



DEPARTMENT OF  
MINERALS AND ENERGY  
WESTERN AUSTRALIA

# MINESAFE

MINING OPERATIONS DIVISION

## **Tyre Explosions Can Kill!**

**Haultruck tyre  
involved in fatal  
accident overseas...**



**...operating cabin in  
which driver was  
fatally crushed against  
roof.**

**...see inside cover**

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## Inside .....

### PAGE SPECIAL FEATURES:

2. Cover Story
3. Guest Editorial
4. Mines Rescue Event - Burswood Park
5. A new Director for MOD
5. Safety performance milestone
6. The Aberfan Disaster - 'The village that lost its children'
8. Safety fuse update
8. Safe working loads - developing trends
9. Rockfalls in open pit mines
10. Mine surveying : an essential service

### REGULAR ARTICLES

10. Frequently Asked Questions
11. What's On
11. New Publications
11. Staff Changes
12. Incident Alert
12. Watch Out!

# Cover Story: Tyre explosions can kill!

MINESAFE's front cover photos show extensive damage to the driver's cabin of a haultruck after the front left tyre exploded. Tragically, the vehicle's driver sustained fatal injuries when the floor of the vehicle cabin deformed and he was crushed against the cabin's roof.

The accident occurred 26 June 2000 at a mine in Chile and is still under investigation; consequently any further comment at this stage would be inappropriate and the following safety information is provided for general guidance only.

### How is it that tyres explode?

When excess heat is developed in or applied to a rubber tyre, a chemical reaction referred to as pyrolysis can occur and cause a buildup of flammable gas within the tyre.

Should internal gas concentrations accumulate and exceed a critical level, the tyre will explode if parts of the tyre remain sufficiently hot enough to auto-ignite the explosive mixture. Explosions may initiate immediately or be delayed for several hours.

### What can cause tyre explosions?

The most common defects and actions that are known to have caused tyre explosions include:

- *Vehicle contact with high-voltage overhead powerlines.*
- *Vehicle brakes not releasing and overheating.*
- *Welding applied to wheel rim.*
- *Use of oxy-acetylene to loosen wheel-nuts.*
- *Vehicle and wheelmotor fires.*
- *Mechanical tyre defects such as heat separation.*

- *Gross overloading and high operating speeds.*
- *Gross under inflation.*
- *Lightning strikes.*

### Comment and recommendations

As the outcomes of this and other accidents demonstrate, the energy levels released by a tyre explosion are normally extreme and not to be underestimated.

Persons involved must appreciate the respective properties and not confuse a tyre explosion with a tyre rupture. Although tyre ruptures can also be violent, their energy levels simply equate to the sudden loss of the tyre's operating pressure. In marked contrast, chemical explosion pressures can readily exceed 1000psi, which is many times higher than the tyre's normal operating pressures.

Vehicles with tyres that appear to be affected should be immediately parked up and quarantined in a clear area for at least 24 hours and all personnel must be kept outside a radius of around 300 metres.

Monitor the vehicle from a safe position and alert the fire crew. Never tackle a tyre fire with a portable extinguisher and do not attempt to deflate suspect tyres, even flat tyres can explode.

After a minimum 24 hour stand-down period all suspect tyres must be removed and internally inspected by a competent person.

***Take care and minimise the risks!***

# Guest Editorial - Norman Moore



Norman Moore - Minister for Mines

## SAFETY AND HEALTH RISK MANAGEMENT IN THE MINING INDUSTRY

You will all be acutely aware of the tragic spate of fatalities in the industry in the first six months of this year. These events are all the more difficult to come to terms with, given that we had experienced 11 months with no fatality after two deaths in early 1999, which followed a 10 month fatality free period prior to that time.

Following the triple fatality at the Bronzewing minesite in June this year, I called an urgent meeting of the Mines Occupational Safety and Health Advisory Board (MOSHAB) to consider and recommend what additional measures could be taken to achieve the goal of a fatality free mining industry. MOSHAB is a tripartite Board established under the Mines Safety and Inspection Act 1994 to advise me on safety and health issues and initiatives for the WA mining industry. Its membership includes representatives from the Department of Minerals and Energy, WorkSafe WA, Chamber of Minerals and Energy and Unions WA.

