moura mine disasters.

Area Manager — Western/Central

As the Area Manager, Western/Central, Stan Goodman manages a vast region in the western part of the State.

Stan began work at The Zinc Corporation Limited in Broken Hill in 1956 as a trainee mining engineer. After graduation, he worked in various positions with The Zinc Corporation/New Broken Hill Consolidated Limited (now known as Pasmaico Broken Hill Mine – Southern Operations), and later became Underground Mine Manager.

Later he joined Consolidated Rutile Limited as Mine Manager on Stradbroke Island.

In 1986 he joined the Department of Mineral Resources as an Inspector working in Broken Hill. He was appointed Senior Inspector of Mines for the Western Area in 1995.

In the recent changes to the structure of the Inspectorate, Stan was appointed to the position of Area Manager – Western/Central.

He will retire at the end of July this year after nearly 43 years in the mining industry.

Area Manager — South-East

Terry Abbott is the Inspectorate Area Manager for the South-East region which includes Wollongong and Lithgow.

Terry qualified as a mine manager in the United Kingdom, and worked there for the National Coal Board. He came to New South Wales in 1969 and worked in industry in new coal mine construction, development of gas drainage technologies, and as an underground coal mine manager.

He began work with the Department of Mineral Resources in April 1991 as a District Inspector of Coal Mines based in Singleton. He transferred to Wollongong in November 1992 to take up the position of Senior Inspector of Coal Mines, responsible for coal mining operations in the Wollongong and Lithgow districts.

As part of the recent restructure within the Department and the establishment of a separate Safety and Environment Division, Terry has been given the role of Area Manager for the South East Area. He now has responsibilities covering both the coal and minerals sector.

His key focuses are work prioritisation through work plans, safety management systems and the development of effective regulatory change.

Area Manager — North

David Bedford is the Area Manager for the North region.

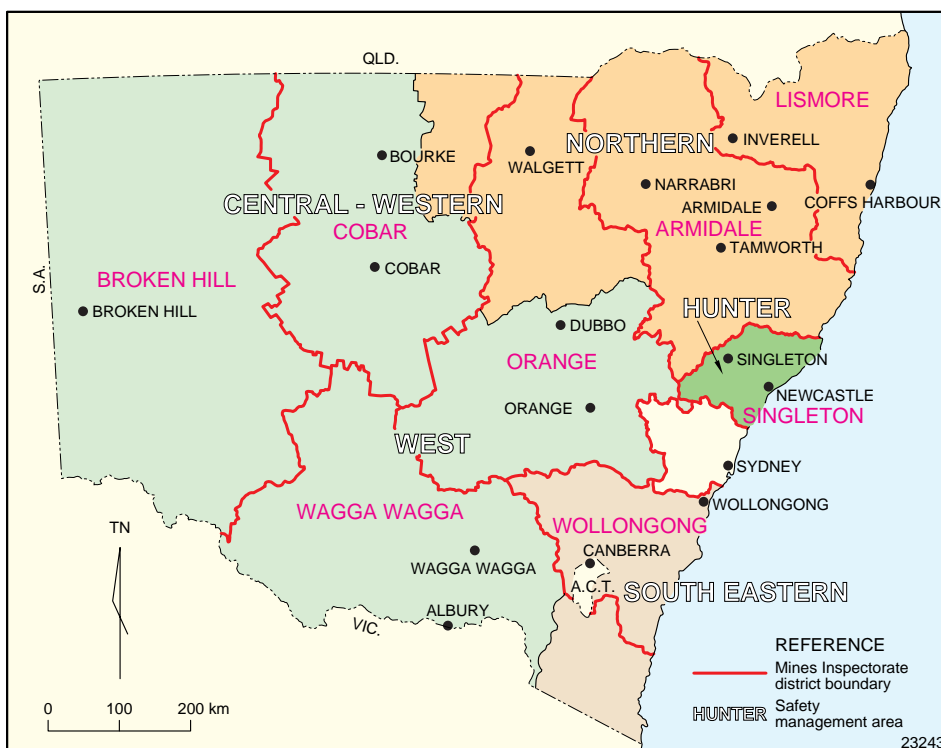
David joined the Department as an Inspector in 1983 following a 17 year career in technical and management roles in the metalliferous mining industry both in Australia and overseas. He worked in the copper belt in Zambia, developed a lead-zinc mine in Ireland, and explored for gold in Tennant Creek in the Northern Territory and scheelite under Bass Strait off Tasmania.

When he first joined the Department, David was closely involved with the implementation of the Mining Rehabilitation and Environmental Management Plan (MREMP) program. Recently he has been involved in the changes that are taking place in the way in which government and industry are dealing with safety and environment issues on mine sites.

