



FORMAL INQUIRY SAFETY IN UNDERGROUND GOLD MINES

The West Australian Public are aware that a formal inquiry has begun into safety in underground gold mines. Some misunderstanding on the purpose of the inquiry has arisen because of variable standards of precision in popular media reports. I hope this brief summary will clarify the issue.

It is a matter of record that the declining trend in safety performance in the underground gold mining sector in the past two to three years, (counter to a generally sustained improvement across the industry as a whole), was heavily underlined by a tragic spate of fatal accidents during 1989 and early 1990.

The urgent inquiry, commissioned by the Minister for Mines, Hon J.P. Carr, is based on investigations carried out by myself as State Mining Engineer, and the Assistant Director and Senior Inspector for the State Mr D Collie, using the statutory powers of Section 12 (1)(C) of the Mines Regulation Act.

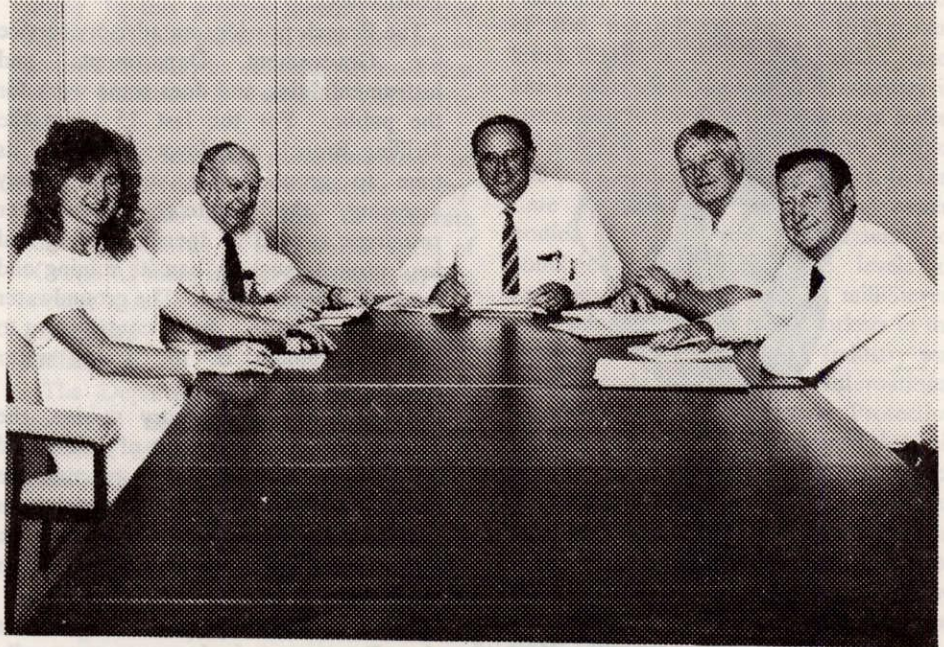
A consultative steering committee, formed by the Minister, has the task of establishing the format and methods of conduct of the inquiry and monitoring its progress by regular review meetings which will provide the opportunity to extend or vary the scope. The final task will be to produce a report to the Minister together with recommendations for an Action plan. The Minister will publish the report.

The committee consists of the State Mining Engineer as Chairman, the Secretary of the AWU Branch of Boulder, Mr V Nicoletto, Chamber of Mines representative, Mr J McDermott, and independent specialist in Occupational Health and Safety, Mr Cam Gilmour.

To date, the committee has met four times; the last meeting took place in Kalgoorlie on Friday, 23 March, 1990.

Stage one of the inquiry involved receiving submissions from interested parties either by written submissions, interviews, or by telephone.

The second stage, which commenced on Monday 12th March, involves extensive formal interviews with management, supervisors, contractors and mine workers and union representatives, from the operating mines, who are required to attend.



L-R: Karen Buxton, Secretary, Dept. of Mines ; Jack McDermott, Chamber of Mines & Energy ; Jim Torlach, Department of Mines ; Joe Isherwood, AWU ; Cam Gilmour, Independent Specialist,

This process is expected to take up to five weeks. Any further investigations the committee may find necessary, will follow. We intend to compile the report as soon as possible, and have set a target date of mid to late May, 1990.

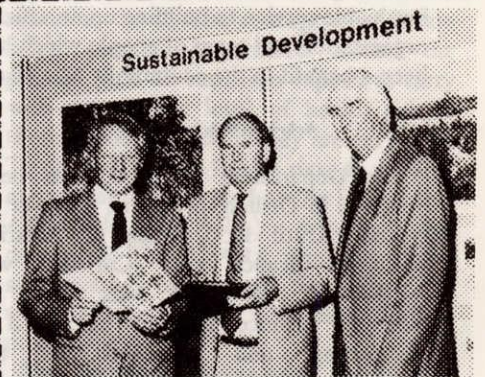
The purpose of the inquiry is to identify clearly all of the issues with a maximum of first hand contact at all levels; to remedy immediately those matters which can be acted upon directly; to report fully on the issues and problems, and to schedule a programme for short term and long term remedial action.

