

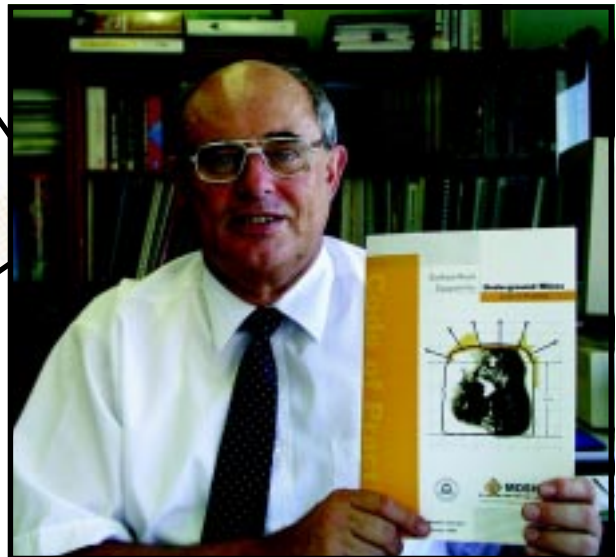


DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

MINING OPERATIONS DIVISION

MINESAFE

Code of Practice Surface Rock Support in Underground Mines ... *SEE PAGE 2*



The State Mining Engineer, Jim Torlach, formally released the Code of Practice for *Surface Rock Support in Underground Mines* in Kalgoorlie on 16 March 1999.

COVER STORY

CODE OF PRACTICE SURFACE ROCK SUPPORT IN UNDERGROUND MINES

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Jim Torlach, State Mining Engineer, released the Code of Practice for Surface Rock Support in Underground Mines on 16 March 1999. It is the **first** Code of Practice to be approved under section 93(1) of the *Mines Safety and Inspection Act 1994*. Notification approving the Code as an approved Code of Practice under the *Act* was published in the *Government Gazette* on the same date which means the Code can be called up as a legal document from 16 March 1999.

The Code was developed following a recommendation of the Mines Occupational Safety and Health Advisory Board (*MOSHAB*) *1997 Fatality Inquiry Report* and applies to all underground excavations in which persons may travel or work including development headings and entry-method stopes.

The Code introduces the requirement to install surface rock support in high headings (ie. those greater than or equal to a nominal 3.5m in height) in all Western Australian underground mines unless a documented geotechnical risk assessment justifies otherwise. Where surface rock support is installed, it shall be applied to backs and sidewalls that are a nominal 3.5m from the floor of the excavation.

It is framed on the assumption that the necessary primary rock

reinforcement is in place to ensure the general structural stability of the excavation. The requirements in the Code do not detract from the obligations contained in Regulation 10.28 of the *Mines Safety and Inspection Regulations 1995*.

The Code states that the installation of surface rock support, such as mesh, shotcrete or other surface treatment, **in addition** to existing or primary reinforcement methods may be necessary to control the risk of injury and death that can result from small rock falls from between the installed rock reinforcement elements.

Surface rock support is not intended to replace existing ground reinforcement methods but should be used, where required, in conjunction with these methods, and integrated into the mine's ground control system or strategy.

The Code specifically addresses gravity induced rock falls. Dynamic rock failure mechanisms are not covered by the Code and must be controlled by appropriate means according to the identified risk.

It is recommended that the Code be read in conjunction with the Department of Minerals and Energy Guidelines *Geotechnical Considerations for Underground Mines and Underground Barring Down and Scaling*.

GUEST EDITORIAL

Section 93 of the *Act* sets out the processes associated with the approval and revision of codes of practice, and the status of approved codes of practice in relation to legal proceedings.

The following points are included:

- A person is not liable to any civil or criminal proceedings simply because of non-compliance with a Code of Practice; and
- Where it is alleged that a person has contravened a provision of the *Act* or *Regulations*, the information in a Code of Practice may be used as evidence to show there is a practicable means of reducing the risk of work-related injury or disease. However, demonstration that the person has complied with the *Act* or *Regulations* by some other means would be a satisfactory defence.