MOSHAB has since held a planning workshop and produced a three-year strategic plan and a report on its recommendations. This report – *MOSHAB Priority Areas and Recommended Actions to Improve Safety and Health Performance in the WA Mining Industry*, is available on the Department of Minerals and Energy Website

([www.dme.wa.gov.au/moshab/index.html](http://www.dme.wa.gov.au/moshab/index.html)) and will be available in hard copy from the Department.

MOSHAB has identified four priority areas. The first priority is to improve risk management throughout the industry, and to that end it has recommended that the mining industry be asked to develop a strategy to improve safety and health risk management at all levels of the workforce for the WA mining industry.

I have welcomed these recommendations, and to initiate the process I have invited industry chief executive officers and senior managers to meet with me and confirm their commitment to the strategy.

I will open proceedings by outlining the Government's priorities in relation to safety and health in the industry, and I will ask the industry to consider and commit to the development of a strategy to improve safety and health risk assessment and risk management in the industry, from senior management and through all levels of the workforce. Following this Mr Lee Ranford, MOSHAB Chairman, will report on MOSHAB's priorities and strategies and Professor Jim Joy, Mining Industry Safety and Health Centre, University of Queensland, will provide expert advice on risk management implications, and on strategies for corporate board members and senior managers. To conclude proceedings Mr Peter Johnston, President of the Chamber of Minerals and Energy, will provide industry case studies on embedding risk management in an organisation.

Support for this initiative from the senior corporate level in the mineral industry is critical if we are to make the improvements necessary to achieve our goal, and I expect strong support and active participation by those responsible for the industry in this State.

There is no higher priority for the Government, and I am sure it will be confirmed as the highest priority for the industry.

NORMAN MOORE MLC  
MINISTER FOR MINES



# Mines Recue Event - Burswood Park



*Dousing a burning vehicle - Fire Fighting*



*Rescuing a casualty - First Aid Extraction*



*A question of teamwork - Skills Event*



*Getting out of a tight spot - Confined Space*



*Scaling new heights - Rope Rescue*



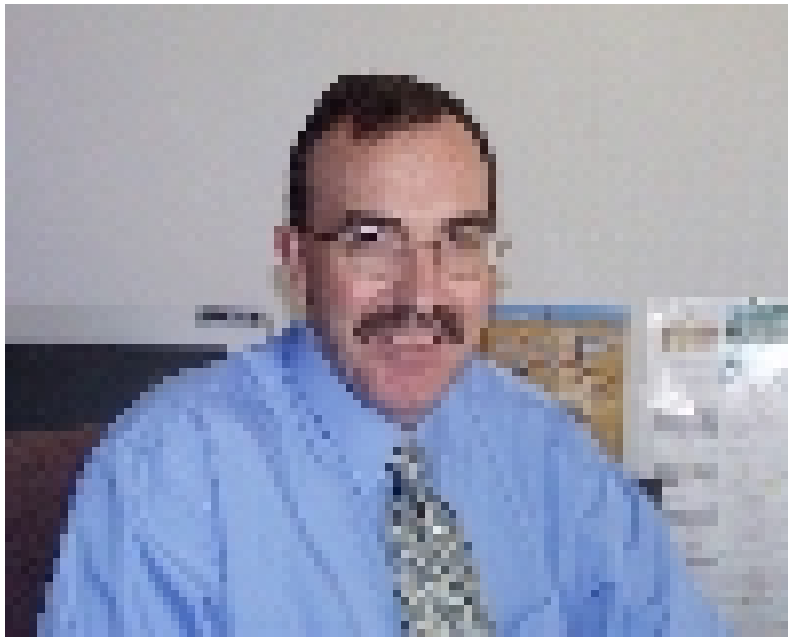
*Overall winning team - Worsley Alumina, receiving their trophies from Minister for Mines Norman Moore at the presentations function at Burswood Resort.*

# A new Director for MOD

The appointment of Mr Simon Thompson as Director, Mining Operations Division was announced by Lee Ranford, Director General, Department of Minerals and Energy on August 1, 2000.

Simon will be known to many readers of MINESAFE, having worked in the Western Australian mining industry in a number of roles for many years, including Mine Superintendent and Operations Manager at the Lawlers Gold Project near Leinster, and as Mine Superintendent and Resident Manager at the Plutonic Gold Mine. He has also worked in mining in NSW, South Aust. and Queensland, encompassing over twenty-five years in the industry.