The support and involvement of the AWU and of the Chamber of Mines in this programme is much appreciated and will be of great value in ensuring an effective result.

The opportunity is still open for any person or group to make written or verbal submissions to Mr Collie or myself. Written submissions should be directed to Perth Office. Telephone calls to Perth office or Kalgoorlie office will be returned. Tel: 222 3280 or (090) 213 066.

It is intended that when this critical and urgent task is completed, that a further more wide ranging examination of safety throughout the industry generally will be undertaken by the Committee over a more extended time frame.

J M Torlach
State Mining Engineer



L-R: Mr J Linden, President of the Chamber of Mines & Energy
Hon J P Carr, Minister for Mines
Dr D R Kelly, Director General of Mines
A STAKE IN THE FUTURE

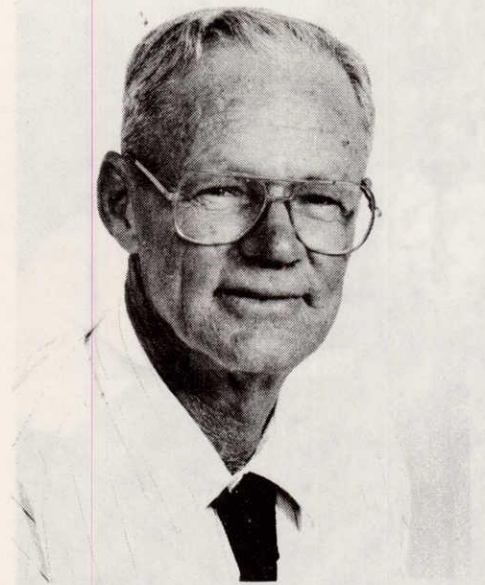
The video and booklet, "A Stake in the Future" was officially launched at the Department of Mines, in February 1990, by the Hon Minister for Mines, J P Carr.

The video concentrates on Environmental Rehabilitation, emphasising the importance of planning as an integral part of all mining operations.

It is a step by step analysis of Environmental Management starting at the inception of the mining operation and finishing, not when the last man leaves, but when the mined surface is stable, non-erodible and erodible returned to its natural state.

For further details please contact Keith Lindbeck - 222 3437.

DRILLING BRANCH



Don MacPherson, Assistant Director Drilling Branch, has spent some 20 years with the Department. His extensive knowledge and skills have contributed invaluable service to building up an efficient organisation and team of people which have been a benefit to the community as a whole.



The Department of Mines has been involved in Drilling programs for over 90 years. Until 1950, when the existing Drilling Branch at Carlisle was established, the work was done by contract. Since 1966 it has been a supporting unit attached to the Department and is now part of the Mining Engineering Division structure.

The Branch is headed by the Assistant Director Drilling, Don MacPherson, who is responsible for a close knit team of engineers, supervisors, tradesmen, technicians and drillers.

The primary function of the Branch, excluding oil and gas, is to perform exploratory drilling over all kinds of terrain across WA. The drilling section performs the field work and carries out side wall coring and casing perforation of bore holes using explosive tools run on a wireline. A borehole T.V. scanning service, unique to Australia, is also available. The service enables a TV camera to be lowered into a borehole to give drillers on the surface a clear picture of what is happening hundreds of metres underground.

This service is used by various government bodies, such as the Water Authority and State Energy Commission of WA and in some cases, by mining companies.

The Branch provides an advisory service for Government Departments and instrumentalities, and does some work for the public. For the last 15 years the Drilling Branch has devoted most of its time to ground-water studies, mainly assessing the State's groundwater resources as well as specific mining and land projects such as bauxite mining and land salinisation studies. The groundwater studies have made a major contribution to the management of the states water resources.

As well as the advisory service, the Branch provides supervision of drilling and bore construction ranging from complete contract administration to the supervision of selected operation of Contractors on Government works or under licences from the Government.

The Branch also operates and maintains the Departmental long range radio communication system. The Branch utilises the multi Department quiet receiving station (minimum of electrical interference) at York from which radio signals are transmitted by microwave through a repeater station at Canning Mills to C.A.L.M. in South Perth and then by land line to Branch Headquarters at Carlisle.

The Branch's latest technological innovation is the development of a one-way satellite communication which sends written instructions by facsimile to drilling crews in remote areas. The transmission utilizes the service of the Golden West Television Network.

This enables head office to solve problems and transmit detailed instructions and diagrams without the long

and costly delays that occurred previously. The system also enables the drilling crews to pick up television, a morale booster for people spending many months in remote areas.

The Drilling Branch works very closely with the Geological Survey Branch, and each initiate the demand and ideas for research.

Changes in technology, skills and techniques have improved efficiency. The Branch started off with sixteen drilling rigs and now requires only three.

The introduction of electronics has produced more productive and accurate results, within an existing cost structure - a major benefit to this self supporting Branch.

The mud logging, gas detection and geophysical logging units attached to the electronics section make it an important auxiliary to the drilling programmes. This new technology detects oil and gas zones prior to drilling in these areas, which prevents the natural reserves from "blowing out" by drilling into them inadvertently. This recent development saves time, money and precious resources.

