



DEPARTMENT OF
MINERALS AND ENERGY
WESTERN AUSTRALIA

MINING OPERATIONS DIVISION

MINESAFE

IF YOU THINK STRUCTURES
DON'T FALL DOWN...



THINK AGAIN... *See page 2*

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COVER STORY

IF YOU THINK STRUCTURES DON'T FALL DOWN....THINK AGAIN....

People who assume that structures don't fall down need to be aware that both new and old structures can not only collapse but are doing so more often.

In June this year, the bin and support structure pictured on the cover collapsed when loaded to 80% capacity during commissioning operations for a new treatment plant. Fortunately, no one was injured, but several people might have been killed if they had been in the area at the time.

It appears at this stage that the absence of web stiffeners in the primary support beams led to the failure of the structure. The web stiffeners were included in engineering design calculations, but were not shown on the design drawings. This illustrates the importance of ensuring that design drawings accurately reflect engineering design calculations.

In May 1996 the bin support structure at another treatment plant twisted and deformed when loaded well below capacity. This bin had been newly commissioned and the deformation was also caused by the omission of web stiffeners to the primary bin support beams. In this case the design engineer did not carry out calculations to check the need for web stiffeners.

Section 14 and regulations 6.3 to 6.5 of the Mines Safety and Inspection Act

1994 clearly define the duties of persons who design any plant for use at a mine.

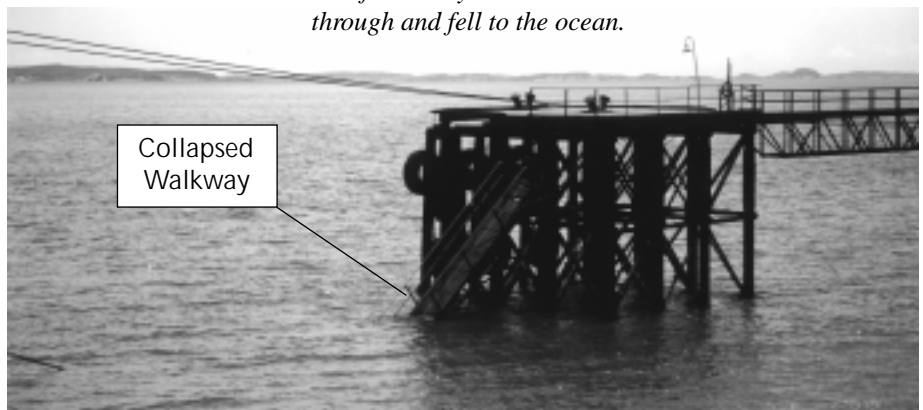
Structural design engineers must ensure design calculations conform to the relevant Australian Standards. Consulting engineering design offices must ensure design calculations are checked by another engineer and that design drawings are checked by the design engineer and the principal structural engineer.

Another cause of structural collapses is corrosion of steelwork. This wharf walkway structure (pictured) had extensive corrosion and failed as six men walked across it. All six men fell 8 metres into the ocean, some of them suffering serious injuries.

Treatment plants are also very corrosive environments and there have been several incidents on minesites where steel floors have collapsed.

If you see corrosion on structural steelwork that may be more than surface corrosion you should advise your supervisor of the problem. Where the corrosion of supporting steelwork has diminished the original strength of the structure, a structural design engineer should be employed to assess the safety of the structure. If remedial work is recommended then the work should be carried out immediately.

The wharf walkway structure corroded through and fell to the ocean.



EDITORIAL

PERSONAL ACCOUNTABILITY FOR SAFETY

In light of the fatalities experienced over the past 18 months, and the interests of safety education, it is time to revisit the issue of personal accountability for safety.

Personal accountability does not mean **"it's all up to the person on the job"**.

Sometimes, it is easy to lose sight of the fact that each and every employee at a mine, from the Chief Executive or general manager through to the miner or plant operator, has first and foremost, the employee's duty of care to take reasonable care of his or her safety and health, and to avoid causing harm to the safety and health of others. This obligation is the basis of personal accountability for safety.

People in management and supervisory positions have additional responsibilities and accountabilities placed on them through appointment to a position of statutory or business authority.

Managers and supervisors are not the employer (which is almost always a mining company) but they operate as agents to carry out duties for the employer.

In carrying out such duties to meet the employer's obligation, these people still retain their individual personal accountability. Part of that accountability is developing a working environment that allows all other employees to carry out their duty of care.

Simply put, the system of work, which is the responsibility of the employer, must be user friendly, and the employer's agents must provide the necessary workplace "tools" that will allow all other employees to be held accountable if the tools are not used. This also applies

where company rules are in place, because the "lawful instruction" which the employees must obey under their duty of care, must also include the mechanisms to permit employees to cooperate with the rule.