Simon holds a B.App.Sc. in Mining Engineering from the South Australian Institute of Technology and an Associate Diploma in Occ. Health & Safety from Curtin University. He is a Fellow of the Australasian Institute of Mining and Metallurgy, an accredited QSA



*Simon Thompson - Director - Mining Operations Division*

safety and health management auditor and a WA Worksafe Plan Assessor.

Whilst working at Plutonic Gold Mine Simon studied Occ. Health & Safety at Curtin University and on receiving his qualification made a major career change from production mining into this important field. He was appointed Chief Inspector of Mines at the Queensland Department of Minerals and Energy, a position he held until 1995. During this period he was Australian Government member on the International

Labour Organisation (ILO) committee that developed the international "Safety and Health in Mines" convention.

Returning to Western Australia in late 1995, Simon took up a position as Senior Safety Adviser to WMC Resources Ltd., where he acted as co-ordinator of the landmark, WMC "Elimination of Fatalities" Taskforce.

He was promoted to the position of Safety and Health Manager for WMC's Gold Division in October 1998. He left WMC in late 1998 and moved into private consultancy with a former editor of MINESAFE, Cath Stedman.

With this background, Simon's arrival in MOD is most welcome, given the worrying level of serious accidents and near miss incidents occurring in the industry. He is an enthusiastic proponent of a Risk Management approach which is widely acknowledged as offering the most effective long term response to safety issues in the WA mining industry.

## Safety performance milestone

Periodically the attention of the Minister, the Department, and the mining community is drawn to outstanding safety performances at mining operations.

Such a milestone was recently established by Theiss Contractors personnel working at Homestake's Lawlers Mine on the New Holland and Genesis Underground sites.

A team of sixty, comprising Jumbo Operators, Bogger Operators

(including Remotes), Truck Drivers, Long Hole Drillers, Air Leg Miners, Service Crews, Fitters, Electricians and Supervisors have worked for 800 days free from lost time injury on these projects.

This has been, by any measure, an outstanding effort, and has been achieved by dedication and commitment by the group and its leadership.

Theiss management have

acknowledged Homestake site management for their active participation and support in the process of reaching this landmark performance.

The challenge continues to 'raise the bar' so that today's peak achievements become tomorrow's standards.

**CONGRATULATIONS TO ALL INVOLVED.**



# The Aberfan Disaster

The morning of Friday, October 21, 1966, had dawned crisp and cold over the South Wales countryside. Sunlight bathed the uplands whilst fog persisted in the valleys where the towns and villages lay. In Aberfan, the foggy morning was made cheerful by the sound of the Pantglas Junior School children singing the old hymn, "All Things Bright and Beautiful", at their assembly. It was their last school day before the October break. By 9:15 the singing had stopped, to be replaced by the chatter of the children as they went to their classrooms.

High above the village the "tipping gang" on the Merthyr Vale Colliery waste dump watched in horror as part of the structure started sliding down the hillside towards Aberfan. In the space of a few minutes the cheerful setting became a nightmare of blackness, anguish and tragedy. The wave of rock, coal slurry and water first struck a farmhouse, killing all the occupants.

The Pantglas Junior School lay just below, and next in its path. Nobody in the village had any warning of the approaching horror.

The most enduring memory in Aberfan of that moment is of a terrifying noise. Gaynor Minett, just eight years old at the time, remembered:

*"It was a tremendous rumbling sound and all the school went dead. You could hear a pin drop. Everyone just froze in their seats. I just managed to get up and I reached the end of my desk when the sound got louder and nearer, until I could see the black out of the window. I can't*

*remember any more but I woke up to find that a horrible nightmare had just begun in front of my eyes".*

The volume of slurry waste roared down the hillside rapidly engulfing the Pantglas Junior School and a number of adjacent houses. Soon after, the flood slackened and finally stopped. All fell quiet.

*"In that silence you couldn't hear a bird or a child". - Aberfan resident.*

Incredibly, some of the school children survived.

*"My abiding memory of that day is blackness and dark. I was buried by this horrible slurry and I am afraid of the dark to this day". - School pupil.*

*"I was there for about an hour and a half until the fire brigade found me.*



*Miners and local residents sort through debris in the schoolyard*

*I heard cries and screams, but I couldn't move. The desk was jammed into my stomach and my leg was under the radiator. The little girl next to me was dead and her head was on my shoulder". - School pupil.*

The village of Aberfan was not large and word of the disaster passed quickly. The surviving adults at the school, mainly teachers, tried to help where they could. At the mine, shift workers not long at their workplaces

were hoisted from underground to help.