Branch operations are serviced by an in-house workshop which, although based at Carlisle, also provides a service in the field. Apart from general repairs and maintenance jobs, the workshop also fabricates special equipment required for operation. For example drilling rigs which come from the United States need modifying, and to a lesser extent, so do rigs bought in Australia.

The electronic/wireline services are available to the public on a cost recovery basis.

For further information contact:

Drilling Branch
91 Brigs Street
CARLISLE WA 6101
Phone: 222 3240 or 222 3285
Fax: 362 5694



A Drilling Rig on the move!

SEE PAGE 6.

Radiation and Mining



The Radiation Team
Back Row L-R: Alan Sheppard, Martin Ralph,
Stuart Evans
Front Row L-R: Diane Lavercombe, Greg
Hewson

Ionizing radiation may be emitted from inside the structure of an atom as part of a natural process known as radioactive decay. In this process ionizing radiation known as alpha particles, beta particles, or gamma rays may be emitted. An atom that emits radiation is called a radioactive isotope.

Although ionizing radiation may be emitted naturally in radioactive decay, man has also been able to generate ionizing radiation in the familiar form of X-rays. As mine workers, we have all had a chest X-ray at some time, so we have all had some small exposure to ionizing radiation.

The Department of Mines views the potential health risks arising from exposure to ionizing radiation as much greater than those from exposure to non ionizing Radiation.

We use our detectors in the Mineral Sands Industry to investigate the sources and levels of alpha particles, beta particles and gamma-rays. These radiations are emitted from the thorium and uranium that occur naturally in the heavy minerals monazite and xenotime.

We mentioned earlier that some atoms undergo radioactive decay as a natural process. Those processes were occurring as the planet was forming. Since the day he set foot on Earth mankind has literally been 'swimming' in a 'sea' of radiation! This radiation arises from the rocks in the earth's crust; from radioactive gases in the air we breathe; from cosmic rays emitted from the sun and other stars; even to a naturally occurring radioactive isotope of potassium inside our bodies.

These levels of background radiation are generally quite low (being about 1 to 2 milliSievert per year), but they are by no means constant all over the world. There are areas where doses vary by as much as 200 times higher than this typical background level. People living in the Hills area around Perth receive approximately 3 times the typical background dose, because of the naturally occurring isotopes in the granite rocks of the Darling Scarp.

There is no escaping this radiation. An airline crew flying regularly from Perth to Sydney can expect to receive up to 5 times the typical background level (or about 5 milliSieverts per year), because the cosmic radiation is more intense at higher altitudes.

It is interesting to note that studies conducted upon the populations living in areas of high natural background levels have shown no increase in the incidence of adverse health effects.

A radiation worker (such as someone employed in the Mineral Sands Industry) is permitted to receive a maximum dose of 50 milliSieverts (or about 25 times the typical background level) per year. This level of dose is still considered to be relatively low - in fact it is lower than some of the naturally occurring background levels that exist around the world in places like Pocos de Calcos and Guarapari in Brazil and in the Kerala Province of India.

Radiation and its effects upon humans has been studied for over 70 years. In that time a number of international expert bodies have advised governments of countries about permissible levels of radiation exposure. The 50 milliSievert limit adopted for radiation workers in the Western Australian Mining Industry was recommended by the International Commission on Radiological Protection (ICRP). It should be recognised that this limit is a precautionary one, not one which represents a fine dividing line between safe and unsafe or dangerous exposures. It should also be highlighted that radiation dose limits are continually under review and may be modified in line with the latest scientific research.

Although the maximum permissible dose is low, it does not follow that radiation exposures should be allowed to reach the maximum level. The concept of radiation safety practice is centred around the premise that all radiation exposures carry with them some level of health risk to those exposed (even if they are very low). To ensure that the health risks to workers are minimised, the As Low As Reasonably Achievable (ALARA) principle was developed. The ALARA principle can be summarized by saying that doses to workers must be minimised, where practicable.

The Radiation Secretariat Section has developed numerous guidelines and initiated a number of key projects for use by the industry in order to ensure that doses to workers in the Mineral Sands Industry adhere to the ALARA principle.

As safety standards improve, radiation exposures decrease. The doses to minerals sands workers for example are expected to decrease significantly with the implementation of new engineering controls throughout the industry.

We realise that the field of radiation safety is by necessity a complex one, but we have tried to make this overview as simple as possible. If you have any special topics you wish to be addressed, feel free to contact any of the staff of the Radiation Secretariat. Tel: 222 3376

Radiation, Radiation ... Everywhere !!

RADIATION... What does this word mean to you ?

For most of us it conjures up images of atom bombs and mushroom clouds, death and destruction, but fortunately these horrific pictures represent extreme cases of the use (or misuse) of radiation.

As humans we have a justified fear of the unknown - we cannot see, hear, smell, taste or touch radiation - so we are wary. This need not be the case. The good thing about radiation is that it is easily detected by using fairly simple instruments such as the Geiger counter, so exposures can be readily controlled.

