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***OHS regulation***



**Working Paper 45**

**Is the Australian Mining Industry Ready for a Safety  
Case Regime?**

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- develop the research skills of young OHS researchers; and
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## **Abstract**

A safety case regime (SCR) has recently been proposed for the Western Australian (WA) onshore minerals industry. This paper explores: (1) why a safety case was proposed for WA industry; (2) what a safety case regime is; (3) the available evidence concerning the benefits and disadvantages of a SCR; and (4) the characteristics of the mining industry that would need to be incorporated into any safety case regime for WA or elsewhere in Australia. The paper argues that lessons learned from SCR elsewhere must be taken on board and any SCR must be modified to accommodate the special industry and socio-political characteristics of the mining industry.

(This paper was first presented at the 31<sup>st</sup> International Conference of Safety in Mines Research Institutes, Brisbane, October, 2005).

## Why was a safety case regime proposed for the WA Minerals industry?

As a result of the deaths of three Pilbara workers from the BHPBIO operations in the WA mining industry in 2004, the Western Australian Government announced a ministerial inquiry<sup>1</sup> headed by barrister Mark Ritter (hereafter called the Ritter Report). Whilst the deaths of three workers within the one operation would itself be sufficient reason for an inquiry, several previous reviews of the WA mining industry had revealed serious deficiencies in safety across the industry.<sup>2</sup>

It is useful to contextualise the review against a background of significant change across not only the WA, but the broader Australian mining industry. Over the past ten years the industry has undergone changes to:

- ownership and industry structure with increased vertical and horizontal concentration;
- technology and increasingly sophisticated processes;
- internal labour markets with increased contract and non-standard employment;
- skills shortages and loss of experience;
- industrial relations and employment arrangements at a state and federal level;
- work practices; and
- OHS legislation which has seen the application of duty of care obligations and the expansion of safety management systems and risk management.

Against this backdrop, the Ritter report identified a number of systemic problems with safety regulation, management and enforcement regimes. Ritter's main findings, in addition to issues and problems he highlighted about specific BHP operations, were that there existed:

- a disconnect between the regulators' aims and implementation,
- inadequate regulatory resources, remuneration, skills and training;
- a culture impeding further progress;
- inadequate enforcement; and
- problems with incorporating workforce empowerment.

In addition, a separate report by Gunningham (Ritter Report, Appendix Four, 2004) identified not only problems with the inspectorate, but raised issues associated with the industrial relations climate within the BHP operations and the conflict caused by the transition to individual contracts.

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<sup>1</sup> Ministerial Inquiry: Occupational health and Safety Systems and Practices of BHP Billiton Iron Ore and Boodarie Iron Sites in Western Australia and other matter, Minister for State Development, Perth, Western Australia, November 2004. Reports can be found at:

[http://www.ministers.wa.gov.au/carpenter/docs/features/BHPB\\_Inquiry\\_Protocols.pdf](http://www.ministers.wa.gov.au/carpenter/docs/features/BHPB_Inquiry_Protocols.pdf) and  
[http://www.ministers.wa.gov.au/brown/docs/features/BHP\\_Ministerial\\_Inquiry\\_Vol.pdf](http://www.ministers.wa.gov.au/brown/docs/features/BHP_Ministerial_Inquiry_Vol.pdf)

<sup>2</sup> For example the Laing Review 2003; *The Inquiry into Fatalities in the Western Australian Mining Industry* undertaken in the mid 1990s

These kinds of observations are not inconsistent with reviews into mine safety undertaken in other states. In NSW, for example, the Review of Mine Safety in NSW (the Wran Report<sup>3</sup>), which was also undertaken as a result of a cluster of fatalities and serious bodily injuries, found a similar disconnect between company and regulator intention and actual implementation, as well as a “debilitating” level of distrust between stakeholders at all levels.

Given the economic importance of the Australian mining industry and the community (if not industry) expectation of the same level of safety in mining as in others industries, this situation is clearly untenable.

### **Recommendations for a safety case regime for the WA minerals industry**

Following the Ministerial Inquiry and Ritter report, a tripartite Mine Safety Improvement Group (MSIG) was established to consider the findings and make recommendations regarding mine safety improvement in Western Australia. This taskforce was assisted in its work by two independent experts – Andrew Hopkins, an academic from The Australian National University (ANU) in Canberra, and Peter Wilkinson, who had been involved in the establishment of NOPSA, the National Offshore Petroleum Safety Authority. The Taskforce made a range of recommendations which the MSIG considered. These are contained in the Interim report which has now been released for comment.<sup>4</sup> This paper will concern itself mainly with those recommendations associated with the proposal to introduce a safety case regime in the WA Minerals Industry.

