REVIEW OF MINE SAFETY IN NEW SOUTH WALES

Susan Johnston
Senior Consultant
ACIL Economics and Policy Pty Ltd

SUMMARY

In November last year the New South Wales Government commissioned a wide ranging Review of Mine Safety in that state. The Review Team reported earlier this year, with recommendations for change in areas as diverse as measuring safety performance; enhancing the safety roles played by key individuals in the industry; reviewing production bonuses and incentive schemes; increasing workforce involvement in safety management; overhauling the operations and focus of the state's two Mines Inspectorates; and implementation of the Moura No. 2 findings in New South Wales. Companies, unions, and the NSW State Government are presently working together to implement the Review findings. This paper provides a summary of the Review process, and its findings and recommendations, and discusses the application of the Review to the Queensland mining industry.

INTRODUCTION

In November 1996 the New South Wales Government commissioned a Review of Mine Safety in that state.

The decision to conduct the Review was made in the context of a series of fatalities, serious injuries, and potentially catastrophic near misses at New South Wales mines. These events had occurred during a period when the industry's Lost Time Injury Frequency Rate had improved significantly.

The Government wanted a fresh and independent look at how safety in the mining industry across the board was being managed. A Review Group consisting of myself and two others from ACIL Economics and Policy, and with the assistance of Professor Frank Roxborough, and Emeritus Professor David Rowlands was commissioned to undertake the study.

REVIEW SCOPE

The scope of the Review was, initially, very broad. The Review Team had to consider open cuts and undergrounds, coal and metalliferous operations, one person gouging and massive mines employing many hundreds of people. We also had to review, quite intensively, the State's Mines Inspectorates, and to evaluate the existing mine safety legislation. And, we had to do all this in a three month timeframe.

Very early on the Review Group resolved to focus on the prevention of serious injuries and deaths - the pointy part of the triangle if you subscribe to that view of accident cause.

The Team also resolved that we would not be able to concentrate in any great detail on the problems of specific sectors - for instance on the Lightning Ridge opal miners. Nor could we focus on analysing issues associated with particular processes such as longwall mining.

We decided that, instead, we would try to identify generic major issues which, while they might apply to varying degrees at different operations, could nevertheless be said to be matters of concern to the industry as a whole.

At this point four men were killed at Gretley. Their deaths did not change the emphasis as such of our Review - and the NSW Government in any case commissioned the Judicial Inquiry shortly afterwards - but they did serve as the most powerful of all reminders of the importance of the exercise.

We began the Review by considering a mass of information on safety management in NSW, QLD, other states, and from overseas jurisdictions. Included amongst this was a considerable amount of material provided to us by the Mines Inspectorates. We also looked at material from previous Inquiries; scholarly papers; safety management books; statistics; accident and incident reports; Inspectorate procedures; complaints; case studies on safety management from other industries; and company specific information.

From this we identified key issues to pursue with those who actually work in the NSW industry, and who see the strengths and weaknesses of current approaches to safety management at first hand. We held 150 consultations in all - with Chief Executives, other Senior Company officers, Mine Managers, middle managers, Union Representatives, and mineworkers themselves. We also talked with a range of individuals who were responsible for managing safety in other industries. And, we visited 8 sites.

The Review Team conducted the consultations because we wanted to do more than a desk top study - we wanted a real picture of where industry in the broad was at in terms of managing safety.

Our interviews were carried out on the basis that while the points raised might be used they would not be attributed back to any particular individual or site. This has been criticised by some as offering an indemnity for people to exaggerate or even falsify the truth. In actuality, what the Review Team encountered was, almost without exception, a real willingness on the part of those we interviewed to be very frank about their views - a number of interviewees told stories against themselves which they may not have been as comfortable about if names were being taken down.

From the consultation process the Review Team then identified key issues to be considered when reviewing the two New South Wales Mines Inspectorates, and when examining the desirable shape of the state's mining legislation and regulations.

The final stage of the process was the consideration of all of the material garnered, including that provided in a number of submissions, and the preparation of the final Review Report itself.

REVIEW FINDINGS - MEASURING SAFETY PERFORMANCE

So what did the Review find? What did we see as the key issues impacting on mine safety performance, and what can be done about them?