In underground mining in particular, where regular supervision of all employees is not practicable, a good deal of reliance is placed on the employee to work safely. This can be done only if

Development of a high level of awareness of this personal accountability is a critical part of improving the safety culture in a mine and ensuring a high standard of performance. Developing the skills and knowledge comes only from effective education, training and experience, and not by simply telling employees that it is their duty of care to make sure things happen or don't happen in a certain way.

Managers and supervisors are not the employer but they operate as agents to carry out duties for the employer.

...these people still retain their individual personal accountability. Part of that accountability is developing a working environment that allows all other employees to carry out their duty of care.



*Catherine Stedman
Consultant Editor*

each person is trained, instructed and equipped to do so, and the work system and communication systems are adequately and safely established.

Whereas in the past the airleg miner (for example) had a large measure of control of his or her own job and work routine, current mining operations are generally highly mechanised and often closely coupled and tightly spaced.

Three or four individuals or groups of people may be involved in sequence in advancing a heading or operating a stoping system.

Any incorrect or unsafe act, whether due to action or lack of action on the part of an individual, may have serious consequences for others.

MOSHAB GOES

On the 5 August 1998 the Mines Occupational Safety and Health Advisory Board (MOSHAB) met in Kalgoorlie for the first time. Following the meeting MOSHAB members split into two groups and visited Kanowna Belle and KCGM Mount Charlotte underground gold mines.

The Kalgoorlie visit was arranged following requests, made at the public open forums held by the Prevention of Mining Fatalities Taskforce last October, that MOSHAB should increase its profile in regional areas.

At the MOSHAB meeting members considered a report on the implementation of the priority 1 recommendations of the *Report on Fatalities in the Western Australian Mining Industry*. (A summary of the

implementation of these recommendations has been included as an insert in this edition of MINESAFE).

Many of the recommendations have been referred to tripartite working parties with representatives from the Department, the industry and the unions.

Increased Focus on Underground Mining

Since the release of the fatalities report the Inspectorate has focused its attention on the underground sector, with a marked increase in management system audits, and high impact function audits related to ground control.

Confidential Survey of Underground Employees

Recommendation 1.3 required MOSHAB to develop a program to improve the safety culture of the industry. MOSHAB has conducted a confidential survey of underground employees, supervisors and foremen. Underground mines in the Kalgoorlie, Kambalda, Yilgarn, Leinster, Murchison and Telfer regions have been visited and employees asked to complete the written survey.



Underground miners completing a confidential survey from MOSHAB.

32 people attended the follow-up forum at Mineral House in Perth for the Prevention of Mining Fatalities Taskforce.



UNDERGROUND

The survey team, MOSHAB members Pat Gilroy, Bob Leggerini and Henry Rozmianiec, said the response to the survey from the workforce had been very positive with over 1,100 employees surveyed. They will report to MOSHAB on the findings in September.

The Team also reported that very few underground employees had read or even seen the fatality report, even though some 3,000 copies have been distributed. It was clear that while many companies have copies of the report, few have actually sat down with underground employees in crib rooms or safety and health meetings and gone through its findings and recommendations.

MOSHAB would like to remind management that all of the recommendations, other than those relating to the Department, are matters to be **acted upon**. If change and improvement is to be made then companies must take a leading role to prevent further fatalities.

First Code of Practice Released

In response to Recommendation 1.8, MOSHAB has released the draft *code of practice for Surface Rock Support for Underground Excavations* under the provisions of *Mines Safety and Inspection Act 1994* Section 93(1). The code has been released as a draft for a two-month public comment period.

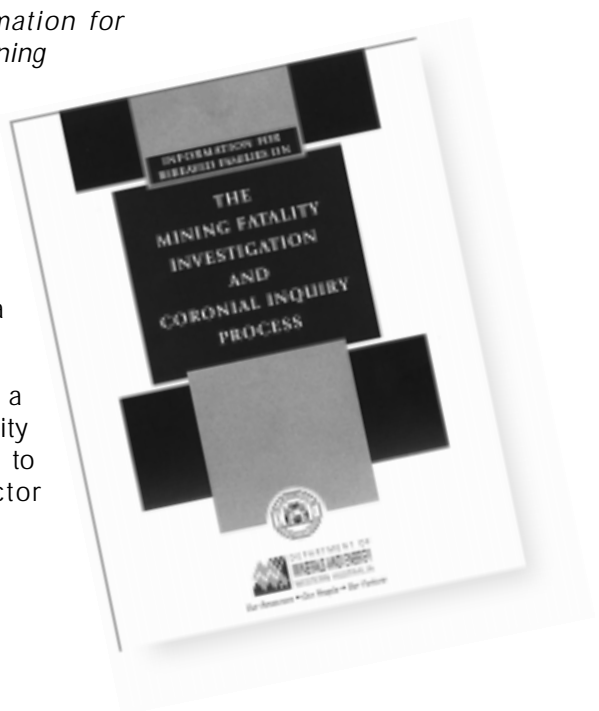
The code requires all underground mines to install surface rock support, ie. mesh, shotcrete etc in addition to primary rock reinforcement in the backs of headings that are 3.5m in height or greater, unless a documented geotechnical risk assessment determines otherwise.

