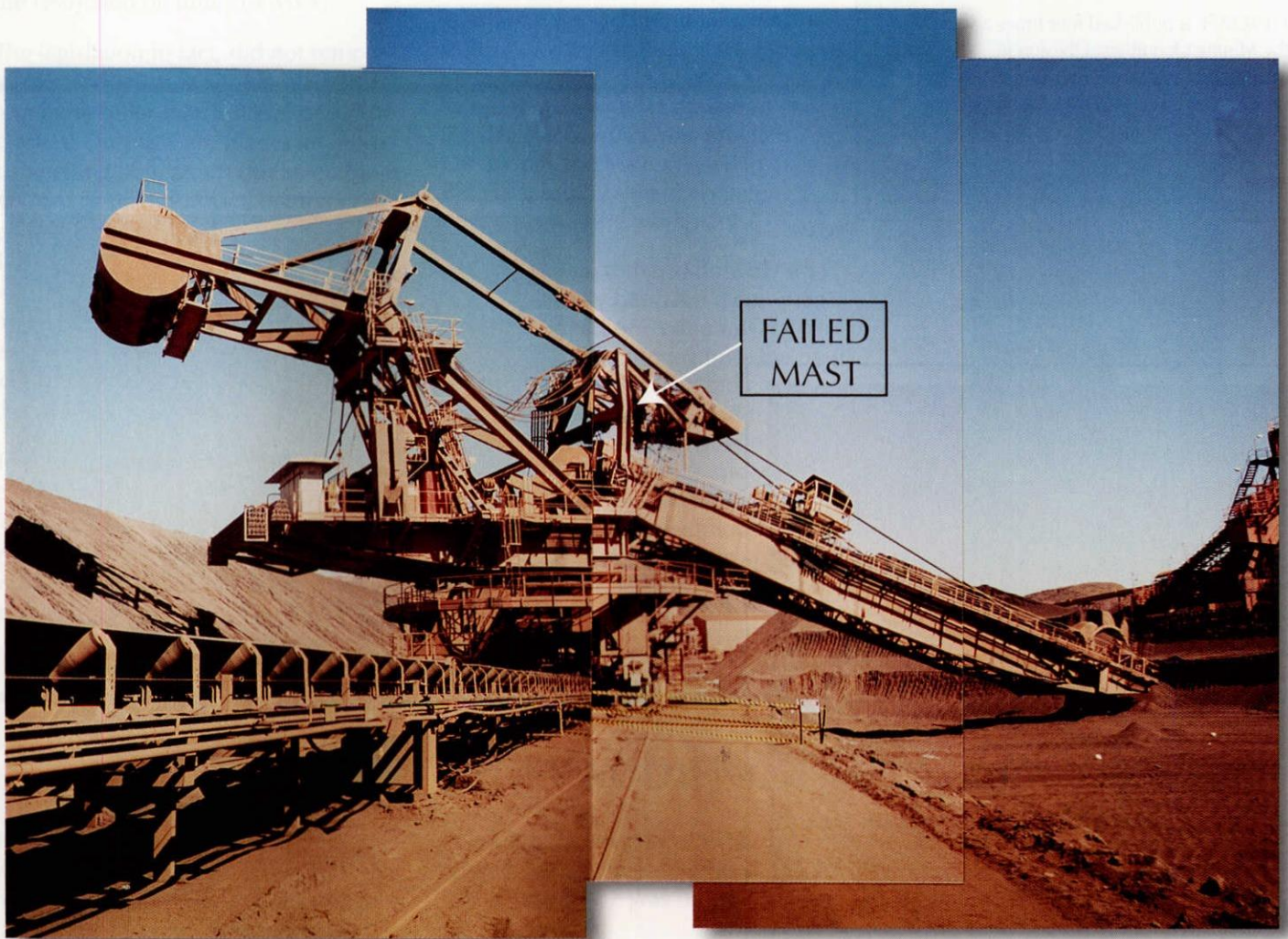




MINESAFE

ISSUED BY THE MINING OPERATIONS DIVISION OF THE DEPARTMENT OF MINERALS AND ENERGY (WA)

COLLAPSE OF A "GIANT"



The mast of this 820 tonnes bucket wheel reclaimer failed catastrophically during reclaiming operations resulting in a fatality.

MINESAFE IS PUBLISHED BY

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AUSTRALIAN STANDARDS

Enabling legislation builds flexibility into a legislative framework so that it can accommodate a constantly changing industry and its technology. Accepted industry standards and codes of practice provide help in meeting the requirements of the legislation and are a part of the structure.

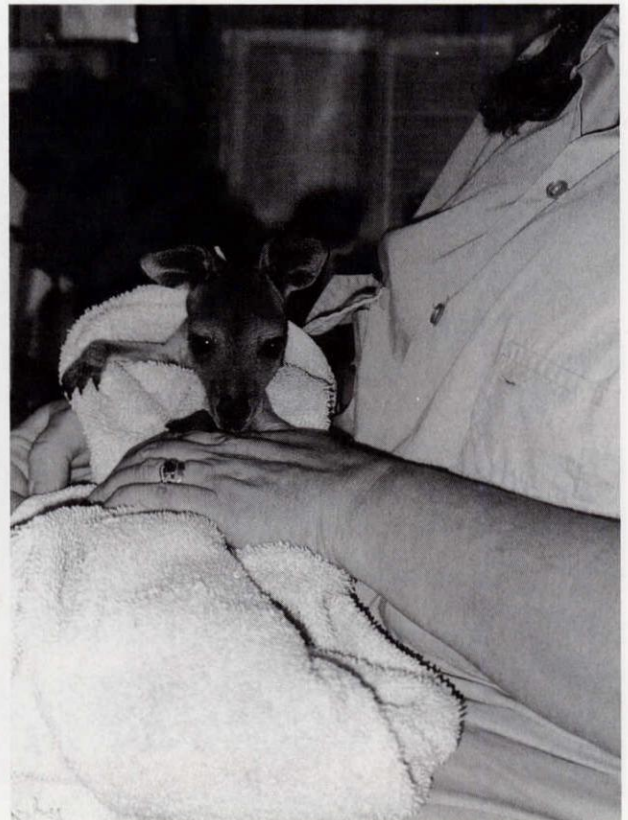
The Mines Safety and Inspection Act and Regulations refer to a number of