The whole question of how safety is measured was one of the identified key issues. Interestingly, not long after the Review Report was released I was asked by one interviewer why we had focussed so much on measuring safety rather than "safety itself". I think there is a basic point here which must be understood. If a measure is widely used to judge performance, then it makes profound good sense, I would suggest, to evaluate how well that measure actually reflects what is occurring on mine sites; and what industry, the workforce, and the community wants to know.

Lost Time Injury Frequency Rate - LTIFR - is the measure of safety performance primarily used by industry stakeholders. Most safety reports to company boards focus on LTIFR; management and staff safety performance indicators are based very largely on the measure; LTIFR is a Key Performance Indicator for the Department of Mineral Resources' two Inspectorates; and LTIFR or number of days lost since the last LTI is the measure most commonly reported on to mineworkers.

LTIFR is not without value, but the Review Team found that as a measure it:

- can be a poor reflector of actual accident numbers;
- can be a poor indicator of the extent of serious injuries on site;
- can be a poor indicator of how sites are managing major risks; and
- is viewed with deep scepticism by many industry stakeholders including mineworkers.

The Review Team found that while a strong focus on reducing LTIFR could result in impressive reductions in this statistic; these reductions were not necessarily matched by the actual safety performance of the mine.

Much of the press comment at the time of the release of the Review Report focussed on quotes from the Report which described what interviewees saw as extreme company efforts to avoid having an accident register as a Lost Time Injury. The Review Team did not suggest that these efforts were widespread, but, unfortunately those quotes have been used to indict the industry as a whole. That is inappropriate and unfair. Nevertheless, wherever strong pressures are placed on individuals to manage a single measure of safety, and whenever that measure is open to manipulation, it is very likely that some extreme efforts of the sort alluded to will occur.

The Review Team recognised that at the individual company and site levels measures additional to LTIFR are being trialed and used. We also noted evolving industry based efforts - the MINEX awards process being chief amongst these - to measure safety performance on a mix of factors. However the fact remains, that the vast majority of NSW operations continue to rely very largely, if not exclusively, on LTIFR as the measure of safety performance.

In highlighting the issues associated with a strong focus on LTIFR, the Review Team was not in fact doing anything particularly new. Industry associations, individual companies, unions, and the NSW Department of Mineral Resources had all previously acknowledged that a more comprehensive approach to safety measurement would be appropriate. The Review Team believed that the time had come for industry players to take concerted action on this matter.

Accordingly, the Review Report recommends a new approach to measuring mining industry safety performance in New South Wales. The Report proposes that safety be measured on the basis of a mix of indicators. Industry wide, this mix might include LTIFR, Fatal Injury Frequency Rate, Disabling Injury, (defined as an injury which results in an employee being unable to return to his or her normal duties), and progress in managing core risks. The Report goes on to suggest what this

latter measure might consist of. However, because what we are proposing is a quite new way of measuring performance, we have recommended that the exact mix of indicators be determined on a tripartite basis as a matter of urgency.

In terms of individual sites, the Report recommends that the New South Wales Minerals Council (NSWMC) develop guidelines for use by mine operators to assist them in taking a more sophisticated approach to assessing safety performance on site.

SAFETY AIMS

Another major aspect of the Review was an examination of what influences individual behaviour, and overall safety performance.

One of the issues here was that of safety aims. More often than not, we found that there was a real variance between what the company's Chief Executive Officer thought were achievable safety aims, and what others at the mine manager, middle manager, and workforce levels thought could be done.

The Review Team found a number of instances where individuals simply did not believe that a target was achievable, and as a consequence appeared to accept from the outset that safety performance would be less satisfactory than planned.

Individuals will hold different views about what can be done in practice. However the Review Team felt that increased involvement from those at the minesite in setting safety targets might go some way towards ensuring that the targets which are determined are more widely accepted.

The Report recommends that companies give greater attention to such involvement.

PRODUCTION BONUSES AND SAFETY INCENTIVE SCHEMES

The Review also looked at the official and unofficial incentives and disincentives to safe behaviour. We considered the question of whether firms will always recognise that "safety is good business", and whether the potentially positive impact of safety improvement on a firm's balance sheet will, of itself, spur a company on to greater safety efforts.