In the relatively new position of Area Manager within the Mine Safety and Environment Division, he will focus on overseeing the implementation of the safety strategies developed out of the recommendations of the Mine Safety Review and the Gretley and Moura Inquiries.

Over the next two years, David sees as particularly important the consolidation of the new mine site review program for the metalliferous sector and the development and introduction of the 'small mines campaign'. The campaign is aimed specifically at raising safety awareness and safety standards on smaller mine sites across the State.

He has been closely involved with a broad range of issues at Lightning Ridge for a number of years and harbours a covert desire to see the opal mining industry establish itself as a mainstream industry participant. ■■■



Mines Inspectorate districts and areas of safety management

MINE SAFETY COUNCIL

At the 28 April meeting of the Mine Safety Council, the Department provided Council members with a briefing paper on the new regulations to the Coal Mines Regulation Act 1982. The Council will consider the paper and provide the Department with an industry perspective at the next meeting on 29 July 1999.

The Council briefly adjourned to meet the Minister for Mineral Resources, The Hon Eddie Obeid. Mr Obeid made a brief speech emphasising the vital role that members of the Mine Safety Council can play by working together to improve mine safety in New South Wales. ■■■



The Minister, The Hon Eddie Obeid, with members of the Mine Safety Council. Sitting, from left, are Prof Dennis Else, Mr Obeid and Hugh McDermott (AWU). Standing, from left, are Neville Sneddon and Graham Terrey (DMR), Ron Land (CFMEU), Darren Cameron (AWU), Helen Dickenson (DMR, Secretariat), John Vale (industry), Ray Parkin (industry), David Cilento (industry) and Alan Coutts (Director-General, DMR)

VALE PETER DIAMANTES



Peter Diamantes

Peter Diamantes lost his battle with cancer on 13 May 1999. Peter had worked as an Inspector of Mines with the Department since his recruitment from the mining industry in April 1979.

He grew up in Broken Hill and began work there in the mines. Like many in the industry, he worked in other places like Rosebery in Tasmania, Kalgoorlie in Western Australia and Ardlethan Mines in New South Wales.

With increasing family commitments, Peter became an Inspector of Mines (Special Duties) with the Department. His duties took him all over the State on projects such as the very successful dust control strategy, the noise abatement campaign, blasting vibrations monitoring and control, heat stress in deep underground mines and other tasks.

Peter subsequently became a metropolitan inspector. In this role, he taught the Explosives course at TAFE and participated in activities with the School of Mining Engineering, University of New South Wales. He was also a committed union representative for the Inspectorate.

Those of us who had the privilege of seeing Peter operate in the field will always remember a caring and understanding person, who had the respect of managers, supervisors and miners/quarry employees. Those who attended the field visits organised by Peter and his colleagues will appreciate the passion that he had for his work.

By his close colleagues, Peter will be greatly missed for his caring nature, his sense of humour, his dedication to the team as well as to the improvement of safety, the environment and mining practices. ■■■

NEW MINERALS COUNCIL CHAIRMAN

A new Chairman, Bob Humphris, will head the New South Wales Minerals Council in 1999-2000. Mr Humphris was appointed to his new position in April.

Mr Humphris is the Chief Executive of Peabody Resources Limited, a Hunter Valley coal producer. He was the Chairman of the NSW Coal Association in 1994-95 before its merger with the NSW Chamber of Mines which led to the formation of the New South Wales Minerals Council.

Mr Humphris is also a member of the New South Wales Mine Safety Council, which has members from government, unions and industry working together to promote safety in the mining industry.

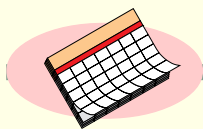
One of his most important priorities is to support the development of new mine safety legislation. He believes that it is essential to move the mining industry to a duty of care basis to achieve the looked-for improvement in industry safety. ■■■

SAFETY PUBLICATIONS



MDG 26	Guidelines for Examination, Testing and Discard of Mine Winder Ropes	\$30.00
MDG 33	Guidelines for Design, Commissioning & Maintenance of Drum Winders (October 1998)	\$120.00
MDG 37	Guidelines for Compressed Air Powered Ventilation Devices	\$30.00
MDG 1009	Guidelines for the Operational Use of Free Steered Vehicles in Underground Coal Mines	\$30.00
SIMTIARA (also available from the Department)		
	Spontaneous Combustion in Underground Coal Mines . A Handbook for Mine Workers (RED BOOK)	\$5.00
	Spontaneous Combustion in Underground Coal Mines. A Manual for Mine Personnel (BLUE BOOK)	\$7.50
	Spontaneous Combustion in Underground Coal Mines. Info Resource on Spon Comb (YELLOW BOOK)	\$25.00
	Spontaneous Combustion in Australian Underground Coal Mines. (GREEN BOOK)	\$40.00
	Mine Fires in Australian Underground Coal Mines. (ORANGE BOOK)	\$40.00