The key recommendations are as follows:

- A safety case regime should be introduced in minerals industry; and
- The safety case regime should:
  - apply to all mines, regardless of size, in that less complex the mine the simpler the safety case;
  - address all risks including those to health;
  - include detailed consideration of fatigue;
  - not normally carry out quantitative risk assessments;
  - ensure the workforce and their representatives have a right to be consulted;
  - include guidelines for participation at all stages of safety case development;
  - include provision for training;
  - ensure that the three safety case regimes (minerals, dangerous goods and petroleum) are co-ordinated where possible.

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<sup>3</sup> [http://www.minerals.nsw.gov.au/data/page/1798/Mine\\_safety\\_review\\_report.pdf](http://www.minerals.nsw.gov.au/data/page/1798/Mine_safety_review_report.pdf)

<sup>4</sup> The interim report can be found at:  
<http://www.ministers.wa.gov.au/carpenter/index.cfm?fuseaction=features.main>

The MSIG also recommended that there be:

- a feasibility study conducted into a new safety authority including transitional arrangements;
- work conducted to determine size, cost, reporting arrangements etc;
- no fee for service arrangement in the funding of the new authority; and
- arrangements for tripartite consultation.

Clearly, these recommendations, if implemented, would impact significantly on the way that safety is managed in Western Australia. What is this new safety case regime being recommended for the WA minerals industry, what is the evidence for effectiveness?

### **What is a safety case regime?**

The SCR approach is often perceived as having emerged as a result of the Lord Cullen report into Piper Alpha disaster in the offshore oil and gas industry where 167 people died. The Cullen report, scathing in its assessment of the state of safety in the industry, suggested that reconstruction of the offshore regulatory regime and the responsibility for regulating safety be transferred to a discrete division within the English HSE (Whyte, 1997:1148). Cullen's new regulatory regime was to be based around "goal setting" which would take the form of requiring that stated objectives would be met, rather than prescribing the detailed measures to be taken (Whyte, 1997:1149). Already in place in the nuclear industry, the SCR approach has emerged from technically "mature" and sophisticated industries and has been focused principally on the prevention of catastrophic risk.

One of the first challenges is that there appears to be no single, all-encompassing definition of a SCR. Rather, a "safety case" appears to be a "concept" underpinned by a set of criteria, principles, components, not all of which are identical across either industry, jurisdiction or commentator. There also appears to be differences in emphasis and detail around a number of the key components. These include: the role of "prescription", the function of the regulator, the nature of the licensing arrangements, the definition of principles such as "ALARP", the role of associated safety and other legislation and funding arrangements.

Arguably, then, the question is not what *is* a safety case regime -- but rather, what *kind* of safety case regime is being contemplated for the minerals industry? Even though the broad principles and philosophy of a SCR may be similar, there are differences in emphasis and detail, the implications of which may in fact be significant. The following (admittedly limited) examples illustrate the differences in emphasis.

Wilkinson (2002), for example, explains that a safety case regime sets out a range of legislative requirements aimed at reducing catastrophic risk and major events. He states that a safety case must:

- be produced by the operator;
- identify safety critical aspects of the operation – technical and managerial;

- define appropriate performance standards;
- involve the workforce; and
- be scrutinised by a regulator who licenses and enforces.

Rasche (2001:3) explains that a safety case is used to describe a sophisticated, comprehensive and integrated risk management system. He says it is a management methodology based on a rigorous framework, captured by a safety management system which is used to support the operators claim that the operation is safe. The claim to safety is supported through a detailed and formal safety assessment that deals with the major risks at that operation. It comprises the following main elements:

- facility description;
- formal safety assessment;
- description of the safety management systems;
- strong linkages between these sections by argument and evidence;
- production of a true image of the operations safety profile; and
- *demonstration* of the integrity of the key safety systems is a key aspect of SCR.

Nicol (2001:7) provides another definition that appears to de-emphasize the role of the regulator:

A safety case regime is characterized by an acceptance that the direct responsibility for the ongoing management of safety is the responsibility of the operators and not the regulator. The key function of the regulator is to provide guidance as to the safety objectives to be achieved. The operators can achieve these objectives by developing systems and procedures that best suit their needs and agreement with the regulator. This "safety case" then forms the rules by which the operation of the facility is governed.

