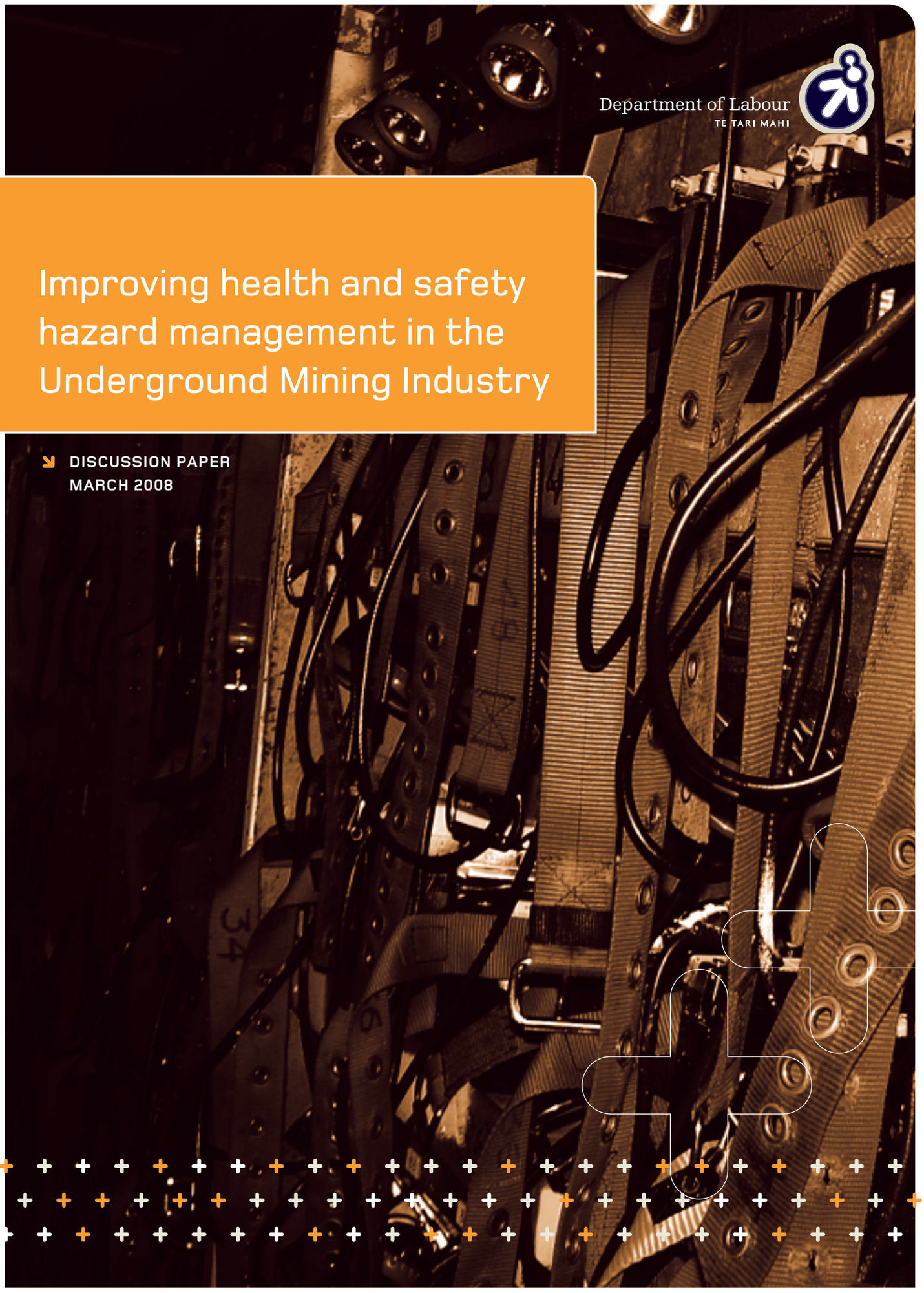

Department of Labour
TE TARI MAHI

# Improving health and safety hazard management in the Underground Mining Industry

DISCUSSION PAPER
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# FOREWORD

Underground mining is an important part of New Zealand's economy and history. However, working in an underground coal or metalliferous mine can be hazardous, with the potential for catastrophic incidents. It is vital that good health and safety practices are in place – because people's lives depend on them.

I asked the Department of Labour to undertake a review of the current Health and Safety in Employment regulatory framework as it relates to underground mining and to assess whether it is effective in managing the hazards faced in the underground mining environment.

The Department of Labour was well placed to undertake this work, as their mission is to provide best practice information and guidance to assist New Zealand businesses with health and safety issues in the workplace. In addition, the Department of Labour also inspects workplaces to check on safety and health arrangements, investigates incidents at work and makes sure employers and employees comply with health and safety legislation.

My concern was whether the regulatory framework enabled mining businesses to manage hazards to their full potential. The review found that, while the fundamentals of the regulations are sound, there is an opportunity to improve the current framework and supporting guidance to enable businesses to better manage the hazards they face.

This discussion document sets out the concerns that have emerged from this review. It introduces options that are aimed at improving the way hazards are identified and managed. It has been produced to give interested parties the opportunity to express their ideas and opinions on the options.

This document is not aimed at finding solutions that will create an unfair advantage to larger operators; it is about finding solutions that will improve health and safety for all mines.

I strongly encourage employers, unions, industry groups and individuals to consider this discussion document and contribute to the development of options to improve the ways hazards are identified and managed in underground mines. The review process will benefit from having the widest possible input from all the interested parties.

Your input will help create highly tailored options that effectively address the concerns that have been identified.

Together, we will make underground mines safer places to work.

**Hon Trevor Mallard**

**Minister of Labour**

## YOUR RESPONSE INVITED

The Department of Labour would like your feedback on effective ways to improve the identification and management of hazards in the underground mining industry. This document outlines some of the approaches that could be used to achieve this.

We want to hear what you think about these approaches, as well as any general thoughts you have on issues related to health and safety currently facing the underground mining industry. You can either answer the questions set out in the paper or submit a statement of your views.

