Seatbelts are one item of safety equipment, that you never want to put to the test. For most people belting up is a reflex action. For those who still haven’t adopted this safe practice, it may become the last lesson you never learn.

On mines, ROPS cabs are designed to stop the operator being crushed in a vehicle when it rolls over. If you aren’t wearing the seatbelt, you won’t damage the inside of the cab as you are thrown against it – it will damage you.

More importantly the seatbelt may save your life when it stops you from being thrown out of a vehicle during a rollover or collision.

Seat belt maintenance is critical. Belts need to do their job without any risk of failure. They are designed to hold you in a position that minimises the chances of injury.

Be Kind To Yourself
The MINESAFT committee wish readers a safe and enjoyable Christmas and New Year.

Pub stop with no beer — small comfort for the weary traveller
At the time of going to print, the Report from the Mining Fatalities Taskforce was not finalised. Summaries of the findings will be published in the March '98 issue of MINESAFE. The public hearings held by the Taskforce brought several issues to light, through media reports on the process, all of which point towards a busy time for mine sites during 1998. The focus is on the need for changes to systems and procedures to meet the requirements of the legislation in both the letter of the law and its intent. Public submissions to the taskforce indicate there are many people whose knowledge of the legislation is either poor, incorrect or non-existent.

It is unfortunate that widespread problems in safety management come at a time when sectors of the industry are facing a financial downturn. In that sort of climate, employee education and training budgets are traditionally the first casualties, but it is a tradition that needs to be consigned to the scrap heap, because identified training needs are not negotiable under duty of care legislation.

It has been increasingly obvious for some time, that there is still a wide gap in some sectors, between theory and practice when it comes to interpreting the ramifications of the legislation, and public hearings of the taskforce appear to confirm that this is the case. Whether the issue is new employees, supervision, management practices, or anything else, the bottom line question is simple: Can you stand up in court and justify the decision you made?

Everyone needs to remember that ignorance is no excuse. The duty of care obligation is driven by the expectations of society, which is then reflected in legislation, not the other way round. Under this legislation, employers are expected to manage safety as an integral part of production, which is what society expects. When things go wrong, you will be asked questions. What all employers and employees need to do is ensure they have the right answers.

Catherine Stedman
Editor

We thought you would like to know....

The short article in the last issue of MINESAFE (Vol. 8 No. 3) on sleep research at Adelaide University's Sleep Research Centre, prompted 35 phone calls for more information. Some people had trouble phoning Dr Dawson direct, possibly because of the change in telephone numbers and the need to add an extra digit. If you still want to contact the Centre, the number is (08) 8222 6755/6624. The Centre has funding for research, and would like to do some work in the mining industry. If you can help, please contact Angela Baker on Tel: (08) 8222 6624.
To The Editor ...

Our request for feedback about mining culture and what it means, prompted Stephen O’Brien, Safety Representative, Jarrahdale Mine, to share his opinion with Minesafe.

Thank you Stephen.

The most destructive mining culture that exists in the mining industry is the one in which safety is implicitly seen as a sign of ‘weakness’ and a ‘nuisance’ rather than something aimed at making sure everyone goes home at the end of the shift as healthy as they were when they came to work. Safety generally has improved greatly in the last few years, and many of the companies have clear and well-enforced safety guidelines which do protect people and machinery. But there are still too many who have very negative safety attitudes.

Such a culture traditionally views risk-taking and unsafe practices as proof of manhood and evidence of a person’s courage. Many older operators tell of times when there was very little consideration given to safety, often making the case that these were the times when ‘real men’ were at work. It was ‘manly’ to drive faulty equipment, or to risk heat exhaustion rather than object to working in unacceptable conditions. The talk is meant to sound tough and uncaring - and its main effect is to lower respect for safety generally and to discourage people voicing concerns about safety issues.

The culprits include employers, as well as shift bosses, contractors, and operators who are rewarded with production bonuses - that is, they are paid more money (a lot more in some cases) for moving more dirt or blowing more rock. They don’t want to see machinery stopped for safety issues which they see as trivial or not worth bothering with. They seem to prefer to keep unsafe machinery working or continue to use unsafe working practices which expose others to personal dangers and possibly death.

It’s not difficult in some mines to see why many operators are hesitant to speak up. They don’t want to be seen to go against the ‘machoism’ of many other workers, who in reality, place moving dirt and making money above human life. The uncaring shift bosses will boast in the pub at the end of shift about the amount of dirt moved, and often will indulge in criticism and ribbing of the ‘troublemakers and the big-mouths’ (ie: those who speak about issues).