NOPSA outlines its definition of a safety case regime at <http://nopsa.gov.au/safety.asp> as follows:

A safety case is a document produced by the operator of a facility which:

- identifies the hazards and risks;
- describes how the risks are to be controlled;
- describes the safety management system in place to ensure the controls are effectively and consistently applied.

NOPSA states the principle that those who create the risk must manage it. It is the operators' job to assess their processes, procedures and systems to identify and evaluate risks and implement the appropriate controls because the operator has the greatest in depth knowledge of their installation. A safety case must:

- identify the safety critical aspects of a facility, both technical and managerial;
- define appropriate performance standards for safety critical aspects
- involve the workforce
- produce in the knowledge that it will be scrutinized by a competent and independent regulator
- demonstrate that risks are reduced as low as reasonably practicable.

As the above examples demonstrate, while there are common elements associated with a safety case regime, there are differences in emphasis. For example, the level of detail required in any particular safety case will differ depending on the level of risk and complexity of the operation; similarly, the methods used and the standards to which a facility must aim in order to *demonstrate* that risk have been managed (and or improved) appear to vary. For example, some commentators advocate the use of quantitative risk assessment (eg Pitblado and Smith (2001)); while others criticise the use of QRA and, in the case of the WA Taskforce recommendation, do not mandate its use for the mining industry.

Similarly, there appear to be differing notions of the role of the regulator in enforcement. For example, Nicol emphasizes the support and educative role of the regulator, while Wilkinson (2002) clearly envisages a much more proactive role for the regulator, including the ability to prosecute. Some emphasize the reduced role for prescription, whereas other commentators contend that a level of prescription can sit alongside and complement a performance-based regime. Finally, though not exhaustively, it is often difficult to find mention of the role of tripartite consultation and trade unions, yet the principle of tripartite structures and formal involvement of unions in safety is clearly a significant issue to be addressed and accommodated.

Do these variations and differences in emphasis matter and do they need to be clarified with respect to any proposal for the WA minerals industry? Moreover, what are the claims about the impact of SCRs and how do they stack up?

## **What is the evidence for the effectiveness of the SCR?**

### ***Benefits of a safety case***

Strong claims are often made about the success of the safety case regime approach. For example, Rische (2001) states:

The concept of a SC is now mature and has shown to be one successful approach to safety and risk management of major risks. Some studies claim that the introduction of the safety case regime in the offshore regime has resulted in a reduction of individual risk of up to 70%.

Similarly, Pitbaldo and Smith (2000:8), citing an HSE commissioned study of the SCR in 1999,<sup>5</sup> conclude that:

Overall the cost-benefit analysis is positive. It is certainly true that whilst there were two major accidents in a 7 year period there have been none in the 13year period since then.

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<sup>5</sup> Despite comprehensive searching for this report the only source that could be obtained was reference to the 1999 AUPEC study in the report in the impact of the HSC/E 2001. This can be found at: [http://www.hse.gov.uk/research/crr\\_pdf/2001/crr01385.pdf](http://www.hse.gov.uk/research/crr_pdf/2001/crr01385.pdf)

In that time major efforts have been carried out in the industry to analysis risks and having found them to design those out. Safety case was a key tool in this process.

Wilkinson (2002) argues that the main benefits of safety case regime reside in a number of areas:

- an improved understanding of the hazards and risks;
- an enhanced knowledge of the technical and managerial controls required to manage them;
- better oversight by the regulator.

Wilkinson (2002:10) also concludes that “the near universal opinion of managers and most of the workforce at hazardous installations is that safety cases have been very successful. There are of course problems ...however the problems are not ones which demonstrate any fundamental flaws in the concept, rather they are problem applying the concept in practice...”.

### ***What is the “objective” evidence of the effectiveness of a SCR?***

It has to be stated that objective evidence about the effectiveness of a SCR is difficult to locate and what does exist is at times inconsistently reported. Arguably, it appears that there are more assertions about the effectiveness of a SCR than hard evidence. This may not, of course, detract from the *actual* effectiveness of a SCR, and it may relate to the difficulty of isolating the effect of a regime compared other factors, but it is clear that claims about demonstrable effects must be treated carefully.