Copies of the code of practice can be obtained by contacting Cassie Booth Tel: (08) 9222 3845 or on the DME Web page at www.dme.wa.gov.au/news/reports.html. Comments should be returned by no later than 5:00pm 30 September 1998.

Information for Bereaved Families

A new publication *Information for Bereaved Families on the Mining Fatality Investigation and Coronial Inquiry Process* was approved by MOSHAB to assist families to understand the process and the roles of the mines inspectors, police and the coroner's office following a mining fatality.

The booklet was a recommendation of the fatality report and will be provided to the family by the Inspector following a fatality.



Fatalities Taskforce Follow-Up Forums

On Thursday 6 August and Friday 7 August the Prevention of Mining Fatalities Taskforce held follow-up public forums in Kalgoorlie and Perth. 52 people attended the Kalgoorlie forum while 32 attended in Perth.

The forums were held to report on the progress of the implementation of the fatalities report recommendations and allow people to provide feedback to the Taskforce on matters relating to mining fatalities. All matters raised will be reported back to MOSHAB.

MERIWA PROJECT M249

The research programme undertaken by Keith Terry, Greg Hewson and Mike Rowe on "Characterisation of inhaled dusts on minesites" is complete.

Measurements were made on:

- (i) comparison of the collection efficiencies of the closed-face, seven-hole and IOM sampling heads;

- (ii) particle size distribution of inhaled dusts at both surface and underground mines; and

- (iii) diesel particulate matter concentrations.

The full report (MERIWA Report 195) is available from MERIWA Tel: (08) 9222 3397.

Copies of the Executive Summary are available from:

Keith Terry Tel: (08) 9457 1698 or
Mike Rowe Tel: (08) 9222 3050.

PROCESSING PLANT

In the October 1997 issue of MINESAFE a feature article covered the application of the National Standard for the Control of Major Hazards Facilities (MHF) to mine sites. The article described the change to Mining Operations Division's approach to the management of risk in processing plants.

Adoption of the MHF Standard under the Explosives and Dangerous Goods Act requires those minesites which meet the MHF criteria to comply with the Standard. All minesites in WA have been risk ranked against the MHF criteria on the basis of the following:

- Storage/use and generation of Dangerous Goods/Hazardous Substances.
- Application of temperature and pressure in processing.

- Consequences of potential events onsite and offsite.

This has been done to enable MOD to focus primarily on the processing plant safety management systems of those minesites that generate acute risks. A secondary, and equally important focus, is on those sites that generate chronic risks.

As a result, a Memorandum of Understanding between the Chief Inspector of Explosives and Dangerous Goods and the State Mining Engineer has been signed which effectively places WA mine sites into three groups:

- Those sites that present a Major Hazard threat to the public are automatically deemed to be MHFs and require a Safety Report (Onshore equivalent to a Safety Case Study) to

obtain a Dangerous Goods Storage license.

- Those sites that present a Major Hazard threat to their employees or some offsite risk to the public will require compliance with the Standard as a condition of their Dangerous Goods Storage license. The more complex processing plants are in this group.
- For all other minesites, the Standard is recommended as a guide to the development of good risk and safety management practice. However, it is also likely that minesite safety performance will form a further criteria for the enforcement of various requirements of the Standard.

This new approach does not apply just to new processing plants. The "management of change" in minesites is



Murrin Murrin nickel mine recently completed a detailed review under the new system.

RISK MANAGEMENT

under close scrutiny. Any new processing plants, or upgrades or modifications, particularly those involving dangerous goods, hazardous substances, high pressure and high temperature currently require a level of risk assessment under the MS&I Act and Regulations. The utilisation of risk assessment tools such as HAZOP, HAZID and FMEA are starting to become commonplace within the mining processing industry. Investigations carried out by MOD have found the lack of hazard identification to be a major contributor to accidents and incidents.

The first detailed reviews under the new system have occurred for the "big three" lateritic nickel minesites, Bulong, Cawse and Murrin Murrin which are intended to be operational before the end of the year.