Submissions are encouraged as it greatly enhances our analysis and decision-making process.

### Making submissions

To help you make a submission, an electronic document is available on the Department of Labour website: www.dol.govt.nz

Please email your submission to: undergroundmining@dol.govt.nz or, alternatively, send it to:

Review of Underground Mining

Workplace Policy Group

Department of Labour

PO Box 3705

Wellington

A response form is provided in this paper if you would like to make a written submission.

Submissions close on 6 June 2008.

A document providing an overview of submissions will be posted at www.dol.govt.nz with details of how government intends to proceed with the review.

The substantive regulatory impact analysis elements have been included in this document at a level that is reasonable given the stage of the policy development process.

Please note that any submissions that you make may be the subject of a request under the Official Information Act 1982. To assist the Department of Labour with the processing of any such requests, please indicate at the beginning of your submissions, whether or not you would like the contents made a matter of public record. Any request for non-disclosure will be considered in terms of the Official Information Act.

# CONTENTS

# INTRODUCTION

The mining industry is an important part of New Zealand's economy. The Department of Labour is currently reviewing how hazards are managed in underground coal and metalliferous mines. We need your help to ensure we have a skilled workforce in safe, healthy and productive workplaces.

We would like to work with you to make underground mines safer places to work.

## Existing regulatory framework

The underground mining industry is governed by the Health and Safety in Employment (HSE) Act 1992 and associated regulations.

The HSE Act places a broad duty on all workplaces to have effective systems to identify and manage hazards. Where a hazard is significant, the workplace must take all practicable steps to eliminate, isolate or minimise the hazard.

The main regulations for underground mining are the HSE (Mining – Underground) Regulations 1999 and the HSE (Mining Administration) Regulations 1996.

The Mining Underground Regulations describe processes for managing hazards in underground coal and metalliferous mines to prevent harm. For example the regulations require:

- plans of mines and tunnels
- an operations record to be kept that records measurements, readings, misfires and other items
- a record of employees working underground
- the examination of the mines and tunnels by a competent person
- testing of flammable gas, advance holes, holing into old workings, ventilation, air quality, equipment and so on.

The Mining Administration Regulations set out the different levels of managerial competency required to work in an underground mine. The Mining Administration Regulations also set out the competencies required for workers performing specific tasks (for example, gas testing).

The Hazardous Substances and New Organisms (HSNO) Regulations are also applicable to the use of explosives in underground mines, for example, misfires are addressed in regulation 33 of the Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001.

## What is the problem?

There are an estimated four to six underground coal mines currently operating in New Zealand, with around 300–350 employees. There are also three underground metalliferous mines currently operating.

Underground mining is an inherently hazardous industry with the potential for catastrophic incidents, as evidenced by recent fatalities. Good health and safety practices are crucial, as people's lives depend on them.

On-site competency is essential, as the variety of engineering and geological hazards faced by workers in the underground mining industry distinguishes it from many other industries.

In the five-year period from 1 January 2000 to 31 December 2005, the Department of Labour received 51 notifications of serious harm to employees working in underground mines.

In 2006, the ACC incidence rate (claims per 1,000 FTEs) for mining was 165, with 1,000 claims. This includes both above-ground and underground mining. Only agriculture, forestry and fishing had a higher rate of 177, with 22,800 claims. In 2005, mining had the highest incidence rate of all industries with 198 ACC claims per 1,000 FTEs, with 1,100 claims. The injury and fatality rate of 0.9 per 1,000 full-time equivalent (FTE) employees has remained stable over the past 10 years.

An analysis of hazard management in the underground mining industry has identified the following concerns:

- The ways hazards are managed varies across workplaces. There is little process-based prescription to support either the general duties of the HSE Act, or the more generic processes of the Health and Safety in Employment (Mining – Underground) Regulations 1999 (Mining Underground Regulations).
- The Mining Underground Regulations are performance-based, so some mines, particularly smaller mines, may have trouble deciding how best to comply. The lack of compliance suggests the regulatory framework is not as efficient or effective as it could be.
- A lack of procedural guidance around employee participation in the underground mining industry leaves employee participation potentially open to commercial pressures and day-to-day worksite management decisions.
- Smaller underground mines may have a manager in charge who holds a lesser qualification than a larger mine manager in charge would hold. This situation may not be adequate, given that the hazards requiring management in an underground mining environment are generally unrelated to the number of people employed on the site.
- The tight labour market means fewer workers experienced in hazard management are available.

## What is this paper about?

The Department of Labour wants your views on what will help the underground mining industry identify and manage hazards effectively and create safe and healthy workplace systems, cultures and practices.

We want to achieve the right mix of regulatory and other changes to improve the ways hazards are identified and managed. This document sets out a range of high-level approaches for achieving this.

We will use your feedback to advise the government on the best mix of approaches and options to improve the ways hazards are identified and managed.

## THE RANGE OF APPROACHES

There are a range of options available, but the real challenge is to achieve the optimal mix of approaches that will improve the ways hazards are identified and managed in underground mining.

We may need to combine a number of approaches to make sure we get it right for both small and large mining operations in New Zealand.

Outlined in this paper are some of the potential options identified as possible means of improving the ways hazards are identified and managed within the underground mining industry. We would like your views on:

- what would be most effective in improving the ways hazards are identified and managed
- potential problems and impacts you think may occur
- potential variations to these options to improve them
- if you feel that a mix of more than one of these options would be more effective in improving the ways hazards are identified and managed, what combinations you think would work
- any other options that are not listed here that you think would be effective in improving the ways hazards are identified and managed.

The possible approaches are not overly detailed because we want to use your feedback to shape them into options that are the most effective in improving the ways hazards are identified and managed. Input from the industry will help us do that. We have, however, provided some practical examples of how the approaches might work.

| GENERAL QUESTIONS TO THINK ABOUT |
| --- |
| What option(s) do you think would be effective in improving hazard identification and management for underground mining? |
| What option(s) do you think would not be effective in underground mining to improve hazard identification and management? |
| Can you think of any possible variations and features that would enhance the options? |
| Can you think of any options not listed here that would improve hazard identification and management in the underground mining industry? |
| What combinations of options (if any) do you think would work well? |

The Department of Labour has set out our initial analysis of the benefits and risks of each option in Appendix 1. We would appreciate you telling us what you think and adding to the table where you think we have left something important out.