It’s a vicious circle for many workers. Because others in the minesite will drive unsafe production equipment or use unsafe practices, it’s very difficult to park up the problem machine when a worker does know it is unsafe. The comment will often be “What’s wrong with you? Joe Bloggs has driven that water truck for weeks and nothing’s gone wrong yet”. Fair enough comment you might think? Well, maybe the watercart’s problem is just about to go ballistic and as soon as you jump in you might well become the next accident. It’s only logical - the longer a machine with a problem is operated - the greater the chance it is going to become a danger.

Changing negative culture is not easy, because it is entrenched in the pub talk after work and in the ‘macho’ aspect of operating big machinery. For many young males, the bigger the machinery and the more unsafely they can operate it, the tougher they are - and there are others who mistakenly support that belief. In some cases the more unsafe ‘stuff-ups’ you make the more cartons are put on in the pub or at the barbie.

Some people don’t laugh though - the ones who have half amputated limbs because of a rock fall in a face that was supposed to be bolted and no one spoke up because the mine owner or the contractor didn’t want to go over budget and just hoped nothing would go wrong. Or the dead operator who drove too fast down the ramp and wasn’t taken off the machine and educated about safety; then drove once too often, too fast, round a hairpin and put the truck into the highwall - that operator isn’t laughing.

The negative culture still exists. That needs to be recognised, and replaced with a culture that says safety is everything for everyone. It might mean re-educating some workers. It might also mean dismissing dangerously unsafe workers who refuse to be educated and making sure they don’t work in another mine until they adopt a new outlook. It might mean making sure safety is always the first priority and that it drives the way production is followed, rather than vice versa. It just means that everyone can come to work, do their job and go home without being exposed to unnecessary and stupid workplace dangers. In the end it just means common sense.

Stephen O’Brien
- Safety & Health Representative, Alcoa Jarrahdale.
MINING FATALITIES TASKFORCE

The spate of fatal accidents in the mining industry in WA, which commenced in April 1997, and now totals 10, has raised grave concern, not only in the industry but in the whole Western Australian community.

The Minister for Mines in September called on the Mines Occupational Safety and Health Advisory Board (MOSHAB) to review the incidences and causes of fatalities in the past three years, with a particular focus on the seven deaths in the past four months, and to report to him on strategies for a whole of industry approach to elimination of fatalities and disabling injuries, in particular those caused by underground rockfalls.

Three further deaths have taken place since the Minister's directive. MOSHAB established a taskforce with terms of reference, and a brief to report back to the Minister by mid-December.

The focus has been on the Eastern Goldfields where most of the fatalities have occurred.

The taskforce has gathered information through a range of public forums and private submissions, and has reviewed earlier programs and analysed data available.

Compilation of the report is in progress.

Many of the issues raised in public forums in the course of the first stage of the inquiry have been widely reported in the media during the process.

Issues include, dilution of experience, deficiencies in training, supervision, management capacity and application, understanding of the legislation and inadequacies in hazard identification, risk assessment and risk management.

An issue of great importance, which was raised in the media when the inquiry was first announced, was regularly raised during the inquiry. This is the matter of persons being inhibited in raising safety issues for fear of adverse consequences. That this can occur, even in isolated cases, is cause for concern. That it is apparently becoming a more general practice is intolerable.

While it is true that an absolute level of no risk is not achievable, risks attached to hazards must be managed, in accordance with the obligations in the MSI Act, to the lowest practicable level within the definition of that term.

Risk taking by employees is a common (immediate) cause of accidents, but it is generally a reflection of the safety culture which prevails in the organisation, and is thus often not a deliberate or conscious decision by the individual. The deeper-seated causes therefore have their roots in deficiencies in the management and supervisory systems.

The whole basis of the duty of care system on which the Act is founded, is a system of trust and co-operation between employers and employees, in jointly managing the risks attached to identified hazards.

Any employer, manager, supervisor, individual or group of persons who in any way disadvantages an employee because that employee has raised safety issues is at grave risk.

If the Inspectorate obtains hard evidence that this takes place, those responsible will be prosecuted under Section 69 of the Act. Any person holding statutory certification who is shown to be guilty of this offence will be liable to cancellation of that certification.

In the worst case, if a person directs or induces an employee to take risks (or even condones such action), prosecution under Section 9 of the Act will follow. Should a fatality result from such action, it would be open for the Director of Public Prosecutions to bring a charge of manslaughter under the Criminal Code. No action could be more flagrantly and criminally culpable.