Australian Standards, as well as various Codes and other Acts. **Compliance with these Standards is mandatory and current copies of the Standards should be maintained and available on site.**

Copies of Australian Standards can be obtained from Standards Australia, 1274 Hay Street, West Perth, Tel: (09) 481 0574 Fax: (09) 321 2929.



Tuckabianna Gold Mine"the seat of power."



*"Good food, Warm bed, No competition, A chance to get in on the action ... What else could you ask for!"
Lawlers Gold Mine Wildlife rescuers at work.*

EDITORIAL

In June 1996 the State Mining Engineer wrote to all Registered Managers advising that hours of work, rosters and the systems of work used by contractors on a minesite are the responsibility of the Principal Employer.

Some reactions to that notice indicate there is a lack of understanding of the meaning and implications of Duty of Care legislation. A common reaction from the workforce is that the Inspectorate should not have removed the restriction on hours of work.

The legislation in fact, did not remove the restriction on the hours of work in any sense other than a literal one. The General Duty of Care places far more compelling obligations on the employer to manage the hours of work than the prescriptive 13 day fortnight ever could. The main difference is that neither the Inspectorate nor the legislation is managing the issue, but the principal employers themselves, using common knowledge available both in and out of the mining industry.

To be able to manage the issue, employers need to know more about the impact of shiftwork and compressed work schedules, the make-up of the workforce and whether employees know enough about the impact of their work

schedules to be able to self-manage their lifestyles. Employees also have a duty of care, and self-management is part of that once employees are given the tools to achieve this, such as education, training, consultation and communication. To impose a set of workplace rules without doing the necessary work is self defeating because once the rules are written, management will have to demonstrate they are being followed and be able to justify them under their obligations as employers.

Another misconception about the legislation is that the new Act and Regulations are an "update". However there was nothing to update as the Mines Regulation Act ceased to exist on the day the new Act was proclaimed. On the day the MRA ceased to exist, so did the mind set that governed its application in the workplace.

The need to do things differently and think differently has been a common theme of MINESAFE editorials for over two years. Obligations under the new legislation are complex, and coming to terms with the complexity of the legislation is only made possible by letting go of traditional frameworks, and redefining the workplace, the relationship between employer and employee, and the relationship between the workplace and the Inspectorate.



Catherine Stedman
Editor

MINESAFE MEETS TARGET AUDIENCE

The MINESAFE Editorial Committee would like to thank those who responded to a survey conducted late last year about how useful and how readable they found the publication.

From a sample of 1000 customers 130 responded. They felt that MINESAFE met target audience needs by supplying readers with a substantial magazine style publication covering aspects of safety in and around mine sites.

In addition, consultants reviewing a range of departmental publications also found MINESAFE was outstanding.

RESULTS

Usefulness:	Very useful	50%
	Useful	48%
	No response	1%
Readability:	Very easy to read	72%
	Readable	27%
	Difficult to read	0%

WE WELCOME DELEGATES OF
THE 3RD MINESAFE
INTERNATIONAL CONFERENCE
TO PERTH - THE MINING HEART
OF AUSTRALIA. BEST WISHES
FOR A PRODUCTIVE AND
SUCCESSFUL CONFERENCE.

THE MOURA DISASTER

HAVE WE LEARNED THE LESSONS?

Over one hundred and fifty people responded to an invitation from IFAP to attend an Information Day on the 1994 Moura Colliery Disaster in which 11 miners lost their lives. Following a welcome and introduction by Ken Perry, Director General of the Department of Minerals and Energy WA, the Queensland Mining Warden, Frank Windridge, BHP's Phil Clarke and the State Mining Engineer, Jim Torlach all spoke to an audience who were there to not only listen, but also to learn.

The session, chaired by David Blyth of IFAP, was an opportunity for the mining industry to come to grips with the circumstances of a disaster that should never have happened. Phil Clarke from BHP used simple words to describe simple truths as he spoke of systems that failed, people that failed, and the 11 men entombed in the mine.

Frank Windridge spoke about the lack of the "four Cs", Care, Competence, Communication and Commitment, as critical factors leading up to this tragedy.

Together they spoke of a new shift coming on, unaware that there were problems with gas in the mine. They spoke of a conversation that took place in the showers about a constantly tripping alarm that had been fixed, but the two men were actually talking about different alarms. They talked about a disconnected high level gas alarm and the maintenance that had just been completed. The audible alarm had been by-passed (during calibration) because of the high noise level, and someone "forgot" to reconnect the alarm. They talked about the volumes of information on ventilation systems that sat on someone's desk.

They talked about Certificates of Competency that were good for life — no reassessment or no re-examination. They talked about management

decisions based on previous histories instead of close examination of the here and now.

They talked about the lack of emergency evacuation systems, and the ten men who got out, in what was essentially ten acts of heroism. In the end they talked about the tripartite but hard decision not to send in Rescue Teams which would have put more lives at an unacceptable risk. The validity of that decision was borne out 36 hours later by a second explosion that was bigger than the first.

Does twenty years of experience really mean that, or does it mean 1 year of experience repeated twenty times?