Codes of Practice may not provide exact solutions to occupational safety and health problems in the industry, but following the practical guidance in this code of practice should help to reduce the risk of serious injury or death from rock falls.

Copies of the Code of Practice can be obtained by contacting the SME Secretariat on Tel (08) 9222 3310 or can be printed directly from the DME webpage at www.dme.wa.gov.au. Copies of the Code can also be viewed free-of-charge in the DME Perth Library, 5th Floor, Mineral House or at the regional offices in Collie, Kalgoorlie and Karratha.

We often tend to be concerned about the outcome of an accident or incident rather than getting to the root cause and exploring ways to prevent the occurrence happening again. We view an incident as being more serious if someone is killed or badly injured than if everyone walks away without having any harm come to them. This is natural and no one suggests that we should not do everything possible to actively prevent injuries or deaths. The question is how best to go about it.

The one certain way is to prevent all occurrences that might result in injury. Anything else leaves us open to chance. While there is always a root cause (or causes) behind an accident, the outcome is always subject to a degree of chance. When a rock falls from the hanging wall of a stope, there may be no one in the area, it may narrowly miss the miner working there or it may strike him and kill him. The root cause might be the same in each instance - the lack of proper understanding of the ground conditions and how to control them - but the consequence might be a matter of good (or bad) luck.

Look on it like taking a ticket in the lottery. When you buy one, you along with millions of others don't really expect to win the first division prize. You know that the chances are that you won't.

Yet every week, someone wins the big prize, a few win the second division and more win the lower value prizes. Most don't win anything at all, but if you have a

ticket there is always a chance that you will be the one who takes out the big one.

Safety at work is like that. Every time you do something unsafe, you take a chance in the lottery. Most people, most of the time, don't expect to get hurt - and they are right - most of the time they don't. However, as they are in the lottery, they may win a fourth division prize and have a near-miss; they might win second division and break an arm or a leg; and there is a remote possibility that they could take the first division.

Remember that if you're in it, you could win it and that if the Powerball comes up, ***you could be out of here!***



Martin Knee
General Manager - Mining Safety

A QUIET REVOLUTION

On 18 April 1998 an event occurred in an open pit mine near KAMBALDA which is believed to have been a world first, the successful firing of one hundred and ninety blastholes using a device known as an Electronic Delay Detonator (EDD). Most people in the mining industry are familiar with the various types of detonator used in blasting, from the 'old timers' with their safety fuse 'dets' to the almost universal millisecond NONEL type. Electric delay detonators are also in widespread use, often as the primary initiator of a NONEL based blast.

Although the safety fuse, the electric detonator, and the NONEL unit are all different, the mechanism of the *delay* is basically chemical. The rate at which chemical reactions take place is not always as precise as we would wish and despite the best efforts of the various manufacturers, the performances of the devices on which we currently rely are so variable that blast designers are quite restricted in the way they can control the parameters of a blast.

With the development of the mass produced electronic 'chip', the idea occurred to a number of people that a very accurate 'clock' could be placed in the detonator which would enable it to be fired with great precision. As a concept this was readily achievable. The major difficulties arose with methods of addressing the 'chip' and with the means of providing electrical contact and insulation to the various components. As might be expected, a number of systems were developed, but many were so complex that potential customers decided that it was all "too hard" and refused to become involved. One Australian mining contractor persevered and the outcome was the blast at Kambalda.

The apparent benefits from the blast at Kambalda included; 20% reduction in powder factor, 22 mm/second peak particle velocity at 50 metres (from the blast), excellent fragmentation, excellent 'diggability', very little dilution of ore into waste, no misfires and no appreciable fly rock. Other benefits were not so obvious. The fact that the blast was fired by a

blasting 'computer' or 'machine' which had to be satisfied that all was well before it would do its work is of great importance. One has only to think of the comparatively recent fatal accidents and other blast related incidents to appreciate the value of a machine, which rigorously checks that all necessary precautions are in place before it initiates a blast. The fact that the detonators are 'armed' just before the blast is initiated is also a major safety factor as is their 'disarming' two minutes later. In this condition the system has 'failed to safe' and is incapable of firing.

