

**Final submissions to the Royal Commission
on the Pike River Coal Mine tragedy**

Solid Energy New Zealand Limited

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EXECUTIVE SUMMARY

The explosions at the Pike River Coal Mine (**Pike River**) were devastating. Solid Energy New Zealand Limited (**Solid Energy**) acknowledges the men who lost their lives, their families, the West Coast community, everyone involved with the rescue and recovery effort and all those who have been and continue to be personally affected by the Pike River tragedy.

From reading and listening to the evidence that has been given to the Royal Commission on the Pike River Coal Mine tragedy (**Commission**), Solid Energy has formed the view that the explosion on 19 November 2010 was not an 'accident' in the sense that it was neither unforeseeable nor unpreventable. The risks of methane and ignition in underground coal mines are well understood, such that it is possible to mine coal safely, including underground on the West Coast of New Zealand using a hydraulic mining method.

Based on the evidence given to the Commission, Solid Energy considers that the Pike River tragedy resulted from failures within Pike River Coal Limited (**PRC**) and was contributed to by the Department of Labour (**DoL**) mines inspectorate not being adequately resourced or operating in a way that would have allowed it to recognise the risks present at Pike River and respond with appropriate measures.

Accordingly, Solid Energy submits that changes are required not only to the regulatory regime for New Zealand underground coal mines, but also to the regulator. In summary, Solid Energy recommends that:

- The DoL contract out its role as the inspectorate for underground coal mining in New Zealand to an existing experienced, skilled and mature overseas regulator, preferably the Queensland Mines Inspectorate (**QMI**); and
- New Zealand adopt under the Health and Safety in Employment Act 1992 (**HSEA**) a completely new set of regulations for underground coal mining that are consistent with international best practice and, accordingly, adapted from the Queensland Coal Mining Safety and Health Regulation 2001 (**CMSH Regulation**) and parts of the Queensland Coal Mining Safety and Health Act 1999 (**CMSH Act**).

Solid Energy agrees with and sees no reason to move away from the HSEA's overarching duty to take all practicable steps to ensure the safety of employees while at work. Solid Energy considers that its concerns about the existing regulatory regime can be and are best addressed by industry specific regulations; and that underground coal mining in New Zealand should remain subject to the HSEA. The case for industry specific legislation in a jurisdiction as small as New Zealand is not strong.

Solid Energy also submits that there were shortcomings with how the incident at Pike River was managed, and that any future underground coal mine emergency should be managed in accordance with the Queensland Mine Emergency Management System (**MEMS**). In particular, the role of Incident Controller should be filled by a senior underground coal mining expert who is present at the site of the emergency.

Solid Energy thanks the Commissioners for the opportunity to participate in the Commission and for their acceptance of Solid Energy's position as an interested person. The purpose of Solid Energy's involvement has been fourfold. First, to take from the Commission's proceedings any safety and health learning that can be applied to Solid Energy's own mines. Second, as the largest underground coal mine operator in New Zealand, to assist the

Commission to the extent Solid Energy has been able. Third, to provide some factual evidence about the emergency response following the tragedy and the visits some Solid Energy employees made to Pike River before the tragedy. Fourth, to make submissions on what Solid Energy believes the Commission's findings and recommendations ought to be.

It should be noted that this document does not include submissions on all of the subjects listed in the table of contents attached to the Commission's Minute No. 11. This does not mean these subjects are regarded as unimportant, but rather, Solid Energy does not consider that its views on these subjects are likely to assist the Commission. For example, the importance to the families of the post search, rescue and recovery events such as the stabilisation and recovery of the mine is acknowledged, but Solid Energy has had limited involvement with these matters.

A CONTEXT

In relation to phase one of the Commission's proceedings Solid Energy gave statements by Dr Don Elder (SOL.306956), and a personal statement by Robin Hughes regarding the former mines inspectorate regime (SOL.347124).

1 The conception, approval and development of the mine

- 1.1 It is considered that most of phase one of the Commission's proceedings, which focussed on matters of context, comprised issues which do not require Solid Energy's input. Below are some limited comments on only some of the topics listed under Part A in the table of contents attached to the Commission's Minute No. 11.
- 1.2 Anecdotal evidence suggests that Dr Elder's statement for phase one of the Commission's proceedings has been misunderstood by some people. While some Solid Energy employees did have some first-hand knowledge of Pike River and how it was operated from either working at or visiting the mine,² Dr Elder held only the information referred to in paragraph 7 of his statement.³ From that information Dr Elder and his executive leadership team formed the view that Pike River would be a mine under pressure as a consequence of insufficient planning and information, the West Coast environment and over-optimistic goals.
- 1.3 Being a mine under pressure does not necessarily mean an unsafe mine or a mine with poor operational management. Dr Elder was explicit that he had 'never been in a position to form a specific view on the status of the safety management practices at Pike River'.⁴ The purpose of Dr Elder's evidence was to explain to the Commission, from the perspective of a New Zealand coal mining company chief executive, some of the challenges that PRC faced. Whether or not PRC's officers met those challenges is a matter for the Commission.
- 1.4 Solid Energy has considerable experience and expertise with the challenges of mining coal seams within the faulted and mountainous West Coast of the South Island. From a relatively early stage, Solid Energy formed the view that PRC would be a mine under significant financial pressure. Organisations under pressure are at greater risk of taking shortcuts. Whether any shortcuts were taken was unknown to

² Refer to SOL.346731, SOL.443047 and SOL.446723.

³ Dr Don Elder, SOL.306956, paragraph 7.

⁴ Dr Don Elder, SOL.306956, paragraph 9.

Dr Elder when he gave his evidence. The information available to Solid Energy's management team at the time and the views they formed explain, for example, why Solid Energy never pursued the offer to invest in, or with, PRC and why, in 2007, it insisted on a 'take or pay' coal transport agreement (**CTA**).

The geography and geology of the mine area

- 1.5 The geology and geography of the West Coast is complex and highly faulted. This makes the process of planning, developing and undertaking coal mining more difficult than in most other locations within New Zealand and around the world. The geology in which the Pike River coal field is located increases the risks and costs of coal mining. As set out in Dr Elder's evidence:⁵

Typical geological conditions on the West Coast, combined with the specialist nature of the hydraulic mining method in such conditions, bring very significant and unique challenges for safety management that are different and additional to those generally found in underground coal mining elsewhere. In addition to normal good safety practices these risks require specialist expertise in specific aspects of mine design and mine operation.

- 1.6 The geology and geography of Pike River and Solid Energy's Spring Creek Mine (**Spring Creek**) have some similarities:
- 1.6.1 They are of comparable area;⁶
 - 1.6.2 They have similar geology, intersected by major faults and with extensive minor faulting;
 - 1.6.3 They are generally similar coalfields with thick seams of coal; and
 - 1.6.4 They have coal seams in which the thickness, grade (incline), structure, integrity and coal quality is highly variable over relatively short distances.⁷
- 1.7 There are several dissimilarities too, including;
- 1.7.1 The ease of access to Spring Creek for men and materials; and
 - 1.7.2 The depth of the mine and associated issues with strata control and surface slumping.

- 1.8 In short, it was always going to be challenging to mine Pike River economically.

The approvals, consents and permits obtained in relation to the mine

- 1.9 This section has been left intentionally blank.

The roles of the Ministry of Economic Development and Department of Conservation

- 1.10 Refer to section D22 of this document.

The design of the mine

- 1.11 This section has been left intentionally blank.

⁵ Dr Don Elder, SOL.306956, paragraph 102.

⁶ Dr Don Elder, transcript, page 3, line 29 onwards. All transcript references are to the PDF version of the transcript found at <http://pikeriver.royalcommission.govt.nz/Commission-Hearings#Transcripts>.

⁷ Dr Don Elder, SOL.306956, paragraphs 38.2-38.4.

The development of the mine

The JORC code

1.12 In Solid Energy's view PRC had done insufficient coal seam and geological investigation work. Based on Solid Energy's own assessment, Pike River fell short of the JORC code requirements for development.⁸

1.13 As set out in Dr Elder's evidence:⁹

To produce a credible mine plan with acceptable commercial risk, the most important initial requirement is extremely good geological and coal resource information available at an early stage in planning. JORC code definitions are therefore key to defining the resource information requirements at each level.

...

The minimum requirement to proceed with final design for a new mine development is a completed Feasibility Study. This requires at least 5-10 years of future planned coal production to be quantified (and independently audited) at JORC measured status, and further 10-15 years at indicated status. The assessment of other factors as part of the feasibility study allows the coal to be JORC classified as a proved reserve.

1.14 Solid Energy's mine planning process requires that, for a feasibility study prior to approving and proceeding with detailed mine design and development, the resource should have at least 5-10 years of production at JORC code measured status:¹⁰

In the very difficult geological conditions of the West Coast coalfields, SENZ's experience is that to define a coal resource to JORC measured status requires high quality drill holes at an areal density no less than 100 metre spacing on average and even at this spacing a mine plan will still have significant uncertainty and mining and financial risk.

1.15 In November 2000, Dr Elder met with the then chief executive of PRC, Gordon Ward, and was shown a presentation about the planned Pike River mine.

1.16 The presentation stated that PRC had already completed a 'Final Feasibility Study' in May 2000 with a decision to proceed with development due by the end of 2000 or early 2001. All the information presented was stated to be the outcome of work completed to feasibility study standard, specifically:¹¹

The presentation stated that exploration had included outcrop mapping with about 28 samples plus 20 boreholes over an area of 6-8 square kilometres. Three more boreholes were proposed to complete the resource assessment prior to mine development.

The average spacing of the boreholes in the area explored was about 500 metres, reducing to about 400 metres with outcrop sampling.

1.17 Dr Elder concluded that:¹²

⁸ Joint Ore Reserves Committee of the AUSIMM and others, 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Commonly known as the 'JORC code', this sets out 'minimum standards, recommendations and guidelines for public reporting in Australasia of exploration results, mineral resources and ore reserves'.

⁹ Dr Don Elder, SOL.306956, paragraphs 17 and 18.

¹⁰ Dr Don Elder, SOL.306956, paragraph 62.

¹¹ Dr Don Elder, SOL.306956, paragraphs 65 and 66.

¹² Dr Don Elder, SOL.306956, paragraphs 69 and 70.

... based on my own experience as a geotechnical engineer the geological and coal resource information Pike had did not support the level of detail they were presenting on these aspects. Based on this I concluded also that the information available was insufficient to support the expected mine productivity or the detailed mine plans and schedules.

...

The level of geological and coal resource information work presented as at Feasibility Study level would not have come close to satisfying SENZ's requirements at Feasibility Study level. No JORC code resource estimate was provided but the coal resource was stated to be reserve status. To meet commonly accepted standards for a Feasibility Study a resource needs to be at JORC measured status. In SENZ's view, with 400 to 500 metre borehole spacing and typical West Coast variability the resource was only at JORC indicated status. To be at measured status the resource would have required detailed geological and coal information from boreholes at about 100 metre average spacing. The actual areal density of Pike River's boreholes and outcrop sampling information was, on average about one tenth to one twentieth of this.

- 1.18 Dr Elder was cross examined about his opinion that the borehole sampling was inadequate and in-seam drilling could not compensate for the paucity of sampling. A summary of the competing positions can be seen from this exchange:¹³

Q. And the first factor that BDA identifies as a risk mitigation factor, relates to surface drilling, doesn't it?

A. Yes and in fact I know there were another eight bore holes done between 2000 and 2007, so the total which I expressed yesterday was inadequate of 20, it went up to 28. It's probably of interest to note that when Spring Creek started in around 2000 we had something like 115 bore holes which we considered inadequate in a similar resource size. As of today we have something like 360 to 400. So, moving from 20 to 28 is actually, with respect, somewhat irrelevant.

Q. You didn't mention in-seam drilling in your evidence yesterday, did you Mr Elder?

A. I did not, no

Q. And you understand that in-seam drilling and those using a drilling machine underground to drill bore holes horizontally within a coal seam instead of vertically down from the surface, right?

A. The key point about in-seam drilling is that once the mine is laid out and once you're in the mine, it assists you for the next part of mine development, but it is not possible at that stage to use in-seam drilling to correct fundamental [flaws] and the layout of the mine should they exist and I will note that I - I'm not expressing an opinion on the layout of the mine, simply the point that in-seam drilling is too little too late if in fact you have problems by that point.

Q. Well BDA considered that Pike River's plans for in-seam drilling was a mitigating risk factor, didn't it?

A. And as I said mitigating doesn't mean the residual risks are acceptable.

- 1.19 By comparison with Solid Energy's requirements:¹⁴

Pike River had done insufficient coal seam and geological investigation work, had insufficient information to proceed with mine design and development at a level of risk consistent with what Solid Energy would consider good industry practice, and was over optimistic about the mine development timeline and the mine's production potential.

¹³ Dr Don Elder, transcript, page 64, line 20 onwards.

¹⁴ Dr Don Elder, SOL.306956, paragraph 72.

- 1.20 It remained Solid Energy's impression from 2000 that PRC used inseam drilling as a substitute for proper borehole analysis, rather than as a supplement.

Organisations under pressure

- 1.21 From 2000 Solid Energy increasingly held the view PRC would experience significant development and production issues, and was unlikely to achieve most of its production and financial targets.¹⁵ This would likely result in major financial stress. In short, the commercial risks associated with Pike River were very high.¹⁶
- 1.22 Solid Energy had insufficient information and was never in a position to form a specific view on the status of either the particular safety risks, or the safety management practices at Pike River. Dr Elder made this clear.¹⁷ His evidence went on to state, however:¹⁸

Organisational factors are the root cause of unacceptable safety risks and incidents. A common driver of organisational problems is pressure felt by groups or individuals in the organisation to achieve specific results when they do not feel they have control over all the factors that influence the result. In an operational environment two fundamental areas of specific result expectations are production and financial performance.

- 1.23 Three factors at Pike River had significant potential to be at the root cause of generating a wide range of safety risks specific to Pike River at the time of the explosions. Unless these were fully and systematically addressed, it is likely that safety risk levels would have been elevated well above those that would normally occur or be considered acceptable in coal mining.¹⁹
- 1.24 Those factors were:
- 1.24.1 Difficult geological conditions, in a mine developed with insufficient geological information;
 - 1.24.2 Hydraulic mining, a method that is not common and requires highly specialist expertise, capability and experience to plan and manage; and
 - 1.24.3 Prolonged production and financial underperformance.
- 1.25 The organisational pressures associated with these, on both groups and individuals, would have had the potential to create elevated and unacceptable safety risks.²⁰
- 1.26 In summary, while Solid Energy could not and did not make any judgement at the time about PRC's safety and health performance, it did have sufficient information to make an informed assessment that Pike River was at risk of financial failure. There is an elevated risk of organisations under financial pressure taking shortcuts.

Coal transport agreement

- 1.27 The primary reason PRC shared information with Solid Energy in 2000 (and subsequently) was that it considered the mine would be a major new exporter of coking coal. On that basis, PRC held the view there were a range of opportunities for

¹⁵ Dr Don Elder, SOL.306956, paragraph 11.2.

¹⁶ Dr Don Elder, SOL.306956, paragraph 75.

¹⁷ Dr Don Elder, SOL.306956, paragraph 84.

¹⁸ Dr Don Elder, SOL.306956, paragraph 101 (emphasis added).

¹⁹ Dr Don Elder, SOL.306956, paragraph 103.

²⁰ Dr Don Elder, SOL.306956, paragraphs 103.1-103.3.

other organisations, including Solid Energy, to work with it. One of these opportunities was additional transport capacity for export. The transport options promoted by Pike River to Solid Energy included increasing the capacity of the Midland Rail Line and the Port of Lyttelton.

- 1.28 Having formed the view that Pike River was a risky development, Solid Energy avoided any early commitments to working with PRC on transport or other ventures. However, as PRC's mine development advanced, it needed a credible coal transport solution from pit to port. PRC eventually approached Solid Energy to discuss utilising the rail and port capacity that had essentially been established and funded by Solid Energy across the Midland Rail Line to the Port of Lyttelton.
- 1.29 Solid Energy decided it would enter a long-term contract to provide coal transport services to PRC if, and only if, this agreement was on a take or pay basis - i.e. in exchange for reserving capacity for PRC, Solid Energy would be paid a minimum amount regardless of whether PRC produced its projected coal volumes for transport. In 2007 Solid Energy entered into a coal transport agreement with PRC which had very strong take or pay provisions, as well as the ability for Solid Energy to exit the agreement in the event of PRC's default. Solid Energy required these provisions because of its assessment that PRC was at risk of financial failure.

Coal quality

- 1.30 A further factor which had the potential to place PRC under pressure was the issue of coal quality. For example, PRC's 2007 IPO Investment Statement²¹ and an April 2010 prospectus for a PRC rights issue both referred to 'premium hard coking coal'.²²
- 1.31 Dr Elder's evidence about the issue of coal quality can be found in the transcript at page 22, line 1 onwards; page 96, line 30 onwards; and page 98, line 9 onwards.
- 1.32 Solid Energy notes that, subsequent to Dr Elder's evidence, the most recent statement on behalf of PRC to the Commission is that Pike River produced a 'hard coking coal', as opposed to a 'premium' hard coking coal.²³

B THE CAUSE OF THE DISASTER

In relation to phase three of the Commission's proceedings Solid Energy gave statements by Craig Smith (SOL.446723), Gary Jones (SOL.443047) and Robin Hughes (SOL.346731).

2 The probable cause of the first explosion

- 2.1 Experts within Solid Energy have reviewed the DoL investigation report and have no:
- 2.1.1 Material criticisms to make of the report; or
 - 2.1.2 Additional opinions or evidence about the probable cause of the first explosion to assist the Commission.

²¹ PRC Investment Statement, '*An Offer of Shares in a Major New Zealand Coal Company*', 5 June 2007, page 12.

²² PRC, '*Simplified Disclosure Prospectus*', 20 April 2010, pages 6 and 7.

²³ Graeme Duncan, GD.00, paragraph 45.

The nature, timing and location of the explosion

2.2 This section has been left intentionally blank.

The explosive fuel

2.3 A focus of the Commission's inquiry has been the goaf fall which the DoL investigation report identifies as the most likely source of fuel for the first explosion. This has included considering such matters as:

2.3.1 The geotechnical characteristics of the goaf;

2.3.2 PRC's knowledge of the geotechnical characteristics of the goaf;

2.3.3 PRC's mine planning in relation to the goaf (i.e. whether it intended to prevent the goaf from falling); and

2.3.4 What controls against the possibility of a goaf collapse were in place?

2.4 Solid Energy is very mindful of the DoL investigation report's conclusions regarding the possible role played by a hydraulic mining goaf and variable speed drives (**VSDs**) in the Pike River tragedy. VSDs are discussed in paragraph 2.5 of this document. In relation to hydraulic mining goafs, Solid Energy has reviewed its practices at Spring Creek and can advise the Commission as follows:

2.4.1 Solid Energy has procedures in place through the strata management plan, to ensure that it has adequate information about the geotechnical characteristics of its hydraulic mining panels before mining commences.

2.4.2 Without exception, Solid Energy seeks progressive goaf fall.

2.4.3 Solid Energy has assessed the risk of a goaf collapse pushing volumes of methane outbye through the panel return and intake roadways. The controls Solid Energy has put in place include those discussed in Craig Smith's statement to the Commission dated 9 November 2011.²⁴ As part of the Commission's proceedings, the additional control measure of an overpressure activated tripping device has been raised.²⁵ Solid Energy confirms that it will consider such devices and their potential for further improving safety at Spring Creek.

2.4.4 Solid Energy will answer any questions that the Commission may have, including about how methane and goaf fall are managed as part of Solid Energy's hydraulic mining operations.

The ignition source

2.5 Solid Energy has no VSDs underground which are operable, at either of its mines. It formerly had used VSDs at Spring Creek. These were decommissioned before the DoL raised concerns about them in December. With one exception, they have been removed following disused, which was planned. The one unit that remains underground was not worth recovering and will be allowed to flood. Flooding has commenced. Solid Energy is working its way through the issue of the VSDs following DoL's safety alert. The replacements are for Spring Creek's new west heading. This is in the development phase and will continue to be for some months.

²⁴ Craig Smith, SOL.446723.

²⁵ For example refer to Brett Murray, transcript, page 4394, line 10 onwards.

Activities in the mine on 19 November 2010

2.6 This section has been left intentionally blank.

3 Methane management

The methane content of the coal

3.1 This section has been left intentionally blank.

In-seam drilling

3.2 This section has been left intentionally blank.

Methane drainage and emission

3.3 The Commission has heard some evidence about whether PRC should have undertaken programmed methane drainage at Pike River (as opposed to in-seam drilling for exploration purposes).²⁶ While Solid Energy has no submission to make about Pike River, it agrees that situations may arise where programmed methane drainage will be necessary to reduce risks to an acceptable level. Solid Energy does not, however, think that the circumstances where methane drainage is necessary should be prescribed. Instead, it agrees with David Reece's evidence that gas make and ventilation need to be assessed as part of the same system. If, because of gas make, an acceptable level of risk cannot be achieved through ventilation, then the mine operator will need to consider other controls such as methane drainage.²⁷

4 Mine ventilation

The management of ventilation

4.1 While Solid Energy has no submission to make about Pike River, it notes that, under the CSMH Act and the CSMH Regulation, Pike River would have been required to have:

- 4.1.1 A principal hazard management plan that provided for mine ventilation (section 149 of the CSMH Regulation).
- 4.1.2 A ventilation officer (section 61 of the CSMH Act), whose responsibilities would have included ensuring (a) adequate ventilation of the mine; (b) that the quality of the mine air was measured and recorded; and (c) that all ventilation control devices at the mine were properly constructed and maintained (section 341 of the CSMH Regulation).

The main and auxiliary fans

4.2 While Solid Energy has no submission to make about Pike River, it notes that:

- 4.2.1 Under section 39 of the HSEA, an inspector who believes on reasonable grounds that any person is failing to comply with any provision of the HSEA may give an improvement notice.

²⁶ For example refer to David Reece, transcript, page 4502, line 9 onwards.