*"The next thing I remember was seeing a mass of men coming up from the colliery still with their caplamps on. That was really moving because they were black, they'd just come off the shift and they'd been sent straight up and they had their lights on and they just took over from us". - Teacher.*

By then, other people of the village, many of them mothers of the children, were coming to the scene.

*"The women were already there, like stone they were, clawing at the filth – it was like a black river – some had no skin on their hands. Miners are a tough breed, we don't show our feelings, but some of the lads broke down". - Miner.*

In the midst of the tragedy there were some triumphs.

*"I was taken straight to hospital and my parents did not come to see me until evening. They must have spent the whole day not knowing where I was, not knowing whether I was alive or dead. But we never talked about it". - Pupil.*

The triumphs were few, the tragedies many.

*"Up until then [Friday, 7p.m.] I had hoped that the chapel was a hospital (to treat injuries), but as I went into Bethania people were coming out who had been told their children had gone. Until I went in I still had hope they were just lost. When I went all the pews were covered with little blankets and under them lay the little children. They picked up the blankets and showed me every little girl until I came to [her] and said she was mine. There wasn't a mark on her except a*

# 'the village that lost its children'

*little scratch over her mouth, even her clothes were clean". - Bereaved mother.*

***"...no less than 144 men, women and children lost their lives.***

***116 of the victims were children, most of them between the ages of 7 and 10 ..."*** - Report of the Tribunal of Inquiry.

Inevitably and perhaps understandably, the grief eventually manifested itself as expressing a need to blame someone or something. This is a common initial reaction to tragic loss and in many cases has been found to be without foundation. Aberfan was different. The emotion shown at one of the inquests eventually found validation in the findings of the Tribunal of Inquiry.

*'As one name was read out and the cause of death given as asphyxia and multiple injuries, the father of the child said, "No Sir, buried alive by the National Coal Board". ...The father repeated: "I want it recorded- Buried alive by the National Coal Board. That is what I want to see on the record. That is the feeling of those present. Those are the words we want to see on the certificate". - Journalist Merthyr Express.*

The Tribunal found:

*"...the Aberfan Disaster is a terrifying tale of bungling ineptitude by many men charged with tasks for which they were totally unfitted, of failure to heed clear warnings, and of total lack of direction from above. Not villains but decent men, led astray by foolishness or by ignorance or by both in combination, are responsible for what happened at Aberfan".*

For more than 20 years the heaps of colliery waste had been piled on the hillside above the coal seam and in fact two previous slips had occurred in 1944 and 1963, but as no major loss



*Elevated view of waste dump failure*

resulted, they attracted little attention. The underlying rock was composed of a highly porous sandstone from which flowed many springs of water. Some of these springs fed water into the waste dump, which softened the toe material, making the base of it unstable. The high moisture content in the failed dump material permitted it to flow as a liquefied mass down to the village. The 1963 event occurred in almost the same place as the 1966 slide. There was no legislation covering the construction and management of mineral waste tips in the U.K. at the time. Only in South Africa and parts of Germany did law cover these activities.

The Tribunal blamed the National Coal Board (NCB) for the disaster and stated:

*"The legal liability of the NCB to pay compensation of the personal injuries, fatal or otherwise, and damage to property, is incontestable and uncontested".*

Two of the worst disasters to befall the West Australian mining industry resulted from failure of manmade structures that allowed inrush of slurry into the mines. At the Emu

Mine in 1989, six people died, and recently at Bronzewing Mine, three miners lost their lives in this way. Just over three years ago an embankment wall of a tailings pond at a WA sand mine failed, sending a large wave of slurry racing through the process plant and general surrounds.

Fortunately no one was in the path of the torrent of slurry and only mine equipment was damaged. If the failure had occurred at shift change, as many as seventeen people would have been caught by the wave and possibly buried in another tailings pond lower down the slope. The fact that mine personnel were not injured and that the downstream environment was not significantly damaged meant that the event attracted little industry attention. The 1944 and 1963 slides at Aberfan were ignored for the same reason.