A second issue which has become apparent is a defect in the underground safety culture in the form of an entrenched level of risk taking.

Factors include:
- Hazards and risks inherent in the process are underestimated.
- Hazards and risks not identified or properly understood.
- Lack of incentive or pressure to avoid risk taking.
- Presence of incentives (real or perceived) to take risks.
- The hazard is recognised but the risk is accepted without proper evaluation.
- Risks are ignored.

Any or all of these can be prevented by creating and maintaining risk avoiding cultures.

This can come only from demonstrated and sustained pressure from the top corporate level through the management and supervisory chain, and in a cooperative "no-blame" relationship with employees. The key area here is the interface between the workforce and the front-line supervisor - more senior supervisors and managers need to ensure that there is a clear understanding at this level of what the organisation actually wants to achieve.

I commend your attention and commitment to these principles.

J M Tolarch
STATE MINING ENGINEER
TASKFORCE CHAIR

DECEMBER 1997
Vol.8 No.4 5
CHOOSE YOUR BEHAVIOUR; CHOOSE YOUR CONSEQUENCE

One of the terms used to describe non-prescriptive legislation is “enabling legislation” which describes the outcomes without saying precisely how to do it and does not limit duty of care.

Along with enabling legislation, goes enabling behaviour. An unfortunate difference between the two is that it is just as easy to enable negative behaviour as it is to reinforce positive behaviour. If that sounds like double speak, look at these examples of negative behaviour reinforcement, and the impact they may have on your work practices and systems of work.

<table>
<thead>
<tr>
<th><strong>THE PROBLEM</strong></th>
<th><strong>THE MESSAGE RECEIVED</strong></th>
<th><strong>RESULT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure to clarify work expectations. (tasks, standards)</td>
<td>I’m doing the right thing.</td>
<td>Behaviour continues. (Reward)</td>
</tr>
<tr>
<td>Getting someone else to do a job an employee didn’t finish.</td>
<td>I can do this again.</td>
<td>Behaviour continues. (Reward)</td>
</tr>
<tr>
<td>Blaming everyone for the actions of a few.</td>
<td>My attempts to do the right thing are punished, so why bother?</td>
<td>(Positive behaviours may stop)</td>
</tr>
<tr>
<td>Keeping discussions about poor performance “off the record”.</td>
<td>It’s not important.</td>
<td>Any change may be temporary. (Reward)</td>
</tr>
<tr>
<td>Ignoring signs of declining performance.</td>
<td>My work standard is OK with the boss</td>
<td>Behaviour continues and may worsen. (Reward)</td>
</tr>
<tr>
<td>Waiting for the problem to solve itself, or for someone else to do it.</td>
<td>What problem?</td>
<td>Behaviour continues. (Reward)</td>
</tr>
<tr>
<td>Allowing deviations from the system of work to get the job done.</td>
<td>I’m a hero.</td>
<td>(Personal) Shortened life expectancy. (Company) Explaining your logic to a magistrate.</td>
</tr>
</tbody>
</table>

As these are just examples, they don’t recognise any circumstances that may apply. Even then, what sort of unusual circumstances are acceptable in a defined system of work and work practices? The “Lone Rangers” on your machine who work with their own set of rules because their prowess on the machine protects the investment? Under this legislation, their rules are your rules, to say nothing of the message about double standards given to the vast majority of “Tontos”.

When you reinforce (reward) (enable) positive behaviours, you increase the number of times the behaviour will be repeated. The same goes for enabling negative behaviours unfortunately, and those are the ones that you will have to justify under your system of work.

Your system of work needs to have documented performance standards so that you can measure behaviours against that standard. Introducing those standards is the responsibility of the Employer – following them is the responsibility of all employees who can then be held accountable for the consequences of their behaviours.

Without the standards, the onus of responsibility and the consequences can be viewed as a deficiency in the system of work, which is the responsibility of the Employer.
Over 40 companies and individuals have been working on the MARCSTA Underground Induction, which should be ready for use in 1998. The response is a good indication of how well the surface induction has been received by the industry. Nearly 16,000 people are now on the MARCSTA database. Many sites now make it a requirement that people coming to site, have a MARCSTA Card, and MARCSTA expects the same requirement will apply to the underground induction.

Like any new system, there have been patches of rocky road. The criteria for selection as a provider is stringent and has recently been upgraded to include the need for a Workplace Category 1 Certificate and a Workplace Assessor's Certificate or a Workplace Category 2 Certificate.