²⁷ David Reece, transcript, page 4519, line 3 onwards.

- 4.2.2 Under section 41 of the HSEA, an inspector who believes that, by virtue of a failure to comply with a provision of the HSEA, there is a likelihood of serious harm to any person may give a prohibition notice.
- 4.2.3 Section 284 of the CSMH Regulation assumes that the main ventilation fan will be on the surface.
- 4.2.4 Under section 353 of the CSMH Regulation, a mine's safety and health management system must provide for the use of fans underground. (Section 62 of the CSMH Act sets out the key requirements for a safety and health management system.)

Ventilation control devices (overcasts, stoppings and regulators)

- 4.3 While Solid Energy has no submission to make about Pike River, it notes that:
 - 4.3.1 Under section 350 of the CSMH Regulation, the design criteria for various types of ventilation control device are prescribed.
 - 4.3.2 Under section 352 of the CSMH Regulation, a mine must have a standard operating procedure (**SOP**) for constructing, installing, using and maintaining its ventilation control devices.

5 Electrical systems

The underground electrical system and zoning

- 5.1 While Solid Energy has no submission to make about Pike River, it notes that:
 - 5.1.1 Chapter 2, Part 4, Division 2 of the CSMH Regulation provides for (amongst other things):
 - (a) The design, installation and maintenance of electrical equipment and installations; and
 - (b) Electrical control systems.
 - 5.1.2 Under section 179 of the CSMH Regulation, a mine's safety and health management system must provide for the safe and secure location of its electrical equipment and installations.
 - 5.1.3 Chapter 4, Part 9, Division 2 of the CSMH Regulation:
 - (a) Requires the senior site executive to ensure that a risk assessment is carried out to identify the location and type of each explosion risk zone (**ERZ**) at the mine; and
 - (b) Prescribes the characteristics of ERZ0, ERZ1 and negligible explosion risk zones (**NERZ**).
 - 5.1.4 Chapter 4, Part 5 of the CSMH Regulation deals with a range of electrical equipment and installation matters, including the suitability of different types of electrical equipment and installations in ERZ0, ERZ1 and NERZ.

Management of the electrical system

- 5.2 While Solid Energy has no submission to make about Pike River, it notes that, under section 60 of the CSMH Act, the underground mine manager must appoint a person with appropriate competencies to control and manage the electrical engineering

activities of the mine. The duties of an electrical engineering manager include controlling and managing the design of electrical installations (section 18 of the CSMH Regulation).

6 Monitoring of the mine atmosphere and machinery

Atmospheric monitoring

- 6.1 While Solid Energy has no submission to make about Pike River, it notes that Chapter 4, Part 7 of the CSMH Regulation provides a comprehensive regime for gas monitoring, including:
- 6.1.1 That a mine's safety and health management system must provide for a gas monitoring system which complies with section 222;
 - 6.1.2 That a mine's safety and health management system must provide for continuous monitoring and sampling of the mine atmosphere (section 223); and
 - 6.1.3 Places where methane detectors must be located (Division 2, Subdivision 3).

Machine monitoring

- 6.2 While Solid Energy has no submission to make about Pike River, it notes that Chapter 4, Part 7 of the CSMH Regulation provides a comprehensive regime for gas monitoring, including plant to be protected by methane detectors.

Maintenance and calibration of sensors

- 6.3 While Solid Energy has no submission to make about Pike River, it notes that section 18 of the CSMH Regulation provides that the duties of the electrical engineering manager include controlling and managing the maintenance of electrical equipment and installations. Solid Energy would also expect that a mine's safety and health management system would deal with the maintenance and calibration of sensors (refer to sections 179 and 222 of the CSMH Regulation).

Collection and response to data

- 6.4 While Solid Energy has no submission to make about Pike River, it notes that Chapter 4, Part 7 of the CSMH Regulation includes various requirements:
- 6.4.1 To collect data, such as section 222(2)(d)-(e) and section 251; and
 - 6.4.2 Around alarms and responding to alarms, such as section 222(2)(c), sections 224-226 and Division 3.

7 The hydro panel

The relevant features of the hydro mining panel

- 7.1 This section has been left intentionally blank.

The decision to undertake, and timing of, hydro mining

- 7.2 This section has been left intentionally blank.

8 Health and safety systems

The risk management system

8.1 While Solid Energy has no submission to make about Pike River, it notes:

8.1.1 The CSMH Act provides that:

62 Safety and health management system

- (1) *A safety and health management system for a coal mine is a system that incorporates risk management elements and practices that ensure safety and health of persons who may be affected by coal mining operations.*
- (2) *A safety and health management system must be an auditable documented system that forms part of an overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining a safety and health policy.*
- (3) *The safety and health management system must be adequate and effective to achieve an acceptable level of risk by—*
 - (a) *defining the coal mine operator's safety and health policy; and*
 - (b) *containing a plan to implement the coal mine operator's safety and health policy; and*
 - (c) *stating how the coal mine operator intends to develop the capabilities and support mechanisms necessary to achieve the policy; and*
 - (d) *including principal hazard management plans and standard operating procedures; and*
 - (e) *containing a way of—*
 - (i) *measuring, monitoring and evaluating the performance of the safety and health management system; and*
 - (ii) *taking the action necessary to prevent or correct matters that do not conform with the safety and health management system; and*
 - (f) *containing a plan to regularly review and continually improve the safety and health management system so that risk to persons at the coal mine is at an acceptable level; and*
 - (g) *if there is a significant change to the coal mining operations of the coal mine - containing a plan to immediately review the safety and health management system so that risk to persons is at an acceptable level.*
- (4) *The site senior executive must make available for inspection, by coal mine workers employed at the coal mine, a copy of the safety and health management system.*
- (5) *The site senior executive must give a copy of a principal hazard management plan to a coal mine worker whose work at the coal mine is affected by the requirements of the plan and who requests a copy of the hazard management plan.*

8.1.2 The CSMH Regulation provides that:

6 Basic elements

A coal mine's safety and health management system must provide for the following basic elements—

- (a) risk identification and assessment;*
- (b) hazard analysis;*
- (c) hazard management and control;*
- (d) reporting and recording relevant safety and health information and data.*

7 Keeping information and data on which risk assessment is based

The site senior executive must ensure a copy of each risk assessment for the mine, and information and data on which it was based, is kept at the mine until it is superseded or the hazard to which it relates is no longer at the mine.

The hazard management system

- 8.2 While Solid Energy has no submission to make about Pike River, it notes the CSMH Regulation provides that:

149 Principal hazard management plan

An underground mine must have principal hazard management plans that provide for at the least the following—

- (a) emergency response;*
- (b) gas management;*
- (c) methane drainage;*
- (d) mine ventilation;*
- (e) spontaneous combustion;*
- (f) strata control.*

Accident and incident reporting and investigation

- 8.3 While Solid Energy has no submission to make about Pike River, it notes that Part 11 of the CSMH Act, together with Chapter 2, Part 3 of the CSMH Regulation provide a regime for reporting and investigating incidents, including high potential incidents, injuries and deaths.

Auditing of health and safety systems

- 8.4 While Solid Energy has no submission to make about Pike River, it refers to section 62(2) of the CSMH Act in paragraph 8.1 of this document.

9 Pike River employees

Recruitment, experience, training, terms and conditions and turnover

- 9.1 Challenges around recruitment, the need to take on and train inexperienced employees, employee turnover and employing people from a range of different jurisdictions are widely experienced in the Australian and New Zealand underground coal mining industries. Such challenges are unlikely to dissipate and cannot be regulated away. They are among the many factors which all mine operators need to take into account as part of their overall safety and health management system.

Participation in health and safety initiatives

- 9.2 This section has been left intentionally blank.

Compliance and cultural issues

9.3 This section has been left intentionally blank.

Deputies and under-managers

9.4 This section has been left intentionally blank.

10 Pike River contractors

Contractor induction

10.1 This section has been left intentionally blank.

Contractor numbers, communication and management

10.2 This section has been left intentionally blank.

Participation in health and safety initiatives

10.3 This section has been left intentionally blank.

11 Pike River management

The oversight of health and safety by senior managers

11.1 This section has been left intentionally blank.

The oversight of health and safety by the board

11.2 This section has been left intentionally blank.

12 The Department of Labour inspectorate

Oversight during the pre-production period

12.1 Refer to paragraph 12.3 of this document and Paul Hunt, SOL.496618.

Oversight in the post-production period

12.2 Refer to paragraph 12.3 of this document and Paul Hunt, SOL.496618.

The Gunningham and Neal Report²⁸

12.3 Solid Energy disagrees with much of the Gunningham and Neal Report. The table below summarises the opinions expressed within the executive summary of the Gunningham and Neal Report, together with Solid Energy's responses. While the Gunningham and Neal Report is a collection of opinions about the past, rather than the 'High Hazards Unit' (HHU) recently set up by the DoL, Solid Energy considers that the evidence of mines inspectors about their past experiences within the DoL remains relevant.

Executive summary	Solid Energy's response
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²⁸ N Gunningham and D Neal, 'Review of the Department of Labour's Interactions with Pike River Coal Limited', 4 July 2011. Solid Energy notes that, so far as it is aware, the Gunningham and Neal Report authors do not state that they have read the code of conduct for expert witnesses under the High Court Rules and agree to comply with it.

<p>The DoL inspectors were well qualified and experienced.</p>	<p>Kevin Poynter, transcript, page 2981, line 1 onwards: <i>A. ... I saw [Michael Firmin] as the closest thing I had to expert advice ...</i></p> <p>Kevin Poynter, transcript, page 2979, line 8 onwards: <i>Q. ... This is still the performance agreement heading "For H&S proactive projects initiatives," and you'll see the second bullet point down is analyses data trends to identify harms. Was that something that you ever did while a coal mine inspector?</i></p> <p><i>A. No it wasn't.</i></p> <p><i>Q. Did the Department provide you with any training in relation to that?</i></p> <p><i>A. There was no training in relation to that and in reality I didn't believe we had particularly good systems that would've enable us to do it. Systems record serious harm incidents which is only one part of what might've been able to be captured and analysed.</i></p> <p>Michael Firmin, transcript, page 621, line 17 onwards: <i>Q. And the department presumably has mechanical inspectors, so inspectors who look at mechanical issues?</i></p> <p><i>A. No, we don't have anyone.</i></p> <p>Michael Firmin, transcript, page 694, line 6 onwards: <i>Q. Do you feel that you lack some expertise in dealing with some technical issues within the mines?</i></p> <p><i>A. I think it would be fair to say lack some expertise, but you can make yourself up with the current state of knowledge, a slight difference.</i></p> <p>Michael Firmin, transcript, page 703, line 26 onwards: <i>Q. Just finally, you mentioned there's an electrical inspector has been appointed to the group or to DOL but he has no experience with intrinsic safety or flameproof or anything to do with underground coal mines?</i></p> <p><i>A. Nothing.</i></p> <p><i>Q. Isn't that an enormous gap to have in an operation where, as you know as well as I know, underground electricity needs to be carefully monitored?</i></p> <p><i>A. It is and it's probably going to take him four or five years to get accountable with working in coal mines I would think and some - a lot of training. I think they're going to use him in other places as well, so it's not just for us.</i></p> <p>Michael Firmin, transcript, page 2809, line 27 onwards: <i>Q. And to ensure that those systems complied with the health and safety legislation would also have involved a broader range of expertise than that which you had available to you, for example, ventilation engineers, methane drainage engineers, geotechnical experts?</i></p> <p><i>A. Yes, it would've been great to have some people like that or access to them.</i></p>
<p>The inspectors had very extensive interactions with PRC</p>	<p>Michael Firmin, transcript, page 2872, line 25 onwards: <i>Q. I take it, fair to say at this stage that the inspections that you conducted at Pike River and the enquiries you made weren't sufficient for you to be able to</i></p>

<p>prior to 19 November 2010.</p>	<p><i>form a view as to whether or not Pike River and its contractors were complying with the Health and Safety in Employment Act and regulations?</i></p> <p><i>A. Well, true, we weren't. Once, when I look back once every three months was obviously not enough and we should have been auditing.</i></p> <p>Michael Firmin, transcript, page 2876, line 20 onwards:</p> <p><i>Q. Appreciating from the Phase One evidence and some of yours today that the coal mines inspectors were under pressure and were only able to visit once every three months, you would accept that those circumstances would justify far more frequent visiting regime?</i></p> <p><i>A. Definitely, I guess at the time, we should've been doing that.</i></p> <p>The conclusions reached by the Gunningham and Neal Report are also, in part, based on incorrect assumptions that some of the DoL's 'interactions' with PRC were underground inspections. For example: Michael Firmin, transcript, page 2857, line 19 onwards:</p> <p><i>Q. ... Can you confirm to us that that was a phone call rather than a visit?</i></p> <p><i>A. Yes.</i></p> <p><i>Q. To the mine?</i></p> <p><i>A. Yes.</i></p> <p><i>Q. So that 10 July 2007 visit referred to in Professor Gunningham/Dr Neal schedule is also wrong?</i></p>
<p>The inspectors were thorough in analysing key safety systems at Pike River. In particular, the inspectors displayed an eye for detail and questioning minds.</p>	<p>Kevin Poynter, transcript, page 3115, line 1 onwards:</p> <p><i>Q. I presume you didn't seek to inspect any of the records of any of the contractor companies?</i></p> <p><i>A. No I didn't.</i></p> <p><i>Q. I take it the Department wasn't in a position then to say whether those companies complied with the requirements of the Health and Safety in Employment Act while working at the Pike River site?</i></p> <p><i>A. It would be fair to say that.</i></p> <p>Kevin Poynter, transcript, page 3102, line 1 onwards:</p> <p><i>Q. Would you accept that the enquiries you made weren't sufficient for the Department to know whether the hydromining complied with the all practicable steps requirement in section 6 of the Health and Safety in Employment Act?</i></p> <p><i>A. In that we didn't have all the information?</i></p> <p><i>Q. In that you didn't have enough information to assess whether it was safe?</i></p> <p><i>A. To make the assessment.</i></p> <p><i>Q. Whether it was safe?</i></p> <p><i>A. That's probably a fair statement.</i></p> <p>Kevin Poynter, transcript, page 3096, line 19 onwards:</p> <p><i>Q. I'm not going to continue through these schedules, but would it be fair to say the Department didn't have a proper understanding of whether or not Pike River's methane drainage system met health and safety standards?</i></p>

	<p>A. <i>That would be fair to say that.</i></p> <p>Kevin Poynter, transcript, page 3092, line 18 onwards:</p> <p>Q. <i>Do I take it that the issue of ventilation flow wasn't one that was looked at closely by the Department?</i></p> <p>A. <i>It was not.</i></p> <p>Kevin Poynter, transcript, page 3018, line 6 onwards:</p> <p>Q. <i>What I'm saying is you simply wouldn't have had enough information to make a sound judgment as to whether Pike River Coal complied with health and safety practices?</i></p> <p>A. <i>I probably did not have enough information.</i></p> <p>Q. <i>And would that same comment also apply to the contractors working at the site?</i></p> <p>A. <i>It would have, it would have to apply to the contractors.</i></p>
<p>The performance of the inspectors was commendable.</p>	<p>This section has been left intentionally blank.</p>
<p>The <u>one gap</u> was general systems audits.</p>	<p>Refer generally to the other sections of Solid Energy's response.</p>
<p>The DoL's allocation of resources to mine inspection was reasonable (albeit that, subsequent to the Gunningham and Neal Report, the DoL document <i>Practical proposals for improving the Department of Labour's approach to high hazard industries</i> appears to reach different conclusions about capacity and capability).</p>	<p>Michael Firmin, transcript, page 672, line 12 onwards:</p> <p>Q. <i>And I see from paragraph 5, and the fifth paragraph down, and I'll just summarise it. At that stage the Mine Steering Group had a concern that the number of personnel available to conduct inspections was not sufficient?</i></p> <p>A. <i>Yes, I think when John Wallrund left that really put pressure on us. We'd always wanted at least four inspectors and a chief inspector and maybe an advisor. Once we got down to this level it's a bit tough.</i></p> <p>Kevin Poynter, transcript, page 2974, line 1 onwards:</p> <p>Q. <i>Do I take it from that, that you had serious concern about the ability of the Department to provide an adequate inspection service?</i></p> <p>A. <i>I was very concerned when we were put in a position where we went down to two inspectors and not only about our ability to be able to provide a service, but the extra pressure that it was going to bring on myself and my fellow inspector, with respect to the amount of time that we would've actually had to spend getting around the North Island to fill the gap. There appeared to be no plan to replace the inspector and you might note a comment that I made there, is if I had to travel a hundred days away from home I'd resign. I was fairly passionate about it and probably somewhat disappointed that the decision had been made not to replace the inspector and no consultation with myself or Mr Firmin.</i></p> <p>Michael Firmin, transcript, page 673, line 19 onwards:</p> <p>Q. <i>... "It is the expectation that the current mining inspectors (2) service these various sites both proactive and reactively. It is impossible to provide a full service to each of these sites within the current inspectorate number"?</i></p>

	<i>A. Yes, I agree with that.</i>
The workload of inspectors was reasonable, enabling 'voluminous correspondence' and 'extensive oral communication' with PRC, as well as 'very detailed scrutiny' of risk assessments and safe operating procedures.	Refer generally to the other sections of Solid Energy's response.
The DoL aims to discharge its role by acting as a 'modern regulator' (refer to paragraph 12 of the Gunningham and Neal report) and the inspectors achieved this.	Regardless of whether or not the DoL was a 'modern' regulator, Solid Energy does not consider that it was an effective one in the case of Pike River. This is the only available conclusion from the evidence given to the Commission by Michael Firmin and Kevin Poynter. Ineffectiveness does not necessarily equate to incompetence. Solid Energy is not seeking to criticise individuals, but rather identify an organisational lack of capacity and capability to be an effective regulator of underground coal mines.
The DoL should have been more actively involved in the development of MinEx codes and guidelines and/or approved codes of practice for mining under the HSEA.	In Solid Energy's view the DoL was unable to be more involved in the development of approved codes of practice and other guidance as a consequence of its insufficient resources and expertise.
The DoL's approach to compliance and enforcement is a strategy of 'responsive regulation'. The inspectors' interactions with PRC were consistent with responsive regulation and appropriate.	Solid Energy agrees that the inspectorate should be responsive and refers to paragraphs 23.14-23.17 of this document. However, in Solid Energy's view, the 'responsive regulation' approach failed in the case of PRC and Pike River because the DoL was insufficiently resourced to be effective. Solid Energy also refers to SOL.496618.
The inspectors were not equipped to address the issue of safety culture which is largely intangible and does not lend itself to ready investigation.	Solid Energy agrees that the DoL inspectors were not equipped to address the issue of safety culture.

<p>In relation to training and professional development the only area of concern was continuing professional development.</p>	<p>Michael Firmin, transcript, page 643, line 17 onwards:</p> <p><i>Q. ... I presume it would be correct to infer from that that certainly to your knowledge there is not a budget for training of mines inspectors within the department?</i></p> <p><i>A. Yeah, as far as I know.</i></p> <p>Michael Firmin, transcript, page 2838, line 32 onwards:</p> <p><i>Q. I've asked a few questions about the range of circumstances that might be appropriately met by, for example, an improvement notice or an infringement notice. Has the Department ever given you training about the circumstances in which each of those different types of enforcement devices should be used in an underground coalmine?</i></p> <p><i>A. No.</i></p> <p>Michael Firmin, transcript, page 2819, line 21 onwards:</p> <p><i>Q. Perhaps getting back to my initial question, does the department ever review the approach which coal mine inspectors take to particular mines?</i></p> <p><i>A. No.</i></p>
<p>While the DoL's operating systems, guidelines, processes and practices are consistent with its overall strategy there is some room for improvement.</p>	<p>Solid Energy agrees that there is room for improvement.</p>
<p>The DoL's organisational structure as it relates to mining could be improved in various ways.</p>	<p>Solid Energy agrees with this conclusion.</p>

C THE SEARCH, RESCUE AND RECOVERY OPERATION

General

In relation to phase two of the Commission's proceedings Solid Energy gave statements by Barry Bragg (SOL.384003), Craig Smith (SOL.381667) and John Taylor (SOL.339150). In addition, the following statements were given on behalf of New Zealand Mines Rescue Service by Solid Energy personnel: Steve Bell (MRS.0021) and Christopher Menzies (MRS.0025).

Solid Energy was involved at multiple levels with the search, rescue and recovery operation. Its involvement included:

- Implementing its own crisis response plan immediately upon learning of an explosion at Pike River;²⁹
- The provision of equipment from Spring Creek and Stockton Opencast Mine on the evening of 19 November 2010;
- The deployment of men to Pike River and the New Zealand Mines Rescue Service station at Rapahoe; and
- The supply of specialist help such as the CALS team and volunteers including Steve Bell and Craig Smith.

The response was both a corporate and personal one. The prevailing feedback of Solid Energy personnel about their involvement has been one of frustration.

There is no criticism of the sincerity and efforts of those who were involved in running the rescue and recovery operation, including the New Zealand Police (**Police**) and the DoL. The Pike River tragedy, however, brings into stark relief the impact of non-experts as the key controllers and decision makers in relation to an emergency at an underground coal mine. Numerous instances of this have come to light, including:

- The inefficiency of multi-layered decision making, including the lack of coordination between the mine site, Greymouth and the rather amorphous 'Wellington'.
- The failure to promptly and appropriately address survivability, despite overwhelming evidence that the circumstances of the explosion meant the probability of survival was low. Options to seal and inertise the mine should have been meaningfully considered by the experts 'on the ground', rather than those experts being discouraged from doing so.
- This failure to make a timely decision about sealing was intentional, but difficult to comprehend given the known likelihood of further explosion, fire and consequential roof collapse, which has materially impacted any potential recovery.
- Instead, major efforts were made on matters which were of no assistance, such as the procurement of non-intrinsically safe robots.
- Pedantic and time wasting critiques of risk assessments by people who were not qualified to do the work. In one instance, a team of people was required to revise a risk assessment four times, before being told that it did not need to be approved and signed off after all.
- The failure to appreciate the significance of, and/or to undertake urgent analysis of, information immediately available such as the samples of material expelled through the main vent.
- The frequent and large meetings at the mine site.
- Those meetings taking place without the Incident Controller being present (although it seems doubtful that some of the attendees understood this).
- The lack of any coal mining experts in Greymouth or Wellington, despite those being the centres of effective control.