The Review Team concluded that for the balance sheet to drive safety initiatives the firm would need to recognise and factor in the "hidden" costs of accidents; the cost/productivity gain would need to be such that it was seen to outweigh the initial costs of introduction of the new safety systems or equipment; and the firm would need to be a position to take a medium to longer term perspective given that it may be cheaper and no less productive in the short term to leave the safety issue unaddressed.

We also looked at the possible safety impacts of production bonuses. There are differences of views within the NSW industry as to whether the production bonus system encourages people to take inappropriate risks. Having considered the various perspectives, the Review Team's position was that it was plausible that it could, and, therefore, the Review Report recommends that the industry commission a more detailed study of the safety impact of production bonuses.

We also looked at the impact of present safety incentive schemes - almost all of which are currently based on LTIFR. It was this aspect of the Review findings which was subject to the most distortionary media reporting, with newspapers indicating that the Review had found that miners were given gift and food hampers to encourage them not to report injuries. The Report does not suggest that such incentive schemes are some deliberate and nefarious attempt on the part of companies to hide true safety statistics. We have no reason to believe, and do not believe, that such schemes are anything other than an attempt to improve safety performance. Where we take issue with the schemes is in their actual effectiveness.

Industry stakeholders from all backgrounds - including those at the Chief Executive and Mine Manager level - gave us many instances of where such schemes had resulted in major LTIFR reductions, but not major improvements to safety performance on site. A number of studies support these observations. Accordingly, the Review Report recommends that companies re-evaluate present safety incentive schemes with a view to establishing their actual safety impact, as distinct from their effect on LTIFR.

COMPANY BOARDS

From looking at general influences we then went on to examine the particular roles, and potential roles, played by individuals in key positions. These included members of company boards. The Review Team believe that the extent to which boards take an interest in safety issues, and, probably more to the point, what they ask for, can have a real impact. We heard many versions of the line that "safety is the first item at every board meeting". But beyond that Board activity varied enormously. Some asked questions regularly, some gave directives, some had special safety board meetings or sub-committees, some asked for and obtained reports on a range of safety

indicators, some only listened to a recitation of monthly LTIFR statistics.
The Review Report recommends that Company Boards take a more active role in requiring reporting on a mix of safety indicators, which more accurately reflect site safety performance.

CHIEF EXECUTIVES

There is also a real variance in the roles taken by company Chief Executives. As one mine manager said to us "all the CEOs are talking about safety. Its what they're doing that's different". Where Chief Executive Officer commitment was translated into establishment and maintenance of safety reporting and management systems, positive results followed. Where CEOs talked a lot about safety, but seemed to assess Mine Manager performance solely on production, then managers and others were understandably sceptical about the real priorities. The Review Team did encounter some very interesting, and apparently effective, approaches being taken by Chief Executives to stress, monitor, and acknowledge the importance of good safety management. We thought it was important to share this, and have recommended that the NSWMC convene a Chief Executive Officers' safety forum to allow greater exchange of information at this level.

MINE MANAGERS

As many before us have done, the Review Team concluded that the role played by individual Mine Managers in determining site safety performance is crucial.
Mineworkers commonly said to us that they formed their views about company commitment to safety based on the actions taken by the Mine Manager and by their immediate supervisor.
The Review Team recognised that while, on site, there was a tendency to see Mine Managers as the key decision makers about how much emphasis was given to safety, and while individual Mine Managers can and do have particular impacts, Mine Managers as with others in the industry are themselves subject to a range of pressures.
We stated that we believed that it was crucial both that Mine Managers be called to account for their site's safety performance; and that they be provided with the necessary support to carry out company safety requirements.
Such support might include specialist training for the Mine Manager - the Review Report does in fact recommend that companies introduce structured safety and communications related training for Mine Managers and mining professionals.
Company support might also include backing by senior officers when decisions are taken to limit production for safety reasons; and financial assistance to deal with both critical site safety issues, and the implementation of head office initiated programs.