Many company providers have learned to their benefit, that the extra training they now require, is paying dividends in other areas of their work. Another problem was the insistence of some participants to give the mine as their address, for interim certificates which meant they had often moved on/ transferred before their permanent card was issued.

The most difficult problem to overcome is the tendency of some site induction officers to subject those with MARCSTA card to another dose of the same information, which is potentially counterproductive as well as a waste of time and resources. It is important for on site personnel to familiarise themselves with the induction outcomes particularly, as without that you are comparing oranges with apples. You are not going to find out if someone can ride a bicycle if you ask them questions about the history of the wheel, so there needs to be a match between the MARCSTA outcomes and any test questions asked on site.

A yet unexploited benefit of the MARCSTA database, is the history it contains about the movements of a very mobile workforce, as well as the depth of experience in the industry. That in itself may prove to be a major plus for managing safety in mines.

WHITE (K)NIGHTS AT ROBE

Robe River Iron Associates have put the expertise of their employees to good use during the year, and have come up with some good ideas to improve safety.

One very successful trial was the change of colour to Dresser Truck 26, which now has a white tray, the idea was to make the truck more visible at night. The trial has been so successful that the rest of the fleet will be converted as maintenance schedules permit. Truck 26 also had red and green "navigation" lights fitted, and that too proved to be a good idea as the lights help the truck to stand out at night.

The perennial problem of light vehicle visibility is also being looked at closely. The lights have to be bright enough to alert other drivers, without affecting night vision. One solution being trialled is a two and a half metre long, flexible whip antenna with a small light built into the tip. Different colours are being tested to determine the most visible.

A flag attached to the antenna just below the light will also help to provide better visibility for light vehicle traffic at all times of the day and night.

For Manager Mining, Phil Welten, one of the most pleasing aspects of the trials is employee involvement, the suggestions coming from a wide section of Robe's mine employees.

Truck 26 is fitted with the white tray.
WA MINES RECEIVE RECOGNITION IN THE 1997 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.

The 1997 awards presented were:

Highly Commended
- Mount Keith Nickel, (WMC) WA
- Collinsville Coal, (THIESS) Collinsville, Queensland
- Callide Coalfields, (SHELL) Queensland

Commendations
- Kaltails, (NORMANDY) Kalgoorlie WA
- Kwinana Nickel Refinery, (WMC) Kwinana WA

Acknowledgements
- Lemington Coal, (EXXON) Hunter Valley, NSW
- Ravensworth/Narama Coal, (PEABODY) Hunter Valley, NSW

The common key element amongst mines which achieved recognition in the MINEX award process was; 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.

To be honoured with the MINEX award a mine must have attained a very high standard of excellence in OH & S performance. This year, for the first time, none of the 16 applicants reached the required standard to receive the highly coveted MINEX award. However a number of applicants were recognised for attaining significant achievements in mine safety.

For further information about the MINEX awards contact the Minerals Council of Australia on Tel: (06) 279 3600 or Mark Butson (Department of Minerals and Energy) on Tel: (08) 9222 3607.

Dampier Salt - Never have so few had so many copies of the Regulations! Research and Development personnel doing just that with the Mines Safety and Inspection Act
A rescuer from Youanmi Gold lowers a casualty to safety in the rope exercise — 1997 Murchison Emergency Response Competition held in Meekatharra in September.

"Yeah, well I am official, and I want to see your entry pass". Prince does his thing at the Grand Hotel - One of the undiscovered treasures of the Goldfields.

Sometimes I sit and think, and sometimes I just sit...Ivy and Shaun and Kristy Lee on World Watch - Kookynie style.


The rescue team from Kundana Gold prepare to lift a casualty in the skills event. Kundana Gold came from 14th place last year to take out the 1997 WA Underground Mine Rescue Championships held near Coolgardie in November.
This article is the first in a series that will attempt to throw some light on the role of concrete in the W.A. mining industry, particularly shotcrete and also the grout used in placing reinforcing bars (rebar) and steel cables used for stabilising rock. The issue seems to be wrapped in a deep fog of mystery which may lead to the elevation of the techniques to the status of “black arts”, as has been the case in the past. Witchcraft and sorcery have no place in this technology, despite the apparent willingness on the part of some practitioners to create that impression.

The difficulty with any particular device or method becoming a total solution is that its capabilities can be perceived to be so wonderful that they are held to be immune to misuse, abuse and gross misapplication. To go forward on the basis of such an assumption inevitably leads to problems which can, at times, be terminal.