RADIATION is simply energy travelling through space.

Radiation is of two types - non Ionizing Radiation and Ionizing Radiation.

We are familiar with non ionizing radiation - most of us use it every day without ever knowing it. We use heat and microwaves to cook our food, we listen to radio waves, and we quite happily sunbathe in ultraviolet radiation. All of these activities involve the use of non ionizing Radiation.

Martin Ralph
Radiation Secretariat

ENVIRONMENTAL MANAGEMENT IN MINING

EDITORIAL

The mining business can be a hard taskmaster. Mistakes are costly in terms of injury and sometimes human lives - often there is no second chance. Because of the potential for death and serious injury, mining laws have existed in this state for nearly a century, and safety standards are not negotiable.

The Industry has no place for factional attitudes or work practices that put production before safety. A combination of factors cause accidents, and the Inspectorate, management and workforce must recognise their collective responsibility and work together to make mines safe.

The Inspectorate develops, administers and provides expertise on legislation. It offers informed guidance and advice, and when the law is broken - applies sanctions. In isolation, the Inspectorate cannot safeguard the well being of miners on every mine in WA, and therefore requires the co-operation and commitment of management and workforce to keep standards at the highest level.

Management has a duty to write and implement safety policies. It must provide the resources demanded by law and good practice and promote safe work systems through every level of the organization. Production planning and practice should include the concept of a "margin of safety". In brief there must be a margin of safety built into the operating performance plan at the design stage so that operators are not tempted to take risks to achieve production target.

The workforce role in accident prevention is critical. Not so long ago, a miner looked after his mate - a tradition as old as mining itself. It is a tradition that has survived with the experienced men but needs to be learned by the new starters so that miners develop personal safety standards and encourage others to do the same. Death and injury cannot be stopped by legislation or policy unless miners recognise that risks are not worth taking. The aim should be "don't give accidents an opportunity to happen". Apathy is the silent trap.

There are no magic formulas, no easy solutions - just hard work aimed at eradicating unsafe conditions and bad work practices to prevent injury and ultimately to save lives.

The Environment is important to the modern mining industry. The concern reflects the change in community attitudes which, not all that long ago, took mining and agriculture for granted. Government and Industry recognise they have a responsibility to respond to community concerns particularly the issues of mine rehabilitation and environmental planning, and over the past decade Industry has adapted remarkably to the pace of change.

Previously, some companies had a short sighted view on the issue of Environmental Management and saw it more as a nuisance. It was seen as an impractical and expensive "add-on", rather than as an integral part of the mine planning process.

It is the job of the MED Environmental Unit to promote integrated environmental management and to effect a balance between responsible development and environmental protection.

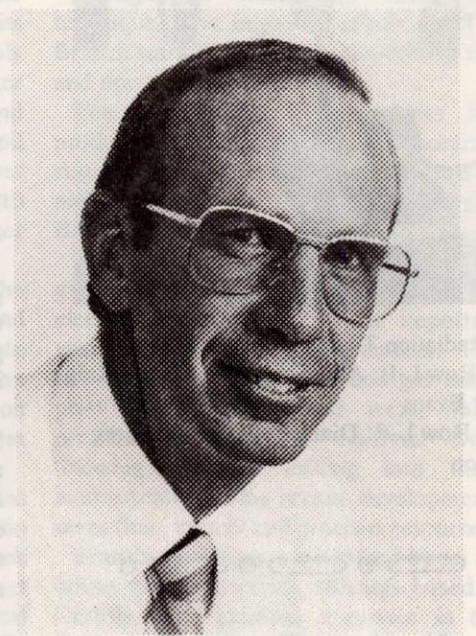
One of the methods used are Unconditional Performance Bonds which ensure that environmental impacts are reduced and legislative requirements are met. The Bonds are imposed on leases and final approval for mining operations is not granted until the Bond has been received and recorded. The Bond is now based on the area that will be disturbed during the first year of operations. This ensures compliance without freezing company funds needed for exploration or development. The levels of the Bonds are not fixed and can be reduced or increased in line with evidence of an organization's commitment to Environmental Management.

Proposed Amendments to the Mining Act will authorize appointment of Senior Environmental Inspectors who will have the power to act immediately against breaches of environmental conditions placed on any minesite. Their powers would include the ability to halt work if corrective work specified on default notices is not carried out. Environmental Officers will have the power to issue default notices to direct remedial activities.

Failure of the industry to encompass environmental management in mining operations plans will effectively reduce access to land through community perspectives of inappropriate environmental practices.

Because the unit does not work in isolation it is ideally placed to monitor the interaction of mining with the environment. It will continue to encourage and assist companies committed to sound Environmental

Management and take action against those who are not. There need be no argument over land use in a properly controlled atmosphere and the Environmental Unit will go a long way towards establishing a mutually beneficial relationship between mining and the environment.