A recent meta-analysis undertaken by VECTRA Group Ltd for the HSE (2003<sup>6</sup>) is helpful in this respect. The report stated (p 3) that “overall there are disappointingly few attempts at objective research”. The report also stated that of the potential 156 reports with relevance, only 6 could be considered original analysis or research. The majority of papers located were “considered by the project team to be expressive of company personal opinions or dealt with the overall approach to preparing and managing the safety case” (p18). The report also states that few studies provide rigorous evidence about the impact of SCRs over time. There was one study cited covering offshore regulation (presumably this is the AUPEC report) and a number of interview surveys. It concluded that “this may reflect the difficulty in isolating any possible effects of SCR from other factors that may affect safety performance”.

Overall, the report concluded that industry saw the SCR as more beneficial than burdensome and supports their philosophy and approach, particularly the goal setting style. However, for the following indicators, the evidence from the literature appeared to be mixed.

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<sup>6</sup> Entitled “Literature Review on the Perceived Benefits and Disadvantages of the UK Safety Case Regime”, it is available at <http://www.hse-databases.co.uk/research/misc/sc402083.pdf>

**(a) Hazard identification and control**

There is support for SCRs acting to improve overall hazards identification and control, mainly through the systematic *process* required to develop the case. However, there was less evidence of the potential over time to identify improvements and there was concern about paper compliance dominating mature regimes.

**(b) Safety/cultural awareness**

There was a generally positive view about increased staff awareness and improved dialogue but the evidence was mixed; the impact appears variable and depends on the “management approach” of the company. Concerns were raised about the complexity and detail of the case excluding genuine workforce participation. Other concerns were that SCRs were being used to “push through” change with limited consultation. VECTRA concluded that there were lessons to be learnt about accessibility and simplicity and dangers of documents becoming abstract and inaccessible to the workforce.

**(c) Business and security**

The report stated that business and security issues were “contentious” with some companies questioning additional costs and intangible returns. There were concerns raised about SCR obligations and costs undermining competitiveness and the inflexibility and ability of organisations to make technological change. VECTRA found that there were savings for companies in terms of loss prevention and that it was hard to verify claims about loss of flexibility. It also stated that concerns about security (in terms of having to provide detail about facilities) were legitimate.

**(d) Process and implementation**

The report outlined very mixed responses about how SCR is implemented. These included continuing lack of clarity about ALARP and risk, risk assessment; lack of clarity about goal setting cf prescription; these problems were compounded in some cases by lack of clarity on the part of the regulator. VECTRA concluded that benefits were from the SCR implementation were derived early in the process but were less clear as time passed. They also stated that careful management of the SCR was required through its life cycle and the role of the regulator was critical.

Finally, assessing the costs and benefits of the SCR was - according to the report - difficult. The industry was found to have some concerns about the longer term impact of safety cases. The costs of implementing the regimes and the lack of evidence of on-going improvements after the initial identification of risks and consequent improvements still appear to cause industry some difficulty.

### ***Other problems with safety case***

A number of commentators have highlighted other issues with a SCR that are important to take on board.

#### **Complexity, QRAs**

Wilkinson (2002:8) points out that the UK HSE and the industries it regulates have experienced a number of difficulties in applying safety cases including:

- the size and complexity of some cases with an associated lack of usefulness to an operators own workforce;
- stretching probabilistic risk assessment methods such as quantitative risk assessment beyond its reasonable usefulness;
- confidence in HSE's role.

#### **Resources, cost, ongoing issues**

Rasche, in a very helpful paper (2001) argues that the introduction of a SCR methodology - and along with it the elevation of operational safety - has resulted in "appreciable movements" in safety. He also rightly points out that few studies have commented on the actual challenges and pitfalls throughout the implementation of the SCR. Rasche raises the following general problems:

- The amount of work required to construct a safety case including the specialized and costly (outside) resources required
- Problems associated with obtaining and validating data to justify a QRA, which he says would be a particular problem for the mining industry
- SCR is still too focused on technical risk and has not yet been fully exploited to meet the need of workers
- Divergence between what is written and actual understanding of risk
- Lack of ownership of the SCR by the operation
- Ongoing maintenance of the SCR
- Interpretation and application of ALARP

Rasche correctly concludes that: "it is clear that these issues can 'make or break' the SC approach and it is therefore important that the SC methodology and its implications (costs, resources, workforce involvement etc) are fully understood by both management and the workforce".