The technical details of how all this happens is beyond the scope of this article and in any case is regarded as a 'trade secret' by the companies who make the systems. What is important is the fact that EDDs offer a means of blasting more efficiently which has some very significant safety implications.

The Electronic Delay Detonator is a new device that is currently expensive, maybe difficult to understand and most certainly poses a challenge to the established way in which we do things. Western Australian mining people are not generally phased by challenges but we do tend to embrace the 'not invented here syndrome' (NIHS) and have been known to say, on occasions, 'Too hard'. To supporters of NIHS the writer would say that WA has had a world first in the use of the EDD and that the benefits this event demonstrated are too great to be ignored. A tool of great potential is in our grasp and it only requires the rational application of its capabilities to provide us with some badly needed solutions to a variety of problems which currently trouble us.



World First EDD Blast

CONVEYORS AND GUARDING

"Each responsible person at a mine must ensure that any moving machinery at the mine which creates a risk of injury to an employee through inadvertent contact is screened or guarded to prevent such contact." *Regulation 4.4. of the Mines Safety and Inspection Regulations 1995.*

Awareness is the key to the recognition of potential hazards that may exist around your workplace.

Many potentially life threatening situations remain unnoticed due to 'over-familiarity', not taking a closer look, not asking the question 'why' or simply because 'that is the way the plant was originally installed'.

Planning, maintenance procedures and asking "what is the likelihood of a situation occurring," are important factors in plant remaining safe to personnel during operation and maintenance.

Regulation 6.17 describes the employer's obligation to assess risks arising from plant and methods that may be used to identify such risks.

Plant with moving parts such as the conveyors pictured, pose a risk of entanglement or injury to persons passing in close proximity to the machinery. Each picture tells its own story:



Fig (1) A very good approach to guarding except for probably the most critical nip point of all which could drag persons in to such an extent that they may not be able to reach the emergency-stop lanyard.

Fig (2) A conveyor operating with counterweight guards removed has a chain draped over the counterweight to act as a 'barrier.' An inadequate means of providing even temporary personal protection.



Fig (3) Clearing of spillage from around idler roller guards has always been a problem, and to cut and destroy the very purpose of a guard while allowing the spillage to remain is like waiting and priming a rat trap ready to strike. This is a contravention of Section 10(2)(c) of the Mines Safety and Inspection Act 1994.

MOSHAB NEW LOGO

The Mines Occupational Safety and Health Advisory Board (MOSHAB) has agreed to a logo that will be used on all its publications, notices etc. MOSHAB publications include reports, codes of practice and guidelines.

The logo shows three safety helmets which represent the tripartite membership of MOSHAB. MOSHAB members include representatives from DME, the Chamber of Minerals and Energy and the Trades and Labor Council.

The helmets with and without the cap lamp represent both the surface and underground mining sectors, and the safety diamond and black and yellow safety tape complete the safety message.



PROFILE: MIKE ROWE

Mike Rowe, a familiar face at mining industry seminars and Ventilation Officer Courses, was recently appointed as Manager Occupational Health in Mining Operations.

Mike's early education was in England and Malta before graduating from WAIT (Curtin) in 1971. He was a chemist at Coca Cola, Perth before moving to the Government Chemical Laboratories (now the Chemistry Centre). Originally a food chemist, he began specialising in occupational health and environmental chemistry from the mid 70's, and first undertook minesite assessment work for the Mining Engineering Division in 1982.