Keith Lindbeck
Environment and Rehabilitation Manager



ENGAGING A CONTRACTOR

Registered Managers are responsible for all contractors on site. A few basic principles of mining law written into contracts will encourage safe practices by both parties and diminish the likelihood of serious breaches of the law

Does the contract stipulate that maintenance schedules are examined, and equipment is fitted with safety devices before the contract is signed? Is the competency of operators verified by examination? Are employees put through a mine induction programme, and do they know of their responsibilities and rights? (Particularly Section 49 of the Mines Regulation Act?) Without compromising the contractors right to hire and fire, is the client kept informed on the movement of contractors employees on and off the lease, and the reason for it? Are breaches of the Mines Regulation Act cited as a reason for terminating the contract?

The Inspectorate will be pleased to provide information and advise should you require clarification on any issue.

SAFETY BULLETIN.

INDUCTION TRAINING

Thorough induction programs are a cornerstone of safety training. A random survey of programs operating in this state shows there is a need for a uniform minimum standard as programs range from excellent to extremely poor. Many sites emphasize site familiarization at the expense of safety induction - a common weakness that highlights the belief that safety training need only be incorporated as part of on the job training. Many sites do not include written and oral assessment as part of the induction process.

Without assessment, it is impossible to judge the new employee's understanding of issues or to identify individual capabilities and weaknesses. Experienced miners on a new site may have bad work practices that will be perpetuated at the new mine unless they too are thoroughly assessed. Accident and injuries will continue unless there is a fundamental change in attitude.

Many organizations have excellent programs which work on the premise that all new employees are novices. The system produces safety conscious employees with high standards.

Technological change is now so rapid that it is not enough for an employee to understand how something is done; it is vital that the implications of not doing the work safely are equally understood. This is particularly important underground where employees have a large measure of discretion on how work is performed.

A common fault of most induction programs is the lack of any reference to the Act and Regulations. Employees should understand their rights and responsibilities under the law and also understand the responsibilities invested in supervisory personnel.

It is difficult to see how preparing an employee for work on a mine can be done in two or three days. Employers and employees need to re-examine their attitudes towards induction training and recognise the important part it plays in producing a safe working environment.

ASBESTOS UPDATE

Current research in Europe indicates that the matrix of asbestos cement (AC) products, such as fencing and roofs, degrade slowly when exposed to the elements.

The fibres collected from weathered AC products are magnesium depleted and all contain a calcium compound.

The research demonstrates that the composition of the fibres modifies to an extent that it cannot be classified in the common asbestos mineral group. Despite this development it is Departmental policy to handle, remove and dispose of AC products in accordance with the "Worksafe - Asbestos, Code of Practice and Guidance Notes."

The findings are presented in the American Industrial Hygiene Association Journal, Vol 50 No. 12, Dec 1989 pp 655-663. "Surface Characteristics of Asbestos Fibres Released from Asbestos-Cement Products".

M Brown
Special Inspector of Mines
(Ventilation)

MODEL MINERWORKER INDUCTION PROGRAMME

This valuable aid to conducting comprehensive induction programmes is now available from the Chamber of Mines and Energy - 12 St George's Terrace, Perth Tel: 325 2955, for your copy.

The programme has been prepared as a minimum standard to be achieved by all mines and covers: (1) Company Induction; (2) General Safety Induction; (3) Specific Mine Safety Induction; (4) Specific work area induction; (5) Introduction to work; and (6) Review.

GET ON THE TWO-WAY....

MINESAFE looks forward to hearing from you. Interesting information, personal views, cartoons - anything suitable for MINESAFE. Enthusiasm should be expressed to Catherine Stedman - (09) 222 3538 or send material in to MINESAFE c/- The Department of Mines, Perth.

WELCOME

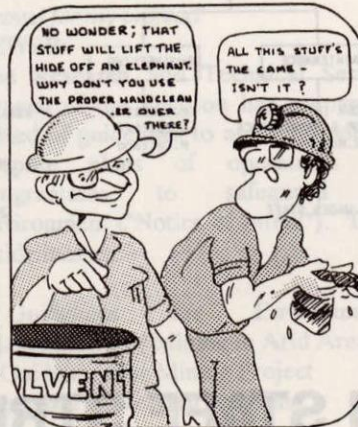
Charles Robertson has joined the Division as a District Mining Engineer, and will be based in Karratha.

Charles joins the division following a 2 year appointment as an Inspector of Mines for the Department of Minerals and Energy in Papua New Guinea.



MINESAFE INTERNATIONAL - September, 1990
Registration forms are now available - Phone (09) 325 2555

NIPPER & BLUE....