These reviews revealed that the level of safety management adopted by all three was in line with the requirements of the MHF Standard. Multiple design HAZOPs, ETA, FTA, HAZID and several other risk management tools had been



used in the development of their site safety management systems.

Similar reviews and SMS (Safety Management System) audits are intended beginning with those sites that generate the highest risks.

For more information contact Steve Kamarudin Tel: (08) 9222 3543, or Mike Rowe Tel: (08) 9222 3050.

Murrin Murrin nearing completion.

"YEAR 2000 – MILLENNIUM BUG"

The 'day of the Millennium Bug' is fast approaching and unless satisfactorily dealt with can present serious implications in regard to safety and health on minesites. Indeed the 'bug' could strike much earlier should some electronic equipment fail to recognise the year '99.

The potential serious consequences that may result from safety systems failure are predictable and warrant a detailed risk assessment and risk control strategy that will positively prevent unsafe conditions arising from the failure or malfunction of affected plant.

The possible effects on critical plant such as mine winders, process instrumentation, fire protection and other essential safety circuits are apparent. Other seemingly inconsequential faults may also produce serious results, underpinning a need to closely scrutinise **all** electrical equipment and circuits.

Expert advice should be sought from manufacturers and may also be solicited from the proliferation of consultants currently working on the problem.

Further information may be referenced from MOD's Safety Bulletin No. 32

issued 9 October 1997, from a comprehensive Department of Commerce and Trade 'Year 2000' information pack (Tel: 1800 199 251), from Standards Australia, and generally over the internet.

Be prepared, this is everyone's problem.

MANAGING SHIFTWORK

Part (1) of this quiz (Corporate Responsibility) was published in the March 1998 edition of MINESAFE. There have been numerous requests for the promised follow up, and here it is!

- | | |
|--|---|
| <p>1. Have employees received shiftwork fitness for work training in the last 3 years on how to manage safety and health issues like sleep, diet, exercise, drug use?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> Thought about it, but haven't got around to it yet. 1</p> <p><input type="checkbox"/> Some have. 5</p> <p><input type="checkbox"/> All, or most have. 10</p> | <p>7. Do you encourage your safety committee to develop shiftwork lifestyle programs?</p> <p><input type="checkbox"/> No committee. 0</p> <p><input type="checkbox"/> Committee is thinking about shiftwork issues. 1</p> <p><input type="checkbox"/> Committee distributes information but does not actively target shiftwork. 5</p> <p><input type="checkbox"/> Committee actively involved in developing lifestyle programs. 10</p> |
| <p>2. Does fitness for work training include the partners of employees either as participants or by providing literature and personal contact sources of advice?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> It is left to the employee to pass on information if they wish to. 1</p> <p><input type="checkbox"/> Only sometimes. 5</p> <p><input type="checkbox"/> Always. 10</p> | <p>8. Are your on site medical personnel up to date with safety issues resulting from sleep disorders or shift maladaptation syndrome?</p> <p><input type="checkbox"/> Don't know. 0</p> <p><input type="checkbox"/> Only refer employees to EAP. 1</p> <p><input type="checkbox"/> Make some effort to improve their knowledge. 5</p> <p><input type="checkbox"/> Company actively promotes and supports learning activities. 10</p> |
| <p>3. Does shiftwork fitness for work training include information that can be tailored to individual differences in body rhythms and sleep/wake patterns?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> No specific information provided. 1</p> <p><input type="checkbox"/> Some information provided. 5</p> <p><input type="checkbox"/> Part of the program. 10</p> | <p>9. Do you regularly consider the impact that shift maladaptation may be having on workplace incidents?</p> <p><input type="checkbox"/> Never thought about it. 0</p> <p><input type="checkbox"/> Crossed my mind, but not acted on. 1</p> <p><input type="checkbox"/> Review stats for possible links. 5</p> <p><input type="checkbox"/> Part of management strategy. 10</p> |
| <p>4. Does any training include information on how to adapt to the shift rosters you are using?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> General information about rosters at induction. 1</p> <p><input type="checkbox"/> Information provided through EAP (Employee Assistance Program) on request. 5</p> <p><input type="checkbox"/> Part of the program. 10</p> | <p>10. Do all shiftworkers have access to private counselling through an EAP on shiftwork related problems?</p> <p><input type="checkbox"/> Don't have an EAP. 0</p> <p><input type="checkbox"/> Yes, but not widely advertised. 1</p> <p><input type="checkbox"/> Yes, but left up to the employee. 5</p> <p><input type="checkbox"/> Employees actively encouraged to seek support either through self referral or company referral. 10</p> |
| <p>5. Is shiftwork lifestyle training compulsory for new starters?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> Provided when scheduled program is presented. 1</p> <p><input type="checkbox"/> An informal system operates. 5</p> <p><input type="checkbox"/> Part of our OSH policy. 10</p> | <p>11. Do you have screening procedures in place to identify, then support employees having problems adapting to shiftwork?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> Only informally. 1</p> <p><input type="checkbox"/> To a limited extent. 5</p> <p><input type="checkbox"/> Yes. 10</p> |
| <p>6. Do you have a process for distributing shiftwork information and tips (noticeboards, newsletters, memos etc.)?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> Thinking about it, but no action yet. 1</p> <p><input type="checkbox"/> Informal procedures in place. 5</p> <p><input type="checkbox"/> Systematic approach to distributing information. 10</p> | <p>12. Are all your supervisors aware of, and trained in, company procedures about shiftwork problems and how to handle them?</p> <p><input type="checkbox"/> No. 0</p> <p><input type="checkbox"/> Some are. 1</p> <p><input type="checkbox"/> Yes, but training is irregular. 5</p> <p><input type="checkbox"/> Yes. 10</p> |