### Potential options

The potential options are organised into six different approaches to improve the ways hazards are identified and managed in the underground mining industry:

I. A new safety case hazard management system

II. Ways to improve notification of hazards

III. Ways to improve guidance

IV. Ways to amend regulatory coverage

V. Ways to improve employee participation

VI. Ways to improve health and safety inspections.

## I. A NEW SAFETY CASE HAZARD MANAGEMENT SYSTEM

### Safety case regime

PROPOSAL

A safety case regime would require operators to present a case to a Department of Labour inspector to demonstrate how they will manage safety. The case would need to be approved before operations could begin.

EXPLANATION

A safety case regime is an objective-based regime where legislation sets broad safety objectives for the mine operator. The operator is responsible for the on-going management of safety and develops the most appropriate methods to achieve those objectives.

The operator must make a 'case' demonstrating to the Department of Labour how they will manage safety effectively. The Department of Labour reviews the case and must approve it before operations can begin, and the operation must follow the methods set out in the safety case.

EXAMPLE

Safety case regimes are used overseas in high-risk sectors. Examples include those operated by the Major Hazard Facilities Division of WorkSafe Victoria and the National Offshore Petroleum Safety Authority (a Statutory Authority regulating Commonwealth, State and Territory coastal waters). The United Kingdom also introduced a safety case regime for their rail system.

New Zealand currently has a safety case regime in the railway sector. The Railways Act 2005 sets out the contents of what must be contained in the safety case. The case must be submitted to obtain a licence to enable the applicant to operate. The railway industry currently has one very large operator (Toll NZ), several large operators and around 75 very small operators.

The rail safety case mustinclude, for example:

- the safety policy and objectives, and how these will be given effect
- the management systems that identify and assess risks and develop and implement risk control measures
- the arrangements that are in place to ensure that equipment is fit for purpose, safety critical tasks are clearly identified, and workers have received appropriate training and are competent
- processes for the continuous review of the rail participant's activities to identify potentially significant changes.

POSSIBLE VARIATIONS/FEATURES

A plan in the style of a safety case could be required without the requirement that it must be signed off by an inspector (see systems and plans option below).

Safety cases could be applied to selected parts of an operation, for example, for certain sizes of operations, certain activities or phases in the development of a mine.

| SAFETY CASE |
| --- |
| QUESTIONS: |
| Do you think the safety case regime would work well for underground mining to improve the ways hazards are identified and managed? Why/why not? |
| What do you think are the main benefits and costs of this option? |
| What do you think of the variations and features proposed? Can you add any more? |

## II. WAYS TO IMPROVE NOTIFICATION OF HAZARDS

### a. Licensing regime

PROPOSAL

Certain activities, such as high-risk activities, would require a licence to perform.

EXPLANATION

A licence from an inspector would be required before a licence holder carried out the activity. The licence application would need to show that the person has the appropriate qualifications or can demonstrate sufficient knowledge of the activity.

EXAMPLE

In New South Wales, some activities also require a licence to perform them. Activities requiring a licence include (but are not limited to) shaft or drift sinking, raise boring and development of a new underground mine entry. Unless a licence is obtained from the chief inspector, that activity is unable to be carried out. The applicant for the licence must be over 18 with appropriate qualifications to demonstrate their knowledge, and they must be a fit and proper person.

| LICENSING REGIME |
| --- |
| QUESTIONS: |
| Do you think the licensing regime would work well for underground mining to improve the ways hazards are identified and managed? Why/why not? |
| What activities should require a licence? |
| Should the licence be a one-off type, or valid for a certain period of time? |
| What would the appropriate qualifications or knowledge be? |
| What do you think are the main benefits and costs of this option? |
| Can you think of any variations and features that would enhance this option? |

## b. Third-party monitoring system

PROPOSAL

Certain activities would need to be performed by, or under the supervision of, an appropriately qualified person.

EXPLANATION

Certain activities would require the supervision of, or would need to be carried out by, a suitably qualified person. Regulations would determine the activities, and who a suitably qualified person was.

EXAMPLE

A mine survey would need to be carried out by, or under the close supervision of, a mine surveyor.

This requirement already exists in respect of the use of explosives in mines. A person must be an approved handler under the Hazardous Substances and New Organisms (Personnel Qualifications) Regulations 2001.

| THIRD-PARTY MONITORING SYSTEM |
| --- |
| **QUESTIONS:** |
| Do you think a third party monitoring system would work well for underground mining to improve the ways hazards are identified and managed? Why/why not? |
| What activities should require monitoring? |
| Who would a suitably qualified person be? |
| What do you think are the main benefits and costs of this option? |
| Can you think of any variations and/or features that would enhance the option? |

## c. Notification regime for certain high-risk activities

PROPOSAL

High-risk activities would need to be notified to an inspector before they are carried out.

EXPLANATION

Certain activities deemed high-risk would need to be notified to an inspector. A notice would be needed containing the nature of the activity, the intended commencement date and information that is deemed necessary for that activity. There would be a waiting period that could vary between activities from the time the notice is given to the commencement of the activity.

EXAMPLE

Currently, Regulation 8 of the Mining Underground Regulations requires that an inspector is notified of the commencement, recommencement or cessation of any operation. Regulation 8(4) also requires that an inspector is notified of the installation of a shaft or winding system not less than 14 days before the proposed date of installation. These requirements could be extended to include other activities.

There are notification requirements under HSNO Regulations that a person in charge of any transportation on public roads or by rail of explosives must notify an enforcement officer appointed by Police at least 24 hours before departure.