MIDDLE MANAGERS

Middle managers were the grouping which were most strongly criticised in our stakeholder interviews as being least ready to change, and to give due recognition to safety issues.
To some extent middle managers suffer the same problems as those in every industry - they are in the middle and vulnerable to attack from both above and below. Nevertheless, as we all know, for senior management safety commitment to be translated into on site action then the involvement and support of middle managers is crucial.
The Review Report recommends that middle managers be more involved in the development and implementation of safety initiatives; and that they be provided with training and support to enable them to effectively carry out their role in communicating safety requirements to workgroups under their control.

WORKFORCE AND UNIONS

The Review also gave consideration to the whole question of mineworkers' own role in safety performance. At the CEO, management, and middle management levels there was considerable concern at what was seen as a continuing general tendency for coal mineworkers in particular not to be willing to take responsibility for their own safety. It should be noted though that management views on this did vary.
On the other hand, a considerable number of mineworkers and union representatives criticised the lack of genuine involvement opportunities offered to mineworkers. Lack of involvement exacerbated tendencies to mistrust and scepticism about company safety initiatives resulting in a situation where "if a rule comes down and people think that it doesn't make sense it is deliberately flouted".
There are a lot of negatives to be overcome. Still, some sites are already demonstrating that mineworkers can add considerable value to processes of determination of safe work procedures and risk assessment; and that worker involvement in safety initiatives does enhance the effectiveness of implementation of those initiatives.
The Review recommends that companies re-evaluate their approaches to involving workers in

safety management - particularly in terms of the assessment and management of core risks.
The Review Team also considered the role of unions in safety management. There was a strongly held opinion amongst some mine management, and senior company management representatives, that unions have both used safety as an excuse to (unfairly the implication is) launch industrial action; and have failed to support effective disciplinary action against unsafe behaviour.
In the coal sector there was also an expressed view on the part of non-Construction, Forestry, Mining & Engineering Union (CFMEU) representatives that the CFMEU has been and is prepared to trade away safety issues; and that CFMEU deputies are not as willing to pick up and take action on mineworker safety breaches as are non-CFMEU deputies. (A number of NSW coal mines have deputies who are members of the Colliery Officials' Association).
The Review Team recognised of course that these claims and others are themselves interrelated with the starting point industrial and other concerns of those who made the points in the first place. This does not mean that they are matters which can be dismissed on that basis. However, the Review Team was not provided with any conclusive evidence or even convincing examples to provide support for the claims in regard to the impact of different union membership on the behaviour of mine deputies.
The Review Report does nevertheless point out that "just as the CEO and senior management of a company are prime influencers in setting the tone of a company's approach to safety, so union leadership must make very clear the expected approach to safety issues to be taken by union members and officials." In other words the behaviour must match the rhetoric.

ASSESSING AND MANAGING MAJOR RISKS

Over the past five years or so, there has been a strong push for systematic management of core risks at NSW mines, particularly coal mines. The Review sought to test the degree to which these systems are in place, and whether or not their safety impact can be assessed.
There is strong support across the board from all stakeholders for core risk management as a concept. There is also a clear recognition that the effectiveness of implementation of these systems in practice can vary enormously - in terms of how the risks are identified; who is involved in risk assessment and hazard management plan development; whether the planning process is backed up by practical support - dollars and commitment; and auditing and review arrangements. Insufficient involvement of a slice of all those on site remains an area of concern in many instances.
The Review Team recommended that companies review their approaches to core risk management in the light of the issues we have identified in the Report.

USING ACCIDENT INFORMATION

It has been well documented that accidents of very similar types occur repeatedly within industries, companies, and even sites. There is a real need therefore to ensure that the lessons of accidents and incidents which occur are effectively shared, and are not lost with passage of time.
The Review Team found substantial room for improvement in the areas of:

- provision of information to mineworkers on the causes of accidents on and off site - both in terms of the content, and the style of delivery of this information;
- sharing of information across companies on accident cause;
- sharing of information on near misses;
- use of information on past accidents in induction and training; and
- Inspectorate analysis and use of information.

The Review Report accordingly recommends that a tripartite group be asked to develop proposals on how information sharing on accident cause can be improved.