POSSIBLE SCORE: 70 YOUR SCORE: _____

QUIZ (PART 2)

13. Is the food in your dry mess compatible with nutritional guidelines issued to shiftworkers?
- Don't know. 0
 - Little effort is made. 1
 - Some effort is made. 5
 - Yes. 10
14. Are nightshift workers able to eat to suit their shift? eg can they get breakfast before they go to work, and dinner at 6am?
- No. 0
 - Left up to caterers. 1
 - Some effort made. 5
 - Written in contracts. 10
15. Are worksite vending machines supplied with light, digestible alternatives to chocolate bars and other saturated fat foods?
- No. 0
 - Little choice. 1
 - Some choice. 5
 - Yes. 10
16. Do you encourage shiftworkers to use refrigerators and microwaves to prepare shiftworker friendly foods brought from home or from the dry mess?
- None of my business. 0
 - Given written material to read. 1
 - Tips and hints sometimes distributed. 5
 - Actively promoted and encouraged. 10

POSSIBLE SCORE: 90 **YOUR SCORE: _____**

17. Do you provide shiftworkers with training programs on the dangers of driving when drowsy?
- No. 0
 - Sometimes. 1
 - Part of lifestyle training package. 5
 - Actively promoted on a continuous basis. 10
18. Are all management and workers familiar with the legal liability issues associated with shiftworker fatigue?
- Don't know. 0
 - Senior management. 1
 - Limited knowledge. 5
 - Yes. 10
19. Does everyone in the organisation understand the importance of providing opportunities to reduce driver fatigue?
- Don't know. 0
 - Limited understanding. 1
 - Yes, but not always applied. 5
 - Yes, and opportunities provided. 10

20. Do you have a shiftwork policy statement that includes procedures and accountabilities related to sleep/alert/fatigue management?
- No. 0
 - Implied in OSH policy. 1
 - No separate policy but procedures and accountabilities known. 5
 - Yes. 10
21. Do you have practices in place to assist nightshift workers to overcome episodes of drowsiness? eg. Napping facilities, exercise opportunities, change of tasks, etc?
- No. 0
 - Employees usually just sent home. 1
 - Currently putting practices in place. 5
 - Yes. 10
22. Do you have any mechanism such as a test to screen employees who might be driving home after nightshift, or for verifying fitness for work before or during any shift?
- No. 0
 - Thinking about it. 1
 - Informal screening in place. 5
 - Yes. 10
23. Is napping forbidden in your workplace system?
- No. 0
 - No formal training. 1
 - Part of scheduled training. 5
 - Yes. 10
24. Are employees trained in techniques to nap effectively for 15-20 minutes where the work system allows for this?
- No. 0
 - No formal training. 1
 - Part of scheduled training. 5
 - Yes. 10

POSSIBLE SCORE: 80 **YOUR SCORE: _____**

This quiz is adapted from THE 24 HOUR MANAGER, DR M MOORE EDE, 1993, Addison Wesley, USA

INNOVATIONS



Wesfarmers new “state of the art” lube truck with easy access steps at the front.



Tyre storage and side ramp to eliminate back strain / manual handling injury (Lawlers Gold Mine).

WA MINES RECEIVE RECOGNITION IN THE 1998 MINEX AWARDS

The National Minerals Industry Excellence Awards for Health and Safety (MINEX) awards, run by the Minerals Council of Australia were introduced in 1995 as an initiative to improve the occupational health and safety performance of the mining industry in Australia.

To be honoured with the MINEX award a mine must have attained a very high standard of excellence in O S & H performance. This year, the Worsley Alumina Refinery won this prestigious award.