New South Wales currently requires notification when certain activities are being carried out. They include (but are not limited to) single entry development, sealing when

an explosive atmosphere may result, working within an inrush control zone, injection or application of polymeric material for ventilation or strata, and cutting or welding in a hazardous zone underground.

POSSIBLE VARIATIONS/FEATURES

Potential for an online notification system that will be less onerous than written applications.

The current notification requirements could be expanded to include high-risk activities and require information deemed necessary by inspectors. The information required could potentially be in the form of a safety case for each activity (see safety case option above).

| NOTIFICATION REGIME FOR CERTAIN HIGH-RISK ACTIVITIES |
| --- |
| QUESTIONS: |
| Do you think a notification regime would work well for underground mining to improve the ways hazards are identified and managed? Why/why not? |
| What activities should be included? |
| What information should be required? |
| What do you think are the main benefits and costs of this option? |
| What do you think of the variations and features proposed? Can you add any more? |

## III. WAYS TO IMPROVE GUIDANCE

### a. Health and safety management systems and major hazard management plans

PROPOSAL

Operations would be required to provide health and safety management systems and a major hazard management plan.

EXPLANATION

The systems and plans are already required under the HSE Act, but the requirement could be strengthened by including it, and expanding on the requirements, in the Mining Underground Regulations.

EXAMPLE

The state of Victoria's regulations require a safety management system to be documented, containing:

- the operator's safety policy
- the systems and procedures by which risks are controlled
- performance standards for measuring the effectiveness of the system
- the way the standards are to be met
- the audit process.

Victoria also requires a safety assessment for major mining hazards to be prepared containing methodology; the nature, likelihood and severity of the potential harm; judgements; measures for the control of risk; and reasons for adopting or rejecting control measures.

The plans could cover, for example:

- a risk management system
- spontaneous combustion
- ventilation
- gas management
- mining methods and strata management – this could potentially include a comprehensive strata management plan that includes, as a minimum, matters discussed in the Manual on Pillar Extraction in NSW Underground Coal Mines, MDG No. 1005 – Strata Management Plan Control Cycle
- mining transport systems and production equipment
- mine services and infrastructure systems
- emergency preparedness and response systems.

**HEALTH AND SAFETY MANAGEMENT SYSTEMS AND MAJOR HAZARD MANAGEMENT PLANS**

**QUESTIONS:**

Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

What should be detailed in the systems?

What hazards should require a plan, and what should the plan include?

What do you think are the main benefits and costs of this option?

Are there any differences between large and small underground mines that would lead to different requirements in the systems and plans?

### b. Increased supporting guidance, including an approved code of practice (ACOP) on hazard management

PROPOSAL

An ACOP will be completed to increase the amount of material supporting the regulations.

EXPLANATION

An ACOP would be prepared under the HSE Act. It would develop and formalise guidelines for the underground mining industry. Complying with an ACOP is not compulsory. However, conforming to one is accepted as evidence of good practice, and may provide a defence against any complaints of non-compliance with the HSE Act.

We note that a draft ACOP has been developed for the underground mining industry. This option would look to reviewing and completing this ACOP.

POSSIBLE VARIATIONS/FEATURES

Guidance material could also be produced on other areas of health and safety related to mining where there is evidence that it is currently absent.

**INCREASED SUPPORTING GUIDANCE**

**QUESTIONS:**

Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

What ACOP development process would you prefer? (For example, should it be written by industry and unions, the Department of Labour, or developed by industry, unions and government together?)

What areas would you like to see specific guidance on?

What do you think are the main benefits and costs of this option?

Can you think of any variations and features that would enhance the option?

## IV. WAYS TO AMEND REGULATORY COVERAGE

### a. Extending coverage of the HSE (Mining Underground) Regulations 1999

PROPOSAL

The regulations would be reviewed to identify gaps in the coverage of hazards.

EXAMPLE

Gaps we have already identified in the regulations are:

- machinery – relating to conveyors, crushers and the provision of emergency stops
- vehicles and transport – relating to condition of access ways, roadways and slopes, and separation distances of walkways from flume roads.

We would review the regulations further to identify any other potential gaps that need addressing.

**EXTENDING THE COVERAGE OF THE MINING UNDERGROUND REGULATIONS**

**QUESTIONS:**

Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

What do you think are the main benefits and costs of this option?

What gaps do you think currently exist in the regulations that need addressing?

### b. Amending the HSE (Mining Administration) Regulations 1996

PROPOSAL

Regulation 11(3)(b) would be deleted so a coal mine deputy would no longer be able to run a mine employing eight or fewer people.

EXPLANATION

As Regulation 11 of the Mining Administration Regulations currently stands, smaller underground coal mines may have a manager in charge who holds a lesser qualification

than a larger mine manager in charge would hold. This regulatory hierarchy does not recognise that the hazards requiring management in an underground coal mining environment are predominantly unrelated to the number of people employed on the site.

EXAMPLE

Regulation 11(3)(b) would be revoked so that a holder of a coal mine deputy certificate of competence is no longer considered qualified to manage an underground coal mine where eight or fewer people are present. Underground coal mine managers in charge would then require a coal mine underviewer certificate for an underground coal mine where eight or fewer people are ordinarily at work at any one time. Underground coal mines currently run by a coal mine deputy would require their person in charge to upgrade to a coal mine underviewer certificate.

**AMENDING THE MINING ADMINISTRATION REGULATIONS**

**QUESTIONS**:

Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

What do you think are the main benefits and costs of this option?

What impact do you think this option would have on smaller mines?

## V. WAYS TO IMPROVE EMPLOYEE PARTICIPATION

### Employee participation requirements

PROPOSAL

The way employees participate in the management of hazards in underground mines would be set out.

EXPLANATION

Employee participation is crucial to improving the way hazards are identified and managed in underground mines. Various requirements relating to employee participation could be set out in order to improve the involvement of employees in hazard identification and management.

EXAMPLE

There are a number of ways that requirements relating to employee participation could be set out, from amending primary legislation through to guidance. Below are four possibilities of how to improve employee participation, ordered from setting mandatory requirements through primary legislation and regulations, through to improved guidance and information.