There is perhaps, a lesson for us all in this:

**It is essential to recognise the near misses for what they are - wake up calls!**

Source:

<http://www.nuff.ox.ac.uk/politics/aberfan>



# Safety fuse update

“Safety fuse”, is it wrongly named?

On May 6 of this year, at Pajingo Mine in Queensland, a shotfirer narrowly escaped death or serious injury when a 1.6m long safety fuse “flashed” over most of its length on being lit. The attached detonator did not go off only because burning stopped some 4 cms away. Clearly, the fuse was defective in some way and only good fortune prevented the detonator from firing.

Such so-called “safety fuse” has been in use since the days when only gunpowder was available for blasting. It is not a precise means of initiating explosives in the way that shock tube, (nonel), or electric detonators can, but if handled properly, good results can be economically obtained as the cost of fuse is relatively cheap. Worldwide usage of safety fuse has declined steadily during the last two decades in light of safety and productivity

advances offered by other blast initiation methods. Safety fuse is no longer manufactured in Australia and supply companies are compelled to resource it from overseas.

The relative cheapness of safety fuse is really its only advantage. Dangers associated with its use include the possibility of erratic burning, as occurred in the example incident, and also the opposite case where it fails to initiate the blast on time but does so much later, causing a hazard for anyone investigating the reason for the failure. The situation where the initiation “hangs up” arises more frequently than “flash” burning but both have caused many serious accidents. Detonators attached to safety fuse are also susceptible to being set off by static electrical discharge from the person attempting to light it. This is believed to have been the cause of a premature

explosion in September 1999 at a demolition site in Victoria which seriously injured a worker.

The most common hazard posed by the use of safety fuse is that once it is lit the blast is committed. It is practically impossible, and extremely dangerous, to interrupt or stop a fuse or igniter cord from burning to completion. Many accidents have occurred due to people moving into the area of a blast after the fuse has been lit, and whilst barrier and guarding arrangements are there to deal with this, they are merely procedures and can and do break down.

The State Mining Engineer has issued Safety Bulletin No. 54 to address the dangers associated with safety fuse and anyone who uses it or is contemplating using it is encouraged to read this document. It is available on the DME homepage.

## Safe working load - developing trends

For as many years as most of us can remember, the term “Safe Working Load”, often abbreviated to SWL, has been a cornerstone of engineering calculations, particularly with regard to load carrying equipment.

About 20 years ago, the USA ceased using this term, because of legal implications. The European and ISO Standards followed soon after. This was a clear-cut move, however there has been indecision and much debate as to what terms could be used. There is a principle that, wherever possible, Australian Standards should be aligned with ISO and other accredited overseas Standards. Australia has been waiting patiently for the overseas organisations to settle on appropriate uniform terms.

Standards Australia are pleased that over the past 2-3 years, both the Americans and Europeans have agreed that ‘Working Load Limit (WLL)’

should replace ‘Safe Working Load (SWL)’ in describing the capacity of items such as hooks, slings and shackles. Whereas the definition for ‘Working Load Limit (WLL)’ was previously confined to a catalogue maximum load that an item could lift, it is now being extended to include both of the following:

- WLL is the maximum load that an item can lift.
- WLL is the maximum load that an item can lift in a particular configuration or application.

If a 3t sling hook is attached to the bottom end of a 3t single-leg wire rope or chain sling in a general use application, it retains its inherent WLL of 3t. This is a maximum load. The WLL for a two leg sling hook is  $(1.73 \times 3t) / 2 = 2.6t$ .

Rated Capacity will continue to be the terminology applicable for cranes,

in line with current Australian and overseas crane Standards.

As a result, Standards Australia has set about bringing Australian Standards covering cranes, lifting tackle, lifts, mining equipment and wire rope into alignment, though it will be some years before all Australian Standards reflect the new terminology.

Likewise, the term ‘Safety Factor’ is being replaced by the term ‘Design Factor’.



Article from:  
The Australian Standard (July 2000)



# Rockfalls in open pit mines

The mining industry is well aware of the dangers of loose rock falling from the backs and walls of underground mines. In open pit mines, however, these hazards are often not fully appreciated. Being hit by falling rock can cause serious or fatal injuries to one or more persons. The size of falling rock capable of causing serious injury can be as small as someone's fist; considering that the longer a rock falls, the greater the velocity and the damage on

impact. For example, one second after a rock starts to free fall, it has fallen 4.9m; after 2 seconds it has fallen ~20m (distance travelled =  $0.5 \times 9.8 \times \text{time}^2$ ). The kinetic energy of a fist-sized rock at impact, after falling for 2.5 seconds, is similar to that of a golf ball, immediately after impact with the club (GolfBallVelocityISM.html).