Mr Rob Filmer, Senior Safety and Health Services Officer, puts their success down to the following safety and health strengths:

- Leadership and commitment for safety and health are driven from the highest levels in the organisation. This commitment cascades down through the organisation through a process of open and honest communication.
- Safety and health issues and performance are a major agenda item at board meetings of the joint venture partners.
- Senior managers are highly visible throughout the organisation and are "walking the talk" constantly.
- The team-based approach to all activities in the operation has meant that there is a high degree of commitment and ownership to safety and health initiatives at all levels in the organisation.
- There is a significant commitment to providing the necessary resources to manage safety and health on site with expenditure on safety and health receiving the highest priority.



Rob Filmer receives the highly coveted MINEX Award for Worsley Alumina Refinery. With him are (L to R) Dick Wells (Minerals Council of Australia), Dennis Else (National OH&S Commission), Nick Stump (Minerals Council of Australia), John Goodacre (Kaiser Bectel) and Jim Jarvis (Worsley).

- A significant number of the operating systems in safety and health have been developed jointly by management and the employees (eg isolation and tagging procedures, materials handling) thereby ensuring a high degree of motivation and ownership.

The following other applicants were recognised for attaining significant achievements in mine safety:

HIGHLY COMMENDED

- WMC Exploration – based in WA

COMMENDATION

- BHP Crinum Mine – an underground coal mine located in Queensland

The common key element amongst mines which achieved recognition in the MINEX award process was, that they have recognised the importance of and achieved a fully integrated team-based safety culture incorporating every individual who works at the mine (management and employees). This approach anticipates hazards, evaluates risks and effectively manages them before an incident occurs.

For further information about the MINEX awards contact the Minerals Council of Australia on Tel: (06) 279 3600.



Philip Smith receives the high commendation for WMC Exploration. With him are (L to R) Dennis Else, Nick Stump and Dick Wells.

SAFETY IN MINE SURVEYING

The release of the report of the Judicial Inquiry into the Gretley Colliery Disaster in NSW (14 November 1996) provides an opportunity to emphasise how critical accurate survey control is to underground mining operations in particular.

Surveying is of course also critical to safety in open pit operations, particularly in terms of mining down through old workings, and monitoring pit wall stability, but control is more readily managed on the surface.

Mining operations underground are in effect carried out "blind", and the surveying process provides the "eyes" for the mining to proceed.

Four miners lost their lives on the nightshift at Gretley, on 14 November 1996, and had not four others been in the cribroom at the time, they too would have been killed.

Due to an error in interpretation of plans of old colliery workings, the nightshift mining started at 7 to 8m from the old workings and not 100m as was believed.

The old workings were filled with water and a high head was provided by shafts leading to the surface.

When the inrush occurred the force was so great that a 40/50 tonne mining machine was pushed back 17m and jammed against the side of the drive.

The experience of disasters in mines from inrushes of water (and mud) is as old as the history of mining.

Two MSI Act Regulations relate to this issue:

10.18 - Approaching dangerous water.

10.27 - Procedures when workings are approaching each other.

There are two important points to note from this inquiry and from others before it.

- Information from old plans must be checked and researched thoroughly if it is to be used to plan and carry out mining in proximity to old workings. Probe drilling is an essential precaution to verify voids shown on old plans.
- If it is not practicable to drain off water and sludge accumulation in old workings, then a safe separation distance must be maintained, and this safety barrier verified by controlled probe drilling.

Concerns have been raised in relation to check surveying and ready availability of survey data at some mines, and a Safety Bulletin to industry is being prepared for distribution to all mines drawing attention to the potential risks, and to the need for good standards of surveying practice.

PEOPLE



Leinster Nickel Operations MARCSTA induction.

CONDITIONS OF ENTRY TO MINESITES – DEEDS OF INDEMNITY

It has come to the attention of the Department that a number of mining companies are requiring some people entering their sites to complete a Deed of Indemnity as a condition of entry.

The permits generally involve the person agreeing to indemnify the company, its employees and agents against all liability in respect to death or injury to the person and of any loss or damage to any of their property which may result from the fault, negligence or breach of duty by the company, its employees or agents and contractors whilst on property owned by the company. In some cases, contractors and sub-contractors employed to do work on the minesite have been asked to complete these forms.

Employers cannot simply abrogate their responsibility by requiring employees and contractors to sign deeds of indemnity before coming on site. They

remain responsible for ensuring the safety of those people while they are there. Employers may require people entering their sites to acknowledge the safety requirements applicable to the mine (eg. speed limits, protective equipment to be worn etc). That acknowledgment should not be confused with the duty of care provisions in **Sections (9) and (13)** of the Mines Safety and Inspection Act 1994, which clearly state the duties of employers and managers. The Occupiers' Liability Act 1985 also prescribes the standard of care required by occupiers of land (employers) to anyone (including contractors) who enter that land.