I AMENDING PRIMARY LEGISLATION

A mandatory role of a check inspector could be created, with various powers and duties. Due to the performance-based nature of the HSE framework and the current regulation-making powers under the HSE Act, this option is not possible to achieve through amendments to current

regulations. To accommodate the option in its entirety, primary legislation would need to be amended, or specialised legislation would need to be created.

The elected check inspector would:

- be recognised and provided for in legislation
- be an employee of the mine
- have at least five years' experience working in an underground mine
- hold at least a coal mine deputy and/or a gas tester certificate of competence
- be a health and safety representative. (While this would be preferred, it would not need to be a mandatory requirement.)

The check inspector would have the following legislative roles and powers:

- The right to check all miners' gear and check that all miners clearly understand their role, tasks and hazards before they go underground, to help ensure their safety.
- The power to detain individuals and groups from going underground if their gear is not up to standard, or if they are not clear on their tasks or how to manage the hazards.
- The power to request the manager to immediately order the withdrawal of employees from the mine or that part of it that is believed to be dangerous to life or injurious to health (determined by the check inspector), or to immediately order the discontinuance of any dangerous practice, as well as the power to evacuate a mine in emergency situations.
- A statutory right to access and liaise with the health and safety inspectorate.
- An entitlement to two additional days' training per year in addition to the health and safety representative's training provisions in the HSE Act.
- The right to inspect every part of the mine and its machinery and workings, once every two weeks, or on receiving notice from two or more persons employed in the mine that it is their belief that the mine or its machinery is in a condition dangerous to life or injurious to health, or that any dangerous practice exists in the working of the mine.
- On completing an inspection of a mine, to prepare a written report of the results of the inspection, sign it, and send or deliver it to the manager of the mine.

The check inspector would notify the mine manager in writing of the time of the proposed inspection and the reason for making it. The mine manager or some other person appointed by them would accompany every check inspector making an inspection, and would be required to give the check inspector full and free facilities for the inspection.

If the report stated that the mine or any part of it was in a condition dangerous to life or injurious to health, or that any dangerous practice existed in the working of the mine, then the mine manager would be required to immediately forward a copy of the report to the health and safety inspectorate. The check inspector would also be able to order the immediate withdrawal of employees.

If a mine manager failed within a reasonable time to comply with a recommendation in the report served on them by a check inspector, the check inspector would forward a copy of the report to the health and safety inspectorate.

This role would likely be a full-time position, and the check inspector would not be able to carry out normal duties. As some small mines will not have enough employees to have a separate check inspector, a 'roving check inspector' role could be developed, where a check inspector from a neighbouring mine would visit the small mine and perform the required tasks.

II AMENDING REGULATIONS

This option would require amendments to regulations. There are two potential ways of improving employee participation through amending regulations.

### Amended version of check inspector

An amended version of the check inspector, as set out above, could be provided for in regulations. The option above would be reframed to mention duties, not powers, to better fit with the intent of the regulation-making powers of the HSE Act. The parts of the option that may not be possible under current regulations – entitlement to two more days paid leave to train and regulating hours of work and payment – would be removed.

### Expanding options in this paper

Alternatively, certain aspects of the check inspector option could be incorporated into the options already in this document – hazard management systems, increased supporting guidance, and a safety case regime.

To add to the option of hazard management plans above, certain aspects of the check inspector option could be used to expand the option. Therefore, if hazard management plans were to be compulsory, operators could be required to state how they propose to carry out certain duties. For example, employers may have to specify in hazard management plans:

- how they intend to inspect miners' gear and how they will ensure that all miners clearly understand their role, tasks and hazards before they go underground
- the process of preventing individuals and groups from going underground if their gear is not up to standard, or if they are not clear on their tasks or how to manage the hazards
- how they will order the withdrawal

of employees from the mine or that part of it that is dangerous to life or injurious to health, or how they will order discontinuance of any dangerous practice

- how they will inspect every part of the mine and its machinery and workings on a regular basis.

Additionally, the option of the development of an employee participation ACOP specific to the underground mining industry (see below) could include the aspects of the check inspector regime set out above.

The safety case regime option above could also include employee participation aspects, for example, asking employers to specify how they would ensure good employee participation.

III INCREASED GUIDANCE VIA AN ACOP ON EMPLOYEE PARTICIPATION

An ACOP could be developed to provide guidance around employee participation and the role of employee health and safety representatives. Under section 19B(3) of the HSE Act, when it comes to employee participation, an employer must take into account any approved code of practice for employee participation in workplace health and safety.

**EMPLOYEE PARTICIPATION REQUIREMENTS**

**QUESTIONS:**

There are four possibilities to improve employee participation under this option:

Amending primary legislation to include a check inspector regime.

Amending current regulations to include a modified version of a check inspector regime, with powers reframed as duties and certain aspects removed.

Incorporating certain aspects of the check inspector regime into the existing options in this paper on safety cases, hazard management plans and employee participation ACOPs.

Creating an employee participation ACOP.

Think about each possibility separately. Do you think they would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

What do you think are the main benefits and costs of each possibility?

What impact do you think each possibility would have on smaller mines?

## VI. WAYS TO IMPROVE HEALTH AND SAFETY INSPECTIONS

### Requirements for health and safety inspectors

PROPOSAL

Legislation could be passed setting out what is required by health and safety inspectors when they are visiting underground mines. Requirements would include the frequency and nature of visits.

EXPLANATION

It may not be possible to amend the current regulations applying to underground mining to specify the frequency and nature of inspectorate visits. Amendments to the HSE Act, or new specialised legislation, would be required.

EXAMPLE

Legislation could specify the frequency and nature of visits by the health and safety inspectorate. For example, the inspectors must:

- go underground when they inspect the mine
- visit every mine in operation
- visit every mine on a regular three-month cycle.

**REQUIREMENTS FOR HEALTH AND SAFETY INSPECTORS**

**QUESTIONS:**

Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

What do you think are the main benefits and costs of this option?