²⁹ Barry Bragg, SOL.384003, paragraph 6. Solid Energy's crisis response plan was implemented at 17.20 hours on 19 November 2010.

- The disconnect between what was occurring at Pike River and what was being relayed to the families. For example, the likelihood that the mine was on fire was relayed as merely some evidence of heating that may have been smouldering rags.
- The global search for experts, particularly academics, while highly skilled expert practitioners on the West Coast were effectively ignored and side-lined by non-expert Incident Controllers and their surrogates.
- The DoL's role as the approver of risk assessments, which is how it was understood by those assisting at the mine site, the Police and the DoL itself.

13 The deaths of the men

The likely locations of the men

- 13.1 It is anticipated that other parties will respond to this subject in depth. Solid Energy's only observation is to remind the Commission about the delays in ascertaining crucial information and the initial confusion as to:
- 13.1.1 The number of men underground;
 - 13.1.2 Their likely location;
 - 13.1.3 The location of the self-rescuer caches;
 - 13.1.4 The likely location of vehicles which would potentially be obstacles if a rescue or recovery were to be attempted; and
 - 13.1.5 Additionally, that there was no accurate and up to date plan of the mine workings (hand drawn extensions needed to be added and it was suggested to Solid Energy that PRC's survey of the underground working may be inaccurate).³⁰
- 13.2 With the benefit of hindsight, a significant failure was that the workers who had exited the mine as little as one and a half minutes prior to the initial explosion were not interviewed as soon as reasonably possible, which may have greatly contributed to the available information about where the men were likely to be.
- 13.3 The extent of information that was available is also summarised in MRS.030, paragraphs 378-391.

The likely causes and timing of the deaths

- 13.4 Again, it is anticipated that other parties will make much more detailed submissions on this subject. In short, the position which was known from a relatively early time was that:
- 13.4.1 The initial explosion was very significant (the video evidence of the portal enabled the blast force to be calculated);
 - 13.4.2 The men had 30 minute self-rescuers;
 - 13.4.3 There would have been some additional self-rescuers available;
 - 13.4.4 Only two men had self-rescued and that was at an early stage;

³⁰ Mines Rescue Service, MRS.0030, paragraph 388 and Craig Smith, SOL.381667, paragraph 91.

- 13.4.5 Mattheus Strydom (the electrician who entered the mine) found the atmosphere in the drift was poor and verging on irrespirable;
- 13.4.6 It was an incline drift so that would have, to some extent, aided any self-rescue;
- 13.4.7 It was subsequently learned, but early on, that the compressed airline was compromised;
- 13.4.8 No telephones or other attempts at communication within the mine had been responded to; and
- 13.4.9 The early gas readings (subsequently confirmed) indicated there was a continuous fire within the mine.
- 13.5 Solid Energy triggered its crisis response plan on 19 November 2010.³¹ The minutes of its crisis coordination team meetings included:
- 13.5.1 20 November 2010 at 08.00 hours: Solid Energy's incident controller (Steve Bell) provided a situation report including:³²
- No communication with missing people, likely fire burning underground, gas monitoring critical.*
- 13.5.2 21 November 2010 at 08.00 hours: Solid Energy's incident controller reported:³³
- No positive news: conclusive evidence of a fire, severe blast and dismal outlook. Rescue attempt very unlikely because of the risk of further explosion and need to put out fire.*
- 13.5.3 The briefing that Barry Bragg (Solid Energy's crisis coordinator) gave to Dr Don Elder immediately upon his return to Christchurch airport at 14.00 hours on 21 November 2010 included:³⁴
- *Event update:*
Latest thinking from our mining staff on best response: seal the mine to get control of the mining conditions to allow safe re-entry and to minimise damage to mine infrastructure so as to get access to all parts of the mine to recover people.
Real confusion over who is making the decisions - PRC leaving it to the Police. Mines Rescue will rightly not enter the mine until a comprehensive risk assessment is completed.
- 13.5.4 22 November 2010 at 08.00 hours: Solid Energy's incident controller reported:³⁵
- No positive news and no rescue attempt on the horizon.*
- 13.5.5 23 November 2010: Solid Energy's incident controller reported:³⁶
- *No positive news and no rescue attempt on the horizon - smoke coming out of the ventilation shaft.*
- ...

³¹ Refer generally to Barry Bragg, SOL.384003.

³² Barry Bragg, SOL.384003, paragraph 22.

³³ Barry Bragg, SOL.384003, paragraph 26.

³⁴ Barry Bragg, SOL.384003, paragraph 28.

³⁵ Barry Bragg, SOL.384003, paragraph 31.

³⁶ Barry Bragg, SOL.384003, paragraph 39.

- *SENZ's view is that mine needs to be sealed to stop fuelling the fire.*

13.5.6 Barry Bragg's evidence also included:³⁷

Throughout Monday and Tuesday Dr Elder and I had regular telephone calls with Steve Bell and Craig Smith. Two of the main subjects we discussed were the new drill hole DH43 and the conditions under which Mines Rescue might attempt to re-enter the mine. We were concerned at the media perception that DH43 would be completed very quickly and provide all the information necessary to make a decision about re-entry. We thought there was significant public pressure on Mines Rescue and we wanted to be assured by Steve and Craig that re-entry would not be attempted without sufficient data and a peer reviewed risk assessment concluding that it was safe. Our concern was heightened by the view being expressed amongst SENZ staff that a second and subsequent explosions were inevitable if the mine was not sealed.

13.5.7 24 November 2010: Solid Energy's incident controller reported:³⁸

- *No positive news and no rescue attempt on the horizon.*
- *SENZ's view is that the mine needs to be sealed and stop fuelling the fire.*

13.6 As the Commission knows,³⁹ Steve Bell was Solid Energy's South Island Alliance and Development Manager and present at Pike River from 20 November 2010. His qualifications include Bachelor of Mineral Technology (Hons) from the University of Otago, certificate of competence as a first-class coal mine manager and G3 Risk Management Unit, University of Queensland Centre of Mine Risk Management. Steve Bell's cousin (Allan Dixon)⁴⁰ was known to have been one of the miners killed in the tragedy. Steve Bell was Solid Energy's incident controller and a critical part of the Solid Energy crisis coordination team which was recommending sealing the mine from 14.00 hours on 21 November 2010. From at least that time, the Solid Energy team considered all of the missing miners had died.

The CALS evidence and whether it requires that the Chief Coroner's findings be revisited

13.7 Solid Energy has no submissions to make, aside from clarifying that:

13.7.1 The CALS work undertaken by Solid Energy's specialist mine surveying team was completed pursuant to contracts with the Police and PRC; and

13.7.2 The team only provided and displayed CALS images as directed to by the Police, PRC and the Coroner.

14 Self-rescue

The equipment and facilities available to the men

14.1 Solid Energy trains its underground workers to self-rescue using change-over stations. It does not refer to these facilities as 'fresh air bases'. Solid Energy would consider workers barricading themselves in part of a coal mine to be a last resort.

³⁷ Barry Bragg, SOL.384003, paragraph 37.

³⁸ Barry Bragg, SOL.384003, paragraph 42.

³⁹ Craig Smith, SOL 381667.001, Appendix 1.

⁴⁰ Refer to Harry Bell, transcript, page 365, line 20. Harry Bell is Steve Bell's father.

- 14.2 Solid Energy does not regard the stub beneath the slim-line shaft at Pike River as a functional fresh air base or change-over station for reasons that were well canvassed before the Commission.
- 14.3 Solid Energy's evidence about change-over stations was set out in the cross-examination of Craig Smith by Counsel Assisting:⁴¹

Q. You've referred to Solid Energy having changeover stations. Can you just describe, by way of list perhaps, the key components of those?

A. Yeah. They've been referred to at Pike as fresh air bases, which I think is an incorrect term. We've previously used a term, "refuge bay" and my evidence around Sago today describe why we call them changeover stations, and it's important that everybody understands that's what they're for. They're there for people to self-escape. So they are equipped actually and will function as a refuge bay and in an emergency where people can't get out they will function as a refuge bay, but they are - our system is designed around them being a changeover station where men can go in there and change their self-rescuer into a new one, and we've got two systems. They're broadly similar in terms of componentry resources. East Mine is designed around self-rescuers and Spring Creek's is designed around CABA, which are compressed air breathing apparatus. So there's advantages of both, pros and cons for both but currently we have two different systems but they both rely on the people at the face in an emergency donning their self-rescuer and they wear it on their belt, they don it in the event of an observed need or are instructed to do so, make their way, following a lifeline if necessary to the first changeover station. East Mine currently has five, because it's a large mine, there's five kilometres from the face, so there's two transportable changeover stations and three permanent changeover stations. At Spring Creek there's currently two, one serving the western district and one serving the southern district which is due to be disestablished. They're located well within the duration of the belt-worn SR60, gives you 60 minute duration, they're located generally much closer to the face than that so the person can escape from the face into the changeover station, which, if I can talk about the permanent ones which are more important, I think. They are designed to withstand an explosion and a fire so they're equipped with concrete walls built into the mine itself, quite large rooms, equipped with an airlock so that the contaminated air doesn't enter the changeover station itself. It has, in the case of Spring Creek, has a cache of cable [CABA] which people can exchange their self-rescuer for a CABA. In the case of East Mine, they can go in there and exchange their self-rescuer for another self-rescuer. It's also equipped with borehole connection to the surface which, if I can just talk about East Mine which is where Spring Creek is aiming at, currently this current changeover station at Spring Creek aren't equipped with a borehole to the surface. Difficult country to get in, but that's what we're planning on doing within the next month or so.

Q. Well, I wonder if we can just focus on those at east Huntly?

A. Yep.

Q. They have a borehole at the surface?

A. Yep.

Q. Does that have a compressor attached to it at all?

A. Yep, each borehole has an independent air supply so it's a compressor connected to a borehole, the borehole also can be used to transport food, it's got communications down it. We're in the process of putting a tube-bundle system around it so it can sample the air, that's a recommendation out of here.

⁴¹ Craig Smith, transcript, page 2674, line 9 onward.

Q. And is the compressor located at the surface or down below?

A. It's located on the surface, it's can be activated from within the changeover station, it can be activated from the control room or it can be activated from the compressor itself. It's a reasonably fail-safe system. The latch connected to a number of – to remain within the changeover station with a large number of face masks which are connected to the air supply which can be activated and people can sit in there for as long as they like, or until they're instructed to move out or until they're rescued.

Q. And aside from the air which can come down the shaft, is there also a compressed airline?

A. Yes, it's connected to the mine compressed airline but there's potential for that compressed airline to be disrupted in a serious explosion. That's why we have a borehole connecting, making the changeover station independent of what's happening in the mine itself.

Q. Is there a communication system?

A. Yeah, I think there's two or three communication systems, I think it's connected to the mine telephone system and it's able to be connected to the Mines Rescue radio system and I'm not quite sure where there's another dedicated phone system as well at the borehole. It's as fail-safe as we have been able to make it at this stage.

- 14.4 During the proceedings various attempts were made to draw parallels with the Sago Mine and Upper Big Branch Mine tragedies. Not only does Solid Energy regard such comparisons as dangerous and inaccurate, but they indicate in those making them a lack of expertise and understanding of underground coal mines. For example, in relation to Randal McCloy, who was found alive at Sago Mine 41 hours after an explosion (albeit in a critical condition and alongside 12 dead miners):
- 14.4.1 The Sago Mine was significantly larger than Pike River and had been operating for approximately seven years before the explosion on 2 January 2006.
 - 14.4.2 There were large areas of the Sago Mine in which miners could have survived the explosion and 14 miners did walk out.
 - 14.4.3 Randal McCloy and his dead companions were found barricaded approximately 4 kilometres from the men and materials portal and some distance from the destroyed seals behind which the explosion had originated.
 - 14.4.4 The Sago Mine was still being ventilated to some extent after the explosion. The atmosphere where Randal McCloy was found had 20.7% oxygen and only 0.2% methane. Randal McCloy's companions died of exposure to carbon monoxide.
 - 14.4.5 By contrast, at Pike River it could be deduced that (a) the initial explosion would have been catastrophic in almost all parts of the mine and Daniel Rockhouse was lucky to have survived; (b) all or almost all of whatever natural ventilation was still entering the mine was short circuiting up the main vent shaft, meaning that the atmosphere inbye would have been an irrespirable mix of methane and the products of combustion; (c) the compressed air line was compromised; and (d) there was no one alive at the bottom of the slim line shaft, being the only other potential source of fresh air into the mine.

- 14.4.6 In short, decision making and communications during emergencies in underground coal mines should be based on an informed assessment of objective facts and logical deductions, not the 41 hour miracle survival of a miner in different mine following a different explosion. The second explosion at Pike River occurred approximately 119 hours after the first. Survivability was not determined until sometime after that.

The second means of egress

- 14.5 In Solid Energy's view the main vent shaft at Pike River was not an outlet that could be traversed on foot for the purposes of entry and exit under clause 23 of the Health and Safety in Employment (Mining - Underground) Regulations 1999.

The training of the men

- 14.6 This section has been left intentionally blank.

15 Deployment of the Pike River emergency response plan

The emergency response management plan

- 15.1 Solid Energy's own emergency response arrangements are set out in the statement of Barry Bragg.⁴²
- 15.2 All mines must have a functional emergency response plan. Whether or not PRC's plan was adequate or deployed became irrelevant. The Police determined at 17.20 hours on 19 November 2010 that they would assume control. Superintendent Knowles in his evidence referred to Sergeant Cross having set up an incident room at the Pike River mine site at 17.20 hours on the day of the explosion.⁴³ By 17.28 hours Superintendent Knowles had cleared a voicemail message on his mobile telephone, which then caused him to telephone and instruct Inspector Canning to go to the mine site, take command, and keep him briefed of developments.
- 15.3 At 17.40 hours Deputy Commissioner Rickard confirmed the Police would act as lead agency.⁴⁴ The evidence seems clear that the Police did not implement Pike River's emergency response plan.

The sequence of events and activation of the plan

- 15.4 This section has been left intentionally blank.

16 Police assumption of control

The CIMS model and its deployment in this instance

- 16.1 Superintendent Knowles 'was not surprised that Police would be the lead agency [at Pike River]. Police routinely assume that role in rescue operations'.⁴⁵ The difficulty with this approach is that underground coal mining is highly technical. This was not a

⁴² Barry Bragg, SOL.384003, paragraph 51 onwards.

⁴³ Superintendent Knowles, POLICE.BRF.18, paragraph 60.

⁴⁴ Superintendent Knowles, POLICE.BRF.18, paragraphs 61-65. See also Superintendent Knowles, transcript, page 187, line 6 onwards.

⁴⁵ Superintendent Knowles, POLICE.BRF.18, paragraph 66.

routine search and rescue operation and the Police do not have the same expertise as qualified underground coalminers.

- 16.2 A major problem with the Police assuming control of the Pike River emergency was that people with no relevant expertise were not able to understand and prioritise critical issues. While the Police were good at coordinating resources and matters such as locating robots and inflatable seals, they were not willing to proactively prioritise preparation for sealing the mine or to allow an informed debate by experts on survivability. They also frequently did not understand what the mining experts were saying to them. This was the observation of Seamus Devlin in answer to Counsel Assisting.⁴⁶

Q. Just turning to Pike River incident management team meetings, you first attended one at about 10.00 pm on the 20th, is that correct?

A. That is correct.

Q. How many did you attend?

A. I would say about three or four over the next few days.

Q. You have read the witness statement of Mr Brady?

A. Yes I have.

Q. And you've read the comments that he's made in section 8 of that statement about IMTs?

A. Yes.

Q. Do you agree or disagree with his comments?

A. Yeah, in the main I agree with them, yes.

Q. Are there any in particular which you don't agree with?

A. Not really, the structure that he outlines in Queensland is an excellent structure, the MEMS structure and it is adopted in some parts of New South Wales but not mandatory. There's several ways to run an IMT but in essence I agree with what he's saying.

Q. Do you agree with the criticisms that he makes of how IMT meetings occurred in the Pike River emergency?

A. In particular what part if you don't mind me asking?

Q. Are there any parts that you don't agree with?

A. Are there any parts? Yeah, I think I was the same as Darren, I was quite surprised that the Police were the lead agency, Pike River.

Q. You have referred, essentially, to not being introduced when you entered the IMT meeting, is that a particular problem?

A. It doesn't necessarily have to be a problem but I was surprised, I certainly wouldn't expect to walk into an IMT meeting in New South Wales without being challenged as to who I was or what I was doing there and typically you'd be asked to be part of the IMT not walk in.

Q. When you entered or during any of the other IMT meetings, were you made aware of the knowledge and experience of the other members?

A. No, and on the first meeting I knew personally obviously David Connell and Trevor and Doug White but I wasn't aware of the backgrounds or qualifications. I'm sure there was qualified people in there but there was a lot of people that obviously didn't have a mining knowledge.

Q. Just two issues. First, do you think that it's important that the IMT members were aware of each other's expertise and backgrounds?

⁴⁶ Seamus Devlin, transcript, page 2051, line 19 onwards.

A. *Very much so. I think you get the best use out of personnel if you know what their capabilities, background and knowledge are so that they can input into decision-making.*

Q. *And second, are you able to comment about whether or not the balance of people, and in particular their expertise at the IMT meetings, was in your view correct?*

A. *I don't believe the balance in the IMT meetings I attended was correct.*

Q. *In what respect?*

A. *When a mining issue was raised, or a strategy was spoken about, people seemed to have to explain what we were talking about. So we were trying to explain to non-mining people what mining terms meant, which just slowed down the whole process.*

Q. *Aside from slowing down the process, did it have any impact on the effectiveness of the IMTs to identify strategies or contingencies?*

A. *I believe so. As I stated before, I just made the comment in the first meeting that I went to that had sealing been considered, in my experience you look at all the contingencies and all the strategies, it doesn't mean that you want to implement the strategy, but I would've thought that contingency planning of all those strategies would've been done at the same time. So that in the event that you needed to (a) inertise or (b), (c) or whatever the strategy was, that the plan was already in place.*

Q. *Do I take it from that, when you asked whether sealing had been considered on the 20th that was raising it for the purpose of contingency planning?*

A. *Absolutely.*

Q. *Was there then discussion at that meeting of that as a contingency?*

A. *At the time I was told that sealing would not be considered until the survivability of the people was below zero.*

Q. *But did that mean that there wasn't then discussion at that meeting of preparing the sealing as a contingency?*

A. *That's right, that's correct.*

16.3 While Solid Energy supports, and trains with, the New Zealand Coordinated Incident Management System (**CIMS**), it did not work during the Pike River emergency. From the evidence given to the Commission, Solid Energy understands that the emergency response agencies (Police and the New Zealand Fire Service (**NZFS**)), supported by the DoL, remain wedded to:

16.3.1 The 'lead agency' concept; and

16.3.2 That the lead agency will fill all the CIMS roles of Incident Controller and Operations, Planning/Intelligence and Logistics Managers.⁴⁷

16.4 Solid Energy's observation is that, by taking the role of lead agency and assuming overall command of the incident, the Police weakened the CIMS approach by imposing its own hierarchical command structure; one that lacked flexibility and was not able to make effective use of outside experts and decision makers.

16.5 The Police evidence to justify it being lead agency at Pike River was given by Superintendent Knowles as follows:⁴⁸

Q. *Are you going to turn now and discuss lead agency?*

⁴⁷ Refer also to Paul Hunt, SOL.496618.

⁴⁸ Superintendent Knowles, transcript, page 1876, line 28 onwards.

A. I am sir, yes. By the time I had arrived and by the time I was contacted by Deputy Commissioner Pope, I was told that Deputy Commissioner Rickard had announced that New Zealand Police were the lead agency. I was taking over the role of the incident controller within the CIMS structure. On my arrival I was briefed by Inspector Canning. I observed Police, fire and ambulance were also present. The PRC staff, Pike River Coal staff, were in the briefing rooms and the Mines Rescue team were in a separate building preparing their equipment and getting ready. The initial scene was hectic, that's a polite way of describing it. Many of the Pike River staff and those present were obviously under stress and that was natural because the men underground were their friends and work colleagues and they were showing signs of distress. The media were trying to break through the perimeter and get onto the site. A number of family members were amassing at the gate to try to find out whether their relatives were underground and the scene was hectic. By the time I arrived, Sergeant Judd had already implemented the CIMS process. He was wearing the fluoro jacket with the words on it, "Incident controller," on the back. He was trying to instigate and run hourly briefings, attempting to get people to put down what they were trying to decide, get some rigour around the thought process of how things would operate hour by hour and what decisions were necessary to be made and had been made. It was obvious to me that the various agencies present were doing their very best and were attempting to co-operate with each other. Once the CIMS model went into place you get a real sense of a single unified mission or feeling of what everyone was there for, and we all knew why we were there."

Q. So just pausing there. That was your sense on this first occasion that you arrived at the site, but you did get a sense of cohesion of the various agencies that were involved, various parties?

A. I did sir. "One of the first things I did and that's something I do quite often, is just sat back and observed to make sure that I got a feeling as to who was doing what, as opposed to rushing in and trying to take over, and I think that yeah it's a natural thing to do, to look at these situations and there'll always be chaos out of confusion, and you could see that everyone had a common goal was to bring those men out. Now everyone was operating in a different way, but as the CIMS model came to be, everyone clicked into the same framework as to why we were there. At no times was I or other Police officers challenged by anyone as to who was the lead agency. No one from any other agencies ever suggested that another agency was better qualified at that time to step up and take command of the situation. Furthermore, I'm not aware of any other Police officer, including myself, in the time I was in Operation Pike, has been challenged in relation to that role."

Q. So just pausing there. Are you saying that throughout your operational role in this emergency, that not only did no Police officer suggest that that had been suggested, but no one from any other agency suggested, "Hey, what are you guys doing running this show, we're better placed"?