TRAINING

As might be expected the Review dealt with the question of safety training - for managers, middle managers and the workforce. We found that generally speaking the scope and depth of safety related training throughout the industry is poor. Nevertheless individuals who admit to very little training in relation to safety issues still consider themselves to be well placed to make judgements about acceptable levels of risk.
In terms of workforce training, the Review places a particular emphasis on emergency preparedness training, hazard awareness, and integrating training with core risk assessment and management. These are, as you will know, much the same areas as emphasised in the Moura No. 2 findings. It came as something of a surprise to both the Review Team, and industry representatives, to discover that

some of the largest and most sophisticated mining operations in New South Wales had not conducted simulated emergency exercises for a dozen years or more.

MOURA IMPLEMENTATION

The Review Team was specifically asked to consider how the findings of the Warden's Court Inquiry into the 1994 Moura Mine disaster should be applied in New South Wales.

Our Review Report did not recommend that all the Moura recommendations should simply be translated to NSW. The timeframe and scope of our Review did not allow us, for example, to independently decide that recommendations on sealing and air locks should necessarily be applied to NSW.

What we did recommend was that NSW coal operators be required to prepare Mine Safety Management Plans to identify and manage all core risks. The Review Team believed that introducing a MSMP requirement would provide a structure and framework for existing efforts in NSW to systematically address these risks.

The Review Team also proposed that Moura recommendations on improved hazard awareness training be put into place in New South Wales, and that the NSW Department of Mineral Resources chair a tripartite group whose job it will be to decide how many of the other recommendations arising from the Moura implementation process should be formally adopted there.

Some of the key Moura recommendations - particularly those on management of core risks and training and communications - could, in our view, equally be of benefit to metalliferous operations. The Review Report recommends that the possibility of applying these recommendations to the metalliferous sector be examined.

THE INSPECTORATES

More than a quarter of all of the Review Report recommendations related to the role, resourcing, and activities of the two Mines Inspectorates.

As far as the New South Wales Coal Inspectorate was concerned, the Review found that the Inspectorate was over-worked, confused about its role, prone to sending conflicting messages to stakeholders, poorly organised, affected by poor internal relationships, and underresourced.

To address the workload issues the Review Team recommended that:

- Inspectors focus wholly on safety and health related matters - many of them had been spending a considerable proportion of their time, (less than effectively in our view) on environmental issues;
- a new specialist support position of Mines Safety Officer be created; and
- the Department consider introducing cross-inspection - where Inspectors from either coal or metalliferous backgrounds would be able to inspect open cut mines of any type.

To address role confusion, and poor organisation issues the Review Team recommended that:

- policies and procedures on accident investigation and enforcement be developed and published;
- a specialist Accident Investigation and Analysis Unit be established within the Inspectorate;
- the Department introduce a systematic approach to prioritisation of Inspectorate activities; and
- physical inspections, including unannounced physical inspections be confirmed as an important aspect of the Inspectorate's role.

LEGISLATION AND REGULATION

The Review Team took the view that the purpose of safety legislation should be to foster the best possible industry and individual safety performance in terms of preventing serious injury and death. We believed that organisations and sites vary in terms of the priority given to safety management, and the effectiveness of the measures in place. The legislative regime needs to be devised in full recognition of this variance.

As a Team we were also well aware of the various debates that have long raged in this area. What we tried to do was to separate the emotion, and ideology, from the observable evidence as to the safety impact of particular types of legislative approaches.

The coal and metalliferous sectors in NSW are subject to very different regulatory approaches. Since September 1994 the metalliferous sector has been covered by a new General Rule which replaced the detailed and prescriptive provisions contained in previous regulations, with broad responsibilities for key individuals, particularly Mine Managers. The coal sector is subject to much more prescriptive regulation.

The Review Team found that, in the light of its relatively recent introduction, and given that systems to monitor its implementation were still being developed, it was too soon to form views on the safety impact of the metalliferous General Rule.

Nevertheless, we did believe that there were some points which could be made.

The Review Team were concerned at the apparent reluctance of the NSW Inspectorate to enforce the limited number of specific requirements under the Rule; and at the lack of an adequate database on the status of implementation of the new regulations. The General Rule is aimed at fostering a new approach to safety management in the metalliferous sector. It will hardly do so, other than for those operations already committed to taking action, if the Inspectorate sends signals that it does not really mind whether or not implementation occurs. Accordingly, the Review Report recommends that the Inspectorate take a more active approach to enforcing and monitoring the application of the General Rule.