Concrete and concrete products are so much a part of our way of life that few, if any of us, stop to think about the nature of the material, its value, or its use. We take it for granted. However providence is not always so kind, and things do go wrong. Bridges have collapsed, hydroelectric dams have failed and high rise buildings have had to be abandoned. Those catastrophes are the stuff of prime time News. Less newsworthy are the cracked pathways, the potholed roads and eroding foundations, which are also the result of error.

Clearly not all failures relating to concrete are attributable to abuse, negligence or incompetence. Simple ignorance can be a significant issue and is often the prime source of trouble. Cement, the principal active ingredient of concrete, has been with us for more than 2000 years and has been subjected to exhaustive development and testing over that time. Its capabilities have been explored and enlarged to a point where cement based materials form a distinct discipline of their own in the larger area of materials science. The outcome of all this is that in ordinary applications uncertainty should not exist. Unfortunately it does.

Shotcrete is a cement based material which enjoys some currency among underground operators and, to a lesser extent, amongst our open pit operators. Shotcrete is simply concrete. The only difference is the way it is cast:

- ‘Ordinary’ concrete is poured into shutters or laid in ‘pads’.
- Shotcrete is sprayed onto irregular surfaces in a variety of orientations, most of which are unfavourable; for example on vertical sidewalls or on the ‘backs’.

To ensure a satisfactory outcome, careful attention must be paid to the sourcing of the raw materials, to the mixing process, and critically, to the correct application techniques.

The first and second requirements are essentially the responsibility of management, whilst the last is the province of the operator ‘at the face’.

For more information contact Patrick Burke, (Mining Operations Division - Department of Minerals and Energy) on Tel: (08) 9222 3264.

The skill and knowledge of the nozzleman is critical to the successful application of shotcrete.
LEARNING ABOUT CONFINED SPACES

Over 100 people attended three Seminars on Confined Space held at Mt Magnet, Leinster and Kalgoorlie between 18 - 20 November 1997.

The seminars were organised by the Chamber of Minerals and Energy and chaired by Pat Gilroy, Deputy Chief Executive Officer of the Chamber. They were a sequel to a highly successful seminar held in Bunbury earlier this year.

The informative seminars were well received by an actively involved audience, and gave everyone a better insight into the requirements and procedures needed when entering and working in a confined space.

Further seminars are scheduled for the South-West early in 1998, and possibly the Pilbara. Contact Pat Gilroy Tel: (08) 9325 2955 for more information about seminars in your area.

STAFF CHANGES

The Collie Inspectorate farewells Julian Davey (Special Inspector of Mines - Occupational Health) who has resigned to take up a position with Robe River - Cape Lambert.

Due to recent outsourcing, Neil Hansen (Systems Coordinator) has transferred to the Computer Sciences Corporation (CSC).

NEW PUBLICATIONS


MARCSTA Monitor (Free). Contact (08) 9313 5466 to get on the mailing list.

The following will be available in January 1998.


Shiftwork Information Sheets (Circadian Rhythms, Sleep, Fatigue, Performance, Nutrition, Safety Committees, Health, Duty of Care, Family and Social Life, Owl/Lark Quiz, Safety, Exercise and Relaxation). Contact MARCSTA on Tel: (08) 9313 5466.
INCIDENT WATCH

ROLLOVERS:
October was not a good month for driving. Speed, falling asleep and losing control resulted in vehicles, rolling over, mounting windrows and falling over embankments. Average: three incidents per week.

FUMING:
Diesel fumes overcame an employee spotting for an excavator, and a supervisor helping to hang a ventilation duct. Ammonia fumes affected another employee underground after charging a face with ANFO, and hosing down in the cyanide storage area was a close call for another.

ANGEL WATCH
- A cleaner was found unconscious after using a cocktail of cleaning agents. The incident, which could have easily resulted in either death or brain damage, is the most serious of a series of warnings indicating that there is still an unacceptable separation of camp vs mine procedures and practices. There may be one toilet in your bathroom at home, and two to four in the ablation block. The chemicals used to clean either, are still the same. The advantage for the person at home is that the chemical is usually left in its labelled container, but even then does the person using it know what can happen when chemicals are mixed? Check for bulk cleaning products that have been decanted into unlabelled, plastic bottles, check the storage, ventilation and PPE. Check the knowledge and training of the people using chemicals (even at home).
- Two employees are lucky to be alive after their vehicle collided with a locomotive when they failed to stop at a level crossing.
- An employee took an unscheduled journey along with a sawblade when his clothing was caught in the moving saw shaft. He was lucky to get away with a broken bone, a cut and a bump on the head.