A. No sir. "At no stage in the whole time from that night until I left in February, no one challenged any of my men or myself in that role. It's not surprising in that when you look at this situation, New Zealand Police does take the lead in all virtual search and rescue operations and I think AC, Assistant Commissioner Nicholls explained why, but in terms of my role as district commander it is normal that any search and rescue operation of a serious or minor nature, the Police co-ordinate and lead with other agencies, and might I explain that. For example, I have been involved in some search and rescue situations involving caving tragedies where we would utilise cavers to go underground to bring the people out, but New Zealand Police still take the lead role in co-ordinating people and bringing them to the table, and that's what I knew I was there for. I think is because by the nature of our organisation we are able to quickly

mobilise resources and we can bring communications and logistical expertise to the table. We have the capacity to work with other relevant government departments, both government and non-government organisations such as New Zealand Defence, customs, immigration, and also a range of emergency services that are not publicly funded that we constantly work with, we train with, and we work as a team.

- 16.6 Superintendent Knowles' justification is retrospective. The Police's own evidence is unequivocal. At 17.40 hours on 19 November 2010 Deputy Commissioner Rickard confirmed that the Police would act as the lead agency. Superintendent Knowles' description of the scene that he personally observed at Pike River could not therefore have occurred prior to his arrival at 00.20 hours on 20 November 2010.⁴⁹ This was 7 hours after the Police had set up its control room at Pike River and 6 hours 40 minutes after the Police had 'taken over control'. The 'chaos' which Superintendent Knowles observed was taking place under the Police watch.
- 16.7 In their subsequent discussions with Solid Energy, the Police and the NZFS have expressed their continued wish to operate under CIMS and for the Police to be Incident Controller (albeit possibly under some kind of 'co-lead' arrangement).⁵⁰ Making no changes to the way any future emergency in an underground coal mine will be managed is unacceptable to Solid Energy. There are numerous examples from the Pike River tragedy which demonstrated the Police do not have the necessary expertise in this technical area. It is, in part, for this reason that Solid Energy strongly favours the adoption of the Queensland MEMS structure. The evidence given by Craig Smith also recorded the training offered for MEMS by the Queensland Mines Rescue Service and that he has recommended Solid Energy adopt this system.⁵¹
- 16.8 The role of the DoL should be limited to its statutory role, which enables it to prohibit certain actions if it believes that they are unsafe. While sincere and well intentioned, the DoL did not add value. Instead it absorbed valuable time and inhibited critical informed consideration of the key issues of survivability and sealing.⁵²
- 16.9 While it was suggested that the Police were not necessarily wishing to retain the Incident Controller role, the evidence of the Police witnesses was at odds with that. Counsel for the Police put to Timothy Whyte that the Police were not promoting that they be lead agency. The statement made by Simon Moore SC and the subsequent cross-examination were as follows:⁵³

Q. I want to make it quite clear on behalf of the Police that they have no particular desire to be lead agency, so they're not promoting the proposition that the Police must be a lead agency, but there are a couple of propositions I want to put to you about the appropriateness of the company, the mining company being lead agency or incident controller. I mean, for example, if the company was not financially viable or it was fragile commercially, do you think that creates a problem at all in terms of its ability to perform that role, particularly in the context of the necessary resourcing issues which are implicit in that role?

⁴⁹ Superintendent Knowles, POLICE.BRF.18, paragraph 81.

⁵⁰ Paul Hunt, SOL.496618.

⁵¹ Craig Smith, transcript, page 2651, line 4 onwards.

⁵² Refer for example to Steve Bell, MRS.0021, paragraph 31.

⁵³ Timothy Whyte, transcript, page 2023, line 24 onwards.

A. Well, just to answer that question as best I can, the mining management are mining people and I think it's evident to the Commissioners and the courthouse here that we spend a lot of time, mining people explaining our terminology, mining methods, mining types to those that don't mine to try and gain some understanding for them, so if I get your question correctly, should the Police have involvement in that area –

Q. Well it isn't. It's precisely not my question.

A. Right.

Q. My question is, if the company is in financial difficulties or is otherwise financially unable to provide the kind of resourcing support that these sorts of operations, particularly the large operations require, what do you say about the appropriateness of the mining company, or senior management associated with the mining company, being lead agency and/or incident controller? That's my question.

A. Right, I've got you, thank you. I still believe that should be the case. The mining community may not be large globally, but we are a very tight family, as you've seen from the result from Pike River, you've had people from all over the world offering advice and assistance. I believe that the mining management should still retain the decisions that's happening at their mine.

Q. Well, what about the issue say, for example, of the costs associated with say resourcing a GAG or resourcing the manufacture of a partial or fully inflatable seal, those sorts of things. You've heard that evidence?

A. Yes, I won't comment on, that is outside my experience and knowledge for costings and so forth.

Q. But do you see a problem at all with a company that isn't able to resource the sorts of things that are needed for recovery, sorry, rescue or recovery operation of this sort?

A. I do see a problem. I suppose being a simple coalminer that I would've put a few pennies aside for you know, such an event, not this degree of event, but for a rainy day in case you did need to resource.

Q. And of course, no one wants an event, anything like this, happening again, but again, the size of the event would be an influencing factor in terms of who might be appropriate in that role of lead agency and/or incident controller?

A. Well, not just the size but the duration of the event as well.

Q. Exactly. You said duration, I'm sorry I didn't mean to interrupt you?

A. I understand what you're saying but I still believe that mining trained and experienced people need to be in control otherwise the reinterpretation of their knowledge to external agencies, which we assure we're working together as we attempt to do, well we do in Queensland through a tripartite approach to assist each other, so that would be my answer.

Q. Well we know, and it's on the record, that the costs of sourcing and putting in place the GAG was over \$NZ3 million, does that influence your decision at all in terms of the ability of a fiscally comprised company to be able to manage that sort of operation?

A. Correct me if I'm wrong but I understand that the New Zealand Government offered financial support to the mine with regards to the resourcing of external entities, agencies and equipment. So that would answer that I'd imagine.

Q. The next question I wanted to ask you, again in the same sort of vein, was whether you see any room for a conflict of interest commercially when a company or company representatives are involved in being lead agency and/or incident controller. What do you say about the appropriateness of the company, given the potential for a conflict between on the one hand the desire to preserve what is likely to be a multi-million dollar asset and the opposing potential interest of rescuing

or recovering people who may be trapped in a mine, and I'm obviously talking about sealing here?

A. Mmm. I think the priority of any mining company, and especially mining people, is in the event of a disaster such as Pike River is to assist in recovery of those individuals from underground. Our legislation's quite clear on that, we won't leave people underground again since 1994. The fiscal side of it, I really wouldn't like to comment because I'm not an accountant.

Q. Do you agree that, at least in theory, there's a conflict there?

A. No, not really, no.

16.10 Assistant Commissioner Grant Nicholls however retained a firm view that the Police should be the Incident Controller. In answer to Commissioner Henry,⁵⁴ he also confirmed that in any future emergencies, 'two critical decisions at least' would go up the line to Police National Headquarters, one being re-entry and the other being sealing of a mine. This is notwithstanding:

16.10.1 The Police do not have underground coalmining expertise in either of these matters (and neither did they have an underground coalmining expert as part of their decision making team in Wellington during the Pike River emergency); and

16.10.2 The dangers of potentially exposing time critical operational decisions to media and other external pressures.

16.11 Assistant Commissioner Nicholls was equally insistent to Commissioner Bell that, in future, the role of Incident Controller would not be put in the hands of a mining expert.⁵⁵

QUESTIONS FROM COMMISSIONER BELL:

Q. I've listened to your evidence over the last couple of days and I must say that I am surprised that you didn't transfer the incident controller to a mining expert, especially when there was numerous local choices available. There was, according to Mr Stevens, there was at least seven first class coal tickets out there, and this is in fact what happens in other jurisdictions, in Queensland, in New South Wales and in the UK and the US, although the US it's inspectors, but do you have a comment on that, why that didn't happen?

A. Sir, I just say that we were operating in the co-ordinated incident management control environment. We were co-ordinating the management of this incident and we felt that we were ably advised, our expertise was in co-ordinating the response, not necessarily having the technical expertise, sir.

Q. Do you think in the future that that might be considered though? That the IMT could be run by a mining person?

A. Sir, the IMT or the incident controller, sir?

Q. So the incident controller could be a mining person?

A. No, I don't think so.

The use of multiple operational locations

16.12 This has already been referred to. Solid Energy believes that, however isolated a mine site, it is essential to have the Incident Controller and other key people on site. For managing the Pike River incident it was unhelpful to have multiple layers of

⁵⁴ Assistant Commissioner Nicholls, transcript, page 1854, line 15 onwards.

⁵⁵ Assistant Commissioner Nicholls, transcript, page 1855, line 24 onwards.

dispersed decision makers who did not have the essential underground coal mining expertise nor, in many cases, access to the best and most up to date information available.

16.13 An illustration if this can be found in the cross-examination of Superintendent Knowles:⁵⁶

Q. Superintendent, I'd just like briefly touch on risk assessments, just a couple of aspects. I presume that – sorry, Ms Basher could you please go to DOL7770020003/13.

WITNESS REFERRED TO DOL7770020003/13

Sir, I just want to raise the borehole piercing risk assessment and I'd presume that you didn't understand the terms for a lot of the safety equipment that the rescue crews and the drilling crews had, correct?

A. That's correct, yes.

Q. Yes. Can we highlight paragraph 75 please? ... This is the brief of Mr Firmin for the Department of Labour. Were you aware that a reason for the rejection of one of the risk assessments done for the borehole piercing, was that it was "too technical?"

A. No, I wasn't sir.

Q. Would you be concerned if that was the case?

A. That it was too technical?

Q. Yes.

A. I would hope it would be technical, sir.

Q. I'm sorry?

A. I would hope it was technical.

Q. ... You'll see there that's an instance where a rejected risk assessment was received by the Department of Labour at 4.12 am and it was sent back to the Police if you go to the first line of paragraph 76 at 8.54 am?

A. That is correct, sir, yes.

Q. And so that had already been prepared at the mine site?

A. That's true.

Q. Gone to Greymouth?

A. That's correct, sir.

Q. Gone to the Police in Wellington?

A. Correct.

Q. Gone to the Department of Labour?

A. Correct.

Q. Gone back to, then where, to the Police in Wellington?

A. Correct, sir, yes.

Q. And then it had to reverse the chain. Would you accept, having heard from Mr Devlin that in New South Wales that would've been completed in two hours, that that shows really an institutional paralysis?

A. In listening to Mr Devlin's evidence, it shows that there was a, in this particular incident, perhaps a delay through lack of knowledge.

Q. And who would you attribute that lack of knowledge to?

A. Reading in paragraph 75 down to 76, it appears from this document it may be a lack of knowledge from the person from Department of Labour.

⁵⁶

Superintendent Knowles, transcript, page 2077, line 5 onwards.

The Incident Controller and Response Coordinator roles, IMT meetings and decision making authority

- 16.14 Solid Energy refers generally to its submissions in Part C of this document and the statement of Barry Bragg.⁵⁷ Craig Smith also gave practical reasons for why a mining expert must be Incident Controller, and how a non-expert, while unquestionably trying hard, could never run a complex underground coal mine emergency.⁵⁸
- 16.15 Surprise was also expressed at the Police being the Incident Controller by Timothy Whyte, Seamus Devlin and Darren Brady. Darren Brady endorsed MEMS and noted the Police's more limited role under that structure.⁵⁹

The establishment of an external panel of experts

- 16.16 The Police and DoL were hampered by a lack of mining knowledge, yet were 'setting the agenda' by controlling and approving what was happening at the mine. During the first critical days, both Wellington and Greymouth knew they needed expert help but were attempting to establish panels rather than empower individuals. Further, in many instances overseas experts were preferred to those with considerable underground coal mining experience on the West Coast. Examples include:
- 16.16.1 20 November 2010 at 17.02 hours: Police task sheet regarding an 'urgent' request:⁶⁰
- A/C Nicholls has received information that an Australian Mines recovery team with 500kg of gear and equipment has arrived. Apparently called in by Mines Rescue.*
1. *WE NEED confirmation as to accuracy of this information?*
 2. *What is their expertise?*
 3. *What is their equipment?*
 4. *What is their intent?*
- 16.16.2 21 November 2012: After assuming the position of relief Incident Controller for the operation between 19.00 and 07.00 hours, Superintendent Powell directed that a list of experts 'at the forward command base' be prepared and include the names, experience and individual expertise of those who were there. It is telling that no one from the New Zealand Mines Rescue Service or Solid Energy was listed by the Police in response to that order.⁶¹
- 16.16.3 23 November 2010 at 04.12 hours: Police Incident Controller Superintendent Powell wrote to Sheila McBreen-Kerr about borehole 43 (PRDH43).⁶²
- ... the risk assessment is a bit too technical for me for me to determine whether the risk assessment adequately covers it or not. My take for what it is worth ... If the response is likely to be received after 0700hrs then [it should be] directed to Inspector Dave White ...*
- 16.16.4 This incidentally raises what value the Police were adding by reviewing a risk assessment that had, by then, been worked on for two days by an

⁵⁷ Barry Bragg, SOL.384003, paragraphs 64 to 71.

⁵⁸ Craig Smith, transcript, page 2647, line 29 onwards.

⁵⁹ Darren Brady, transcript, page 1960, line 1 onwards.

⁶⁰ PNHQ.03339, page 1.

⁶¹ Superintendent Powell, POLICE.BRF.19, paragraph 39.

⁶² DOL.20000300007, page 1.

expert team led by Solid Energy's Group Technical Manager, Dean Fergusson. The email also shows the error in the cross-examination of Craig Smith by Counsel for the Police which was as follows.⁶³

Q. Okay, but certainly the initial risk assessment for that drill hole, you said in your brief it went through police and Department of Labour, can you name any police officers who saw that initial drilling assessment?

A. No, look I wasn't involved in the preparation of that risk assessment. Dean Fergusson did that with a number of other people.

Q. You've put that in your brief, but there seems to be no evidence that any police officers saw that drill assessment, do you think perhaps you could be wrong about that?

16.16.5 23 November 2010 at 12.30 hours: A document records that Dr Paula Beever (NZFS) is arriving in Greymouth and she will be able to provide 'technical translations'.⁶⁴

16.16.6 24 November 2010 at 09.40 hours: On the day of the second explosion, there is a request from Superintendent Knowles for a New Zealand Mines Rescue Service expert to address the families, 'as there are many questions he feels he cannot answer'.⁶⁵

16.16.7 23 November 2010 at 1100 hours: As a graphic example of what was occurring, in a briefing document the Police Incident Controller based in Greymouth was seeking a panel of experts. The action point was to contact Lesley Haines (DoL) about such a panel and concluded.⁶⁶

We do have a collection of experts at the scene and a corroborative [sic] approach is being taken to decisions however they are at a practians [sic] level and we are looking for a high level panel of people such as professors.

16.16.8 23 November 2010 at 18.30 hours: The same request was repeated:⁶⁷

PIC asking for a panel of experts. They have a group of practitioners who are making joint decisions but want a higher level of advisors. (professors etc)

16.16.9 23 November 2010: Superintendent Knowles' staff briefing reinforces the understandable difficulty the Police were grappling with to understand underground coal mining technicalities.⁶⁸

Dave is trying to bring a panel together today for me so we can get some expert working with us so that we can look at these higher level decisions and have some confidence as to what is going on. You will see from this morning's paper that the press has tapped into a geology expert in Australia who is saying that it is about 180 degrees underground and a fireball. You would have been burnt to death and it's over. Now of a political nature we have just been to a family meeting and Gerry Brownlee is somewhat animated about the fact that he thinks

⁶³ Craig Smith, transcript, pages 2655 and 2656.

⁶⁴ SOE.014.118, page 40.

⁶⁵ SOE.014.118, page 45.

⁶⁶ PNHQ.01974, page 1.

⁶⁷ PNHQ.01974, page 2. Superintendent Knowles tried to distance himself from these requests under cross-examination. Refer to Superintendent Knowles, transcript, page 1921, line 23 onwards.

⁶⁸ PIKE.17614, page 2.

this is a poorly run operation, we are not telling the truth and a whole lot of stuff.

16.16.10 23 November 2010 at 13.51 hours: Assistant Commissioner Nicholls received an email from Jimmy Gianato of the West Virginia Division of Homeland Security and Emergency Management.⁶⁹ Jimmy Gianato appears not to have had a mine plan. Solid Energy's view is that he could offer no real assistance given the time pressures, although Assistant Commissioner Nicholls failed to appreciate this when fielding a request for:

... the number of rescue chambers in the mine, the latest air sample information, the borehole locations and air pressure in the chamber.

16.16.11 23 November 2010: Despite Jimmy Gianato's distance and lack of information, the incident action plan for the 16.00-24.00 hours shift recorded:⁷⁰

- *Operations being slowed by risk assessment rejections from DoL.*
- *Robots from Aus & US on way.*
- *West Virginian sending good advice on recovery and in line for tips for miners.*

16.16.12 26 November 2010 at 16.07 hours: A file note of Inspector Mark Harrison's call to West Virginia records Jimmy Gianato's opinion about similarities with the Upper Big Branch Mine tragedy, yet goes on to record that he has 'no mining or engineering qualifications', however 'he is part of a specialist team that includes people with relevant experience'.⁷¹ The question inevitably remains why a non-mining expert in West Virginia was being engaged frequently by the Police and the DoL yet experts on the West Coast were ignored.

16.17 Assistant Commissioner Nicholls suggested that overseas experts 'added a particular value' or 'another dimension'.⁷² Meanwhile, at the mine, highly qualified local 'practitioners' were frustrated and felt ignored. Craig Smith left because he felt utterly frustrated and unable to assist. This echoes the views of people such as Steve Bell and Robin Hughes. Craig Smith explained his position as follows:⁷³

At approximately 18:00 I caught a ride out in the helicopter which was taking gas samples down to the Rapahoe Station. By Sunday evening I had concluded that there was little value I could add by remaining at Pike River. PRC had seemingly acquiesced to the Police assuming the role of Incident Controller including responsibility for making decisions on the rescue and recovery. The Police had no mining expertise and decisions were not being made quickly. Nor was there any structure around the IMT to facilitate the development of strategies by the mining experts who were on the ground. The expert advice that was being volunteered by Mines Rescue was not understood by the IMT and was being explicitly rejected by the Department of Labour. I now know that the incident was in fact being controlled from Greymouth and/or Wellington with those centres taking expert advice from wide range of sources, including West Virginia in the United States of America. In my view the experts most able to help were those actually at the mine. By

⁶⁹ Assistant Commissioner Nicholls, POLICE.BRF.29, page 50.

⁷⁰ PIKE.00120, page 4.

⁷¹ PIKE.18062, page 1.

⁷² Assistant Commissioner Nicholls, transcript, page 1727, line 19 onwards.

⁷³ Craig Smith, SOL.381667, paragraph 56.

way of example, the statement of Assistant Commissioner Nicholls refers to an American expert (Jimmy Gianato) asking on Tuesday afternoon how many refuge chambers there were in the mine and what the air pressure was within those chambers. This suggests to me that Mr Gianato was being asked to provide advice without even having access to a mine plan. There were of course no refuge chambers within Pike River and that information, amongst everything else known to the experts on the ground, was being taken into account when they recommended sealing the mine. These concerns are explained further at the conclusion of this document.

16.18 The DoL also struggled with expertise at this critical time yet was integral to the search, rescue and recovery operation (the evidence conclusively shows the DoL was 'approving' steps such as risk assessments).⁷⁴

16.19 Examples of the DoL's difficulties with expertise include:

16.19.1 20 November 2010 at 22.34 hours: An email from Sheila McBreen-Kerr to DoL personnel recorded:⁷⁵

I have been speaking to the Police investigation team tonight as well. The 3 Police teams seem unconnected except through us. I will be meeting this team to set up the operational agreement as opposed to the higher level one with ops headquarters. I will take Dave [Bellett] with me as I will be good with structure and process and a real liability with details of what's needed. Dave will be great.

16.19.2 23 November 2010 at 01.31 hours: An email from Sheila McBreen-Kerr to DoL personnel includes under 'tasks to assist us please' the request 'update on what experts you have managed to identify for us'.⁷⁶

16.19.3 23 November 2010: Michael Firmin's notes record:⁷⁷

*Got an urgent message to ring Lesley and Geraint Emrys. ...
Asked what we were doing. We said we were at a meeting with to discuss re-entering but only as observers. They asked if we had much input. We both said tried but not much help.*

16.20 Another illustration of the DoL struggling with its role as approver of risk assessments was Michael Firmin's statement to the Commission. In that he refers to his and Johan Booyse's decision to send back to the Police 'another risk assessment' (for PRDH43). The reason included:⁷⁸

... Hazards had not been labelled and others were missing and it was too technical, for instance, the reference to all crews being equipped with "XAM2000" which should have been referenced to all crews being equipped with a "gas monitoring unit such as a XAM2000".

16.21 In fact, as late as the Commission's phase two hearing, the purpose of the risk assessment for PRDH43 still seemed to be misunderstood by both the Police and DoL. A risk assessment was only required for the last 10 metres of drilling, and the entire focus of that assessment was on the risks associated with intersecting an explosive atmosphere. Contrast this with:

⁷⁴ Refer to Lesley Haines, transcript, page 2371 onwards.

⁷⁵ DOL.2000010014, page 15.

⁷⁶ DOL.2000010029.

⁷⁷ DOL.7770020003-02, page 11.

⁷⁸ Michael Firmin, DOL.7770020003, paragraph 75.

- 16.21.1 The cross-examination of Superintendent Knowles, in which Counsel for the DoL suggested that the risk assessment failed to identify the hazard of a possible explosion;⁷⁹ and
- 16.21.2 Counsel for the Police putting to Craig Smith as a concern or mistake (citing Steve Bell's statement)⁸⁰ that PRDH43 was commenced without methane protection.⁸¹
- 16.22 Commissioner Bell summarised the position in his questions to Superintendent Knowles:⁸²

Q. Because one of the other things that I sort of thought was how much time was wasted, and maybe that's the wrong word, training Police officers and expert, and the Wellington expert panel in mining matters, when you could've had someone there right from the word go that understood the terminology, understood the risk to a much greater extent?