Free fall of loose rock is not usually possible for long distances in open pits, as walls are cut at varying angles to the vertical. Consequently, a falling rock will bounce off the pit walls and drop at a slower rate than a free-falling rock. The amount a rock slows down after hitting a pit wall and/or batter largely depends on the stiffness, texture and shape of the falling rock, the angle of impact with the wall and the stiffness and texture of the wall rock.

In summary, a falling rock in an open pit is a dangerous object, particularly if its path coincides with a mine worker or mine vehicle - as shown in the following photograph. The requirement to ensure that any loose rock is scaled from the quarry face where people are required to work on foot at the toe of a wall is specified in MSIA Reg. 13.9(a). The same requirement also applies where personnel work in equipment that is



*An example of the damage that can be caused by falling rock..*

susceptible to being damaged by falling rock. Furthermore, any scaling done at a mine must be carried out in such a way that personnel are not exposed to hazards, such as working off unstable ground [as per Reg 13.9(2)].

To achieve this, batter heights and berm widths must be designed and mined in such a way that loose rock can be safely and effectively scaled down with the equipment available.

In most instances, access along safety /catch berms is an essential component for scaling loose rock. Careful 'near wall blasting' is required to ensure that batter crests are not damaged to the extent that adequate berm widths cannot be maintained. If allowed to collect in large volumes, loose rock that has collected on catch berms will hinder the scaling process.

Rock debris on safety berms represents another form of hazard when the catchment area is reduced; it allows loose rock to continue to tumble down to the next bench. Often the distance larger blocks of rock can roll once they reach the pit floor

is not well appreciated. It is not unusual for blocks to roll 20 metres from the base of the rill (see photograph below). If mine personnel such as surveyors or geologists are working on foot in that area, the result could be disastrous.

Although the mine design related issues are obviously the responsibility of the manager of a mine, it is everyone's responsibility to check that pit walls remain

safe. The condition of rock exposed in pit walls changes with time. What looks okay today might not look the same tomorrow. Ground vibration during blasting, rainfall and groundwater, the time dependent characteristics of rock, are a few factors that can result in the gradual degradation of a rockwall.

Always be aware of where you are and the potential hazards associated with your location. Look for signs of impending rock movement such as the appearance of cracks, "puffs of dust", and bulging in the face or toe of the slope. If you see any of these signs, make sure all the relevant mine personnel are aware that the hazard exists.



*An example where large rocks have rolled 20m from the base of a pit wall.*

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# Mine surveying : an essential service

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Articles emphasising the pivotal role of surveying in the mining industry have been a recurring feature of MINESAFE magazine. Regrettably, their inclusion has on occasion been prompted by the occurrence of some tragic event in which surveying deficiencies played a major part. The Gretley Colliery disaster in NSW, during 1996, where four miners lost their lives, is the most recent of these. The unfortunate fact is, however, that the circumstances of the accident at Gretley closely reflect those of another mining disaster at Lofthouse Colliery in England during the 1960's. Elements of both accidents can be identified in the conditions relating to many other incidents in Europe, North America and Southern Africa. Given the manner in which these accidents continue to occur, an observer could be forgiven for thinking that mining people are clearly not heeding the lessons of history!

The nature of underground mining requires that a means of knowing

where we are, where we have been and where we are going, must be used, and in fact some form of survey has been employed since the earliest times. The importance of accuracy in measurement and recording of results in relation to production has always been recognised. Less recognition seems to have been given to the safety benefits of good survey practice. The unknown presence of old workings, out of date or inaccurate mine ventilation plans and poorly controlled excavation of underground openings present very serious hazards. In surface mining, monitoring of pit wall stability, control of haulroad curves and gradients, are areas where survey has a major safety impact. The importance of these issues must not be underestimated.

Survey Professionals on the Mines Survey Board have expressed serious concern that the situation on some WA mines leaves much to be desired. The professional competency of survey personnel is not perceived to be a problem, but "controls and

checks on standards of practice, and verification of precision and integrity are lacking in some cases". Improved management of the process with adequate monitoring and mentoring by experienced professionals is seen as an appropriate response to these shortcomings.