That question foreshadowed the theme of the WA State Mining Engineer, Jim Torlach's talk to the seminar, which focused on systems that failed and approaches that could only be described as abysmal. He said that in WA we are not learning. The same accidents are happening over and over again; only the names and places change. He commented on the societal view that saw 11 deaths at once as a disaster, but one death repeated 11 times did not generate the same level of concern.



David Blyth - Executive Director (IFAP) Welcomes delegates to the Moura Colliery Disaster Information Seminar.



Coffee Break ... L-R: D. Iehitman, P. Johnston, M. Zolezzi, P. McIntyre and S. French (WMC)

Here in WA, the Moura disaster does have one lesson that, above all of the others, should not be ignored. Put simply, safety systems are a tool, and it is the human input that makes them either work or fail. There is no point in gathering information, if you don't do something with it. Right across the State, both national and international safety systems are in place, and there are a whole lot of people believing that the system is managing safety for them. Moura proved that belief is the first step to disaster. Prior to the disaster the mine had received its quality assurance certification.

Will we learn the lessons from this tragedy and act upon them, or allow our individual memories to be dimmed and the corporate memories lost through transition and turnover of staff?

NOTE: The Moura report provides a thorough analysis not only of the disaster, but of the events and circumstances leading up to it. The recommendations are comprehensive.

Copies of the Moura Report are available from IFAP on disk. Please telephone (09) 310 3760 for information.

CONFINED SPACE PROCEDURES

Regulation 4.2 of the Mines Safety and Inspection Regulations requires the manager of, and each employer at, a mine to ensure that the requirements of sections 10, 11.8, 12.1-4, 12.10-11, 13.1-3, 13.9, 13.14-16, 14.1-2 and 14.7 of AS 2865 are complied with in relation to work carried out in a confined space at the mine.

These sections of AS 2865 cover risk assessment, control measures, safety of the atmosphere, risk control, education and training.

Site audits have shown there is a wide difference in the quality and application of confined space procedures. Consequently, the Ventilation Officer's Training Course now includes a session on confined space procedures.

Entry Permits

Each site requires a confined space entry permit before work is carried out. The format of confined space entry permits varies, but they all contain essential elements such as site details, description of work to be done, likely hazards, atmospheric testing, rescue arrangements, protective equipment and authorisations.

Initial Survey

An initial site survey should be undertaken which identifies all potential confined spaces. This includes tanks, process vessels, hoppers, kilns, boilers, pipes, chimneys, sumps, pits and abandoned tunnels or shafts. These areas should then be clearly signposted as confined spaces.

Hazard Identification

Potential hazards need to be identified and appropriate control measures prepared. Examples of atmospheric hazards are oxygen deficiency or enrichment; flammable gases, vapours and dusts; and toxic gases and vapours. Consideration must be given to potential hazards from tasks undertaken in the confined space, for example hot work and welding fumes. Regard must also be given to noise, temperature and radiation, plus mechanical and electrical hazards. Potential hazard information is essential when planning aspects of the confined space entry permit such as isolation procedures.

Training

All personnel involved in confined space work must be adequately trained, including employees entering the confined space, supervisors, standby personnel and emergency rescue personnel. Particular attention must be paid to any contractors involved with confined space work, to ensure their training and work procedures are satisfactory. Training drills will not only hone skills, but also help identify any deficiencies in the confined space entry procedures.

Pre-entry Checks

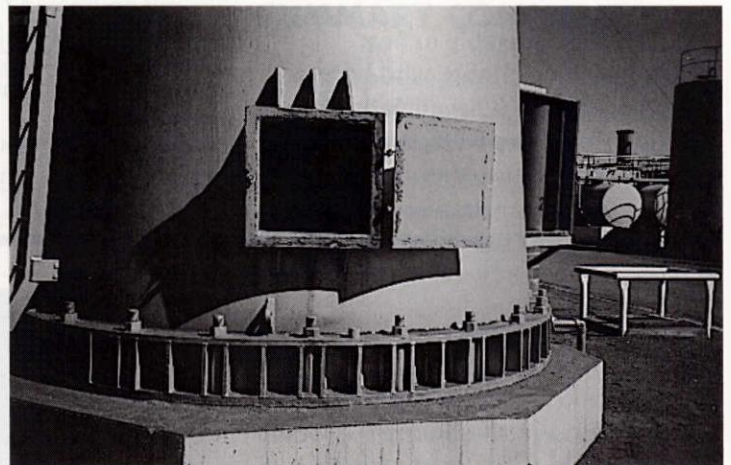
An important part of any pre-entry check is to ensure all equipment is available and functioning. Gas and vapour

monitoring instruments must be in calibration with all sensors working. If there is a chance conditions may change, then battery life must be sufficient to operate the monitors for the duration of the confined space work.

Protective and rescue equipment must be on hand, and the means available to provide ventilation if required.

End of Work Procedures

When the confined space work is complete, a check should be made to ensure all people and equipment are accounted for. The confined space should be made secure and isolation procedures removed. The permit should only be completed if all items are satisfied.



Clearly signpost confined spaces.



Potential hazard - cover not secured (or removed), and inadequate means of access.

BEAT THE HEAT

In normal circumstances the body has a natural mechanism that protects it from overheating. Heat is transferred from the internal organs and muscles to the skin; the sweat glands produce sweat and the sweat evaporates, cooling the body. Heat stress can occur when the body is unable to regulate its temperature.

Vigorous activity in a hot environment can cause the body temperature to rise significantly leading to heat strain and illness with typical symptoms of weakness, dizziness and nausea. Further rises in body temperature may lead to heat exhaustion or heat stroke.

People most vulnerable to heat problems include; those who have just started on the job (unacclimatised), older people, those with certain medical conditions requiring

medications, and those who are overweight or physically unfit.