A. Sir, having someone – I think the expert panel was not inappropriate in what they did, sir.

Q. Because, getting onto the panel, why wasn't there a first class coal ticket person on that expert panel in Wellington?

A. I think we relied on others in terms of Dr St George who had the mining experience, the – with the benefit of hindsight it would've been useful to have such a person.

Q. Because are you aware that to require, that to get that ticket, you have to actually pass an examination or a test to do with emergency response, particularly focussed on underground coal mines?

A. I am now aware of that sir, but as I say, the expert panel that we had, I felt provided sufficient advice.

Q. And even to do with inertisation, as far as I can see, and I'm not criticising your panel at all, I accept that they are experts in the fields that they're qualified in, but I couldn't see where any of them knew anything at all about inertisation, so to present them with inertisation options when they had no knowledge of inertisation, put them in a hard position as well, I would've thought.

A. Sir, you see I think Dr Beever had some knowledge of it. I think Dr St George had some knowledge of it and also there was the knowledge that was available through the panel that was put together through the western – sorry, the West Virginia experts, so I think there was some knowledge there but.

Q. It just seemed to me, and this is my opinion, that they were trying to second-guess what the local experts were coming up with and if you look at the range of people that were available, and I'm not talking about foreign, so-called experts, I'm talking about the people that were on the ground either working for Solid Energy or within the inspectorate. There was a lot of expertise there that could've been brought to bear?

Preparedness for a multi-agency operation

- 16.23 This section has been left intentionally blank.

⁷⁹ Superintendent Knowles, transcript, page 2146, line 32 onwards.

⁸⁰ Steve Bell, MRS.0021, paragraph 37. Steve Bell notes that they had placed 'a hold point on the hole' because 'in haste to start drilling the proper methane protection had not been fitted'.

⁸¹ Craig Smith, transcript, page 2657, line 8 onwards.

⁸² Superintendent Knowles, transcript, page 1856, line 11 onwards.

The level of logistical support

- 16.24 The Police were the correct party to provide logistical support to the Incident Controller and performed this function well.
- 16.25 There was full support from Solid Energy, drillers, helicopter contractors, transport firms and the numerous others from the mining and wider community on the West Coast and beyond. The deployment of men and materials to Pike River resulted in Spring Creek being put on care and maintenance at 08.00 hours on 20 November 2010 - both as a sign of support and because of equipment relocated to Pike River and personnel committed to the New Zealand Mines Rescue Service.⁸³
- 16.26 The response of New Zealand Mines Rescue Service was exceptional and proved the value of its training and preparedness. So too was the speed and expert assistance of the numerous Australian colleagues such as the Safety in Mines Testing and Research Station (**SIMTARS**), Coal Services Pty Limited and the New South Wales and Queensland Mines Rescue Services.
- 16.27 The gas chromatograph from Stockton Opencast Mine was mobilised and, together with the New Zealand Mines Rescue Service station at Rapahoe, demonstrated that there are sufficient resources to undertake mine atmosphere analysis in an emergency on the West Coast. That is not to detract from the valuable and welcome role played by SIMTARS, which also mobilised a gas chromatograph to Pike River extremely quickly.

The future direction of mine search and rescue operations

- 16.28 From the evidence given to the Commission as part of phase two of its proceedings, Solid Energy concludes that:
- 16.28.1 Every individual and agency responding to the Pike River tragedy had the best of intentions and tried extremely hard to rescue the men who were in the mine.
- 16.28.2 Whatever their quality, the decisions made and actions taken did not lessen the likelihood of survival. In Solid Energy's view the men died during, or shortly after, the initial explosion.
- 16.28.3 However, in Solid Energy's view the quality of decision making has potentially compromised body recovery, as decisions were not made which may have prevented the second and subsequent explosions.
- 16.28.4 Several key decisions were not made and actions not taken before the second explosion. This was a consequence of the way in which the emergency was managed. While it may be unproductive to retrospectively examine what might have been decided and whether that would have enabled the men's bodies to be recovered, Solid Energy is recommending that any future underground coal mine emergency is managed differently.
- 16.28.5 An emergency in an underground coal mine is very different from the search and rescue, fire, accident and disaster type incidents that the NZFS and Police are experienced managers of.

⁸³ Barry Bragg, SOL384003, paragraph 23.

- 16.28.6 The decisions that need to be made about an emergency in an underground coal mine require a high degree of technical understanding and experience. The key issues of concern to Solid Energy were:⁸⁴
- (a) Not locating the Incident Control Point and Incident Management Team at the mine site.
 - (b) Not clearly articulating the incident management structure to everyone involved. This includes failing to identify the Incident Controller, Operations Manager, Logistics Manager and Planning/Intelligence Manager.
 - (c) Elevating real command and control and a range of operational decisions, not only away from the mine site, but to the Response Coordinator and then, above him, to other individuals and groups of individuals.
 - (d) Appointing people to the roles of Incident Controller, Operations Manager and Planning/Intelligence Manager who (through no personal failings) had no technical understanding of underground coal mines or the types of decisions and actions that need to be prioritised during an underground coal mine emergency. It also appears likely that those in real command and control of the incident probably did not appreciate the dynamic and urgent nature of the situation, nor the degree to which some decisions needed to be made quickly.
 - (e) Not facilitating the involvement of underground coal mining experts (who were in possession of the best available information), in managing the incident.
 - (f) Replacing an incident management framework with a hierarchical Police-centric operational framework.
 - (g) Not endeavouring to make timely decisions about survivability and sealing.
 - (h) In relation to risk assessments, focussing on process over substance and allowing a parallel decision making structure to evolve which slowed decision making and gave non-expert

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For a discussion of these types of issues in relation to a different underground coal mine emergency, refer to E Teaster and J Pavlovich, *Independent Review of MSHA's Actions at Crandall Canyon Mine*, July 2008. The reviewers identified various deficiencies in MSHA's actions as the incident controller, including: 'A central command centre was not established'; 'Persons who could have contributed significantly to the initial ground control evaluations after the August 6th bounce were either not assigned to the rescue effort or were delayed in their arrival'; 'The MSHA person-in-charge of the rescue operation was not clearly identified'; 'The MSHA person-in-charge of the rescue operation did not focus his attention solely on the rescue effort, as much of his time was consumed by conducting and/or attending family and media briefings'; 'The person-in-charge created an environment that hindered open communications with the rescue workers'; and 'MSHA failed to always provide clear and accurate information regarding the mine accident to the families of the trapped miners, and did not correct or contradict misleading or incomplete information presented by the operator'.

individuals without the best available information the right to veto decisions and actions.

- 16.29 Solid Energy has no objection to the underlying incident management principles that the CIMS is based on. However, Solid Energy does not consider that those principles were applied during the management of the emergency at Pike River.
- 16.30 What Solid Energy has carefully considered is this: without changes, how would any future underground coal mine emergency be managed? And, if the answer to that question is unacceptable in terms of safety and health outcomes, what should be changed?
- 16.31 Major emergencies at underground coal mines are rare compared with the search and rescue, fire, accident and disaster type incidents that the NZFS and Police are experienced managers of. In most common and trained for emergency scenarios, either the Police or the NZFS will be the natural 'lead agency' and have sufficient expertise to provide effective incident control. For example, the NZFS would fill the Incident Management Team roles during a chemical fire, and it would be expected that the officer in charge of the Police presence would, in accordance with CIMS, be comfortable reporting to the NZFS Operations Manager for tasking.
- 16.32 Given this is the way in which the Police and NZFS are used to working, the problem Solid Energy anticipates is that, whichever agency considers itself to be the 'lead', it will respond to any future underground coal mine emergency in the same way: by assuming command and control without (a) any trained for and embedded practice of involving third party experts; or (b) enabling decisions to be made by, or at least informed by, the people best qualified to make them.
- 16.33 Despite the relative calm aboveground, the situation within Pike River was extremely dynamic, complex and dangerous (not unlike a major chemical fire in that an underground coal mine emergency can be fast changing and require quick decision making to preserve life). In Solid Energy's view it is not sufficient in such cases to be an expert in emergency management alone. It is doubtful that the NZFS would invite the Police to take over the incident control of a chemical fire and nor would the Police want to.
- 16.34 Solid Energy considers that the status quo could again produce unacceptable safety and health outcomes as it is likely to result in sub-optimal management.
- 16.35 What should be changed? Solid Energy does not believe that a coal mining industry the size of New Zealand's should re-invent the wheel. Accordingly, it is recommended that New Zealand's underground coal mining industry adopt MEMS for reasons which include:
- 16.35.1 The underlying incident management principles of CIMS and MEMS are the same.⁸⁵ There is no credible reason why the Police, NZFS and other emergency response agencies cannot work within the MEMS framework.⁸⁶

⁸⁵ Assistant Commissioner Nicholls, transcript, page 1664, line 31 onwards. Assistant Commissioner Nicholls comments that CIMS is 'not inconsistent' with MEMS.

⁸⁶ Solid Energy anticipates that part of implementing MEMS will be undertaking simulated emergencies of the type carried out routinely in Queensland and New South Wales. Such exercises enable mine operators to further build their skills in managing underground coal

- 16.35.2 It is critical that the Incident Controller and other Incident Management Team members are on site and have the technical understanding of underground coal mines that will allow decisions and actions to be prioritised and made quickly. As with a chemical fire, in most underground coal mine emergency scenarios there will not be time to educate a non-expert decision maker.
- 16.35.3 The Queensland and New South Wales mines rescue experts who would assist with any prolonged emergency will be able to contribute more quickly and effectively within a framework they are familiar with (i.e. MEMS).
- 16.35.4 Established training programmes in MEMS are available in Australia.
- 16.35.5 The role of mines rescue services under MEMS is appropriate and well understood. The purpose of the New Zealand Mines Rescue Service is to provide an operational capability, not to control and manage incidents.
- 16.36 Solid Energy rejects the suggestion that a mine operator would somehow be 'conflicted' when performing the role of Incident Controller or might prioritise protecting property above protecting life. The mere existence of externalities should not disqualify a party from ever fulfilling the role of Incident Controller. In this regard Solid Energy notes that a senior member of the NZFS suggested during the Commission's proceedings that some operational decisions would move upwards from the Incident Controller if they had a 'significant impact ... in terms of the media context or political context'.⁸⁷
- 16.37 While Solid Energy acknowledges that the Police and NZFS are professional emergency managers, it does not accept that such generic expertise is more valuable than specific expertise in underground coal mining. What happened at Pike River and the degree to which standard incident management principles were departed from demonstrates how difficult it can be, despite training, to adapt to a completely new set of circumstances.
- 16.38 By recommending MEMS, Solid Energy does not suggest that the Police, NZFS and other emergency response agencies would be unwelcome during an underground coal mine emergency. The best response to an underground coal mine emergency will always be one which involves a range of agencies; each contributing their expertise and capability as needed. The Police in particular are likely to have a very significant involvement. As with CIMS, MEMS will not affect the operational aspects of the Police's work and command will continue to operate vertically within each agency. The driver for Solid Energy's recommendation is to promote the approach that it believes is most likely to preserve life.

mine emergencies, as well as helping to clarify the roles of other emergency response agencies - something which should not be left to the worst possible time, being in the midst of a major incident. Inter-agency emergency response planning and training would also help to resolve potential issues around the use of decision making tools like risk assessments. For example, Solid Energy considers there to be some threshold issues around how risk assessment processes should be used during an emergency. Further, for expected emergency scenarios like using a down-hole camera or listening device, it should be possible to have something like agreed SOPs in place.

⁸⁷

James Stuart-Black, transcript, page 2208, line 23 onwards.

- 16.39 Last, Solid Energy notes the general support for MEMS that was given by the oral evidence of Darren Brady, Seamus Devlin, Trevor Watts and Craig Smith.

17 The availability of information

Information as to the men in the mine

- 17.1 This section has been left intentionally blank.

Information as to the mine atmosphere

- 17.2 This section has been left intentionally blank.

The drilling of new boreholes

- 17.3 The reasons for undertaking PRDH43 have been well canvassed during the Commission's proceedings. It was efficiently executed by an expert team and Solid Energy's submissions on this subject are limited. The only negative issues Solid Energy experienced with PRDH43 were:
- 17.3.1 The frustrations and distractions in respect of the risk assessment approval process; and
 - 17.3.2 Hearing, after drilling had commenced, that PRC's survey of the Pike River working was possibly inaccurate.⁸⁸

18 The search, rescue and recovery operation

The issue of a 'window of opportunity'

- 18.1 In Solid Energy's view there was, sadly, never any window of opportunity for re-entry. The families are commended for their acceptance of this during the course of the Commission's proceedings. It appears that how the families were communicated with led to hope that there was, or may have been, such a window. As Trevor Watts' evidence made clear, that was never the case. Consistent with the New Zealand Mines Rescue Service position, Solid Energy's crisis coordination team recorded in its meeting minutes on-going concerns regarding any rescue attempts because of the risk of further explosions.⁸⁹

The risk assessment process

- 18.2 The risk assessment process was flawed. It was frustrated by:
- 18.2.1 Multi-level decision making between the mine, Greymouth and Wellington;
 - 18.2.2 Confusion about the roles of multiple agencies, particularly the Police and the DoL;
 - 18.2.3 The assessment of expert matters being undertaken by non-experts; and
 - 18.2.4 The occurrence of 'mission creep'.
- 18.3 The risk assessment process for PRDH43 was a low point in the inefficiencies with the risk assessment processes, with frustration, delays and complete lack of value

⁸⁸ Craig Smith, SOL.381667, paragraph 91.

⁸⁹ Refer generally to Barry Bragg, SOL.384003.

from the risk assessment critiques and rejections. After two days of intense frustration, the team managing the drilling was told that the risk assessment did not have to be signed off in any event. This was set out in the statement of Craig Smith,⁹⁰ as well as in his examination and cross-examination.

- 18.4 The reluctance of the DoL to acknowledge that it had (wrongly) assumed a decision making role, rather than its now suggested advisory role, was borne out in the cross-examination of Lesley Haines. The documents, particularly the email traffic at the time, make it clear that the DoL assumed a role as approver in a field where, at the time, it had little or no expertise.⁹¹ This inability to meaningfully assist was highlighted by the DoL in part rejecting one risk assessment because it was 'too technical'.
- 18.5 The DoL also demonstrated a focus on process, and at times protection of its own position, ahead of urgent, practical outcomes. An example of this can be seen in DOL.200001006013, a report from Sheila McBreen-Kerr entitled 'Update Pike River Monday 29 November 2010, Police Station Greymouth':

At this stage it seems unlikely that evidence or victims could be recovered but I must stress that this is based on scenarios that cannot be confirmed one way or another. There are other theoretically possible scenarios that would have some preservation in some areas.

The do nothing option may lead to the mine being unuseable in the future even from another shaft. The fire may burn for many decades though it appears it has now died down and may have even gone out. There is still debate about what fuelled this fire and therefore whether it will keep burning in the long term ...

New risk assessments are being done now Geraint as the conditions have changed. I suggest you sign off nothing until we speak again. It's important the wider view is taken and I think there is risk to the Department currently unless we make it very clear formally about the risks compared to doing nothing and that there is no current supported by evidence view of what is actually happening in the mine.

- 18.6 It has been advanced that the risk assessment process illustrated by PRDH43 did not delay drilling. If so, that was a result of good luck rather than good management. It also ignores the fact that, in a stressful and urgent situation, the resources of experts were being inefficiently used.
- 18.7 Ideally an expert Incident Controller would have quickly decided what tasks required a risk assessment before action and by whom, with the action being delegated to people on site. Those people or the Incident Controller could seek peer review if necessary.
- 18.8 Craig Smith's evidence, under cross-examination on behalf of the Police, illustrates how people were needlessly distracted through the risk assessment process and that those reviewing the risk assessment seemed to not appreciate that the initial drilling work was being undertaken in accordance with established SOPs by a highly experienced drill team:⁹²

⁹⁰ Craig Smith, SOL.381667.

⁹¹ Refer for example to DOL.7770020005-04, DOL.2000030009, DOL.2000030013, DOL.2000030020, DOL.200003002, DOL.2000030012, DOL.2000030005 and DOL.2000010012.

⁹² Craig Smith, transcript, page 2655, line 6 onwards.

Q. *Would you accept that the critical issue, and I think it appears throughout the IAPs, the more critical issues, was in fact trying to work out exactly what the atmosphere in the mine was actually doing. That was a critical issue wasn't it?*

A. *The critical issue that people could do other than analyse was get the borehole down. That was the single thing that could be done to better knowledge. Just go back to your first question. In the event it took 50 hours to drill that hole even though the original estimate was some 30 hours. So as you say, the risk assessment process, as convoluted and time consuming as it was, didn't actually slow down the drilling. It definitely took Dean Fergusson, who would've otherwise been actively involved up at the site, it took his attention away, made him very fractious about that process rather than utilising his abilities where they could be brought to best use.*

Q. *But on that point - and you have accepted that the key focus of the IMT was on ascertaining further samples. They made decisions about getting a further borehole down and then they did everything they could to make sure that that happened?*

A. *Well, I don't know what the IMT did to make it happen actually. I think that Dean Fergusson and his team of 20 or so drilling contractors and other staff that he mobilised or was doing a lot of the doing and some of the Mines Rescue team were determining where those holes could be put to best effect, I think the point I was making about the risk assessments was that it was over the top, time consuming and didn't add any value.*

Q. *Okay, but certainly the initial risk assessment for that drillhole, you said in your brief it went through Police and Department of Labour, can you name any Police officers who saw that initial drilling assessment?*

A. *No, look I wasn't involved in the preparation of that risk assessment. Dean Fergusson did that with a number of other people.*

Q. *You've put that in your brief, but there seems to be no evidence that any Police officers saw that drill assessment, do you think perhaps you could be wrong about that?⁹³*

...

Q. *Because certainly the hold-up in getting the drill rig up there that afternoon was in fact weather related and helicopters flying out, as I think you've also mentioned in your brief?*

A. *I'm not holding anybody else to account for the delays in getting the drilling equipment up to the site, or the actual rate at which the drill could be, the rate at which the hole was actually drilled. All the point I was making was that the risk assessment process was done very competently with the resources and expertise that Dean Fergusson mobilised and had knowledge of the task, knowledge of the hazards and that he should've been facilitated to do that in the most efficient way possible to allow him to get on and do the job as quickly as possible.*

Q. *And certainly, what you're talking about is what happened later on the Monday or the Tuesday, but the Sunday process there doesn't appear to be have been any hold-ups in that risk assessment process?*

A. *No that might be right.*

Q. *And just in terms of that risk assessment process, are you aware at paragraph 37 of Steven Bell's brief of evidence that suggests that in the haste to start drilling, the copper methane protection hadn't in fact been fitted? Are you aware of that?⁹⁴*

⁹³ Refer to paragraph 16.16.3 of this document. It appears that Police incident controller Superintendent Powell had seen a risk assessment for PRDH 43.

⁹⁴ Refer to Steve Bell, MRS.0021, page 9. It has not been understood that methane protection was not required for the first 150 metres of drilling. The risk assessment and

A. No I'm not aware of that and I don't know whether it was a hazard or not. I know the drilling went ahead on the basis of normal standard operating procedures for drilling until they reached there, sorry, when this risk assessment came into effect.

- 18.9 Perhaps the most telling indictment on the PRDH43 risk assessment process was the evidence of Seamus Devlin in answer to Counsel Assisting.⁹⁵

Q. Are you able to give an indication of how long you might expect that risk assessment and review process to take in an underground coal mine emergency in New South Wales?

A. I wouldn't expect it to be more than a couple of hours.

Q. Have you had experience of that in relation to, for example, boreholes?

A. Yes I have. Yes, a couple of years ago now, we had a fairly extensive heating at a local colliery that involved quite a number of boreholes and moving the drilling machine to different boreholes and that was my experience was a couple of hours.

Utilisation of on-site expertise

- 18.10 This subject has been canvassed in other sections of Part C of this document.

- 18.11 The Solid Energy experts who were on the West Coast and had certificates of competence as fist-class coal mine managers are listed in Appendix 1 to Craig Smith's statement.⁹⁶

- 18.12 The Police (in the words of Superintendent Knowles) announced that they were the lead agency at 17.40 hours on 19 November 2010. Solid Energy emphasises that it is not criticising the genuineness of the Police endeavours, but the Police's lack of expertise and inability to properly understand what they were being told by local experts at the mine, meant they were incapable of prioritising the issues that had to be undertaken as part of the rescue and recovery operation. It was not appreciated that this was a unique situation.

- 18.13 Those critical questions were the assessment by experts of survivability and, in conjunction, whether to seal the mine. It was known that otherwise the mine would continue to explode and that this would make more difficult, if not prevent, any subsequent recovery.

- 18.14 This is not a view that is only now advanced by Solid Energy. The minutes of Solid Energy's crisis coordination team for 21 November 2010 at 14.00 hours include:⁹⁷

Latest thinking of our mining staff on best response: Seal the mine to get control of the mining conditions to allow safe re-entry and to minimise damage to mine infrastructure so as to get access to all parts of the mine to recover people.

- 18.15 It is accepted that sealing the mine would not necessarily have prevented the subsequent explosions. It was failing to prioritise and encourage informed consideration that was the issue, particularly given the considerable evidence that the

controls put in place as a consequence of that assessment related to the risks of intersecting an explosive atmosphere.

⁹⁵ Seamus Devlin, transcript, page 2057, line 1 onwards.

⁹⁶ Craig Smith, SOL.381667.001, Appendix 1.