What could the legislation specify regarding health and safety inspector visits?

Can you think of any variations and features that would enhance this option?

## CONCLUSION

The breadth and complexity of issues that arise in underground mining require detailed input from stakeholders and other interested parties in order to effectively address the identified concerns.

We need to know what you think is needed to improve the ways hazards are identified and managed within the underground mining industry.

There are a range of potential approaches available. Please take the time to give us your feedback on the approaches outlined in this document. Your feedback will greatly enhance our analysis and advice to government.

## RESPONSE FORM: IMPROVING HAZARD MANAGEMENT WITHIN THE UNDERGROUND MINING INDUSTRY

The Department of Labour wants to know your views on approaches and options to improve the ways hazards are identified and managed in the underground mining industry. You can answer the questions in the form provided in the paper, use the online form found at www.dol.govt.nz, or submit a statement about your views.

Responses are due by 5pm, 6 June 2008 and can be sent by post, email or fax to:

**Review of Underground Mining**
**Workplace Health and Safety**
**Department of Labour**
**P O Box 3705**
**Wellington 6140**
**Fax: 04 499 0891**
**Email: undergroundmining@dol.govt.nz**

If you have any questions about the consultation process, please email **undergroundmining@dol.govt.nz**

Details of respondent:

Name: _____

Address: _____

_____

Phone (optional): _____

Email (optional): _____

I am responding:
❑ as an individual
❑ on behalf of an organisation

Organisation/business name (if applicable): _____

Please tick the box below that best describes you for the purposes of this consultation:

❏ Employee

❏ Small business (up to 10 staff)

❏ Medium business (11 to 50 staff)

❏ Large business (over 50 staff)

❏ Business representative organisation/industry group

❏ Trade union

❏ Community group

❏ Training organisation

❏ Other (please describe)

## TELL US WHAT YOU THINK

We would like to hear what you think of each of the individual options and would be grateful if you could answer the questions following each of the options.

### Safety case

1. Do you think the safety case regime would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

2. What do you think are the main benefits and costs of this option?

3. What do you think of the variations and features proposed? Can you add any more?

## Licensing regime

4. Do you think the licensing regime would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

5. What activities should require a licence?

6. Should the licence be a one-off type, or valid for a certain period of time?

7. What would the appropriate qualifications or knowledge be?

8. What do you think are the main benefits and costs of this option?

9. Can you think of any variations and features that would enhance this option?

### Third–party monitoring system

10. Do you think a third party monitoring system would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

11. What activities should require monitoring?

12. Who would a suitably qualified person be?

13. What do you think are the main benefits and costs of this option?

14. Can you think of any variations and/or features that would enhance the option?

## Notification regime for certain high–risk activities

15. Do you think a notification regime would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

16. What activities should be included?

17. What information should be required?

18. What do you think are the main benefits and costs of this option?

19. What do you think of the variations and features proposed? Can you add any more?

## Health and safety management systems and major hazard management plans

20. Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

21. What should be detailed in the systems?

22. What hazards should require a plan, and what should the plan include?

23. What do you think are the main benefits and costs of this option?

24. Are there any differences between large and small underground mines that would lead to different requirements in the systems and plans?

### Increased supporting guidance

25. Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

26. What ACOP development process would you prefer? (For example, should it be written by industry and unions, the Department of Labour, or developed by industry, unions and government together?)

27. What areas would you like to see specific guidance on?

28. What do you think are the main benefits and costs of this option?

29. Can you think of any variations and features that would enhance the option?

### Extending the coverage of the Mining Underground Regulations

30. Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

31. What do you think are the main benefits and costs of this option?

32. What gaps do you think currently exist in the regulations that need addressing?

### Amending the Mining Administration Regulations

33. Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

34. What do you think are the main benefits and costs of this option?

35. What impact do you think this option would have on smaller mines?

### Employee participation requirements

There are four possibilities to improve employee participation under this option:

a. Amending primary legislation to include a check inspector regime.

b. Amending current regulations to include a modified version of a check inspector regime, with powers reframed as duties and certain aspects removed.

c. Incorporating certain aspects of the check inspector regime into the existing options in this paper on safety cases, hazard management plans and employee participation ACOPs.

d. Creating an employee participation ACOP.

36. Think about each possibility separately. Do you think they would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

37. What do you think are the main benefits and costs of each possibility?

38. What impact do you think each possibility would have on smaller mines?

### Requirements for health and safety inspectors

39. Do you think this option would work well for underground mining to improve the ways hazards are identified and managed? Why/why not?

40. What do you think are the main benefits and costs of this option?

41. What could the legislation specify regarding health and safety inspector visits?

42. Can you think of any variations and features that would enhance this option?

## Additional questions

In addition, we would like to know your views on the following:

1. What do you think are the main health and safety issues facing the underground mining industry today that need addressing?

2. The Department of Labour notes that mine plans are a key health and safety resource for underground mining. In particular, plans of old mine workings are critical to mine safety. There is currently no coordination on the availability and use of these plans, or of their maintenance. Do you think it would be of value to implement a system to ensure all plans are available to those who require them? If so, do you have any suggestions on how this could be done?

3. What combinations of options do you think would be effective for the industry to improve the ways hazards are identified and managed in the underground mining industry?

4. Can you think of any options that are not mentioned here that would be effective in improving the ways hazards are identified and managed in the underground mining industry?

5. Have we left anything out of Appendix 1?

6. Can you think of anything else that would help improve the ways hazards are identified and managed within the underground mining industry?

Please note that any submissions that you make may be the subject of a request under the Official Information Act 1982. To assist the Department of Labour with the processing of any such requests, please indicate at the beginning of your submission whether or not you would like the contents made a matter of public record.

These requirements are similar to the HSE Act's requirements for a hazard identification system, although they set out in greater detail what is required.