The main way to beat the heat is to drink plenty of water. People working hard in hot environments can lose up to one litre of sweat each hour; such workers should drink a glass or two of cool water every quarter of an hour, even when not thirsty.

Keeping fit and acclimatised helps to maximise the cooling process and reduces salt concentration in the sweat.

Wearing the correct apparel is important, for example, face shields near heat sources, protective suits, wide brimmed hats, and clothing that 'breathes'. Heavy clothing can exacerbate overheating.

Alcohol is a major contributor to early dehydration, causing the kidneys to

lose water. Avoid excessive alcohol intake. The colour of urine is a good indicator of dehydration, the more yellow the urine the more dehydration. An easily implemented urine test (the fantus test) has been developed to assess the degree of early dehydration.

The message is clear! Keep well hydrated by drinking half a litre of water every half an hour, keep physically fit, and minimise the intake of alcohol.

Copies of "Guidelines for the Management and Prevention of Heat Stress" are available from the Mining Operations Division.

For further information contact Dr Brian Galton-Fenzi.
Tel: (09) 222 3650

SAFETY STARTS AT THE FRONT GATE

Good safety culture can also be environmentally pleasing. Readymix (Postan's Road Operations) the operator of a new limestone mine has set the scene for high safety standards.



MINING INSPECTORATE SAFETY AUDITS

BACKGROUND

The Mining Operations Division is moving towards an auditing approach in carrying out one of the major functions of its mining inspectorate, which is to assess the standard of compliance of mining operations with the obligations contained in the Act and Regulations.

The extent of the duty of care obligations under the Act, which are supported by regulations extensive in their scope but not limiting in their requirements, creates a need for a more comprehensive approach in evaluation of compliance performance and standards.

The approach that the Inspectorate has taken is to conduct a broad based management safety systems audit, examining ten elements.

These broad audits will be supported by a series of more detailed sub-audits which will examine identified high hazard elements of the mining process.

In simple terms, the management systems audit will be a broad "horizontal" scan across the whole enterprise, while the sub-audits will be a "vertical" detailed examination of a band of operating practices such as explosives storage and handling and blasting practices.

A few of the more commonly asked questions are answered briefly here.

Why are the Audits being carried out?

Auditing is considered to provide a more systematic approach to reviewing safety performance and compliance, than periodic walk-through inspections of the traditional type, particularly in the larger more complex operations which are typical of mining in Western Australia today.

Which operations will be audited?

Initially only a limited number of operations will have a management systems audit.

As there are a considerable number of identified high hazard potential components in most operations, there will be proportionately more of this type of audit.

As the systems are still being developed and trialled, the focus will generally be on larger enterprises, which afford scope for testing the process.

The inspectorates will determine the audit program. It will not be possible to vary the program to do audits "by request".

For the 1996/97 year 24 Management Safety Systems audits are planned, and 56 sub-audits of specific high impact functions.

What is involved in auditing?

An audit requires considerable preparation and normally requires a team of two or three persons from the inspectorate. Some notice is required to the mining operation to ensure that persons and facilities will be available to the audit team.

Audit systems and methods have been devised, and these will be modified and improved on the basis of experience.

In evaluating performance against each element of the audits the assessment will not be on a 1 to 10 points system or similar scale.

The audit will determine if an element or function:

- exists or does not exist;
- is adequate, or less than adequate or is up to standard, or sub-standard.

When each audit is completed and assessed, a report will be provided to

the operation. These will be of value to managers, supervisors, and safety and health representatives and committees.

When will the audits be carried out?

Auditing will be carried out progressively through the year, on a trial and development basis as stated earlier. It will take several years to implement the system fully.

Most audits will require several days of work for a team at an operation, and further time to analyse and report.

SUMMARY COMMENT

From the above it will be appreciated that the audit approach will be adopted progressively over the next three years or so. Moreover the system is not expected to be static; it will be evolved and developed on the basis of experience.

Introduction of the audit approach does not mean that specific issue inspections and walk-through inspections will cease. These and other necessary inspection functions will be carried out as required.

The smaller and very small and simple operations which do not have the scope to warrant auditing will still require attention.

Larger operations with well established safety management systems of a high standard may require auditing at intervals of only two or three years.

The Division is also giving consideration to the use of industry or industry sector wide attitude surveys to supplement the use of audits.

As the system evolves, reports on its progress will be given in future issues of MINESAFE.

Further information on the audit approach may be obtained from your regional mining inspectorate.

SAFETY CULTURE - PART TWO

In the March issue of MINESAFE, Safety Culture - Part One defined safety culture. In this issue we will describe a reliable method for measuring the effectiveness of OH&S programs by assessing the culture of an organisation.

Traditionally, safety performance has been measured by recording and evaluating Lost Time Injuries (LTIs) in the workplace. Although they may be valid indicators on an industry basis, it is generally considered that lost time injury frequency rates are limited as measures of safety performance for the following reasons:

- they are far more sensitive to claims and injury management processes than to real changes in safety performance;
- variations from year to year will be statistically insignificant, that is, likely to be the result of chance fluctuations, and thus no guide to changing levels of safety;
- they tell us nothing about how well the most serious safety hazards are being managed.

As the diagram below indicates, LTIs are only the tip of the "iceberg" and represent a negative measure of performance. To reduce the number of LTIs, it is necessary to attack the base of the "iceberg" by making a positive

change in the pervading safety culture of an organisation. Take a slice off the top of the "iceberg" and it will only resurface.

To effectively evaluate the safety culture, it is necessary to determine the beliefs, norms, attitudes and ultimately behaviour of employees. A proven technique for measuring these cultural dimensions is the **perception survey**. Evidence suggests that surveying perceptions of employees can effectively assess OH&S management systems.