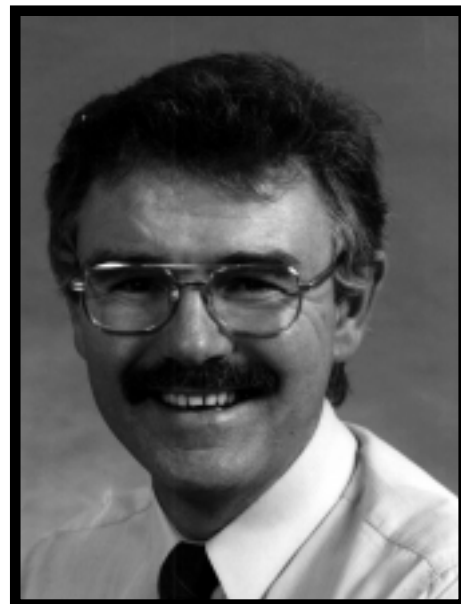
By 1988 Mike was Chief of Health Chemistry and following a restructure of the Chemistry Centre, transferred to Mining Operations as

Principal Occupational Hygienist in 1992. One of his first tasks was the practical application of the new Dangerous Goods Regulations to minesites, while more recently he has been involved with the application of the National Standard for the Control of Major Hazard Facilities, with an emphasis on processing plant risk management.

Mike regularly contributes to conferences, seminars and journals and has sat on a number of Government and tripartite committees. He was presented with the Bilsom Overseas Professional Development Award by the Australian Institute of Occupational Hygienists in 1996.

Mike can provide help on matters relating to the handling, storage and disposal of hazardous substances and dangerous goods,

including requirements and techniques for atmospheric and biological monitoring for contaminants. He can be contacted on Tel: (08) 9222 3050.



NEW OFFICE FOR THE STATE MINING ENGINEER'S SECRETARIAT

The SME Secretariat, a section in the Mining Operations Division, has been established to determine policy direction and conduct legislative review. Jim Torlach, State Mining Engineer, heads the Secretariat which retains the Mines Occupational Safety and Health Advisory Board (MOSHAB), and the Board of Examiners and the Mines Occupational Physician.

All other operational and field activities are administered through the operational arm of the Division, headed by Bob Hopkins, Director Mining Operations.

The Secretariat members include Jim Torlach, SME, Tracy Long, Executive Officer - MOSHAB,

Alan Sheppard, Executive Officer - Board of Examiners, Dr Brian Galton-Fenzi, Mines Occupational Physician, and Administrative staff, Cassie Booth and Jo Duggan.

The SME Secretariat has moved to new offices on the 3rd Floor of Mineral House. Any inquiries for the SME Secretariat can be made to the following numbers:

State Mining Engineer: (08) 9222 3310

MOSHAB: (08) 9222 3129

Board of Examiners: (08) 9222 3269

Mines Occupational Physician: (08) 9222 3310

Fax: (08) 9222 3722

Email: j.duggan@dme.wa.gov.au

DANGEROUS GOODS - YES OR NO

Any classification system will always have items that either fit more than one category or don't appear to fit any. The dangerous goods classification system according to the Australian Dangerous Goods Code 6th edition (ADG6) is no exception. A few materials that we deal with on a regular basis such as diesel fuel, sulfur, xanthates and lime fall into this dilemma and the classification is sometimes dependent on whether the material is moving (transport) or stationary (storage).

Diesel fuel

Diesel fuel is not listed in ADG6. One could be excused for thinking it is not dangerous goods - and for the purposes of transport this is the case unless it is transported with a low flashpoint material like petrol. However, under the Dangerous Goods Regulations 1992 which applies Australian Standard 1940-1993 for storage and handling, diesel fuel is a combustible liquid and licensing is required for the storage of more than 5000 litres in bulk.

Interestingly, ADG6 lists diesel oil as UN1202, Class 3, PG III. However the type of diesel oil referred to in ADG6 is not the commonly used variety employed in Australia but a lower flashpoint product widely used in Europe.

Sulfur - UN1350, Class 4.1 PG III

Read Special Provision 242 in ADG6. Sulfur is not classified as dangerous goods during transport if "it is transported in quantities of less than 400 kg per package" or "when it is formed to a specific shape (eg prills, granules, pellets, pastilles or flakes)". For all storage purposes sulfur is classified as dangerous goods.