# APPENDIX 1: BENEFITS AND RISKS OF THE OPTIONS

| OPTION | DOES THIS OPTION REQUIRE AN AMENDMENT TO THE REGULATIONS? | HOW DOES THIS OPTION ADDRESS THE PROBLEM OF INCREASING HAZARD MANAGEMENT? | WHAT ARE THE BENEFITS OF THIS OPTION? | WHAT ARE THE RISKS OF THIS OPTION? | COMMENT |
|---|---|---|---|---|---|
| SAFETY CASE REGIME | Yes – the requirements of the safety case must be set out. | The case must be approved before operations can begin. This allows the regulator to make sure appropriate processes are in place. | An improved understanding of hazards and risks present in mines, and the controls required to manage them.<br><br>Improved oversight by the regulator in advance of work being done. | It will only be effective with a well-resourced regulator with the capacity to oversee the plans and distinguish between credible safety strategies and mere 'paper systems'.<br><br>The mining industry is relatively small; the introduction of such a comprehensive system may be seen as excessive.<br><br>The compliance costs involved could potentially affect the viability of the mine due to the time and money involved in creating and maintaining a safety case.<br><br>Small businesses may be disadvantaged as they have less expertise in safety management systems, and may require external expertise.<br><br>May assist in subsequent inspections but it does not replace the need for subsequent checks. | |

| OPTION | DOES THIS OPTION REQUIRE AN AMENDMENT TO THE REGULATIONS? | HOW DOES THIS OPTION ADDRESS THE PROBLEM OF INCREASING HAZARD MANAGEMENT? | WHAT ARE THE BENEFITS OF THIS OPTION? | WHAT ARE THE RISKS OF THIS OPTION? | COMMENT |
|---|---|---|---|---|---|
| LICENSING REGIME | Yes – the requirements of the monitoring system must be set out. | Inspectors will be more aware and able to make sure that hazard management has been taken into account. | Improved hazard management, as the activities would be carried out by qualified people. | Increased compliance costs involved in securing an expert.<br><br>Mines may need to bring in external people if they do not have appropriate qualifications, increasing compliance costs (especially in small operations). | Which activities would be included?<br><br>Would the licence be a one-off type, or will it be valid for a period of months or years?<br><br>What would appropriate qualifications be? |
| THIRD-PARTY MONITORING SYSTEM | Yes – the requirements of the monitoring system must be set out. | Activities will be carried out by suitably qualified people, reducing potential risks. | Improved hazard management, as the activities would be carried out by qualified people. | Increased compliance costs involved in securing an expert.<br><br>Small operations may face more costs; larger operations may have the expertise required already on site.<br><br>If there is a shortage in available experts, delay in operations will occur. | Which activities would be included?<br><br>Which qualifications would be considered appropriate? |

| OPTION | DOES THIS OPTION REQUIRE AN AMENDMENT TO THE REGULATIONS? | HOW DOES THIS OPTION ADDRESS THE PROBLEM OF INCREASING HAZARD MANAGEMENT? | WHAT ARE THE BENEFITS OF THIS OPTION? | WHAT ARE THE RISKS OF THIS OPTION? | COMMENT |
|---|---|---|---|---|---|
| NOTIFICATION REGIME FOR HIGH-RISK ACTIVITIES | Yes – expansion of section 8 of the regulations to include other high-risk activities. | Inspectors will be more aware and able to make sure that hazard management has been taken into account. | Inspectors would be notified of any dangerous activities so they can intervene if deemed necessary, leading to more managed hazards. | Increased compliance costs from notifying the inspectors. | What activities would be included and what information would be needed? |
| H&S MANAGEMENT SYSTEMS AND MAJOR HAZARD MANAGEMENT PLANS | Yes – the requirements of the systems and plans must be set out. | The best way to manage hazards will be set out on paper for the operator to follow. | Improved knowledge, awareness and management of hazards. | Increased compliance costs in preparing and maintaining the plans.<br><br>Operators can create or obtain 'paper plans', which look good on paper, but are not put into practice. | What would need to be included? |

| OPTION | DOES THIS OPTION REQUIRE AN AMENDMENT TO THE REGULATIONS? | HOW DOES THIS OPTION ADDRESS THE PROBLEM OF INCREASING HAZARD MANAGEMENT? | WHAT ARE THE BENEFITS OF THIS OPTION? | WHAT ARE THE RISKS OF THIS OPTION? | COMMENT |
|---|---|---|---|---|---|
| SUPPORTING GUIDANCE AND ACOPS TO IMPROVE HAZARD MANAGEMENT | No. | Mining operations will have more guidance around how to manage hazards day to day. | Potential increased guidance in the mining sector, leading to better hazard management.<br><br>Relatively cheap compared to other options.<br><br>Does not involve a change to the regulations or the Act. | Constant resource will be needed to ensure they are kept up to date.<br><br>There will be nothing binding in the supporting guidance to ensure they are followed. | Apart from the ACOP, what other guidance material would be needed?<br><br>What form would the ACOP take (i.e. would it be written by industry, us, or as a collaborative effort)? |
| EXTEND COVERAGE OF MINING UNDERGROUND REGULATIONS | Yes – any gaps identified would require an amendment to include them. | Further areas that present hazards would be regulated for to improve the way the hazards are managed. | Improved hazard management of certain activities. | Adding further activities to the regulations does not ensure, in itself, that the hazards will be managed better.<br><br>It may be seen by the industry as just adding more requirements that they need to follow, without more guidance. | What other gaps are present in the regulations besides machinery standards (conveyors, crushers, provision of emergency stops), vehicles and transport issues (access and condition of roadways, slopes, separation of walkways from flume roads)? |