⁹⁷ Barry Bragg, SOL.384003, paragraph 28.

conditions in the mine could not be survived, and that, without sealing, the whole mine would start burning. Such a fire would melt the chemical resins holding the mine's roof bolts, likely resulting in roof collapse.⁹⁸

- 18.16 The consequences of subsequent explosions were made plain to what Solid Energy thought was the Incident Management Team (but was in fact 'forward command') on the afternoon of 20 November 2010 by Steve Bell.⁹⁹ Robin Hughes' statement explains his belief that the mine was on fire. He goes on to state:¹⁰⁰

The IMT asked what the consequences of the coal catching fire would be. Steve Bell and I explained that the consequence were grave because the whole Mine would start burning including support holding the Mine up. It was likely that there would be roof falls underground ...

- 18.17 If the consequences of this were appreciated it is difficult to understand why a proper discussion on survivability was not undertaken as the risk of a more severe subsequent explosion is recorded in Police briefing documents. See for example PNHQ.13498/1, PNHQ.13498/6 and PNHQ.01754/14.

- 18.18 Even the DoL (Lesley Haines) accepted that this critical issue was probably not properly considered:¹⁰¹

Q. Just lastly, without ... taking you to the documents, do you accept that the way the department's view was expressed on sealing the mine, that you stifled debate on that?

A. That may have been the outcome, sir.

- 18.19 In short, the multi-layered process and the fact that effective control of the operation was located off-site, meant available onsite expert resources were wasted.

- 18.20 There was information available from the outset to inform a focussed assessment of survivability. The information which was available to expert underground coalminers from an early time included:

- 18.20.1 CCTV footage;
- 18.20.2 Survivors' accounts;
- 18.20.3 Extrapolation of explosion force;
- 18.20.4 Material ejected;
- 18.20.5 Gas samples from main vent; and
- 18.20.6 Measurements of ventilation going into mine.

Decision making as to survivability, sealing the mine and contingency planning

- 18.21 Douglas White supported the evidence of Craig Smith that the option of sealing the mine was never properly considered or risk assessed because of the directive of the DoL.¹⁰²

- 18.22 The evidence of Craig Smith under cross-examination on this issue was:¹⁰³

⁹⁸ Steve Bell, MRS.0021, paragraph 27.

⁹⁹ Steve Bell, MRS.0021, paragraph 27.

¹⁰⁰ Robin Hughes, MRS.008, paragraphs 31 and 32.

¹⁰¹ Lesley Haines, transcript, page 2394, line 19 onwards.

¹⁰² Douglas White, transcript, page 1151, line 4 onwards.

¹⁰³ Craig Smith, transcript, page 2655, line 1 to 5 and page 2659, line 19 onwards.

Q. *It's certainly your observations are limited to, we'll say three or four IMT meetings. Would that be fair?*

A. *The significant one on the Sunday that I recall was the discussion around the sealing and the Department of Labour making the edict that there'll be no sealing until there's zero chance of survivors. That one's very clear in my mind.*

Q. *Are you aware, or were you aware, prior to the Commission commencing that in fact there had been an inflatable seal ordered from Perth on the 21st?*

A. *No, I don't know.*

Q. *You weren't aware of that?*

A. *I've become aware of it, I don't know when I became aware of it.*

Q. *But you weren't aware of it at the time things were happening on the 20th and the 21st?*

A. *I think my point about the things that were happening, and the inflatable seal is a good example I think, is that things were being done by the Police or others, such as sourcing robots, an inflatable –*

Q. *Sorry, I can't hear. "Such as?"*

A. *Such as sourcing the robots and inflatable seals et cetera, but that their effort was not directed at the key issues. These things were being done and were being promulgated as examples of activity of a well organised control group but those were not the critical things that needed to be focused on....*

Q. *So those are really the decisions that Solid Energy was involved in on that Saturday and Sunday. Having looked at those, do you accept that really for those practical mining matters, things were just got on and done in those early days without any hold-ups from risk assessments? I'm talking here about Friday, Saturday and Sunday.*

A. *Yes. I think – yes I'm not quite sure what the point you're making is. I think my evidence is about the effort that those particular mining people should have been put to.*

Q. *Certainly when you make that broad statement in your brief of evidence in paragraph 56, that Police had no mining expertise and decisions were not being made quickly. That's your Sunday night observation. Then it seems to me there's no particular decision that you can point to that's not being made quickly?*

A. *Well the critical decision was analysing, discussing, testing whether and when the place should be sealed. That was a critical question in front of people that was being sidelined because it was an uncomfortable decision to have to make. That's the point of my evidence, if you like. That's my main observation.*

Q. *You didn't raise that in the IMT meetings? You didn't see it was your place?*

A. *I raised the issue about sealing. Yes, I was involved in the discussions and I distinctly remember the Department of Labour responding with the "No more arguments until there's zero chance of survivors. We're not going to talk about sealing," and that's from Wellington. And I had the discussion with Johan Booyse and Dave Bellett about can we discuss things like the container with double doors in the entranceway to allow people to continue to escape if they can. Can we talk about compressed air supplies to allow people to survive because we need to be dealing with two objectives here."*

A. *So we had that discussion at that IMT on the Sunday. And that failure to confront that issue and to prioritise it and to sit the right people down, not in a cast of thousands, but on a cast of half a dozen, and actually go through the scenarios, through the options, and decide, "Yes or no," to any or either of these options. That was not done, and that's not the fault of the people that were raising it, it didn't get somebody by*

the throat and shake them, no, it was the fault of the organisation that was responsible for doing those things. And we, I, Mines Rescue, can't be held accountable for the lack of understanding or the ignorance of the Police if they were making the decisions, the ignorance of them in seeing what the hazards were. That's not our responsibility. Somebody else was giving their direction.

Q. And you're aware that the sealing, the final discussions around the sealing, I think on survivability, took several days on the 24th, 25th and 26th of November, have you been here for any of that evidence?

A. No, no I haven't.

Q. So not an easy decision which you've obviously accepted?

A. I've never said it was an easy decision. You had to make a decision. The decision was either to seal or not to seal. What happened was that no decision was made. The discussion was not held. I'm not saying that if a properly constructed and exhaustive discussion was held about that issue, and the outcome was that, "No, there's still not sufficient evidence that there couldn't have been survivors," then that might've been the decision that that group came out with. My main point is that, not the Police, charging the Police with making that decision. The only responsibility, in my view, was to allow that discussion to be had on an informed basis and they should've had the knowledge about who present could best undertake that analysis. I think that the Police should be held accountable, or should've been accountable for doing that. I can't hold the Police accountable for making mining specialist decisions but they were accountable for identifying that it was a critical decision that had to be made here and that we need to give it time and resource and focus and have it. And if the outcome was, "Let's sit on it for an hour and have another discussion about it after we get some more information," fine. But my absolute frustration and annoyance was that nobody in control, in command, who could actually bring together those resources could direct people to do things and give them some decision-making authority or recommendation authority, whatever, that wasn't done. So you're left with people going away and in some half-baked way producing sort of contingency plans. That was an atrocious outcome.

Q. And I think you would certainly accept that decisions in terms of survivability certainly had to have the involvement of the Coroner and certainly high level decisions. When Solid Energy, for example, that would certainly be something that would go to either the COO or the CEO of that organisation?

A. It's not my call as to whether the Coroner would be involved in determining survivability questions in the middle of an emergency. I would think that it'd be under a MEMS structure, how we would see the CIMS structure working in fact is that the incident controller has a team that he had pulled together, has responsibilities to ensure that he's got sufficient high competent resources, all points of view, all potential intelligence judgment experiences brought together in the question, I wouldn't be, and that might include the COO and CEO of the company of course but it's a company responsibility about making those hard decisions and you can't decide to [shrug] off that responsibility because it's too hard a decision to make, so we won't make it, there's no point at which the company and the mine manager has the luxury of being able to say, "Oh, it's all too hard for me, I'll let somebody else make that decision," it's irresponsible.

- 18.23 Seamus Devlin supported Solid Energy's evidence that discussion around sealing the mine was stifled and he had reached the view before the second explosion that all of the miners had died.¹⁰⁴
- 18.24 The communications on site also reflect the problems with the multi-location search and rescue operation. It was assumed by many of the others present that the Police at the mine were in charge. The actual structure - a forward command and offsite Incident Management Team - was not understood and explained. The confusions persisted for several days, not several hours. To this day it is not clear to Solid Energy who, for example, held the critical CIMS role of Planning/Intelligence Manager.
- 18.25 There was also a lack of communication specifically at the mine. The most telling example of this was John Taylor's evidence as to the rising gas levels and the lack of appropriate communication of this to the CALS team on the day of the second explosion.¹⁰⁵

19 Post search, rescue and recovery events

Stabilisation of the mine

- 19.1 This section has been left intentionally blank.

Re-entry into the mine

- 19.2 This section has been left intentionally blank.

Ensuring the safety of the mine and its surrounds if it is not reopened

- 19.3 This section has been left intentionally blank.

20 The families

Contacting the next of kin

- 20.1 This section has been left intentionally blank.

The conduct of and information provided at family meetings

- 20.2 This section has been left intentionally blank.

Welfare assistance

- 20.3 This section has been left intentionally blank.

D POLICY ASPECTS

21 Mining regulation and recognised practices

The appropriate comparators

- 21.1 Solid Energy agrees with the Commission's decision to use Western Australia, Queensland and New South Wales as comparators. While the consideration of other

¹⁰⁴ Seamus Devlin, transcript, page 2068, line 4 onwards.

¹⁰⁵ John Taylor, SOL.339150, paragraphs 71-77.

jurisdictions should not be completely excluded, the relative size of the mining industries in Western Australia, New South Wales and Queensland (both within Australia and globally) means that these jurisdictions have a strong and on-going involvement in the evolution of best practice mining laws.

- 21.2 New Zealand's economy is more closely linked with Australia than any other country and we have similar legal systems. Should the Commission's recommendations result in changes to New Zealand's mining laws, it makes sense to look first to the leading Australian jurisdictions and consider alignment with them.
- 21.3 The New Zealand underground coal mining industry is simply too small to go it alone. Adopting an Australian regulatory model will have numerous advantages:
- 21.3.1 As the law in Australia evolves, New Zealand will be able to follow and perhaps contribute to its development. While some innovations and improvements may be made within New Zealand, this country does not, and is unlikely to ever, have the depth and quality of resources that are tasked with developing Australia's mining laws towards the ever moving goalposts of best practice. Relevant to this is the fact that Australia's mining laws are in the midst of a period of significant change, driven by both the National Mines Safety Framework (**NMSF**) and the Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety.¹⁰⁶
- 21.3.2 Solid Energy's recommendation is that the DoL's functions in respect of underground coal mines are contracted out to the QMI. This will be easier to do and more efficient if New Zealand's mining laws are aligned with Australia's. Even if significant long-term improvements can be made to the existing New Zealand inspectorate, the end result will always be a relatively small team of people with limited depth in terms of expertise and policy support. This is an inevitable consequence of the small size of the New Zealand underground coal mining industry. Any New Zealand inspectorate will therefore need to seek significant on-going support from Australia. Again, this would be facilitated by making New Zealand's mining laws consistent with Australia's.
- 21.3.3 The mining workforce is internationalised and very mobile. Solid Energy believes that aligning New Zealand's mining laws with Australia will assist with the recruitment of safe workers - both those seeking a stepping stone to Australia and miners with Australian experience wanting to live in New Zealand for lifestyle reasons.

The features of the comparator regulatory systems

New South Wales

- 21.4 **Laws:** The overarching safety and health legislation is the Work Health and Safety Act 2011 (for which the responsible Minister is the Minister for Finance and Services), beneath which sits the Work Health and Safety Regulation 2011.

¹⁰⁶ For a useful summary refer to Deloitte Access Economics, '*Consultation Regulation Impact Statement for Model Work Health and Safety Regulations and Codes of Practice for Mines*', October 2011.

- 21.5 All coal mining is also subject to the Coal Mine Health and Safety Act 2002 (for which the responsible Minister is the Minister for Resources and Energy) and the Coal Mine Health and Safety Regulation 2011.
- 21.6 The Coal Mine Health and Safety Act 2002 applies in addition to the Work Health and Safety Act 2011 and, to the extent of any inconsistency, the Work Health and Safety Act 2011 prevails. The overarching duty of care under the Work Health and Safety Act 2011 is to ensure, so far as is reasonably practicable, the health and safety of workers.
- 21.7 **Reports:** Major safety and health reports and inquiries in New South Wales include:
- 21.7.1 J Staunton, '*Inquiry into the Gretley Coal Mine Accident*', July 1998;
- 21.7.2 '*Mine Safety Review*', 1997 (commissioned by the New South Wales Government);
- 21.7.3 N Wran, '*Mine Safety Review*', September 2004 (**Wran Review**);
- 21.7.4 J Macken, '*Inquiry into Mine Safety Enforcement Policy*', July 2007;
- 21.7.5 N Jennings, P Robson and B Buffier, '*Report on the Conduct of New South Wales Department of Primary Industries Mine Safety Investigators*', December 2007; and
- 21.7.6 New South Wales Department of Primary Industries, '*Report on the Review of the Coal Mine Health and Safety Act 2002*', July 2009.
- 21.8 **Inspectorate:** The inspectorate, 'Mine Safety', is specific to mining and part of the Department of Primary Industries, which itself sits within the Department of Trade and Investment, Regional Infrastructure and Services. Mine Safety is divided into Mine Safety Operations Branch, which deals with inspection and enforcement; and Mine Safety Performance Branch, which deals with monitoring and policy.
- 21.9 The Coal Mine Health and Safety Act 2002 provides for the appointment of a Chief Inspector, inspectors, mine safety officers and investigators. The functions of the Chief Inspector include:
- 21.9.1 The control and direction of inspectors and mine safety officers; and
- 21.9.2 Reviewing appeals from notices issued by inspectors and mine safety officers.
- 21.10 **Safety research and policy entities:** The Mine Safety Advisory Council is a non-statutory body established in 1998 to provide the Minister for Resources and Energy with advice on safety and health issues. It is serviced via a secretariat within the Department of Trade and Investment, Regional Infrastructure and Services. The Mine Safety Advisory Council is comprised of an independent chairperson and relevant experts, together with industry, employee (CFMEU and Australian Workers Union) and government/regulator representatives. Its terms of reference are:¹⁰⁷
- *To establish strategic safety and health direction and goals*

¹⁰⁷

http://www.nswminesafety.com.au/About_Us/Terms_of_Reference, accessed 25 February 2012.

- *To analyse and review the safety performance of the industry and to provide information to stakeholders so that safety performance can be improved*
- *To provide leadership to the mining industry to develop safe and healthy workplaces within a framework which:*
 - *Encourages innovative and safe technology and processes*
 - *Sets the strategic direction for the industry in developing competent people*
 - *Advances a legislative framework which leads to safe mining practice*
- *To encourage a move towards cross-industry and national standards*
- *To interact with the safety advisory committees to enable them to lead their industry sectors, and to inform the work of the Council*

21.11 Feeding into the Mine Safety Advisory Council are 'Safety Advisory Committees' for the coal, metalliferous and extractives industries, plus the Mining and Extractives Industry Health Management Advisory Committee.

21.12 **Mines rescue:** Coal Services Pty Limited is a company jointly owned by the New South Wales Minerals Council and the CFMEU. Coal Services Pty Limited owns Mines Rescue Pty Limited, as well as providing the New South Wales coal mining industry with (a) a worker's compensation insurance scheme; and (b) an occupational health service delivering medical assessments, rehabilitation, risk and injury management, work environment monitoring and health educational material.

21.13 Mines Rescue Pty Limited maintains rescue stations, provides training and provides underground incident response. It is funded by a levy on industry participants under the Coal Industry Act 2001.

21.14 The MEMS structure is adopted in some parts of New South Wales but it is not universal.¹⁰⁸

21.15 **Qualifications authority:** The Coal Competence Board is established under Part 9, Division 2 of the Coal Mine Health and Safety Act 2002. Its functions include the development of competence standards, undertaking assessments and providing advice to the Minister. The Board is comprised of an independent chairperson, employer representatives, employee representatives, relevant experts and officers of the Department of Primary Industries.

21.16 **Employee participation:** Part 10, Division 3 of the Coal Mine Health and Safety Act 2002 provides for site, industry and electrical check inspectors.

Queensland

21.17 **Laws:** Coal mining is subject to the CSMH Act 1999 (for which the responsible Minister is the Minister for Employment, Skills and Mining) and the CSMH Regulation 2001, which apply in place of Queensland's general safety and health legislation, the Work Health and Safety Act 2011. The primary obligation under the CSMH Act 1999 is to achieve 'an acceptable level of risk', in particular through risk management practices and putting in place management and operating systems.

21.18 **Reports:** Major safety and health reports and inquiries in Queensland include:

¹⁰⁸ Seamus Devlin, transcript, page 2051, line 32 onwards.

- 21.18.1 F Windridge, '*Warden's Inquiry Report on an Accident at Moura No. 2 Underground Mine*', August 1994; and
- 21.18.2 D Bevan, '*Report of the Queensland Ombudsman - The Regulation of Mine Safety in Queensland - A Review of the Queensland Mines Inspectorate*', June 2008 (**Ombudsman Review**).
- 21.19 **Inspectorate:** The QMI, which is specific to mining, is part of the Department of Employment, Economic Development and Innovation. The CSMH Act 1999 provides for the appointment of a Chief Inspector of Coal Mines, inspectors and inspection officers. In addition to the powers of an inspector, the Chief Inspector of Coal Mines can review directives given by others and give a directive requiring the provision of an independent engineering study.
- 21.20 While the Commissioner for Mine Safety and Health and the Board of Examiners discussed below are independent, operationally they sit within/alongside the QMI.
- 21.21 **Safety research and policy entities:** A Commissioner for Mine Safety and Health is appointed under Part 5A of the CSMH Act 1999. The Commissioner's functions include:
- 21.21.1 To advise the Minister on mine safety and health matters generally;
- 21.21.2 To fulfil the role of chairperson of (a) the Coal Mining Safety and Health Advisory Committee established under Part 6 of the CSMH Act 1999; and (b) the Mining Safety and Health Advisory Committee established under the Mining and Quarrying Safety and Health Act 1999; and
- 21.21.3 To monitor and report to the Minister and to Parliament on the administration of provisions about safety and health under the CSMH Act 1999 and other mining legislation.
- 21.22 The Commissioner is required to prepare an annual report on the performance of the Department of Employment, Economic Development and Innovation in regulating mine safety.¹⁰⁹
- 21.23 In addition to the chairperson, the Coal Mining Safety and Health Advisory Committee consists of industry, employee and inspectorate representatives. Its primary function is to give advice and make recommendations to the Minister about promoting and protecting the safety and health of persons at coal mines. The Committee also has the function of recognising, establishing and publishing the competencies required to perform specific tasks and perform duties regulated under the CSMH Act 1999.
- 21.24 The Mining Health Improvement and Awareness Committee was established in 2009. It comprises experts, together with inspectorate, employee and industry representatives. The Committee's purpose is to assist industry to anticipate, identify, evaluate and improve the control of health hazards in the mining environment.¹¹⁰

¹⁰⁹ For example, see <http://mines.industry.qld.gov.au/assets/safety-and-health/Commissioner-Mine-Safety-Health-Annual-Performance-Report-2010-11.pdf>, accessed 25 February 2012.

¹¹⁰ http://mines.industry.qld.gov.au/assets/mines-safety-health/strategic_plan_qmhiac_001_01.pdf, accessed 25 February 2011.

- 21.25 SIMTARS is also part of the Department of Employment, Economic Development and Innovation. It provides the following services to the mining industry:
- 21.25.1 Occupational hygiene, environment and chemistry centre;
 - 21.25.2 Engineering, testing and certification centre;
 - 21.25.3 Mining research and development centre; and
 - 21.25.4 Safety training centre.
- 21.26 **Mines rescue:** Under the CSMH Act 1999 every coal mine operator must be a party to a mines rescue agreement with an 'accredited corporation' to which it will contribute financially. The only accredited corporation is the Queensland Mines Rescue Service Limited, which is a not for profit organisation owned by the coal mining industry.
- 21.27 The Queensland Mines Rescue Service Limited uses MEMS.
- 21.28 **Qualifications authority:** Part 10 of the CSMH Act 1999 establishes a Board of Examiners, the functions of which include assessing applicants and granting certificates of competency. The Board is also required to ensure that the competencies under the CSMH Act 1999 are consistent with the competencies required by other states.
- 21.29 **Employee participation:** Parts 7 and 8 of the CSMH Act 1999 provides for site and industry safety and health representatives.

Western Australia

- 21.30 **Laws:** All mining is subject to the Mines Safety and Inspection Act 1994 (for which the responsible Minister is the Minister for Mines and Petroleum) and the Mines Safety and Inspection Regulations 1995, which apply in place of Western Australia's general safety and health legislation, the Occupational Safety and Health Act 1984.¹¹¹ The primary obligation under the Mines Safety and Inspection Act 1994 is to 'so far as is practicable, provide and maintain at a mine a working environment in which [workers] are not exposed to hazards'. The associated regulations are relatively prescriptive and run to 378 pages.
- 21.31 **Reports:** Major safety and health reports and inquiries in Western Australia include:
- 21.31.1 S Kenner, '*Review of the Mines Safety and Inspection Act 1994*', March 2009 (**Kenner Review**);
 - 21.31.2 R Laing, '*Review of the Mines Safety and Inspection Act 1994*', January 2003;
 - 21.31.3 R Hooker, '*Review of the Occupational Safety and Health Act 1984*', December 2006;

¹¹¹ Western Australia intends to enact a version of the model Work Health and Safety Act during 2012, and the Department of Commerce website states that: 'It is intended that dangerous goods and major hazard facilities will continue to be regulated in WA by the Resources Safety Division (RSD) of the Department of Mines and Petroleum. WorkSafe has been liaising closely with RSD and the intention is for these laws to adopt the relevant parts of the model WHS Bill and Model WHS Regulations.'
(http://www.commerce.wa.gov.au/worksafe/Content/About_Us/Legislation/National_model_act_FAQs.html#What is currently happening for WA, accessed 25 February 2012.)