Xanthates UN3342, Class 4.2 PG II or III

In the early days (pre-1994) the United Nations Recommendations on the Transport of Dangerous Goods did not specifically identify xanthates as a dangerous good. In Australia however (and in several other countries), a classification on UN3134, Class 4.3 was deemed to be appropriate to ensure public safety for transportation and storage. This non-specific (N.O.S) classification has now been upgraded to UN3342, Class 4.2, but when does it apply?

A recent request for exemption from this dangerous goods classification was granted by the Chief Inspector of Explosives for the transport of liquid xanthates. It was decided that during the time of transport, liquid xanthates are

incapable of generating a hazardous (flammable) zone, the primary reason for the classification. This is not the case for liquid xanthates storage at either end of the transport activity. The generation of carbon disulfide (toxic and flammable) in the ullage space of the tank is considerable.

Therefore liquid xanthates are dangerous goods during storage but not during transport.

Lime

Neither dehydrated lime (calcium oxide) nor hydrated lime (water added) is dangerous goods for the purpose of normal road/rail transport or storage. A designation of UN1910, Class 8 PG III does however apply for air transport.

It is worth mentioning that irrespective of Dangerous Goods classifications (primarily for Public Safety), these materials are all designated workplace Hazardous Substances (ie they have an occupational exposure standard for worker health and safety) and need to be managed accordingly. Should you require further information on any of these issues or help in classifying materials please contact Stephen Kamarudin on Tel: (08) 9222 3543.

OFFICE OF ENERGY

Gas Installation Mine Site Inspection

With Natural Gas joining Liquid Petroleum Gas (LP Gas) as a premium fuel for the mining industry, the Office of Energy (OOE) is to conduct inspections of gas fired plant and equipment used on minesites.

Inspections in the past have only taken place on specific plant and equipment being installed. As the availability of both gases has been more accessible so the size of the gas installations has grown.

Gas inspectors from the OOE will be conducting inspections to determine the level of compliance with

the Gas Standards Regulations. It is intended that most minesites where either Natural Gas or LP Gas is used will be visited. Initial inspections will commence in the Eastern Goldfields on gas installations ranging from the stove in the camp kitchen to the processing plant and equipment.

Mine managers will be given written notification of an impending inspection.

For further information contact Chief Gas Inspector Kevin Hooper, Tel: (08) 9422 5284.

TRAINING ALLIANCE SEEKS TO IMPROVE SAFETY IN THE MINING INDUSTRY

CIVIL TRAIN, a strategic alliance between the West Coast College of TAFE and the Civil Contractors Federation, is seeking to improve safety training for new entrants to the mining industry through its range of innovative mining courses.

CIVIL TRAIN specialises in the training of operators for heavy equipment such as dump trucks, excavators, dozers, loaders and graders and any other machinery used in the mining industry. The focus of the training is to ensure that each participant graduates as a safe and competent operator of machinery. Training programs are structured around national standards, are competency based and tailored to meet the practical skills and safety requirements of industry.

Training is delivered at the WA Limestone quarry at Neerabup



Principal Trainer (Bill Morice) and student

where a fully equipped training facility has been developed. WA Limestone provides a live work program for the students giving course participants an opportunity to develop their skills in a real working environment. To further ensure that students realise the importance of safe work practices they receive an induction to the quarry by a representative from WA Limestone on the first day of their course. All mining courses delivered by CIVIL TRAIN have a one day MARCSTA induction and a Senior First Aid component included.

For further information contact:

Andrew Patterson
Project Manager
West Coast College of TAFE

Tel: (08) 9277 5400
Fax: (08) 9479 4385.



Heavy Equipment Fleet

DIESEL EXHAUST REDUCTION

A “WIN-WIN” SITUATION

Diesel Exhaust and Health

Diesel exhaust is a complex mixture of gases, vapours and particulates. However, it is the extremely fine (sub-micron) soot particles, with absorbed matter such as polycyclic aromatic hydrocarbons, which are critical in terms of respiratory health effects. The International Agency for Research on Cancer has diesel particulate matter (DPM) listed as a Group 2A carcinogen (ie probably carcinogenic to humans). This is based mainly on extrapolation from experimental animal studies, and is subject to debate. Nevertheless, the subject is receiving increased attention by regulatory agencies and the 8 hour time weighted average, threshold limit value of 0.15 mg/m³, as proposed by the American Conference of Government Industrial Hygienists (ACGIH) is used widely as an interim standard in Australia and elsewhere.