For the perception survey and the assessment of the management system, the most valid opinions are the opinions of employees, not managers. Statistical analysis of manager's perception survey scores show no correlation with performance. When Dow first developed their management system assessment, it was scored by managers, and it was not effective. When the survey was put into the hands of employees, the resulting evaluations began to assist in the improvement of safety performance. Carder (1995).

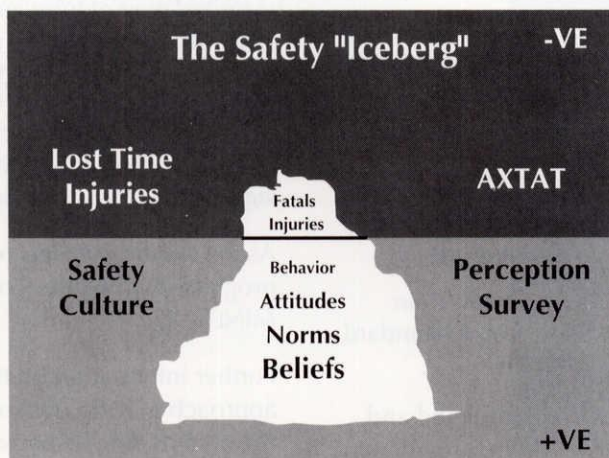
Furthermore, leading researchers suggest that:

- the effectiveness of safety efforts cannot be measured by traditional criteria;
- the effectiveness of safety efforts can be measured with surveys of employee perceptions;
- a perception survey can effectively identify the strengths and weaknesses of elements of a safety system;
- a perception survey can effectively identify major discrepancies in perception of program elements between employees and management;
- a perception survey can effectively identify improvements in and deterioration of safety system elements if administered periodically.

..... Bailey and Petersen (1989)

Perception surveys can effectively reveal the "safety culture" of an organisation. These surveys are composed of a series of questions which are grouped into four main factors, for example:

- Leadership - management's demonstrated commitment to safety, such as recognition, promptly correcting hazards that employees identify, and supervisors who "pay attention" to safety;
- Education and Knowledge - covers job safety training, and knowledge of procedures and workplace hazards;
- Quality of the Safety Supervisory Process - relates to the way management ensures that work is carried out safely, covers enforcement of regulations and procedures, and communication of standards.



A MANAGEMENT TOOL FOR SUPERVISORS

TASK ASSESSMENT CHECKLIST

- Employee Involvement and Commitment - measures such aspects as employee participation in inspections and co-worker support for the safety program.

..... Carder (1995)

Perception surveys provide companies with an overall look at their safety program and help to evaluate the employee's understanding of the effectiveness of the program.

Perception surveys are not substitutes for well structured audits:

Attitude measures are not a substitute for well carried out audits of the objective characteristics of technological and management systems. They are however a complimentary tool which companies can no longer afford to ignore. Donald (1994).

With the advent of increased employee consultation and participation in the management of OH&S, perception surveys may play an important role in the performance measurement of OH&S.

For further information contact
Mark Brown
Tel: (09) 222 3093

References

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Carder, B., (1995). *How to Develop Leverage for Safety Improvement*, pp 1-9, Burke and Carder Associates.

Donald, I. (1994). Measuring Psychological Factors in Safety. *The Safety and Health Practitioner*, March, 1994, pp.26-29.

THE TASK _____	YES	NO
• Do you know the purpose of the task?	<input type="checkbox"/>	<input type="checkbox"/>
• Do you know the expected outcome of the task?	<input type="checkbox"/>	<input type="checkbox"/>
• Has the task been defined?	<input type="checkbox"/>	<input type="checkbox"/>
• Have the elements of the task been identified?	<input type="checkbox"/>	<input type="checkbox"/>
• Do you know conditions under which the task will be performed?	<input type="checkbox"/>	<input type="checkbox"/>
• Do you know the standards for performance?	<input type="checkbox"/>	<input type="checkbox"/>
• Do you know if desired behaviours from the performer have been assessed against the standards?	<input type="checkbox"/>	<input type="checkbox"/>
• Has a performance measuring system been developed?	<input type="checkbox"/>	<input type="checkbox"/>
• Is the measuring system being used?	<input type="checkbox"/>	<input type="checkbox"/>
• Do you know to what Standard the task must be done?	<input type="checkbox"/>	<input type="checkbox"/>
• Has the performer been trained to do the task?	<input type="checkbox"/>	<input type="checkbox"/>
• Has the performer's competency to do the task been assessed against the performance requirements?	<input type="checkbox"/>	<input type="checkbox"/>
• Is there a gap between the requirements of the task and the competency of the performer?	<input type="checkbox"/>	<input type="checkbox"/>
• Could the performer ever do the task?	<input type="checkbox"/>	<input type="checkbox"/>
• If yes, does the performer need retraining or just practice?	<input type="checkbox"/>	<input type="checkbox"/>
• Have you got an evaluation plan?	<input type="checkbox"/>	<input type="checkbox"/>
• Have you got a monitoring plan?	<input type="checkbox"/>	<input type="checkbox"/>
• Is there anything else you need to know? (provide details below)		
.....		
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THE ROLE OF THE SURVEYOR IN MINING SAFETY

BACKGROUND

The critical role played by the surveyor in mines is often overlooked, or at least not accorded the recognition which it warrants. This is reflected in the general community, where the surveyor's role in every aspect of the enterprises comprising the infrastructure of civilisation is little recognised or is taken for granted. This wider community role includes opening up new country with road and rail, laying out towns and the associated networks of power, water and sewage systems, and erecting high rise buildings and major industry infrastructure.

The authorised mine surveyor is a position certificated under the Mines Safety and Inspection Act Regulations, and for good reason.