Glen Graham, Mount Isa Mines Limited



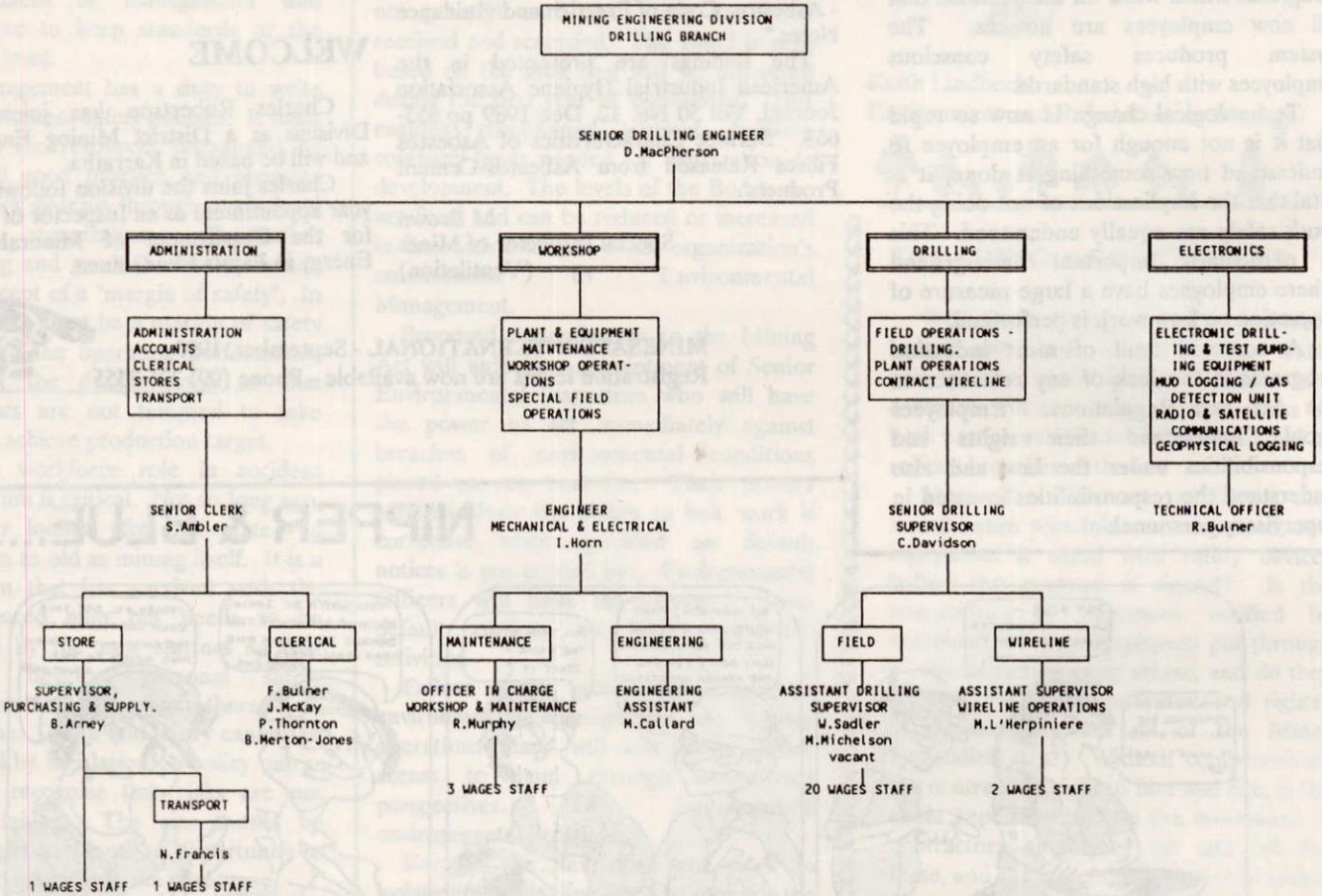
Edwards Find Rescue Team
 Back Row L-R: Dave McGuire, Nick Savage,
 Andrew Duncan
 Middle L-R: Greg Job, Paul Twine
 Front: Jeremy Ayre

There are no heroes in mine rescue work! Rescue team training is a professional arena chosen only by those with commitment.

The Mines Rescue (skills) Course, based on the S.T.E.P system (specially trained emergency persons), has three classes. The Edwards Find Rescue Team completed Class III in November 1989.

The Course prepares the team for Class II, and assimilates skills and theory including detailed knowledge on advance first aid, rope work, breathing apparatus and toxic gases.

WA Mines Safety Service Chief Instructor, Rob McPhee, in February commented on their improvement, achieved through four months of rigorous training. Each member receiving a certificate from WA Mines Safety Services, signed and registered with the Department of Mines, that acknowledges their qualifications.



DRILLING BRANCH STAFF STRUCTURE. SEE PAGE 2.

MAILBAG

Letters to the Editor

Mining Engineering Chart

In the October 1989 edition of MINESAFE you included the organization chart of the Mining Engineering Division. It was most helpful. Is it possible to reproduce it on a regular basis as changes are made and people move?

Ian Clarke
Westralian Sands

We will revise the chart before the end of the year.

Editor

Mining Legislation

In view of the long running debate on safety within the mining industry and the proposed changes to incorporate aspects of the Occupational Health, Safety and Welfare Act into the Mines Act and Regulations, perhaps in your next edition of "Minesafe" you could run article relating to the effects those changes will have on mining operations?

Malcolm Nelson
Safety Institute of Australia

When changes are confirmed, we will feature the legislation in MINESAFE. In the meantime, please contact the MED if you are unsure about which Act applies to different areas of an operation.

Editor

In this edition of MINESAFE we say goodbye to Jane Scanlon who is leaving the Division to work overseas.