MERIWA Particulate Study

A major 3 year MERIWA/DME/CME study on inhaled dusts at minesites in WA has been completed and has greatly enhanced our understanding of:

- The particulate size distribution of airborne dusts in the various Industry sectors.
- The collection efficiencies of past and current inspirable sampling heads-with important findings that bear on standard

setting, compliance and interpretation of past monitoring results.

- The chemical and mineralogical make-up of airborne dusts as a function of size.
- Diesel particulate concentrations in various work environments.

The last mentioned element included an assessment of the role of low sulphur fuel (<0.05%S) in reducing DPM in diesel exhaust. Some work was carried out with vehicles operating in both underground and surface (confined space) situations, and DPM reductions of up to 50% were measured. This produced noticeably cleaner workplace air and a positive reaction from operators. But low sulphur fuel offers more than this. It allows oxidising catalytic converters to work properly and also reduces engine wear and maintenance costs.

Control measures

The US Department of Labour has produced a comprehensive toolbox package on practical means to reduce exposure to DPM. Apart from the use of low sulphur fuel, other key measures are:

- Use of low emission engines
- Use of certain fuel additives and alternative fuels
- Use of exhaust treatment devices
- Use of improved/increased ventilation

- Use of enclosed cabs
- Diesel engine maintenance
- Work practices and training
- Fleet management
- Respiratory protective equipment for contingency use

Conclusion

The MERIWA study has improved our understanding of the nature of airborne particulates in WA minesites. In the DPM area, it has focused attention on the potential of low sulphur fuel to markedly reduce airborne concentrations of the contaminant. A number of mining companies are currently changing over to this fuel and are working with suppliers to overcome supply and logistical problems that have prevailed in the past, but the low sulphur fuel strategy should not be applied in isolation. There are several other elements, referred to above, that collectively constitute an effective diesel emission management program. Importantly, this is an example of where a clean air end point is attached to benefits for operators (improved health and working conditions), equipment (reduced engine wear and maintenance costs) and the organisation (improved productivity, compliance and demonstration of leadership and commitment). In short, everyone is a winner!

For further information contact Barry Chesson Tel: (08) 9410 3301.

WHAT'S ON

Australian Centre for Geomechanics



GROUND CONTROL AT THE MINE FACE

Kalgoorlie, 28 July 1999
Perth, 11 August 1999

The course objective is to increase the awareness and knowledge of underground workers in ground control issues. Topics covered in the course could include the following:

- Case histories to explain the concept of in-situ and mine induced stresses, rock mass properties, rock mass behaviour and failure mechanisms (including rockburst).
- The possible impact of good and bad mine design strategies on ground conditions.

- A section on ground support systems and practices.
- Simple techniques of ground hazard assessment.

UNDERGROUND MINING METHODS

Perth, 19-20 August 1999

It is intended that this entirely new course concept will include the following:

- A series of presentations from mining engineers from different operations describing in detail the mining method with an emphasis on the design, planning and rock mechanics issues at their individual operations.
- One complete section on narrow vein mining covering a variety of approaches such as alimak

mining, uphole and longhole benching, avoca, etc.

- One section on large open stope bulk mining methods.
- The advantages and disadvantages of different mining approaches and how they may perform in different conditions (for example in high stress or weak ground, etc).
- Local modification and customisation of techniques and equipment that contribute to the success of different operations.

For further information contact:

Christine Neskudla or Gillian Macmillan

Telephone: (08) 9380 3300

Facsimile: (08) 9380 1130

e-mail: acg@acg.uwa.edu.au

COMPETENCY-BASED VENTILATION OFFICER COURSES

IFAP began new competency-based Surface Sampling Officer and Surface Ventilation Officer courses in early April 1999. The Surface Sampling Officer course covers competencies in occupational hygiene required to carry out CONTAM sampling. The course is four days duration. To complete the Surface Ventilation Officer certification participants must complete one extra day in addition to the four-day Surface Sampling Officer course.