- 21.31.4 M Ritter, '*Ministerial Inquiry into Occupational Health and Safety Systems and Practices of BHP Billiton Iron Ore and Boodarie Iron Sites in Western Australia and Related Matters*', November 2004;
- 21.31.5 Safety Behaviour Working Party, '*Mines Occupational Safety and Health Advisory Board Safety Behaviour Survey of the Western Australian Mining Industry*', December 2002; and
- 21.31.6 S Hicks, '*Feasibility Study of Resources Safety in Western Australia*', 2007.
- 21.32 In response to these recent reviews and inquiries, the Western Australian Government has committed to overhauling safety and health regulation in the resources industry. The Department of Mines and Petroleum is coordinating a safety reform strategy known as 'Reform and Development at Resources Safety', or 'RADARS'. RADARS emphasises expanding the role of risk management, rather than relying on detailed prescription for resources safety regulation.
- 21.33 The Minister for Mines and Petroleum has established a Ministerial Advisory Panel which provides advice through the Director General of the Department of Mines and Petroleum and the safety reform project team. The Panel comprises industry and union representatives as well as key staff from the safety reform project team and the inspectorate.
- 21.34 **Inspectorate:** The inspectorate, which is specific to mining, is the 'Resources Safety Division' of the Department of Mines and Petroleum. The Mines Safety and Inspection Act 1994 provides for a State Mining Engineer, a State Coal Mining Engineer, district inspectors, special inspectors and assistant inspectors.
- 21.35 The inspectorate and additional resources required to develop and implement RADARS are partly funded through a levy on the number of employee hours worked at each mine (refer to the Mines Safety and Inspection Levy Regulations 2010).
- 21.36 **Safety research and policy entities:** The Mining Industry Advisory Committee (or 'MIAC') was established in April 2005 under section 14A of the Occupational Safety and Health Act 1984 as a statutory advisory body on matters relating to occupational safety and health in the mining industry. It is chaired by a member of the Commission for Occupational Safety and Health established under section 6 of the Occupational Safety and Health Act 1984, with its other members being appointed by Ministers. The functions of the committee include:
- 21.36.1 To advise and make recommendations on occupational safety and health matters concerning the mining industry to the Minister responsible for the Mines Safety and Inspection Act 1994, the Minister responsible for the Occupational Safety and Health Act 1984 and the Commission;
- 21.36.2 To liaise with the Commission to coordinate activities on related functions and to maintain parallel standards;
- 21.36.3 To inquire into and report to the Ministers regarding any matter referred to it by the Ministers relating to occupational safety and health in the mining industry;
- 21.36.4 To make recommendations to the Minister for Mines and Petroleum regarding the formulation, amendment, or repeal of laws relating to occupational safety and health for which that Minister is responsible;

- 21.36.5 To prepare or recommend the adoption of codes of practice, guidelines, standards, specifications or other forms of guidance for the purpose of assisting employers, self-employed persons, employees, manufacturers or other persons to maintain appropriate standards of occupational safety and health in the mining industry; and
- 21.36.6 To provide advice on education and publications, and training and training courses, with respect to occupational safety and health in the mining industry.
- 21.37 The current membership of the Mining Industry Advisory Committee includes an expert together with government, industry and employee representatives.
- 21.38 The Mines Survey Board is established under section 82 of the Mines Safety and Inspection Act 1994. Its functions include:
- 21.38.1 To advise the Minister on survey matters relating to mines and mining operations, including quarries and quarry operations;
- 21.38.2 To examine the qualifications, experience and character of persons applying for authorised mine surveyor's certificates and issue such certificates where appropriate; and
- 21.38.3 To deal with complaints concerning the holders of authorised mine surveyor's certificates and to suspend or cancel such certificates where appropriate.
- 21.39 **Mines rescue:** Mines rescue services are not regulated, centralised or funded through legislation in Western Australia.
- 21.40 **Qualifications authority:** In addition to the Mines Survey Board (refer to paragraph 21.38 of this document), a Board of Examiners is established under section 48 of the Mines Safety and Inspection Act 1994, the functions of which include:
- 21.40.1 To examine in accordance with the regulations, the qualifications, experience and character of applicants for certificates of competency and issue such certificates where appropriate; and
- 21.40.2 To receive, consider and inquire into complaints concerning holders of certificates of competency and to suspend or cancel such certificate where appropriate.
- 21.41 **Employee participation:** Part 5 of the Mines Safety and Inspection Act 1994 provides for safety and health representatives and committees.

Relevant features of the New Zealand mining environment

- 21.42 In Solid Energy's view the only relevant (i.e. material and permanent) differences between the mining environment in Australia and New Zealand are size and history.
- 21.43 The underground coal mining sector in New Zealand is too small to sustain the large inspectorates and safety research and policy entities present in Australia. At a physical level many of Australia's underground coal mines are also far bigger than what would be regarded as a 'large' coal mine in New Zealand.
- 21.44 History is relevant because Australia's mining laws and the structure of its inspectorates, mines rescue services, qualification authorities and safety research and policy entities have resulted, in part, from the political history of its different state

and territory jurisdictions. This observation is not pejorative; however the historical and size-related attributes of Australia's mining laws should be kept in mind if they are to be considered for adoption by New Zealand.

- 21.45 Solid Energy does not consider that the geology or mining methods employed in New Zealand require a uniquely indigenous approach to regulating and legislating for mine safety. What is required to mine safely is the same in New Zealand, Australia and around the world, irrespective of the mining method and physical mining environment.
- 21.46 The relevant features of the New Zealand legal environment for mining will be well known to the Commission, but, for completeness, can be summarised at a high level as follows:
- 21.46.1 All mining is subject to the Health and Safety in Employment Act 1992 (HSEA). The HSEA applies to all New Zealand places of work, including (with some limitations) aircraft and ships.
- 21.46.2 Part 2 of the HSEA prescribes a series of general duties, commencing with section 6, that 'every employer shall take all practicable steps to ensure the safety of employees while at work'.
- 21.46.3 The Minister of Labour is responsible for administering the HSEA through the DoL.¹¹² The DoL is divided into six 'work groups'. The Labour Group 'delivers ... workplace health and safety services and provides policy advice to the Government on [this area]'.¹¹³ Within the Labour Group the DoL has established the HHU, which is currently performing the role of inspectorate for the mining sector. Solid Energy understands that the HHU is to comprise a Chief Inspector Mines plus three inspectors, and a Chief Inspector Petroleum and Geothermal plus three inspectors. These eight people will be assisted by three support staff. The HHU will report to the Labour Group's General Manager of National Services and Support.
- 21.46.4 While the HHU is part of the DoL, section 28B of the HSEA allows for the appointment of another agency to administer and enforce the Act for a particular industry, sector, or type of work. Precedents for this are the Civil Aviation Authority and the Maritime Safety Authority.¹¹⁴
- 21.46.5 The inspectorate's powers include issuing improvement notices (HSEA, section 39) and prohibition notices (HSEA, section 41).

¹¹² The DoL describes its responsibilities as including: 'Workplace Safety and Health - Working to reduce work-related death and injury rates, and support employers and employees in productive work. Providing information and guidance to workplaces on occupational safety and health issues and managing hazardous substances. Enforcing health and safety legislation; researching workplace health and safety matters, and providing policy advice to government.'

¹¹³ (<http://www.dol.govt.nz/about/responsibilities/safety.asp>, accessed 21 February 2012.)
¹¹³ <http://www.dol.govt.nz/about/organisation/our-org-structure.asp#labour>, accessed 21 February 2012.

¹¹⁴ Refer to (a) the Prime Ministerial Designation Pursuant to section 28B of the Health and Safety in Employment Act 1992 (5 May 2003) *New Zealand Gazette* at 1142; the Civil Aviation Authority of New Zealand (Functions and Duties) Notice 2003 (11 September 2003) *New Zealand Gazette* at 3530; and the Prime Ministerial Designation Pursuant to section 28B of the Health and Safety in Employment Act 1992 (5 May 2003) *New Zealand Gazette* at 1142.

- 21.46.6 Pursuant to section 21 of the HSEA, regulations may be made imposing duties relating to the health or safety of employees or other people. The mining industry specific regulations which have been promulgated are:
- (a) Health and Safety in Employment (Mining Administration) Regulations 1996; and
 - (b) Health and Safety in Employment (Mining - Underground) Regulations 1999.
- 21.46.7 The Health and Safety in Employment (Mining Administration) Regulations 1996 provide for various kinds of certificates of competence to be issued, including a certificate of competence as a first-class coal mine manager. The Secretary of Labour is empowered to both 'recognise' organisations as capable of issuing certificates of competence; and determine what qualifications and experience are required to hold a particular certificate of competence. The sole recognised certifying organisation in New Zealand is the NZ Extractive Industries Training Organisation Incorporated (**EXITO**).
- 21.46.8 Aside from the DoL, the only mining health and safety research and/or policy entity in New Zealand is the MinEx Health and Safety Council of New Zealand Incorporated (**MinEx**). MinEx is comprised of employer companies engaged in mining, quarrying, prospecting or exploration for minerals in New Zealand, together with the New Zealand Amalgamated Engineering, Printing and Manufacturing Union (**EPMU**) and the New Zealand Contractors Federation Incorporated. The objectives of MinEx are to improve and promote the health and safety standards and the health and safety performance of the minerals industry in New Zealand.¹¹⁵
- 21.46.9 Finally, the Minister of Labour is also responsible for administering the Mines Rescue Trust Act 1992. The Act requires the payment of a coal-production based levy to a charitable trust board 'approved' by the Minister under section 3, which is currently Mines Rescue Trust Incorporated. The trust deed requires at least six trustees, including one appointed by the Chief Executive of the DoL and two appointed by Solid Energy. The objects of the Mines Rescue Trust Incorporated are, broadly, the establishment and maintenance of rescue stations.¹¹⁶ The New Zealand Mines Rescue Service is the operational arm of the Mines Rescue Trust Incorporated.

The necessary additional regulatory arrangements for New Zealand

- 21.47 Solid Energy's assessment of the New Zealand legal environment for mining summarised in paragraph 21.46 above is that:
- 21.47.1 Having the HSEA as the overarching health and safety legislation is appropriate and beneficial. Appropriate because mining should be held to the same set of general duties as other New Zealand industries. Beneficial because jurisprudence has developed around how the HSEA applies, and it would be difficult and inefficient to resource policy oversight of separate parent safety and health legislation for a small sector like mining. In Solid

¹¹⁵ MinEx Rules (<http://www.societies.govt.nz>, accessed 21 February 2012).

¹¹⁶ Mines Rescue Trust Incorporated trust deed (<http://www.societies.govt.nz>, accessed 21 February 2012).

Energy's view the New Zealand mining industry is too small to support industry specific legislation.

- 21.47.2 The Pike River tragedy has demonstrated that the existing HSEA regulations specific to mining are insufficient. As discussed below, Solid Energy supports adopting a regime for regulating underground coal mining that is based on an Australian model.
- 21.47.3 At the time of the Pike River tragedy the DoL inspectorate was insufficiently expert and resourced to be effective. As discussed below, Solid Energy questions whether the HHU is a sustainable, or the best, long-term solution to this challenge.
- 21.47.4 Solid Energy doubts whether the DoL and MinEx, acting either separately or in concert, are sufficient to keep New Zealand's mining laws abreast of international best practice. In Solid Energy's view New Zealand's mining inspectorate and policy makers would benefit from much closer links with Australia so that developments and new knowledge can be adopted quickly and efficiently, with a minimum of regulatory uncertainty.
- 21.48 While Solid Energy is seeking changes to the management of any future mining emergency (refer to paragraphs 16.28-16.39 of this document), it does not see any need to make changes to either the Mines Rescue Trust Act 1992 or the New Zealand Mines Rescue Service itself.

The form of those regulatory arrangements: prescription, regulations, codes and standards

- 21.49 The general duties scheme under the HSEA is consistent with the work of the Committee on Safety and Health at Work chaired by Lord Robens (**Robens Committee**). The focus of the Robens Committee's recommendations was to move away from a highly prescriptive regulatory approach, to one based on general duties of care with an emphasis on self-regulation. It suggested a legislative scheme whereby general requirements under a consolidated occupational health and safety statute would be supplemented by more detailed provisions in the form of (a) regulations; and (b) voluntary standards and codes of practice.
- 21.50 The Robens Committee suggested that regulations fall into three broad categories. The first category would apply to most forms of employment, such as general environmental standards and accident notification. The second group of regulations would deal with specific types of hazards such as electricity and toxic substances. The third group of regulations would cover specific industries such as mining.
- 21.51 Significantly, the Robens Committee also suggested that, consistent with the new approach, regulations should be framed as statements of broad requirements rather than excessive precision.
- 21.52 The Kenner Review found that:¹¹⁷

A virtue of the general duties approach, which no one took issue with in submissions, either oral or written to the Review, is their capacity for flexibility. That is, they provide duty holders with the ability to adopt compliance measures to suit the circumstances of the enterprise, without

¹¹⁷ Kenner Review, paragraphs 178 and 179.

mandating a particular approach to safety management. It has also been suggested that this approach encourages innovation and enables an enterprise to respond to emerging hazards as they arise.

The general duties provisions of the MSI Act have, in my opinion, served the mining industry well in Western Australia and there appears to have been a reasonably strong commitment to the Robens principles in the industry. No one has suggested to the contrary. Additionally, those commenting on this issue said that the alignment with the OSH Act general duties provisions should be maintained.

- 21.53 Solid Energy also supports retaining the Robens Committee/general duties approach under the HSEA. From a policy perspective Solid Energy believes that New Zealand should keep the consolidated safety and health legislation that it already has for reasons which include:
- 21.53.1 The increased efficiency of, and fewer resources required to, administer and keep under review one primary safety and health enactment as opposed to two or more enactments with different and industry specific coverage.
 - 21.53.2 As public policy on safety and health shifts over time, it is possible that industry specific safety and health legislation may be left behind.
 - 21.53.3 Industry specific legislation may give rise to complex boundary/definitional issues around what activities are covered by which statute.
 - 21.53.4 While Solid Energy supports comprehensive mining specific regulation which responds to the particular risks of underground coal mining, it believes that the primary obligations under the HSEA should be the same for all workplaces. Such a universal approach avoids the potential for economic inefficiencies driven by the impact of different safety and health legislation on different industries.
- 21.54 Solid Energy is mindful of the fact that Western Australia, Queensland and New South Wales each have mining specific safety and health statutes, but observes that:
- 21.54.1 The Western Australia Mines Safety Improvement Group interim report published in April 2005 recommended, consistent with previous reviews, that the Mines Safety and Inspection Act 1994 should in the medium term be amalgamated with the Occupational Safety and Health Act 1984 to form a single legislative regime, supplemented by industry specific regulations and codes of practice where necessary.¹¹⁸
 - 21.54.2 It is indeed possible that Western Australia will move to a consolidated safety and health statute as part of its response to the Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety/model health and safety laws.
 - 21.54.3 In Solid Energy's view some of the Australian resistance to integrating mining specific statutes with general occupational safety and health legislation stems from (a) a perception that integration may make progressing reforms as part of the NMSF more difficult; (b) that combining the legislation would be a precursor to a combined regulator; and (c)

¹¹⁸ Refer to the Kenner Review, paragraph 66.

political challenges around making changes to the existing check inspector regimes. None of these factors are as relevant in New Zealand.

- 21.55 A further benefit of promulgating new regulations subordinate to the existing HSEA is that no legislative amendments will be required. The existing regulation making powers under section 21-23 of the HSEA should be sufficient to implement the type of regulatory model that Solid Energy is recommending. While Solid Energy acknowledges that the Commission may also recommend some amendment of the HSEA itself, the progress of changing legislation will inevitably be slower, as well as requiring consultation across multiple industries.
- 21.56 If it is accepted that the response to the Pike River tragedy should include replacing the Health and Safety in Employment (Mining Administration) Regulations 1996 and Health and Safety in Employment (Mining - Underground) Regulations 1999 with a much more comprehensive regime of regulations specific to underground coal mining, the question is what regulatory model should New Zealand adopt?
- 21.57 In Solid Energy's view the goal of best practice can best be promoted by a risk management and systems based model, and in particular by adopting a regime that is adapted from the Queensland CSMH Regulation 2001. Solid Energy has selected the Queensland regime because it is consistent with international best practice and Solid Energy expects the model work health and safety laws still being developed in Australia for underground coal mining will be more similar to the Queensland regime than that of New South Wales.
- 21.58 The basis for Solid Energy's preference for a risk management and systems based model includes:
- 21.58.1 The 'overarching principles' of the NMSF Legislation Framework, which include:
2. *... Overarching principles of a nationally consistent legislative framework shall include:*
...
 - c. *effective risk based safety and health management systems...*
 - ...
 - h. *assessment, monitoring, auditing/validation and review of the safety and health management systems including emergency response procedures and comprehensive reporting against appropriate performance criteria;*
 - ...
 5. *The legislation shall encompass the principle that the management of safety and health shall be undertaken using risk management practices.*
 6. *All mining operations shall be conducted such that risks are managed using risk management practices so that residual risks are as low as reasonably practicable. The risk management process shall include hazard identification, risk analysis, risk reduction and risk monitoring. The hierarchy of hazard controls in the order of elimination, substitution, separation, engineering controls, administrative controls and personal protective equipment shall be used.*
 7. *Particular attention shall be given to core risks of the industry, ensuring that high consequence/low probability events are addressed.*

...

16. *Legislation shall require the development and implementation of risk based safety and health management systems that:*
- *form a documented and auditable system constituting part of the overall management system of the mine;*
 - *define the safety and health policy for the mine and cover such aspects as organisational structure and resources, responsibilities, policy and procedures for the operation of the mine, measuring, monitoring auditing and reviewing of processes and work practices;*
 - *define methods for developing, implementing, maintaining and reviewing safety and health practices and policy;*
 - *acknowledge the size and complexity of a safety system will depend on the size and complexity of the mine site, and its attendant risks.*

21.58.2 The Kenner Review found that: 'All of the key stakeholders support a transition to the adoption of a risk management, systems based model for health and safety regulation in the mining industry in Western Australia';¹¹⁹ and 'Given that there is general support for the adoption of a risk management model in Western Australia, and that the existing legislative regime falls short of that specified in the NMSF, and that there has been a commitment to the NMSF process both by the industry and the State Government, it now seems the appropriate time for step change in health and safety regulation in the mining industry in this State'.¹²⁰

21.58.3 The Wran Review found that:¹²¹

The Review considers that enabling, risk-based legislation has the potential to offer some safety improvement, if combined with effective safety management systems, good communication/feedback, full involvement of all levels of the workforce and an effective regulator. The successful use of systems and plans to manage risk requires that activities be effectively monitored and audited for adherence to the intended systems and plans.

The Review acknowledges, however, that the requirements of risk-based legislation can be more onerous than reliance on a more 'prescriptive' approach. The effort required to prepare, and the complexity of, plans should be directly proportional to the complexity and scale of the mining operations.

The Review considers the consensus of expert opinion favours a shift to risk based legislation, but with the retention of prescriptive regulation in particular areas (e.g., where the safety factor of the risk is uncertain and a careful threshold is required, such as mine gas levels). However, the critical issue is the effective implementation of safety management systems. The shift requires demonstration that risk-based standards are effectively enforced. A number of submissions acknowledge there are serious issues here in terms of 'paper compliance', gaps and oversights.

The Review notes that prescriptive legislation has two significant problems. Firstly, by stopping at the level of the mine manager, it puts no obligations on mine owners, to control risks. Secondly, some health or safety issues are not covered by the particular rules, for example over-use injuries, and are beyond the scope of the law. These weaknesses have been reduced by the 'duty of care' approach in OH&S

119 Kenner Review, paragraph 252.

120 Kenner Review, paragraph 276.

121 Wran Review, page 22.

legislation, which has been widely adopted in Australian and UK legislation.

Solid Energy's recommendation

- 21.59 Solid Energy recommends that:
- 21.59.1 Underground coal mining in New Zealand remain subject to the HSEA; but
 - 21.59.2 The existing HSEA regulations for underground coal mining are replaced with a comprehensive risk management regime that is consistent with international best practice and adapted from the CSMH Regulation and parts of the CSMH Act.
- 21.60 The new regulations could, in the first instance, be drafted by a technical advisory group which included expert mine operator and employee representatives. Once promulgated, the new regulations should be kept under review, including in response to any material changes to Queensland's regulatory arrangements (for example as a consequence of either the NMSF or the Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety).
- 21.61 Appendix 1 to this document sets out an analysis of the CSMH Regulation and parts of the CSMH Act. At a high level, Solid Energy supports adopting most of the CSMH Regulation, as well as some parts of the CSMH Act which are not duplicated by the HSEA and would be required to make regulations based on the CSMH Regulation 'work'.
- 21.62 While a range of adjustments would need to be made to the CSMH Regulation and CSMH Act in order to convert them into regulations under the HSEA, three of the more significant issues are transitional provisions, employee participation and section 297 of the CSMH Regulation.
- 21.63 Comprehensive transitional provisions will be required which allow mine operators like Solid Energy sufficient time to transition to the Queensland model. Solid Energy's recommendation is a fundamental shift which will require changes across a wide range of matters, such as organisational structure, training and qualifications, safety and health management systems, SOPs, equipment and mine infrastructure. Some of these changes could be made relatively quickly. Others, such as the requirement under sections 156-158 of the CSMH Regulation to install complex mine sealing infrastructure, will be difficult to retrofit. These are issues which could be discussed by stakeholders as part of the technical advisory group process. For example, a possible transitional arrangement would be to apply sections 156-158 to new underground coal mines, with existing mines able to put in place alternative controls in consultation with the inspectorate.
- 21.64 The CSMH Regulation and CSMH Act include quite prescriptive measures around employee participation. Solid Energy refers to paragraphs 21.79-21.87 of this document. It is Solid Energy's view that the safety and health benefits of employee participation, which are critical, can be secured without regulating for matters such as check inspectors and how the process must be conducted for consulting with employees about SOPs and other parts of a mine's safety and health management system.
- 21.65 Section 297 of the CSMH Regulation provides that:

The site senior executive must ensure each group of main roads developed after the commencement of this section at the mine includes at least 2 headings for intake air.