The accurate laying out of mining excavations, and the maintenance of the necessary plans is critical to the safe and efficient operation of every mine.

In particular cases, inaccuracy, or deficiency, or even simply a lack of adequacy in survey functions can lead to disaster.

UNDERGROUND

Accuracy is essential as it impacts on interconnection of development openings and stope voids, as well as an extensive range of other issues. Such issues include the risks of proximity to existing stope voids, old mine workings, unstable ground, and areas with the potential for inrush of mud, tailings or accumulations of water.

Identification and plotting of exploration drill holes from the surface or from higher horizons in the mine is

essential. Drill holes, (if not plugged or sealed), may be intersected by non-entry open stopes and so drain extensive ground water systems into the mine.

The accurate relation of development headings and stope openings may be critical in terms of geomechanics considerations. Errors may lead to high abutment stresses which can lead to rockfalls or rockbursts.

Plans are required not only for immediate development and production use, but for ventilation control and for emergency preparedness and mine rescue purposes.

In mines with rail haulages accuracy on gradients and closures is essential, and normally floor drainage requires consistent gradients to central or interconnected systems.

The introduction of trackless mining has allowed for some greater scope for error in development closures. Closures and gradients are less critical than for mines with rail haulages but errors may still be costly, and create hazards due to oversized openings and poor geometry.

Accurate location and plotting of services such as electrical cabling and diesel fuel lines in boreholes is also essential, to avoid intersection of these by adjacent drilling or development.

A function of absolute importance is the provision of accurate final plans at mine abandonment. History has shown that many mines are later re-entered, or open cut mines are taken down through them.

SURFACE

Although surface requirements are less challenging than those for underground, there are still critical functions.

Most open cut gold mines in WA have to deal with mining down through old workings, which have the potential for disastrous consequences if intersected without planning, preparation, and remedial action.

Maintenance of designed pit wall and pit slope gradients, and slope stability monitoring are critical functions.

SUMMARY

From the above very brief summary of a few of the issues in mines relating to surveying, it is evident that the role is a critical one which requires a thorough knowledge of the mining process.

It is for this reason that the requirements for certification as an authorised surveyor include both experience and some formal technical mining training, as well as professional qualifications in surveying.

It is essential that mine management ensure that qualified persons are appointed to carry out the statutory obligations, and that the surveyor is afforded all necessary equipment, facilities and resources to maintain safe and efficient performance of these essential functions.

REMEMBER: The final responsibility rests in the first place with the registered manager, and through him ultimately the employer.

PEOPLE AND PLACES



Beryl Ingleton - Chamber of Minerals and Energy, Mark Brown (left) and Ken Fowle - Department of Minerals and Energy. Planning, planning and more planning - Minesafe International 96'.



Playing Tourist - Ric Brittain and Donna Rathbone, Leighton - Plutonic.



Lighter moments on the learning curve - Hill 50.

Ken Perry (left) Director General, and Jim Torlach, State Mining Engineer (Department of Minerals and Energy) enjoy a break at the IFAP Moura Seminar (see page 4.)



Group thinking at work - Job Safety Analysis in action - Hill 50.



Granny Smith - here we come - right back where we started from - Perth Flight Centre 6 a.m.

MANAGING CHANGE

THE PROCESS MATTERS

This article on change management is an edited extract from a conference paper, **HELP ME MAKE IT THROUGH THE SHIFT (PART ii)** written by, Catherine Stedman. Copies of the paper are available on request.

Copious amounts of material have been written about re-engineering the workplace, which for workers often means that management wants to change things. Whether it is because we are basically lazy, unwilling to let go of the familiar, or just object on principle, many of us don't take kindly to change. When that change is sudden, and there has been little or no consultation, reactions can be strongly negative.

A characteristic of the Western Australian mining industry is the growing number of long distance commute operations that usually operate on a two shift system. Most use compressed work schedules, and many operations engage contractors for the mining process.

On these operations it is not unusual for contractors' employees to be on a 6/1 or longer roster, and that combined with 11-12 hour shifts is proving a cause for concern. That concern will mean companies taking a closer look at roster systems, and in many cases making changes. The success or failure of any planned change will be influenced by how well or badly employers handle the change process.

Adults will have an attitude towards change based on their knowledge and experience, and whether the change is seen as contrary to their own self interest. Usually, when shiftworkers are considering rosters, a prime consideration is the amount of time they will have to carry out "normal" activity. The choices they make relate more to lifestyle, rather than human factor considerations related to shiftwork, so the education process on the impact of shiftwork is a necessary part of the consultation process.

A prime motivator for adults is "what's in it for me?" and many a good idea has gone by the board, or been mutated beyond recognition, simply because no

one took the time to either explain the coming change, or lead people through it. A good reason for this is because often the people charged with implementing the change have no idea on how to implement change without causing upheaval. The supervisor for instance, who is introducing a new shift roster may already have an opinion that nothing will change "old Joe", and trots out adages like "you can't teach an old dog new tricks", and is likely to approach "old Joe" with a bottom line attitude of "shape up or ship out". At this stage "Joe" doesn't need threats. What he needs is someone to explain to him why and what the change is about, and most importantly, a few clues on just exactly how he should behave. He also needs to be able to ask questions, and think about it, and have some confidence that his opinions will be respected. There is also the possibility that others, like Joe's family, whose lives are arranged around the roster he already works, will also need to make changes in their lifestyle.

Without either support or consultation about change, "Old Joe" will usually react by denying any need for change, and then fiercely resist, not only on his behalf but on behalf of his family or others affected by the change. So too, will "young Joe" and "Josephine" for that matter. Information, explanation, lead in time, and support during the change will usually produce a much more positive reaction. It will also ensure that simple change is kept simple, and that it does not become a complex battleground which can often result in a compromise that suits nobody.