#### **Enforcement**

Whyte (1997) raises questions about how the regulator handles enforcement in a goal setting regime. Citing an inspector, he states that "...enforcement is likely to be more difficult in a goal setting regime. In a black and white situation, it's fairly straightforward – but now if you're in a goal setting regime and they're doing some things not the way it should be done, there's a lot of judgment involved as to whether it's acceptable"(p1156).

The issue of enforcement was raised not only in the WA Ritter report, but in the NSW Mine Safety Review and the recent, as yet unreleased, Queensland Inspectorate Review. In NSW in particular, the “disconnect” between what the inspectorate aimed to do and what they were actually doing was strongly emphasized. Gunningham (2005) highlights the apparent difficulty of the inspectorate in dealing with the enforcement of safety management systems.

### **Health issues**

Health issues are notoriously poorly managed across industry. This is especially the case in the mining industry where both injury and health appear to take a back seat to more technical matters. This is also compounded by the professional mining engineering backgrounds of the inspectorate and the lack of a broader set of skills. A SCR regime would need to be able to demonstrate an improved approach to these issues.

### **Isolating the effect of the SCR**

Obviously one of the main aims of significant change in regulatory approach is to deliver improvements in health and safety. However, not only is this difficult to measure, but the as outlined in both the VECTRA and the AUPEC review of the offshore industry, the data available to demonstrate improvements was “not consistent”. Implicitly, this is acknowledged by the following taken from the “Step Change in Safety ([www.stepchangeinsafety.net](http://www.stepchangeinsafety.net)) which provides an overview of why this initiative in the offshore industry was launched.

In the years following the Piper Alpha tragedy, the oil and gas industry made significant improvements in safety through the application of hardware, changes in design, modifications, policies and procedures. Dedication and hard work by the workforce and management alike had led to a significant reduction in the number of serious accidents and injuries being reported but the rate of progress in safety performance improvement had begun to slow and plateau. Employees were still getting hurt and this was unacceptable, a "step change" approach in the safety culture was required.

The Industry was concerned that its earlier successes were not being sustained and launched the Step Change in Safety ([www.stepchangeinsafety.net](http://www.stepchangeinsafety.net)) initiative in September 1997. The campaign was to refocus the safety effort and set an ambitious target of delivering a 50 per cent improvement in the whole industry's safety performance over the following three years.

What this excerpt highlights is the importance of not assuming that a change to a SCR of itself, will deliver changes and that a comprehensive and integrated approach is the preferred one. Clearly, the HSE acknowledged that, for whatever reasons, the benefits derived from a SCR stalled, and a new or at least complementary approach was required. Any proposal for SCR in WA would need to look closely at the antecedents which generated this conclusion.

## **Lessons from Longford**

Finally, Nicol, (2001: 23-25), writing about the lessons learned from the Esso Longford disaster, raises some points also worthy of consideration with respect to any SCR proposal. He stresses the following points with respect to the post Longford management of major hazard facilities:

- some hazards are never identified and strategies for the management of unanticipated hazards must be built in;
- systems only as good as the corporate culture;
- the importance of retaining technical expertise;
- an appropriate balance is required between safety and engineering must be maintained;
- the role of corporate memory must be considered;
- site technical expertise must be retained; and
- Inter and intra company communication is vital.

### ***Industrial relations and workforce issues***

#### **Workforce involvement and increased awareness**

The claims about improved workforce involvement do not appear to be well supported by evidence.

The VECTRA report highlighted a range of criticisms associated with poor workforce involvement, due in part to the complexity of the cases, the failure to properly involve OHS representatives and the alienation of the workforce from the preparation of the SC.

This was raised in the 1999 evaluation of the offshore safety case by AUPEC, but cited in the 2001 Institute of Employment Studies review of the HSE (previously cited). This report (page 27) states:

Interestingly it [the AUPEC report] found that although employers said that the introduction of the SC following the Cullen Inquiry had led them to bring a range of new practices, the study found little evidence of ‘platform floor’ impact from surveys of the workforce

Having analysed responses from two workforce surveys – 1995 and 1998 – the authors could find no clear evidence of a major shift in workforce experience and views for instance in terms of their understanding of the law, risk perception and safety representative training

Informal discussions<sup>7</sup> with Dr Yossi Berger, National OHS Director from the Australian Workers Union confirm some of these concerns with respect to workforce involvement in the Victorian offshore industry. Berger talked of increased “arrogance” of the operators once the license was issued that appeared to lead to disempowerment of the workforce. Berger also says that the requirement for “continuous improvement” appears to give

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<sup>7</sup> Telephone Interview 4.7.05

management increased capacity to push through restructuring and others changes adverse to the workforce under the auspices of the obligations of the SC license.