| OPTION | DOES THIS OPTION REQUIRE AN AMENDMENT TO THE REGULATIONS? | HOW DOES THIS OPTION ADDRESS THE PROBLEM OF INCREASING HAZARD MANAGEMENT? | WHAT ARE THE BENEFITS OF THIS OPTION? | WHAT ARE THE RISKS OF THIS OPTION? | COMMENT |
|---|---|---|---|---|---|
| AMENDING THE MINING ADMINISTRATION REGULATIONS SO A COAL MINE DEPUTY WOULD NO LONGER BE ABLE TO RUN A MINE OF EIGHT OR FEWER PEOPLE | Yes. | There are some basic hazards (for example, ventilation, managing old workings) in underground coal mines that are not covered in the certificate of competence requirements for a coal mine deputy. In contrast, the underviewer certificate of competency covers a wider range of hazards in underground coal mining and provides a good basic level of hazard management.<br><br>This option recognises that the hazards faced in the mining environment are predominantly unrelated to the number of people on site. | The upgrade to an underviewer's certificate will result in strengthened managerial competency requirements and increased breadth of knowledge for small underground coal mine managers.<br><br>The recognition that the hazards involved with underground coal mining are not associated with the number of people present. | There are currently only four small underground coal mines that are run by a coal mine deputy, employing eight people in total in New Zealand. Amending the regulations for such a small number may be seen as excessive.<br><br>May not result in a reduction in the number of injuries and fatalities in small underground coal mines.<br><br>Current coal mine deputies and their employers will face compliance costs of both time and money to upgrade their certificates to a coal mine underviewer, as it requires an additional 91 credits, equating to 910 hours of additional study. However, as this estimate does not take into account prior learning and current competencies, the actual time may be much less.<br><br>The compliance costs involved could potentially impact on the viability of the mine due to the time and money involved in upgrading the manager's certificate, particularly if the manager has sole charge of the mine. | |

| OPTION | DOES THIS OPTION REQUIRE AN AMENDMENT TO THE REGULATIONS? | HOW DOES THIS OPTION ADDRESS THE PROBLEM OF INCREASING HAZARD MANAGEMENT? | WHAT ARE THE BENEFITS OF THIS OPTION? | WHAT ARE THE RISKS OF THIS OPTION? | COMMENT |
|---|---|---|---|---|---|
| SPECIFYING EMPLOYEE PARTICIPATION REQUIREMENTS | It depends – there are a range of options from amending the HSE Act, to amending regulations, to guidance. | Employees are often the first people to pick up on hazards – strengthening their participation could lead to the hazards being identified earlier and dealt with appropriately. | Improved hazard management due to increased employee participation. | There are already employee participation requirements in the HSE Act – introducing new requirements specifically for the underground mining industry could lead to inconsistencies with the general duties in the HSE Act.<br><br>Smaller mines may not have sufficient resources to meet the new requirements. | The magnitude of any benefits and costs in strengthening employee participation requirements may vary with the differing levels of legal obligations. |
| SPECIFYING THE FREQUENCY AND NATURE OF INSPECTORATE VISITS | No – it would require amendments to the HSE Act. | Inspectorate visits ensure that mines are complying with the HSE Act. | Inspectors would be more aware of what is going on in every mine.<br><br>Specifying the frequency and nature of the visits will help ensure that businesses are complying if they know that an inspector will be visiting. | Requiring that inspectors go underground at every visit could interfere with their right to refuse dangerous work.<br><br>There may not be enough resources available to carry out the increased number of inspections. | Specifying the frequency and nature of inspector visits is not possible within current regulations, and amendments would be required to the HSE Act. |

# APPENDIX 2: AUSTRALIAN PRACTICE

Australia has a large underground mining industry, with regimes differing between states. Although New Zealand's industry is much smaller, it is still useful to look at Australian practice to see what they are doing to help improve the ways hazards are identified and managed. Below are examples of selected regimes in the Australian underground mining industry.

### New South Wales

The NSW regulatory regime requires the preparation of a comprehensive health and safety management system. The system must be consistent with AS/NZS 4804:2001 and include the following components: an inspection programme, information and communication arrangements, supervision arrangements, monitoring arrangements, electrical and mechanical engineering management plans, withdrawal conditions and ventilation arrangements.

The inspectors may review/audit the system at any time but it does not have to be approved before work can commence (i.e. it is not a safety case regime).

In addition to the system, major hazard management plans must also be prepared on any prescribed hazards listed in the regulations. The following hazards are listed: slope, surface transport, underground transport, strata failure, inrush, fire and explosions, dust and explosion, explosives and airborne dust.

NSW also requires check inspectors (i.e. employees who are competent to check on and raise workplace hazard concerns with the employer and the regulator).

High-risk activities are required to be notified to the inspector, industry check inspector and the site check inspector. A notice must be given containing the nature of the activity, the intended commencement date and information required that is specific to each activity. There is a waiting period that varies between activities from the time the notice is given to the carrying out of the activity. Activities that are considered to be high-risk include (but are not limited to): single entry development, sealing when an explosive atmosphere may result, working within an inrush control zone, injection or application of polymeric material for ventilation or strata, cutting or welding in a hazardous zone underground, shotfiring underground (where shotfiring has not taken place within a year prior), shaft or drift sinking, raise boring, or development of a new underground mine entry.

Certain activities (including high-risk activities as described above) also require a licence to perform. Unless a licence is obtained from the chief inspector, that activity is unable to be carried out. The applicant for the licence must be over 18 with appropriate qualifications to demonstrate their knowledge, and they must be a fit and proper person.

### Queensland

Queensland requires a safety and health management system similar to New Zealand's HSE Act system. An underground mine is also required to have a principal hazard management plan providing for at least the following: emergency response,

gas management, methane drainage, mine ventilation, spontaneous combustion and strata control.

The regulations are very comprehensive, and the underground section contains provisions for emergencies, rescue and communication, electrical equipment and installations, explosives and explosive power tools, gas monitoring, mechanical, mine design, mining operations, ventilation and working environment.

### Victoria

The regulations require a safety management system to be documented, containing the operator's safety policy, the systems and procedures by which risks are controlled, performance standards for measuring the effectiveness of the system and the way the standards are to be met, and the audit process.

A safety assessment for major mining hazards must also be prepared, containing methodology; the nature, likelihood and severity of the potential harm; judgements; measures for the control of risk; and reasons for adopting or rejecting control measures.

These requirements are similar to the HSE Act's requirements for a hazard identification system, although they set out in greater detail what is required.

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