Shiftworkers need information so that they know (i) what to expect, (ii) why the change is necessary, (iii) advice on how to adjust, as well as support while they are adjusting. It is critical for management to recognise that people go through change at different times and at different rates, so it is unrealistic to expect that everybody in the workplace is going to make a left hand turn when the bell rings at 10 am two Tuesdays from today. Handled well, most employees will make the change, but not until they can match their feelings and actions. Those who cannot

get the match will probably leave. It is equally important for employers to recognise that any resistance from the shiftworkers point of view is valid, so they need to not only listen to those concerns, and respond by being supportive, but also resist the temptation to try to either talk shiftworkers out of their very real feelings, or to play the heavy handed manager who indicates that if you don't like it, "go and get a day job". It is normal for people to complain. Complaining, and "mourning" for what is being lost, is all part of the process, and while protest is often not expressed in the terms desired by management, it should be seen for what it is.

Both employer and employee need to examine the rationale behind the traditional organisation of work at an individual workplace. More often than not, a current roster will have a traditional base i.e. it has never been done any differently, and the reasons for that often have more to do with production schedules, costs, and convenience to the operation, not the costs and convenience of the shiftworker. Usually when you ask the question, "why do you have this particular roster?" no one is able to tell you. The reasons belong to the past, and on examination, the past may be a good place to consign the roster. Clever roster design is vital on fly in/fly out mines where people are there to work long hours on a compressed work schedule. Roster design also has to recognise that the workforce is not at all interested in spending time twiddling their thumbs in the camp. Many would also like to work on the compulsory day off, and anecdotal evidence suggests that when the hours are cut, the turnover accelerates. With Duty of Care legislation an overriding principal of State legislation, the costs to the health and safety of shiftworkers regardless of whether the hours are consensual is something that management cannot ignore. The legislation will mean change for many, and adapting to change is a process that both employer and employee must go through together if the needs of the workplace, the employees and the requirements of legislation are to be managed well.

PLANNING FOR SUCCESS

THE BRANDRILL WAY

Long range planning for occupational safety and health programs at BRANDRILL put in place in 1993 is showing results. The strategies were developed by senior management personnel who continue to provide leadership and support safety initiatives in BRANDRILL'S operations throughout Australia.

As with all safety and health programs, a primary aim was to reduce the frequency and severity of accidents and incidents. At BRANDRILL there was a systematic introduction of policies and procedures that gave, and continue to give, clearly defined guidelines to all employees for safe methods of work, accident/incident reporting and recording procedures.

BRANDRILL recognised that if any improvement was to be sustainable in promoting and integrating safety systems, both managers and employees would require additional training so they could adapt and implement change independently in their own work environment.

External training was given to all personnel, in a range of subjects such as occupational health and safety, first aid, management skills and accident investigation. Internal programs were also developed and delivered by the company training officer. The internal programs cover: basic, intermediate and advanced drill operator training; shotfirer's assistant competency testing; and inspection requirements and techniques.

In 1993 the Company also recognised that they would need a safety practitioner, preferably with a drill and blast background, who would not only co-ordinate the programs but also work independently of other departments. The job would be a senior management position so immediate change could be facilitated if required. Most importantly, along with the position would go the authority that gives credence to both advice and direction.

Another step in the plan was the development and integration of a safety standards program. This program would operate through the company once the workforce had been adequately trained and individual skill levels brought to a standard where the system could operate effectively.

The BRANDRILL Safety Standards System was introduced to all the company's business units in a series of training seminars held throughout Australia in July and August of this year.

Occupational Safety and Health Manager, Nigel Rogers, commented that the company is proud of its achievements in the last four years, but success takes both time and commitment.

The BRANDRILL commitment involves:

- Incorporating safe systems of work;
- Providing employees with a practical/functional OS&H system;
- Continually developing, reviewing and implementing OS&H standards, policies and procedures; and
- Involving the workforce in policy, procedure and safety standard development.

These initiatives help both managers and employees to ensure that each individual workplace continues to have a safe work environment.

One measure of the program's success to date has been a saving of more than \$500,000 in worker's compensation insurance over three years, 40% below the gazetted industry rate.



Care, Communication and Comfort! BRANDRILL employees go back to the classroom.

SHIFT EVALUATION QUESTIONNAIRE

This proforma questionnaire is provided as a service that may help minesites gather information from their employees on the shifts being worked. The draft may be freely adapted to suit the needs of the users.

NAME: _____ DATE: _____

JOB TITLE: _____ AGE: _____ Male Female

SHIFT: DAY NIGHT TIME: _____ PANEL: A B C D E

GENERAL QUESTIONS

- How long have you worked on this shift cycle? _____
- How long have you worked on this shift? _____
- Have you ever worked on other shift cycles? yes no
- Of the shift cycles you have worked, which do you prefer? _____
- Of the shift cycles you have worked, which do you like least? _____
- Do you prefer? rotating shifts or staying on one shift
- Which shift change do you find the most difficult?
 day to night day to afternoon night to day
 night to afternoon afternoon to day afternoon to night