As far as the coal sector was concerned, the Review Team accepted that the present Coal Mines Regulation Act and regulations provide very little incentive - for those companies who are likely to be responsive to it - for sites to take greater responsibility for determining and implementing mine safety management systems. We also accepted that the current level of prescription as regards non core hazards is excessive and may result in considerable unnecessary and misdirected effort on the part of some operators. At the same time, the Review Team as a whole believed that, given the hazards faced, it continues to be necessary to precisely prescribe certain minimum outcomes in relation to the management of core risks encountered in underground coal mines. We also believed that some general underlying minimum requirements for all mines remain necessary given the variance in performance, ability, and approach exhibited by companies.

Based on the experiences of many jurisdictions the Review Team believed that there were no obvious "best" legislative solutions. However, given the views and concerns outlined, we were attracted to a concept which was raised in several submissions - that of a two-tier regulatory system. A two-tier system is aimed at rewarding good safety performance with the opportunity for greater flexibility, while providing prescriptive guidance for those organisations who, through lack of resources or lack of will, do not have the demonstrated capacity to independently manage their safety and health affairs.

The Review Report probes in a preliminary way what the two tiers might consist of; how operations could move between the tiers; and what would need to be put into place before a two tier system could be introduced.

Given the timing and other constraints of the Review the Review Team were not able to work through the two tier proposal as much as we would have liked - but we were convinced that it was worth pursuing further.

Accordingly, the Review Report recommends that there be an immediate tripartite re-examination of legislative options, and, in particular, of the practicality, and likely impact of, a two-tiered regulatory approach.

REVIEW IMPLEMENTATION

Turning to the implementation of the findings of the Review, a dozen of the recommendations are aimed directly at companies. Into this category fall the recommendations on how safety targets are set, on re-evaluating safety incentive schemes, on promoting middle management ownership of safety initiatives, on improving approaches to core risk assessment and management, on contractor selection, on training, and on emergency preparedness. At this point, a number of major NSW companies have prepared reports for their Boards on the Review and its implications, and on those actions which can be taken now.

Another four recommendations are aimed primarily at the NSWMC. These recommendations are those on the development of guidelines for mine operators on measuring site safety performance; the convening of a Chief Executive level safety forum; the promotion and use of NSWMC Guidelines for Contractor Occupational Health and Safety Management; and the promotion of risk assessment and management. The Council has moved to act on these items.

The NSW Minister for Mineral Resources has set up a tripartite implementation process which is considering, at least in the first instance, all the recommendations of the Review. It is intended that an overall Implementation Strategic Plan will be developed incorporating key steps, identification of responsible parties, and timelines, for each recommendation.

So certain things are happening and from the point of view of the Review Team that is very encouraging. We are all well acquainted, however, with how initiatives which are greeted with a burst of enthusiasm and energy can ultimately seep away; and with how the various processes which are put in place can themselves become the priority. There is a real need to guard against this, and for all those with an interest to keep a close and regular eye on the status of implementation of the Review findings.

WHAT DOES THE NSW REVIEW MEAN FOR QUEENSLAND?

The Queensland coal industry in particular could be forgiven for thinking that it has more than enough change to cope with at present what with the continuing implementation of the Moura No.2 findings, and forthcoming changes to coal safety legislation.

In this context, then, the interest shown by some Queensland operators in the NSW Review findings has been very pleasing. The fact is that recommendations such as those on involvement by company boards and Chief Executives; re-evaluating production bonuses and safety incentive schemes; improving use of accident information; and changing the way safety performance is measured; are likely to be equally as applicable in Queensland, and indeed in other Australian states, as they are in New South Wales. In other areas, and in particular in regard to the implementation of the Moura No. 2 requirements, NSW has good deal yet to learn from the Queensland experience.

I do not suggest that Queensland operators should be required to implement the findings of the NSW Review. Particularly given everything else which is going on, instituting additional requirements at this time would be both unnecessary and unhelpful. We should all be in the business of continually striving to improve mine safety performance. The *Review of Mine Safety in New South Wales* should be seen as one more resource, and a particularly valuable one I hope, which operators can use in that process.