Clearly these are serious deficiencies highlighted by a range of commentators. Given the less than adequate state of workforce consultation and participation outlined in the various WA reviews in the mining industry, the fact that a SCR does not appear to remedy this is of concern. Any SC proposal for WA mining will need to ensure the effective and demonstrable empowerment of the workforce.

### **Job security and industrial relations issues**

One issue that is discussed widely among industrial relations commentators, but far less by technical and safety commentators, is the impact of labour market and industrial relations issues on safety outcomes.

Refreshingly, the Gunningham Report, which formed part of the Ritter report (2004; Appendix 4) did raise the impact of industrial relations factors on safety outcomes. In particular, Gunningham stated that the transition from collectivist to individual contract arrangement was handled badly and impacted in an adverse way on safety. He also emphasised the important role played by unions, the gap that was left in non-unionised workplaces and the need to consider carefully what may fill this gap.

These same issues were raised by the CFMEU Mining and Energy Divisions in its submission to the Ritter Inquiry. The union argued that at the BHPBI operations, management rejection of collectivism and their antagonism towards unions was distorting their management of safety in a way that was compromising safety. Drawing on experiences from union and OHS delegates, the submission described the way that union OHS representatives were marginalised and their issues ignored. These “socio-political” issues are rarely considered when OHS policy and law is developed, yet they impact profoundly on the culture and practices at a workplace level.

Similar concerns have been raised with respect to the experiences of workers in the UK offshore oil and gas industry. Whyte (1997) in his critical review of safety post Piper Alpha raises very important issues with respect to the link between job insecurity on the offshore platforms, management behaviour and the impact of worker reporting behaviours. Whyte (1997:1158) explained that:

”... workers point out that there is now a constant threat of dismissal on many offshore platforms and that this leads to workers keeping their mouths shut for two weeks and not reporting hazards to safety reps or taking a proactive approach to safety. When the jobs are fewer and the competition for jobs greater, workers (especially the workers who are seen as “moaners” or “trouble makers” become increasing more disposable”.

Whyte further claimed that the offshore workforce remain largely disenfranchised and marginalised with little say in the organization of their workforce. Whilst Whyte’s claim

is strong, it is not all that far from the doubts raised in the 2003 VECTRA report about the effectiveness of worker involvement.

The impact on safety of non-standard and contingent employment is also well documented by academics such as Michael Quinlan, Clare Mayhew and Philip Bohle (2001). Again the CFMEU<sup>8</sup> raised these concerns with respect to the rapid increase in contract employment in the NSW coal industry as part of the NSW Mine Safety Review. The effect of workplace disorganisation, inappropriate economic rewards, job insecurity and compromised communication are all factors associated with compromised safety. These factors also have to be taken into account when considering the application of a SCR and consideration given to whether a SCR can address these problems.

### **Application of a SCR to the mining industry**

As discussed throughout the paper, there are a number of lessons to be taken on board with respect to the introduction of SCR. In addition to the issues discussed above, there are a range of factors to be considered with respect to the application of a SCR to the mining industry. While there are clearly many similarities between the safety and health issues to be dealt with in the mining industry, there are also differences.

Again, Rasche (2001:7) is helpful in drawing out some of the characteristics of the mining industry that are different. He states that:

Clearly, the main differences between the mining and other industries are in the dynamic mining and beneficiation processes of ore and waste materials, either in an open cut or underground mining operation.

This, according to Rasche, is significant since it means that there is a greater level of uncertainty arising from geological and geomechanical properties in mining that do not exist to the same extent in other industries. Another difference is that the mining industry is still heavily manual compared to other highly controlled and remote controlled process operations. Other factors that would need to be considered include the following:

- mining is a technologically heterogeneous industry – it combines complex and simple systems and processes within and between operations;
- mining is a dynamic environment– the product and factory “move together” and there are daily, hourly uncertainties and decisions which have to be made;
- mining is made up of small and very large operations - some complex and other “truck and shovel” operations;
- mining is geographically dispersed, especially in Western Australia and the tyranny of distance will impact on regulatory resources;
- mining is differentially located in isolated, LDC commute and in settled communities;