To obtain copies of safety publications, contact the Department's Information Counter on (02) 9901 8269, fax (02) 9901 8247, or e-mail maniakak@minerals.nsw.gov.au



MAJOR MINING EVENTS JULY – DECEMBER 1999

JUNE Wed 30 - JULY Thurs 1

The Inaugural Australian Magnesium Conference
The Wentworth Hotel Sydney Ph (02) 9290 1133

JULY Thurs 1 -Sat 3

MaTE '99 (Mining & Trade Exhibition) Western Australia Contact: Nancy Hoskinson, Chamber of Commerce, Ph (08) 9144 1999

JULY Mon 26 - Wed 28

Diggers & Dealers Forum 1999 Kalgoorlie, WA Contact: (08) 9021 5144

AUGUST Sun 8 - Tues 10

Occupational Health & Safety Conference AND NSW Minerals Council Safety Innovation Awards Terrigal Crowne Plaza Hotel, NSW Contact: Robert Oliver, NSW Minerals Council, Ph (02) 9267 6488, email roberto@nswmin.com.au

AUGUST Wed 18 - Thurs 19

IMX 99 (North Australian Industrial & Mining Exhibition) Townsville Entertainment Centre, Queensland Contact: Harvey Events Ph (07) 4771 5755

AUGUST Thur 19 - Fri 20

ANZMEC Meeting Kalgoorlie WA Contact: Graham Terrey Ph (02) 9901 8470

AUGUST Thurs 19

DMR Area Managers Meeting - Safety Operations Sydney Contact: Geoff Simpson, NSW Department of Mineral Resources, Ph (02) 9901 8413

AUGUST Sun 22 - Wed 25

QLD Mining Industry Health and Safety Conference, Rydges Capricorn International Resort, Yeppoon, Queensland Contact: Qld Mining Council, GPO Box 908, Brisbane QLD 4001 Ph (07) 3221-2240, Fax (07) 3229-7797 safeconf@qmc.com.au www.qmc.com.au/QMIHSC Home Page.htm

AUGUST Tues 31

Mine Winder Safety Seminar Penrith Panthers Leagues Club Enquiries: Steve Stewart, Department of Mineral Resources, Ph (02) 9901 8413, fax (02) 9901 8584 email stewarts@minerals.nsw.gov.au

SEPTEMBER Sat 11 - Mon 13

MINIPREX 2000 (Congress on Mineral Processing) Melbourne, Vic Contact: Australian Institute of Mining & Metallurgy, Ph (03) 9662 3166

OCTOBER Thurs 14

DMR MS&E Area Managers Meeting DMR Armidale Office Contact: Geoff Simpson, NSW Department of Mineral Resources, Ph (02) 9901 8414

OCTOBER Tues 19 - Fri 22

AIMEX "Australia's International Mining Exhibition" Homebush Bay, Sydney Contact: Event Administrator, Sharon Lampert, Ph (02) 9422-2514, Fax (02) 9422-2555, email sharon.lampert@reedbusiness.com.au

OCTOBER Mon 25 - Sun 31

Conference of Chief Inspectors of Mines Contact: Graham Terrey, NSW Department of Mineral Resources, Ph (02) 9901 8470

NOVEMBER Wed 3 - Fri 5

1999 Goldfields Mining Expo Kalgoorlie, WA Contact: The Administrator Ph (08) 9021 2970

NOVEMBER Thurs 4

Electrical Engineering Safety Seminar Penrith, NSW Contact: Steve Stewart, NSW Department of Mineral Resources, Ph (02) 9901 8413, fax (02) 9901 8584, email stewarts@minerals.nsw.gov.au

NOVEMBER Sun 7 - Thur 11

EXPLOR '99 WMC Conference Centre, Kalgoorlie WA Contact: AusIMM Ph (03) 9662 3166

DECEMBER Thurs 9

DMR MS&E Area Managers Meeting - Safety Operations DMR Wollongong Office Contact: Geoff Simpson, NSW Department of Mineral Resources, Ph (02) 9901 8414



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Applied Research, Lidcombe

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Fax: (02) 9646 3224

Investigations Group, Lidcombe

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Fax: (02) 9649 5631

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