Employers at a mine are required to provide so far as is practicable, a safe working environment for their employees. This principally includes providing and maintaining workplaces, plant and systems of work where

employees are not exposed to hazards and proving such information, instruction, training and supervision as is necessary, to ensure that employees can perform their work in such a manner that they are not exposed to hazards.

Anyone working on the mine is considered to be an employee under **Section (9)**; and any confusion that relates to **Section (9)(3)** which refers to agreements about "matters of control" between the principal and the contractor should be referred to the Inspectorate for clarification.

There is also a Guidance Note available from the Chamber of Minerals and Energy entitled "General Duty of Care in Western Australian Mines" which will help to avoid misunderstanding the intent of the legislation. Tel: (08) 9325 2955

AND PLACES



Sinclair Knight Merz consulting engineers attend a MARCSTA induction in Perth.



At Murrin Murrin H&S reps attend a training course.

WHAT'S ON

ACID MINE DRAINAGE

A one day seminar on acid mine drainage (AMD) will be held at the Department of Minerals and Energy, Perth on 7 October 1998. Interstate and local speakers will cover control of sulphidic oxidation in waste rock, prediction technologies and procedures for identifying acid forming mine waste, plus practical ways of identifying and resolving AMD problems.

Legislative requirements in Western Australia will be covered, while several speakers will relate their experience in the management of AMD problems on their particular minesite.

For further information contact
Roger Schulz Tel: (08) 9222 3018 or
Harry Douglas Tel: (08) 9291 9789.

EXAMINATIONS FOR CERTIFICATES OF COMPETENCY

Examinations for the following certificates of competency will be held statewide on 26 October 1998. Applications close on 26 September 1998, the fee is \$100.00.

FIRST CLASS MINE MANAGER'S
UNDERGROUND SUPERVISOR'S
QUARRY MANAGER'S
RESTRICTED QUARRY MANAGER'S

For application forms and further information contact Linda Ramsell Tel: (08) 9222 3682.

ADVANCES IN GPS DEFORMATION MONITORING

**PERTH, CURTIN UNIVERSITY
24-25 SEPTEMBER 1998**

Speakers will cover all the main aspects of small and medium scale deformation monitoring using GPS technology.

Enquiries to: Dr Maria Tsakiri, School of Spatial Sciences, Curtin University of Technology, Tel: (08) 9266 7565.



AUSTRALIAN
CENTRE FOR
GEOMECHANICS

ROCK SLOPE DAMAGE CONTROL (BLASTING)

PERTH, 30 SEPTEMBER TO 2 OCTOBER 1998

Examines the mechanisms of rock breakage that are operating within a blast and considers means of minimising wall damage adjacent to the blast.

EXCAVATION ENGINEERING FOR UNDERGROUND MINES

PERTH, 15-16 OCTOBER 1998

Structured to provide a mix of the theoretical and practical aspects inherent in safe and efficient underground excavation practice.

STRUCTURAL ANALYSIS FOR PIT WALL STABILITY

PERTH, 10-13 NOVEMBER 1998

Promotes an understanding of terminology used by geologists and engineers in basic structural geology and geomechanics techniques as used in assessing pit wall stability.

TAILINGS MANAGEMENT AND DECOMMISSIONING

PERTH, 3-4 DECEMBER 1998

Addresses the issues facing site personnel involved with the day-to-day management of tailings storage facilities to comply with the relevant operating standards and decommissioning requirements.

For further information contact
Christine Neskudla or Gillian Macmillan
Tel: (08) 9380 3300.

SAFETY BEHAVIOUR SEMINAR

The Chamber of Minerals and Energy's South West Regional OHS Committee held a one day seminar in Bunbury on 30 June 1998 called "Implementing safety behaviour initiatives in the WA mining industry".

The seminar held at the Lord Forrest Hotel was filled to capacity with 180 people attending and at least 20 turned away. The focus of the seminar was to

share information of the various safety behaviour initiatives of mining companies.

Dr Ken Hay from Alcoa Australia's Pinjarra refinery opened the session with a technical presentation called "Safety Behaviour - What it's All About", and was followed by speakers from Millennium Inorganic Chemicals, Worsley Alumina, Hamersley Iron and WMC Resources Ltd.

By all accounts the day was very successful and a follow-up seminar or workshop is now being considered for the south west, Kalgoorlie and Perth depending on demand.

Copies of the papers presented at the seminar have been printed by the Chamber and can be purchased by contacting Paula Sinclair
Tel: (08) 9325 2955.