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<sup>8</sup> [http://www.cfmeu.asn.au/mining-energy/policy/NSW\\_safety\\_review/NationalSub.pdf](http://www.cfmeu.asn.au/mining-energy/policy/NSW_safety_review/NationalSub.pdf)

- mining is still very labour intensive, especially underground and so the management of hazards associated with human factors is critical;
- skills and training level in the mining industry are inadequate and this would need to be addressed as a matter of urgency;
- levels of labour turnover are very high (over 30% in some operations) and this will continue to impact on skill levels and training; and
- large parts of the metaliferous mining industry are unionized. This is combined with very high levels of unionization in other sectors, such as coal and the construction areas of mining. Consideration must be given to a SCR which accommodates both.

There is an important question about how a system that is based on the production of detailed safety case every three to five years can be accommodated in mining where circumstances can change rapidly and decisions and changes to plans made. Similarly, the ability to make modifications and innovations in technology, plant and equipment will need to be accommodated so that benefits to safety are not put on hold due to the work involved in resubmitting a safety case to the licensing body. We must avoid a SCR that inadvertently creates inflexibility in a system that, due to its dynamic nature, requires this flexibility.

Conversely, there is likely to be a continued important role for prescription. There are existing standards and rules that have served the mining industry well, in part due to the simplicity of the application of some standards rules (inspection regimes are a good example of this). These standards should not be sacrificed on the alter of ideological deregulation. There is no reason why a SCR cannot combine prescriptive standards, including national and international standards, within a safety management system approach.

Finally, the mining industry in every state, including Western Australia, has come under fire for inadequate worker participation and consultation. The CFMEU has continued to raise serious concerns about the impact that inadequate mechanisms for worker participation has on safety, as well as the impact of individualized employment arrangements. We would argue that insufficient attention has been given to the socio-political factors that have the potential to compromise effective worker participation; any safety case proposals must provide for these labour market and industrial relations realities.

## **Conclusions**

The likelihood of a Safety Case Regime being introduced in the WA minerals industry appears to be high. Comments about the taskforce draft report and recommendations are due by the end of July 2005; the feasibility study is due to commence shortly. There is no doubt that the introduction of such a regime will mean significant change not only for the WA industry, but may even have a flow-effect in other mining states. The likelihood of a SCR is even more surprising given that - as far as has been ascertained to date - it would

be the first time that such a regime has been introduced in a an onshore minerals/mining industry anywhere in the world.

As argued earlier, there is a need to clarify exactly what *kind* of safety case regime is being proposed for Western Australia, to take on board the lessons learned in other industries and jurisdictions, and be prepared to modify the proposed regime in recognition of the special characteristics of the mining industry.

While the taskforce report provides the general framework for the SCR, there are many still unresolved conceptual and operational details. The specific nature of a SCR have significantly implications and, Rasche (2001) observed, could make or break the success of the SCR.

The following are just some of the issues that require clarification and resolution; they are in no way exhaustive:

- the level of detail that will be required in any particular safety case;
- the role of prescription;
- the relationship with other regulations, standards and codes of practice;
- the exact role of the regulator vis a vis enforcement;
- the role and approach to enforcement and prosecution;
- how SCR needs to be adjusted, modified for mining;
- exactly how the workforce is to be empowered;
- the role of tripartism and trade unions;
- economic implications for WA mining industry of breaking away from the rest of the Australian mining industry;.
- the funding of the regulator including longer term funding issues;
- how changes/modifications to the SCR will be allowed for during the life of the license;
- role of minimum standards vis a vis goal setting approach;
- role and empowerment of OHS reps; and
- training and upskilling resources and timeframe.

It is clear that the framework for the regulation and enforcement of safety in the Australian mining industry is at a crossroads. Progress in some states has been made, but in most states this progress has been stalled. There appears to be systemic problems associated with the “disconnect” between aims and implementation of the current systems, with the role and resources of the inspectorate and serious deficiencies with workforce participation and consultation. The proposal for a SCR regime in Western Australia is an attempt to try to address some of these deficiencies.

However, this proposal must be carefully and cautiously assessed, the special characteristics of the mining industry accommodated and the socio-political problems associated with the mining labour market and industrial relations environment addressed. We must avoid the temptation to merely assert that a new approach is effective without being able to provide evidence; we must avoid the temptation to introduce a system that merely displaces one set of problems for another.

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