The importance of surveying in the mining industry is emphasised by the fact that it is a registered occupation under the Mines Safety and Inspection Act 1994. While this recognises the importance of the surveyor's role, it is important to note that the ultimate responsibility to ensure that qualified persons are appointed and that equipment resources and facilities are available rests with the Registered Mine Manager and, through that person, the Principal Employer.

Further information on this topic may be obtained from Safety Bulletin No. 57, which has recently been issued by the State Mining Engineer and is available on the DME homepage.

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## Frequently Asked Questions

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**I work night shifts in an open cut. Does my employer have to provide lighting?**

Regulation 13.6 says that the mine manager must ensure that all working places in a surface mining operation are illuminated at night. Also, tips and dump edges have to be lit by stationary lighting under the terms of regulation 13.5 (4). Anyone entering an unlit part of a quarry must be in a lighted vehicle or carry or be accompanied by a person carrying an adequate light.

**Does my employer have to provide me with a Material Safety Data Sheet (MSDS) for hazardous chemicals?**

Responsible persons must provide a MSDS for each hazardous substance that is used or produced in any workplace at the mine. Employees who are potentially at risk from a hazardous substance must have ready access to a MSDS. If you can easily access and refer to a MSDS, it is not necessary for your employer to issue a copy every time you use a particular chemical product.

**The air-conditioner in my truck does not work. Is it a breach of mine safety legislation?**

It is not a statutory requirement that a vehicle be equipped with an air conditioner. Most mining vehicles are equipped with enclosed cabs to protect persons from dust, noise and adverse climate conditions. The enclosed cabin (your workplace) does require adequately conditioned air that is appropriate for the prevailing conditions, and this may involve heating, cooling or circulation only.

# What's On

## AUSTRALIAN CENTRE FOR GEOMECHANICS

### Fill and Mass Mining

Brisbane, 3 - 4 November 2000

The objective of this workshop is to provide an overview of the design and use of fill in underground mining.

### Planning for Mine Closure – An Operators' Guide

Perth, 7 – 8 December 2000.

This seminar is structured to cover mine closure planning as a process and examine practical examples experienced by those involved in "closing" sites. Industry consultants and regulatory bodies will be present.

For further information contact:

Josephine Ruddle, Phone: 9380 3300, Fax: 9380 1130

Email: [acg@acg.uwa.edu.au](mailto:acg@acg.uwa.edu.au)

On-line registration at [www.acg.uwa.edu.au](http://www.acg.uwa.edu.au)

## INDUSTRIAL FOUNDATION FOR ACCIDENT PREVENTION

Conducts regular courses on:

### *Occupational Safety and Health Training*

- Safety & Health Representative Introductory
- Safety & Health Representative Refresher
- Occupational Safety & Health - for Supervisors
- Occupational Safety & Health - Managerial Responsibilities
- Accident Investigation
- Surface Ventilation (Mining) - **Technicians** Certificate III
- Surface Ventilation (Mining) - **Officer** Certificate IV
- MARCSTA Induction

### *Construction & Equipment Skills Training*

- Forklift Truck Operator
- Dogging
- Rigging - Basic, Intermediate and Advanced
- Scaffolding - Basic, Intermediate and Advanced
- Shotfirer (WA Permit) – Certificate III
- Open Pit Blasting – Certificate IV
- Elevating Work Platform

Contact: Christine Williams, Phone: 9310 0218,

Fax: 93108548

## EXAMINATIONS - WA Certificates of Competency

### First Class Mine Manager's

### Underground Supervisor's

### Quarry Manager's

### Restricted Quarry Manager's

The above examinations are to be held on

**Monday 5 February 2001**, Mining Law, in Perth only. Applications close on 5 January 2001.

**Monday 2 April 2001**, Mining Law and Practical, Statewide. Applications close on 2 March 2001.

Application forms: Ph 9222 3683 or 9222 3269. The Application fee is \$110 (inc GST).

## Seminar on High Pressure Air Re-circulation Drilling (Safety Considerations)

The seminar has been arranged by Central TAFE, and will be presented by the Mineral Drilling Association Australia in conjunction with Central TAFE's Drilling Industry Training Centre Advisory Board. The objective is to gather facts and share knowledge on the issues of concern on operating safety, and to develop a set of acceptable and workable recommendations for safe working practice.