For further information contact Martin Ralph or Malcolm McFarlane,(IFAP)
Tel: (08) 9310 3760

MINESAFE 2000

The Minesafe 2000 Conference will be held at Burswood Resort Hotel from 3-8 September 2000.

The theme of the Conference - "A New Century: A New Vision: A New direction" provides an

opportunity for innovatory and visionary planners to fast forward the mining industry to the year 2005, identify the occupational health and safety concerns that will emerge in the next 5 years (and beyond) and provide directions for the industry to enable it to prepare for and meet the challenges it will face.

For further information contact: Paula Sinclair, Chamber of Minerals & Energy on Tel: (08) 9325 2955.

NOISE OFFICER COURSE

NVMS runs a WA Department of Minerals and Energy approved Noise Officer Course, and offers training in all aspects of occupational and environmental noise measurement, assessment and control.

For more information please contact: Noise & Vibration Measurement Systems Pty Ltd,

Tel: (08) 9381 4944
Fax: (08) 9381 3588
Email: nvms@svt.com.au

EXAMINATIONS FOR CERTIFICATES OF COMPETENCY

**First Class Mine Manager's
Underground Supervisor's
Quarry Manager's
Restricted Quarry Manager's**

Mining Law Examinations only will be held in Perth on 30 August 1999. Applications close on 30 July 1999. The fee is \$100.

Mining Law and Mining Practice Examinations will be held statewide on 25 October 1999. Applications close on 24 September 1999. The fee is \$100.

For applications and further information contact Alan Sheppard,

Tel:(08) 9222 3683 or
(08) 9222 3269

STAFF CHANGES

MOD welcomes three new officers to the Division; **Tony Webster**, Assistant Environmental Officer - Perth, **Campbell Hawks**, Assistant Environmental Officer - Kalgoorlie and **Wayne Bingham** - Special Inspector (Machinery) - Karratha.

The Division bids Farewell to **Mark Brown**, **David Bills** and **Silvana Deluca** who have recently resigned from MOD. We wish them all the best for the future.

Mark Whiteley, Senior Research Engineer, Occupational Health and Engineering Safety, has been granted 19 months leave of absence in order to take the post of Results Manager-Diving at the Sydney Olympics. Mark's task is to build a system to report on competition results and then to operate it during the Olympics Tournament. Mark is currently based at SOCOG in Sydney but will spend some time at the IBM facility in Madrid, Spain. We wish Mark every success in this important endeavour.



Tony Webster



Campbell Hawks



Wayne Bingham

NEW MOD PUBLICATIONS

A Review of Incentive - Based Remuneration Schemes in The Western Australian Mining Industry

Contains the report and recommendations from the MOSHAB Incentive-Based Remuneration Working Party's examination of current industry incentive-based remuneration schemes to ensure safety and health are not compromised.

Incentive - Based Remuneration Schemes - Workshop Outcomes Report.

MOSHAB Information Sheet 1/99: Incentive Based Remuneration Schemes: Safety & Health Implications.

Significant Incident Report 100:

Pressure Vessel Entry - Scalding Injury (January 1999)

Significant Incident Report 101:

Lime Tank Pressure Piping Connection Failure (April 1999)

Safety Bulletin 44:

Radio-Frequency Energy - Hazards & Safeguards (January 1999)

Safety Bulletin 45:

Two Post Vehicle Hoists Are Not Suitable For Lifting Certain Types Of Vehicles; eg. 80 Series Toyota Landcruisers (January 1999)

Safety Bulletin 46:

Lightning - Hazards & Safeguards (February 1999)

INCIDENT ALERT

Incident

A licensed electrician received a severe electric shock and burns to his hand and forearm when he contacted the 'live' 3300v incoming slip-rings of an ore stockpile stacker.