Jane took up a 12 month tenure to research legislation and future safety programmes. Her tasks required a lot of external contact and her energetic and forthright approach has proved very effective. Jane is also a valuable member of the MINESAFE team and has made a big contribution to the MED in her short time with us. We wish her well in the future.

J M Torlach

MINESAFE

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QUESTION:

Where do I obtain copies of Acts of Parliament?

ANSWER:

Contact the Government Printing Office, Alexander Battye State Library Ground Floor, Cultural Centre, James Street, PERTH.

QUESTION:

Where do I get information on preparatory course for Certificates of Competency (Metalliferous)?

ANSWER:

Perth: Kim Sweet, TAFE External Studies Ph: (09) 328 6333

Kalgoorlie: Trevor Little, WA School of Mines Ph: (090) 22 0172

Collie: For Coal Mining- Collie Federated School of Mines PO Box 268, COLLIE WA 6225 Ph: (097) 342 222

QUESTION:

How do I obtain a Power Shovel (Excavator) Operator's Ticket?

ANSWER:

Power Shovel Operators Tickets are issued by the Registered Mining Engineer for the Inspectorate which services the region in which the mine is located. (Kalgoorlie, Karratha, Perth, Collie)

QUESTION:

Does a mineral or petroleum explorer need Aboriginal site clearances?

ANSWER:

Maybe! There is an obligation under the Aboriginal Heritage Act (1972) for the protection of Aboriginal sites and an Aboriginal Site Clearance is advisable. For information contact the Mines Department Aboriginal Liaison Officer, - Greg Vines - (09) 222 3534

QUESTION:

Do you have any information to help me prepare documents to obtain environmental approval for my project?

ANSWER:

The Research and Technical Services Branch of the Division has prepared a series of guidelines to assist proponents prepare plans of operations and programmes to safeguard the environment ("Notice of Intent"). These guidelines are--

* Guidelines for Environmental Management of Mining in Arid Areas.

* Guidelines for Mining Project Approval in Western Australia.

* Guidelines for Waste Dump Design and Rehabilitation.

* Guidelines for the Preparation of a "Notice of Intent (NOI)" and "Works Approval" Application for a New Tailings Dams or Extensions to Existing Dams.

* Guidelines for Preparation of a Notice of Intent for Vat Leach Projects.

* Guidelines for Preparation of a Notice of Intent for Heap Leach Projects.

* Interim Guidelines on Safety Bund Walls Around Abandoned Open Pits.

These documents are available free of charge from Mining Engineering Division.

QUESTION:

What is the first step before commencing preparation of project environmental documents?

ANSWER:

The first step is to contact the Regional Mining Engineer or Environmental Officer at Perth, Karratha, or Kalgoorlie Inspectorate Offices. For those companies with offices in Perth and projects proposed in Karratha or Kalgoorlie, contact can be made with the Environment and Rehabilitation Section in Mining Engineering Division in Perth.

The project should be described in sufficient detail to enable the Department to give an indication of the possible level of assessment which would be set by the Environmental Protection Authority. Advice also would be given on specific areas of impact for the particular project which would require special attention in the environment documents.

In addition, the guidelines mentioned above would be given to the proponent (and discussed) at that first meeting.

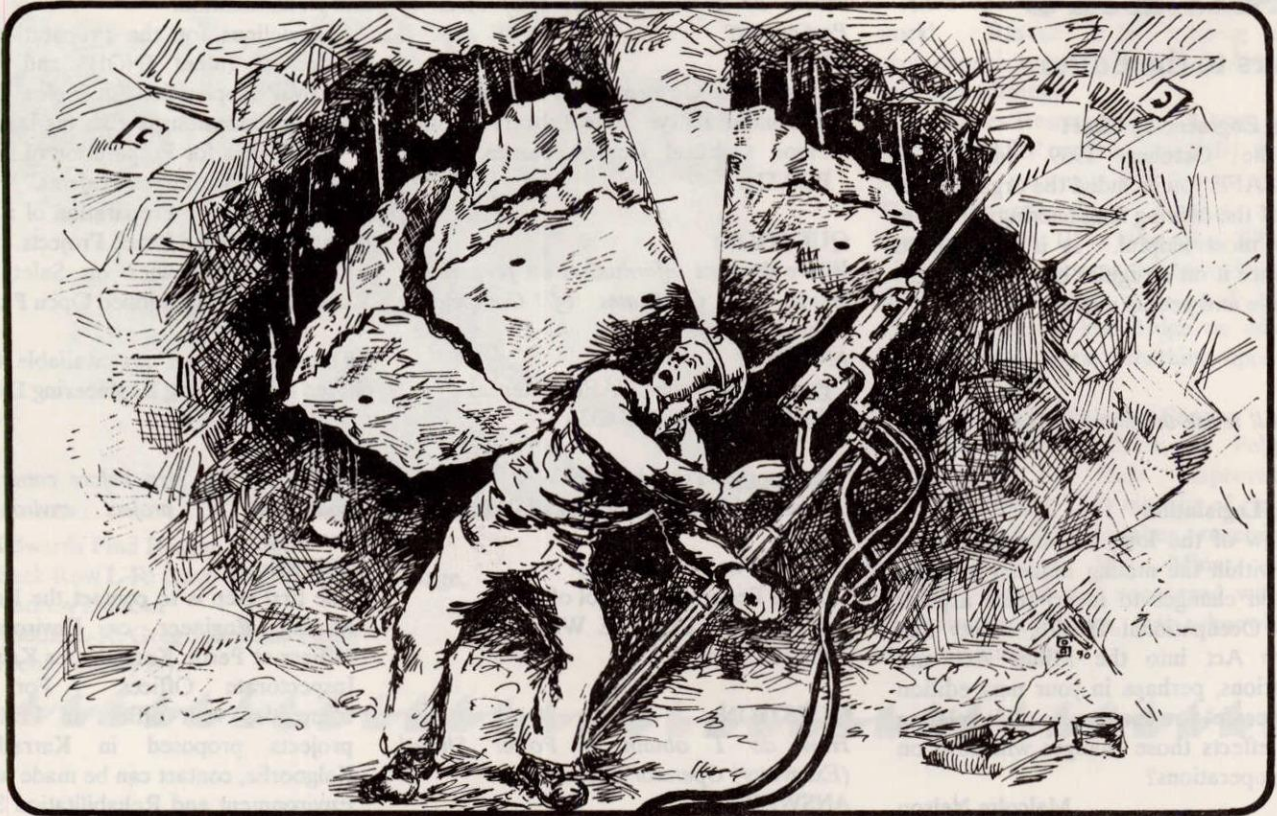
QUESTION:

If I change my mining plan will that affect my rehabilitation programme?

ANSWER:

A change in mining plan should immediately be reflected in a reassessment of the rehabilitation programme. Too often, rehabilitation is seen as an experience add-on at the end of the mining operation. If rehabilitation, including placement of waste at its final required angle (20°), is undertaken as part of the mining operation it will not add to the costs of mining. It will reduce costs by not having to shift materials twice, especially at the end when cash flow is negligible.





ACCIDENT BRIEF

ROCKBOLTING UNDERGROUND - FATAL ACCIDENT

Primary Causes:

1. Failure to install rockbolts progressively as each hole was drilled.
2. Failure to adhere to standard, correct practice of working from secured ground towards the unsecured area.

Preventative Action:

1. Rockbolting procedures, appropriate to the ground conditions must be established and closely supervised.
2. The correct type of bolts must be used and installed according to established and proven practice.
3. The safe practice of working forward from solid or secured ground towards unsupported or suspect ground must be followed.

BE AWARE - SAVE LIVES !!!

WHAT'S ON!

FUTURE SAFE - Queensland
20-23 May 1990 (National Safety Council) Tel. (09) 221 2762

MINESAFE - 10-14 September 1990 (Chamber of Mines & Energy of Western Australia) Tel. (09) 325 2955

FROM THE LIBRARY:

AUDIO VISUAL

1. Chamber of Mines and Energy of W.A.
"Hazardous Materials - Chemical Agents"
Running Time: 12.30 minutes
2. Chamber of Mines and Energy of W.A.
"Hear, Hear"
Running Time: 9 minutes
3. Educational Media Australia
"So It won't Happen Again"
Running Time: 12.30 minutes
4. ICI Australia Operation Pty Ltd
"Stamp Blasting with Ammonium Nitrate"
Running Time: 15 minutes
5. ICI Australia Operation Pty Ltd
"Blasting Vibrations - Cause and Effect"
Running Time: 34 minutes
6. ICI Australia Operation Pty Ltd
"Manufacture of Chemicals Explosives"
Running Time: 24 minutes
7. ICI Australia Operations Pty Ltd
"Safety In Tunnel Blasting"
Running Time: 25 minutes
8. R J Beavis & Co
"Filter/Clone Dust Collectors"
Running Time: 36 minutes
9. W.A. Department of Mines
"Collie Coal Basin"
Running Time: 17 minutes
10. Chamber of Mines and Energy / W.A. Department of Mines Et Al
"A Stake in the Future"
Running Time: 10 minutes
11. Working on the Coal
General Interest - Social History
Running Time: 30 minutes

CERTIFICATES OF COMPETENCY (METALLIFEROUS)

FIRST CLASS MINE MANAGERS AND QUARRY MANAGERS

Advertisements:

(Public notices section) 26 May
The West Australian & Kalgoorlie 2 June
Closing Date for Applications 15 June
EXAMINATION DATE: 30 July

CERTIFICATE OF COMPETENCY (COAL)

EXAMINATION DATE: 30 April

AT YOUR SERVICE

TAFE External Studies College correspondence courses:

1. Steam Engine Driving (12 weeks)
2. Mobile Crane Operation (8 weeks)
3. Internal Combustion Engines (16 weeks)
4. Boiler Attendance (16 weeks)

For further information contact:

TAFE External Studies College
Prospect Place
PERTH WA 6000
Phone: (09) 328 6333
Fax: (09) 227 8393