Date: Friday 10 November 2000, East Perth

Cost: \$44 (GST included)

Contact: Petra, Phone: 9235 6406, Fax: 9235 6555

Email: [bowlip@ecentral.training.wa.gov.au](mailto:bowlip@ecentral.training.wa.gov.au)

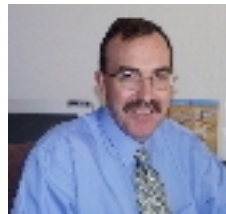
## New Publications

**Safety Bulletin No 56:** Mining Industry Electrical Accidents.

**Guideline:** Open Pit Mining Through Underground Workings (July 2000).

**Contam Procedures:** A guide to the Department's atmospheric contaminant monitoring system (June 2000).

## Staff Changes



Simon Thompson, Director Mining Operations



Angela Bishop, Assistant Environmental Officer Perth



Jeni Alford, Coordinating Environmental Officer Kalgoorlie



Peter O'Loughlin, District Inspector Kalgoorlie

Jenny Oosterhoff, Occupational Hygienist – back from maternity leave on Wednesdays to Fridays.

Bjorn Gillgren – General Manager Occupational Health & Engineering, has left DME to join Worksafe WA.



# Incident Alert

## Incidents

The dangers of suspended loads detaching unintentionally are apparent. However, in recent years DME has received many such incident reports where loads have fallen from cranes. Two of the incidents investigated during the last 5 years involved persons being seriously hurt by loads falling from cranes. In the same period 2 other workers were less seriously injured and 3 other workers were involved in near-miss incidents.

## Causes

In both instances where serious injury occurred, the immediate causes of the accident were identified as:

- Inappropriate slinging of the load, (in both cases steel plates), and
- Slewing the suspended load over persons.

## Comments and Recommendations

Lifting of metal plates by means of chain slings wrapped around them is bad practice. The edges of the plates can fracture the links of chains, and steel on steel contact does not provide effective frictional constraint against slippage, particularly if the loads are relatively light. The problem is worsened if the plates are not straight-edged, as the chains are more prone to slipping.

Steel and other metal plates are characteristically thin, long and wide. If plates are slung on the flat (as in the two injury incidents) they can sag, flop, or develop wave motions when handled or lifted. These are amongst the most dangerous of loads.

To avoid a recurrence of this type of incident the

following measures should be adopted:

- All thin plates should be lifted by using either shackles passing through holes in the plates or by appropriate clamps.
- Moving or suspending crane loads over persons must be avoided. Where necessary, barricades should be erected to prevent personnel access into crane working areas.

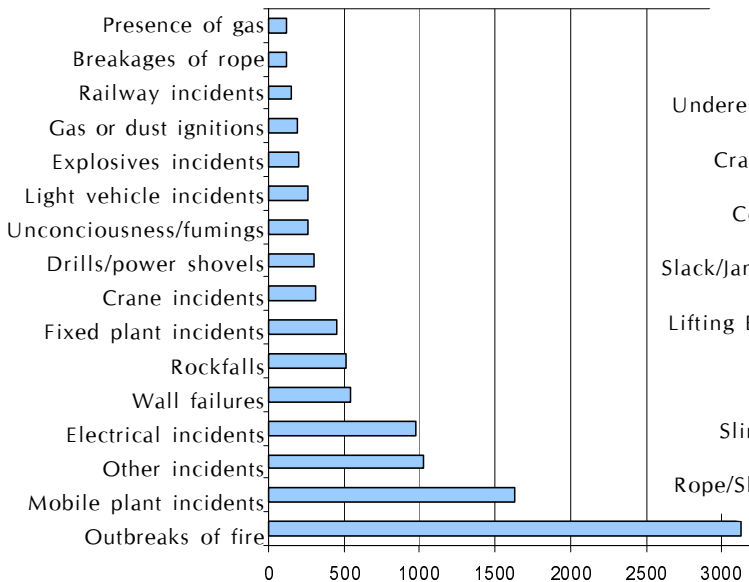
For further information, refer to MOD Safety Bulletin No.104.



*Crusher mantle dropped from crane embedded in concrete floor*

# Watch Out!

Number of incidents reported since 1994



Crane incidents involving unintentional load movement during 1999