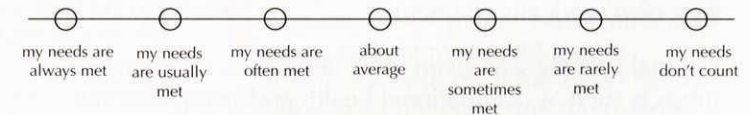
CURRENT SHIFT

- Do you ever feel tired on this shift? yes no sometimes
- Do you ever feel sleepy on this shift? yes no sometimes
- Mark the scale with an X at the point that best describes how often you feel sleepy on this shift. Place the X between the points if you feel that is where it should be.
 never a few times a year a few times a month once a week several times a week every day several times a day
- Have you ever fallen asleep on this shift? yes no
- If you have ever fallen asleep on this shift, how often?
 never a few times a year a few times a month once a week several times a week every day several times a day
- How do you feel right now?
 I'm about to fall asleep I'm extremely sleepy I'm very sleepy I'm somewhat sleepy Just a bit sleepy Not sleepy but not wide awake I'm wide awake and alert
- Thinking about your ability to perform on this shift, including your sleeping, eating and socialising patterns, how easy do you find it to adjust to working on this shift?
 no adjustment needed very easy quite easy neither easy nor difficult fairly difficult very difficult impossible

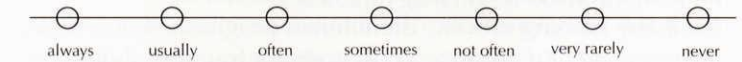
- Which factors in your life have a big influence on your ability to adjust to this shift? (✓ all that apply)

- sleeping eating social life partner's routine
 children sports commuting to work
 camp (noise, temperature, etc) hours of work
 recreational activities shift management & supervision
 other _____

- Do you feel that you are part of the company, and your needs are met by management?



- Are you included in company planning and social functions?



- Have you ever seen an accident or incident that you felt was mostly due to fatigue or sleepiness on this shift?

yes no

- Have you ever been involved in an accident/near miss that you feel was mostly due to fatigue or sleepiness on this shift?

yes no

- If you answered yes to either question 18 or 19, please give a brief description of the circumstances including time of day, day of roster etc.

- Have you any suggestions for improving the design of this shift?

Based on a guideline HUMAN FACTORS IN THE AIRCRAFT MAINTENANCE INDUSTRY 1995.

WHAT'S ON

AUSTRALIAN CENTRE FOR GEOMECHANICS



ROCK SLOPE DAMAGE CONTROL (BLASTING)

24-26 OCTOBER, 1996

GEO-ENGINEERING FOR PIT WALL STABILITY

30 OCTOBER - 2 NOVEMBER, 1996

TAILINGS DAM DISPOSAL AND DECOMMISSIONING

5-6 DECEMBER, 1996

Contact: Christine Neskudla

Tel: (09) 380 3300 Fax: (09) 380 1130

APOSHO 13

13TH ASIA PACIFIC OCCUPATIONAL SAFETY AND HEALTH ORGANISATIONS CONFERENCE

HONG KONG 21-22 APRIL, 1997

Tel: (852) 2739 9191 Fax: (852) 2739 9779

Email oshc@oshc.org.hk

NEW PUBLICATIONS

• GUIDELINES FOR MINING IN ARID ENVIRONMENTS

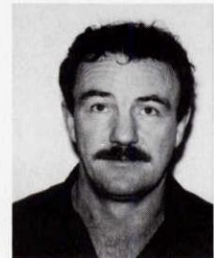
The following posters are available from the Mining Operations Division. TEL: (09) 222 3310

- **THE HEALTH AND SAFETY REPRESENTATIVE**
Sponsored by Roche Bros
- **UNSAFE WORK PRACTICES**
Sponsored by Roche Bros
- **MARCSTA POSTER**

- **DEMONSTRATED COMMITMENT
- MID YEAR SAFETY CALENDAR**

STAFF CHANGES

The Collie Inspectorate welcomes the return of **Rob Sherwood** as Special Inspector (Coal Mines) and newly elected Employee's Inspector, **Brian Sherwood**.



Brian Sherwood

INDUCTING EMPLOYEES THE MARCSTA WAY

Companies planning a MARCSTA induction for their employees should consider the following:

- The induction is generic and takes a full day to complete. Employees may complete the induction in one day, two half days or over a few days if it is delivered on site.
- The induction takes eight hours to cover all the generic information that employees require before they begin work. It was developed to assist companies meet Duty of Care requirements.
- Site specific inductions are still required.
- The induction module is an accredited course and inductees will be issued with a certificate valid for two years.
- All official MARCSTA providers are licenced by MARCSTA, **and only licenced providers may deliver the module.**

- Providers need to meet strict criteria before getting the licence.
- It is the individual who holds the licence and must deliver the module not the organisation.
- Both the employer and the inductees are entitled to verify that the deliverer is licenced.
- A list of licenced providers may be obtained from the Secretary of MARCSTA Bob Halse Tel: (09) 316 1255

A supplementary list of providers to those names published in the June issue of MINESAFE is provided here.

CONGRATULATIONS TO:

Ray Hargreaves (Jundee Gold Mine)
Murray Joyce (Private)
Ray Kennedy (Alcoa)
Des Shaw (Eltin)

INCIDENT ALERT

THE INCIDENT

A dump truck was being driven down a pit haul road when the engine bay burst into flames. The driver attempted to extinguish the fire using the fire suppression system, however the system failed to activate and the cab and engine compartment were completely burnt out. Fortunately the driver was not seriously injured.

CAUSES


1. The fire was caused by a fractured fuel line which allowed high pressure fuel to be sprayed onto the engine. The engine was not turned off which created a continuing supply of fuel supporting the fire until the engine cut out.
2. The fire suppression system failed even though both manual actuators had been activated and the fire suppression cylinder was full. A travel screw on the

discharge head of the cylinder was installed in the "transport" position instead of the "operate" position, rendering the entire system inoperable. This incident is not unique; there have been several such incidents in the past.

PREVENTATIVE ACTION

1. Maintenance programs for earth moving equipment should include a comprehensive check of the integrity of fuel lines, particularly those fuel lines located within the engine bay area.
2. **All maintenance servicing of fire suppression systems which have travel screws fitted, must include a check of the installation of the travel screw to ensure the screw is in the "operate" position.**




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