STAFF CHANGES

Farewell to **Allan Mathie**, Special Projects Officer who accepted redundancy, and to **Dawn Asser** who resigned as Secretary of the Karratha Inspectorate.

NEW PUBLICATIONS

MOD Publications

- Safety Bulletin No. 41** - Death of Mine Surveyor in Rockfall
- Safety Bulletin No. 42** - Use of Air Hoists for Transportation of Personnel in Underground Mines
- Safety Bulletin No. 43** - Structural Safety of Buildings and Plant

Information for Bereaved Families on the Mining Fatality Investigation and Coronial Inquiry Process

REMOTE CONTROL LHD GUIDELINE

An industry work-group has started preparing a DME guideline that will address and deal with safety matters associated with the design and operation of remotely controlled load-haul dump machines used in underground mines.

The first meeting was held on 30 July 1998 and attended by 14 group members representing the Department, machine manufacturers, remote equipment manufacturers, mining companies, underground mining contractors, mining consultants, safety professionals, machine operators, and unions.

Key safety issues were given the full and frank airing they warrant. The meeting produced some innovative ideas, which have formed the basis of a first draft of the guideline. To ensure the final document truly represents 'best practice', as much input as possible from operating, maintenance, training, safety and supervisory staff is not only sought, but also considered to be an essential part of the development process.

This is a critical and urgent matter: Six WA miners have been killed by remotely operated machines since November

1993, each involving a degree of 'risk-taking'.

Think about it, and submit your personal or collective views, opinions and ideas in complete confidence or anonymously to:

Denis Brown
Department of Minerals & Energy
100 Plain St.
East Perth WA6004
Ph: (08) 9222 3546
Fax: (09) 9325 2280
Email: d.brown@dme.wa.gov.au

<http://www.dme.wa.gov.au>

For further information on the products and services of the Department of Minerals and Energy take a look at <http://www.dme.wa.gov.au> and bookmark it to get the latest information.

INCIDENT ALERT

A fitter, employed by a contract exploration drilling company, suffered burns to his face, chest and arms when the diesel fuel tank of a truck-mounted auxiliary compressor unit exploded as he attempted to weld a crack in the tank.

The tank contained a quantity of diesel fuel.

Contributing Factors

- Hazards associated with repairing the fuel tank were not fully assessed.
- No written procedure existed for hot work on equipment that may not be free of flammable liquids, gases or vapours.
- The fuel tank contained a quantity of diesel fuel. It had not been cleaned or purged.
- There was direct application of a heat source to the tank and its contents.
- The employee had not been adequately trained and instructed in carrying out this type of task.

Recommendations

- Fire or explosion may occur if hot work is carried out on a container, tank, or drum that may not be free of

flammable or combustible solids, liquids, gases, or vapours. A safe system of work is required.

It is strongly recommended that procedures set out in Appendix C of Australian Standard 1674.1-1997 "Safety in Welding and Allied Processes – Part 1: Fire Precautions" be followed.

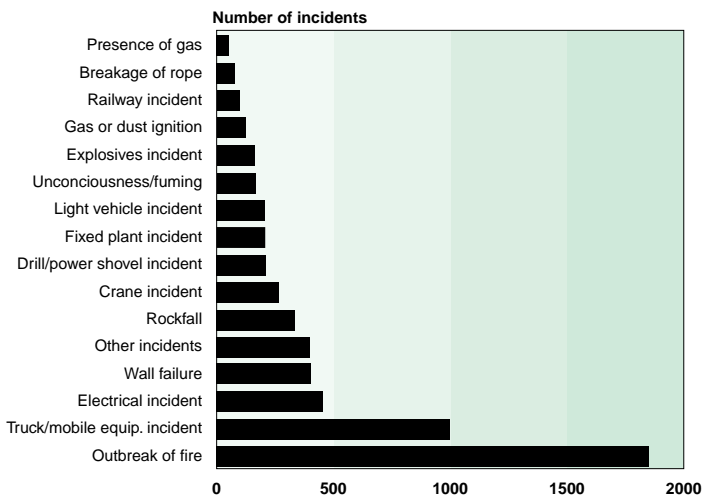
- Refer to regulation 4.3(1) "Hot Work Procedures" of the Mines Safety and

Inspection Regulations 1995. This regulation stipulates that "The manager of, and each employer at, a mine must ensure that a person is not allowed to use welding, oxy-acetylene cutting or other hot work equipment at the mine if there is any risk of personal injury or damage to plant or facilities from fire unless the person has a permit to do so signed by a competent person at the mine."



WATCH OUT!

Number of incidents reported since 1994



This issue's feature "Drilling Incidents by Type"