Details and events

The person was employed by an electrical contractor engaged to carryout scheduled inspection maintenance of the 415v electric drives and ancillaries on the stacker.

Prior to commencing work, the responsible site electrical supervisor isolated the stacker's onboard main 415v isolator and all persons involved attached tags and padlocks. Unfortunately, the supervisor failed to observe a task on the job-sheet 'CABLE REELER - blow down slip-rings and brushgear' that required further isolation of the 3300v trailing cable supply.

When the electrician began the task, notices on the cable reeler cover stating 'High-Voltage' and 'Isolate Elsewhere' raised some suspicion, and the electrician confirmed that the cable reeler isolator was indeed switched-off.

A key issued to the electrician fitted the enclosure padlock, allowed entry and the accident to occur. Only after receiving the injuries did the electrician learn that the isolator he had checked was for the reeler motor drive and not the slip-rings.

Eleven of the 242 items on the job sheet stated 'blow down slip-rings and brushgear' and only the one in question required full 3300v isolation.

Comments and prevention

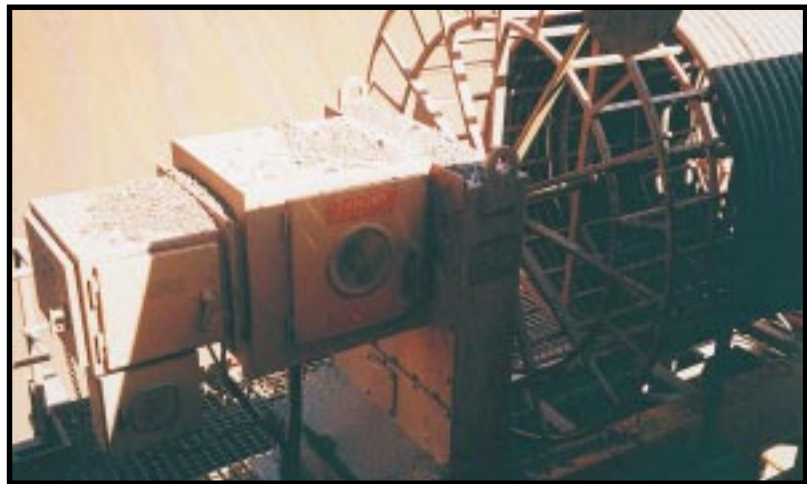
This was an accident waiting to happen and could have easily proved fatal.

The particular task should have been separately identified to eliminate any possibility of such an outcome. All minesite personnel involved in electrical maintenance need to be mindful and check to ensure the circumstances of this accident do not recur.

Most disappointing is the fact that the isolation shortfall had not been corrected following previous maintenance undertakings on the equipment.

Electricians are again reminded

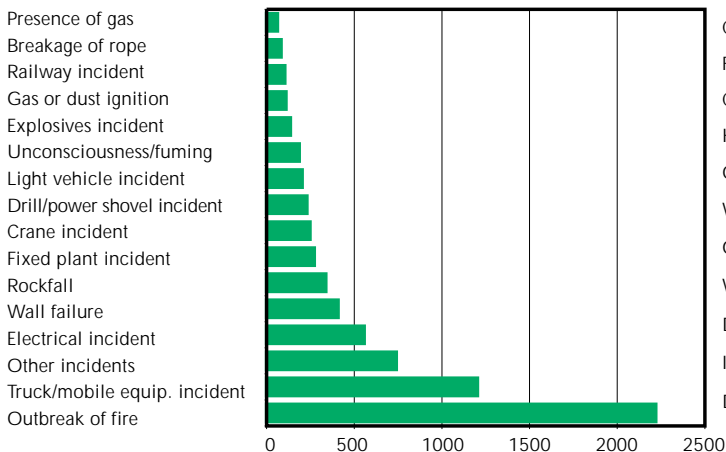
'TEST BEFORE TOUCH'



Typical Cable Reeler and Slip-ring Enclosure

WATCH OUT!

Number of incidents reported since 1994



Electrical incidents by type during 1998 (210 incidents)