- 21.66 This requirement raises very significant issues around mine planning and feasibility. Solid Energy understands that section 297 means, in terms of mine entrances, every new underground coal mine in Queensland must have at least two intakes and one return. The term 'main roads' is not defined in either the CSMH Regulation or the CSMH Act, but Solid Energy's understanding is that section 297 does not require two intake headings to every panel. In New Zealand an entire underground coal mine might be smaller than a single panel of a large Australian longwall mine. Given this, Solid Energy recommends that section 297 of the CSMH Regulation is considered carefully and discussed by stakeholders. Options which could be considered include, for example, allowing a single intake entrance where the mine is below a certain overall size, change-over stations are installed and the intake roadway is less than a certain length.
- 21.67 A more administrative issue is that of qualifications and New Zealand's qualification authority. Under the CSMH Act the functions of the Coal Mining Safety and Health Advisory Committee include:
- ... recognising, establishing and publishing—*
- (a) *the competencies accepted by it as qualifying a person to perform the tasks prescribed under a regulation; or*
 - (b) *the safety and health competencies required to perform the duties of a person under this Act.*
- 21.68 The functions of the Board of Examiners established under the CSMH Act then include:
- (a) *to decide the competencies necessary for holders of certificates of competency;*
 - (b) *to assess applicants, or have applicants assessed, for certificates of competency;*
 - (c) *to grant certificates of competency to persons who have demonstrated to the board's satisfaction the appropriate competencies necessary to hold the certificates;*
 - (d) *to ensure the competencies under this Act are consistent with the competencies required by other States for the holders of certificates of competency;*
- ...
- 21.69 Solid Energy's preliminary view is that the relevant decisions made by the Coal Mining Safety and Health Advisory Committee should apply under the proposed New Zealand regulations, but the role of the Board of Examiners would continue to be fulfilled by EXITO. This is on the basis that EXITO qualifications are of an equivalent standard to qualifications obtained in Australia.

Safety case regulation

- 21.70 While a safety case is, in principle, a relatively advanced form of risk management, the vital difference to other forms is the role of the regulator. The acceptance or rejection of a safety 'case' operates as a formal licensing regime. The amount of detail required in a safety case is resource intensive. Adopting the work of the Western Australia Mines Safety Improvement Group, the Kenner Review found that 'Any Government which wishes to embark on safety case regulation must recognise

this crucial fact. Unless the regime is well resourced it is likely to fail, in the sense that it will offer no advantages over and above non-safety case regimes'.¹²²

21.71 Given the absence of any established safety case regime in the world that Solid Energy is aware of operating for the underground coal mining industry, adopting such a model in New Zealand would be entering uncharted waters. Also relevant are:

21.71.1 The inherent complexity of a safety case and the resource requirements involved given the amount of information needed.

21.71.2 The specialised and expensive resources required and the difficulty in describing and modelling major underground coal mining accidents realistically.

21.71.3 The possible divergence between what is written into a safety case and the actual understanding of risk and the utility of the safety case itself at the workplace.

21.71.4 The degree of outside assistance required and concerns about the possible lack of ownership in the outcome by the operation concerned.

21.72 Solid Energy is also mindful of the research canvassed in paragraphs 314 and 315 of the Kenner Review, which includes the following list of 'factors of distinction in the mining industry from other industries, that would need to be considered in the introduction of a safety case regime':

- *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 and 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;*
- *mining is still very labour intensive, especially underground and so the management of hazards associated with human factors is critical;*
- *skills and training levels 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 metalliferous mining industry are unionised. This is combined with very high levels of unionisation in other sectors, such as coal and the construction areas of mining. Consideration must be given to a SCR which accommodates both.*

21.73 New Zealand's underground coal mines are comparatively small and its inspectorate has just undergone (and may undergo further) significant change. In these circumstances, Solid Energy's view is that 'going it alone' with a safety case regime will give rise to a risk of regulatory failure and potentially capture resources that would be better used implementing an Australian risk management and systems based

¹²²

Kenner Review, paragraph 292.

model of regulation. Solid Energy instead suggests that the New Zealand inspectorate keep a watching brief on any international safety case developments in underground coal mining, with a view to introducing such a regime into New Zealand on an 'opt-in' basis in the future.

Data collection and reporting - lead and lag indicators

- 21.74 Sound statistical data is vital for identifying trends, monitoring industry performance and providing a factual basis for consultation and comparison between jurisdictions.¹²³ As part of any regulatory reform, Solid Energy supports the adoption and implementation of a mining safety and health data set that will allow New Zealand mines and the inspectorate to be readily benchmarked against Australian jurisdictions.
- 21.75 Solid Energy is aware that strategy 5 of the NMSF Implementation Plan is 'To develop a national mining industry data set, in consultation with the National Occupational Health and Safety Commission ... which allows analysis across jurisdictions'; and that further work has been undertaken by the NMSF Data Working Group. New Zealand's data set should be consistent with the Australian national data set so that reliable comparisons can be made between them.
- 21.76 Solid Energy is also mindful of the evidence before the Commission about the potential benefits of lead indicators which, for example, has included:¹²⁴
- Too many organisations rely heavily on failure data to monitor performance. The consequence of this is that improvements or changes are only determined after something has gone wrong. Often the difference between whether a system failure results in minor or catastrophic outcome is purely down to chance. Effective management of major hazards requires a proactive approach to risk management so information to confirm critical systems are operating as intended is essential. Switching the emphasis of leading indicators to confirm that risk controls continue to operate is an important step in the management of major risk hazards.*
- 21.77 To the extent that they are missing from the Australian national data set, work should be done in New Zealand to adopt appropriate lead indicators from academic research and work in other jurisdictions. Whatever indicators are selected by New Zealand should, to the extent possible, allow for benchmarking against other jurisdictions. For example, Solid Energy is aware of some work in this area being done by the International Council of Mining and Metals. Solid Energy would welcome the opportunity to participate in developing a New Zealand mining safety and health data set that includes appropriate lead indicators.

Safety culture, human factors and process safety

- 21.78 Solid Energy appreciates the important contribution of Dr Kathleen Callaghan to the Commission's inquiry. Solid Energy agrees that safety culture, human factors and process safety should be brought to bear, both to understand why the Pike River tragedy occurred and to improve the safety and health performance of all industries, including mining. Solid Energy supports the use of safety culture, human factors and

¹²³ Refer for example to Ombudsman Review, pages 25-30 and the academic work of Andrew Hopkins it cites.

¹²⁴ John Dow, transcript, page 4029, line 23 onwards. This is an extract from FAM.00042.08.

process safety analysis by mine operators, the inspectorate and the tripartite safety research and policy body recommended in paragraph 21.90 of this document.

The employee participation provisions of the HSEA

21.79 Solid Energy believes employee participation is crucial to continually improving safety and health outcomes in workplaces and that 'everyone is responsible for safety'. Solid Energy supports the adoption of a system which will foster a culture of collective responsibility (at all levels within the organisation) for the safety of all co-workers.

21.80 It is appropriate to first consider how employee participation fits within the Robens Committee approach that New Zealand's safety and health legislation is based on. In relation to this the Kenner Review commented:¹²⁵

The Robens Committee, in considering the introduction of general duties legislation in the United Kingdom, recognised the importance of the involvement of employees both directly and through representatives in the workplace. In dealing with this issue, it was said:

The appointment of safety representatives and joint safety committees are not the only methods of seeking to increase the involvement and commitment of work people. Some firms have arrangements whereby all employees in a particular working unit meet periodically for discussions about safety. This approach, sometimes referred to as 'total involvement', lays stress on participation by every individual employee. Other ways in which employees can take a direct part in the actual work of safety assessment and accident prevention are by participation in exercises such as safety sampling and hazard spotting.

After considering all of the relevant issues concerning participation, representation and consultation matters, the Robens Committee made a number of recommendations succinctly summarised by Maxwell as follows:

- (a) There should be a statutory duty on every employer to consult with his employees, or their representatives at the workplace, on measures for promoting safety and health at work, and to provide for arrangements for the participation of employees in the development of such measures;*
- (b) The form and manner of such consultation and participation should not be specified in detail, so as to provide the flexibility needed to suit a wide variety of particular circumstances and to avoid prejudicing satisfactory existing arrangements;*
- (c) Guidance should, however, be given in a code of practice outlining model arrangements, including advice on joint safety committees and the appointment of employees safety representatives;*
- (d) The code should deal with such matters as the qualifications, training, duties and rights of employees safety representatives, arrangements for joint inspections, the objectives, composition and procedures for joint safety committees and so on; and*
- (e) Above all, the code would stress that simply talking together about safety and health is not enough. It is essential to ensure the act of follow-through of the measures discussed.*

Importantly, however, the Committee at par (b) above recognised that flexibility should be accorded to the parties themselves, to work out the

¹²⁵

Kenner Review, paragraphs 1296-1298.

most appropriate consultative arrangements to suit their needs. This is no doubt why the general duties provisions in section 9 of the [Mines Safety and Inspection Act 1994] and under the corresponding provision of the OHS Act are expressed in general terms, without descending to particularity. Additionally, international obligations in the form of Conventions and Recommendations, also deal with the importance of employee involvement in safety and health matters, in particular the Occupational Safety and Health Convention (No.155) and ILO Convention 176 Safety and Health in Mines, 1995. The NMSF Framework incorporates, as a minimum, compliance with the intent of ILO 176.

- 21.81 Also relevant is the NMSF Legislation Framework, the unanimously agreed 'overarching principles' of which include:
2. *... Overarching principles of a nationally consistent legislative framework shall include:
...
e. genuine consultative arrangements between management and mine employees which actively seek the representation of all in the development of safety and health policies and practices.
...*
 17. *Legislation shall provide for consultation processes, which acknowledge the right of all employees to be involved in the development of the risk-based safety and health management system, policies and practices. The consultation process shall include mine-site consultation which can involve safety and health committee and mine employees' safety and health representatives, and shall provide a mechanism for resolution of safety and health disagreements.
...*
 19. *Provision shall be made for employees to be informed about hazards in their workplace and to collectively select safety and health representatives to represent them in such matters as:
• workers' inspections and investigations conducted by the employer and the competent authority; and
• the formulation of safety and health procedures and policies.*
 20. *Employees have the right to remove themselves from any location at the mine when circumstances arise which appear, with reasonable justification, to pose a serious danger to their safety or health.
...*
 22. *The legislation shall recognise that employees, and their safety and health representatives, have an important role to play in the review of safety and health procedures, the detection and assessment of workplace hazards that may impact on safety and health, the formulation of control measures and the investigation of safety and health concerns raised by employees. They should be empowered to do this without fear of discrimination or retaliation.*
- 21.82 Solid Energy's view is that all of the above principles can be fulfilled within the existing framework provided by the HSEA. What Solid Energy recommends is that new regulations for underground coal mining require a mine's safety and health management system to provide for employee participation, including for example:

- 21.82.1 Consultation processes which facilitate the involvement of employees in the development of the wider safety and health management system, policies and practices.
 - 21.82.2 A mechanism for resolving safety and health disagreements.
 - 21.82.3 Provision for employees to be informed about hazards in the workplace and to collectively select safety and health representatives. Such representatives would not be, and do not need to be, 'check inspectors'.
- 21.83 As part of a mine's safety and health management system such policies and their application could be reviewed by the inspectorate. In the event that a mine attempted to minimise the participation of employees while still complying with the letter of the regulations, this could be responded to by increased inspectorate scrutiny.
- 21.84 In Solid Energy's view the evidence in favour of regulating for employee participation through check inspectors (whether they be site employee inspectors or wider industry employee/union inspectors), is anecdotal and weak. There is no reason why the same or better safety and health outcomes cannot be secured through promoting and fostering a less prescriptive, more holistic and constructive relationship between mine operators and employees. Solid Energy is concerned that a check inspector regime has the potential to (a) make safety and health less of a collective endeavour by becoming a focal point for any unrelated industrial conflict; and (b) undermine the engagement that every employee should have with safety and health.
- 21.85 In Solid Energy's view, employee participation must be part of a collaborative and consultative approach and should not extend to the point that employees or unions hold veto rights over operational aspects of an otherwise safe workplace. In this regard, Solid Energy is aware that certain provisions of the CSMH Regulation and the CSMH Act are capable of being used in a way that hinders improvements and other changes to safety and health practices. These provisions include:
- 21.85.1 Section 10 of the CSMH Regulation, which obliges the site senior executive to consult with staff on all SOPs in use at the mine. While Solid Energy believes in a consultative approach, it considers this provision to be inappropriate for two reasons. Firstly, rather than simply require consultation to occur, the section prescribes a process for consultation. Secondly, there are some 76 SOPs required by the CSMH Regulation. In Solid Energy's opinion, a prescriptive consultation process for as many procedures as this will tend to delay both changes to existing SOPs and the introduction of new ones.
 - 21.85.2 Section 42(6A) of the CSMH Regulation, which requires that fitness for work criteria must be set by the site senior executive in agreement with a majority of workers at the mine. Solid Energy is aware of one site having to hold 19 meetings across two years before agreement on these criteria could be reached.
 - 21.85.3 Section 175AA of the CSMH Act, which prohibits action being taken against an employee who has raised a safety and health issue. While on its face this section appears entirely appropriate, Solid Energy is aware of employees who are the subject of disciplinary proceedings (including for their own alleged breaches of health and safety standards) raising this

provision in their defence with the result that no further action can be taken against them.

- 21.86 Solid Energy also notes that all of its employees have the right to:
- 21.86.1 Remove themselves from any location when circumstances arise which pose a danger to their safety or health;
 - 21.86.2 Raise safety and health issues with Solid Energy management without fear of discrimination; and
 - 21.86.3 If necessary, contact the inspectorate with any concerns that they have.
- 21.87 New Zealand is not large and an adequately resourced inspectorate should be able to respond to any serious issues immediately. Without New Zealand having mines in very remote locations, any need for the powers that Australian check inspectors have is much lessened.¹²⁶

Responsibility for promulgating mining industry regulatory arrangements

- 21.88 Ultimate responsibility for promulgating safety and health regulations and making amendments to the HSEA lies with the relevant responsible Minister, currently the Minister of Labour. In relation to underground coal mining, the responsible inspectorate should also have a policy role. What New Zealand is missing is an entity which has a specific mining policy focus, which can drive change and evaluate whether New Zealand's mining laws are falling behind international best practice. By comparison, the Australian jurisdictions possess the following tripartite safety research and policy entities:
- 21.88.1 Mine Safety Advisory Council (New South Wales);
 - 21.88.2 Commissioner for Mine Safety and Health and Coal Mining Safety and Health Advisory Committee (Queensland); and
 - 21.88.3 Mining Industry Advisory Committee (Western Australia).
- 21.89 While the size of New Zealand's mining industry makes mimicking the size and resources of these Australian entities impractical, Solid Energy believes that a tripartite advisory body should be established to ensure some oversight of the safety and health regulatory framework for mining in New Zealand.
- 21.90 While the structure and terms of reference of such a body will require a discussion between stakeholders, a possible model would be an advisory body that:
- 21.90.1 Covers the wider mining sector (i.e. all mining and quarrying, both surface and underground).
 - 21.90.2 Is chaired by an Australian based expert who has up to date knowledge of safety and health developments relevant to mining in that jurisdiction.
 - 21.90.3 Is comprised of representatives from the underground coal mining inspectorate, the DoL, mine operators, employees/the EPMU and MinEx.
 - 21.90.4 Is serviced by a secretariat within the DoL.

¹²⁶ E.g. the powers to issue: provisional improvement notices (Western Australia); orders to suspend operations and directives (Queensland); and directives to suspend operations (New South Wales).

21.90.5 Has terms of reference that encompass:

- (a) Considering whether any regulatory change is also required for other types of mining and quarrying (on the assumption that Solid Energy's recommendation to adopt the Queensland model for underground coal mining is accepted).
- (b) Monitoring the safety and health performance of mine operators. (Such oversight would be at the level of collected and reported data, rather than duplicating the functions of the inspectorate. Solid Energy is not suggesting that a tripartite advisory body or any other party assume or dilute any of a mine operator's primary obligations under the HSEA.)
- (c) Monitoring the performance of the inspectorates responsible for underground coal and other mining.
- (d) Implementing a mining safety and health data set which includes appropriate lead indicators.
- (e) Considering how safety culture, human factors analysis and process safety can be promoted and monitored within the mining sector.
- (f) Keeping all HSEA regulations that are specific to the mining sector under review, with reference to legislative and regulatory developments in Australia.
- (g) Promoting both 'approved' (under section 20 of the HSEA) and, in conjunction with MinEx, informal, codes of practice, with reference to codes of practice and similar standards formally adopted or adhered to in Australia.
- (h) Maintaining links and cooperating with relevant Australian entities which have a mining safety and health focus.

Participation in that process

21.91 As is apparent from paragraphs 21.88-21.90 of this document, Solid Energy does not consider that MinEx or any other existing representative mining entity provides a sufficient mechanism for enabling the participation of mine operators and employees/unions in the legislative and regulatory process. Solid Energy recommends that:

21.91.1 An advisory body is established (refer to paragraph 21.90 of this document).

21.91.2 All regulations specific to the mining sector are, in the first instance, developed by a technical advisory group which includes representatives from the underground coal mining inspectorate, the DoL, mine operators and employees/the EPMU.

The question of increased cooperation with Australia

21.92 Without repeating the submissions made in this document, Solid Energy holds the strong view that New Zealand should have increased cooperation with Australia at all levels, including in relation to:

- 21.92.1 The underground coal mining inspectorate;
- 21.92.2 The regulatory model for underground coal mining;
- 21.92.3 A tripartite advisory body;
- 21.92.4 A mining safety and health data set;
- 21.92.5 Legislative and regulatory developments in Australia including, as a consequence of the NMSF and research into safety culture, human factors analysis and process safety; and
- 21.92.6 Codes of practice and similar standards formally adopted or adhered to in Australia.

22 The interaction of mining and other law and practice

The management of the interaction in other jurisdictions

- 22.1 Solid Energy has not undertaken an exhaustive examination of the Western Australian, Queensland and New South Wales regimes that play an equivalent role to the Resource Management Act 1991 and land access arrangements in New Zealand.
- 22.2 The Australian equivalents to a mining permit under the Crown Minerals Act 1991 provide as follows:
 - 22.2.1 In New South Wales an application for a mining lease under the Mining Act 1992 must be accompanied by 'required information' which includes 'particulars of the financial resources and technical advice available to the applicant' (section 51). Also in New South Wales it is a defence to a prosecution for an offence against section 378D of the Mining Act 1992 if the defendant satisfies the court that the act or omission constituting the contravention was reasonably necessary in order for the defendant to comply with an order or direction (of which the Director-General was given notice before the acts or omissions occurred) issued under the mine safety legislation (section 378E).
 - 22.2.2 In Queensland an application for a mining lease under the Mineral Resources Act 1989 must be accompanied by a statement, acceptable to the mining registrar, 'detailing the applicant's financial and technical resources' (section 245) and it is a relevant consideration whether 'the applicant has the necessary financial and technical capabilities to carry on mining operations under the proposed mining lease' (section 269).
 - 22.2.3 In Western Australia the Mining Act 1978 does not include any similar requirements for information about an applicant's financial and technical resources.

The assessment of applicants for mining related permits

- 22.3 Under the Crown Minerals (Minerals and Coal) Regulations 2007, an application for a mining permit must be accompanied by 'a statement of the technical qualifications and financial resources of the applicant'. Applications are then dealt with 'in a manner that is consistent with the policies, procedures, and provisions in any relevant minerals programme' (section 22 of the Crown Minerals Act 1991). Section 8.1 of the current Minerals Programme for Minerals (Excluding Petroleum) 2008 provides:

In considering whether a mineral deposit has been sufficiently delineated to support the grant of a mining permit, or in assessing any proposed work programme (or modified work programme), the Minister will ordinarily consider (but is not limited to) any or all of the following matters:

- ...
- (b) *the applicant's knowledge of the geology and extent of the mineral resource proposed to be extracted:*
- ...
- (e) *the applicant's mining feasibility studies, including proposed mining method, extraction schedules, processing, dilution and ore loss control, and geotechnical and mine design aspects of the proposed operation:*
- (f) *project economics, in particular the financial viability and technical constraints, and the proposed level of expenditure in relation to the scale and extent of operations proposed:*
- (g) *whether proposed mining operations are in accordance with good mining practice.*

The [access] arrangements

22.4 For Crown minerals within Crown land (such as land administered by the Department of Conservation), an access arrangement is required pursuant to section 61 of the Crown Minerals Act 1991:

61 Access arrangements in respect of Crown land and land in common marine and coastal area

- (1) *The appropriate Minister may, by agreement, enter into an access arrangement in respect of Crown land or the common marine and coastal area.*
- (1A) *The Minister of Conservation must not accept any application for an access arrangement or enter into any access arrangement relating to any Crown owned mineral in any Crown owned land or internal waters (as defined in section 4 of the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977) or land of the common marine and coastal area described in Schedule 4, except in relation to any activities as follows:*
 - (a) *That are necessary for the construction, use, maintenance, or rehabilitation, of an emergency exit or service shaft for an underground mining operation, where these cannot safely be located elsewhere, provided that it does not result in—*
 - (i) *Any complete stripping of vegetation over an area exceeding 100 square metres; or*
 - (ii) *Any permanent adverse impact on the profile or surface of the land which is not a necessary part of any such activity:*
 - (b) *That do not result in—*
 - (i) *Any complete stripping of vegetation over an area exceeding 16 square metres; or*
 - (ii) *Any permanent adverse impact on the profile or surface of the land that is not a necessary part of any activity specified in paragraph (a):*
 - (c) *A minimum impact activity:*

- ...
- (2) *In considering whether to agree to an access arrangement in respect of Crown land, the appropriate Minister shall have regard to—*
- (a) *The objectives of any Act under which the land is administered; and*
 - (b) *Any purpose for which the land is held by the Crown; and*
 - (c) *Any policy statement or management plan of the Crown in relation to the land; and*
 - (d) *The safeguards against any potential adverse effects of carrying out the proposed programme of work; and*
 - (e) *Such other matters as the appropriate Minister considers relevant.*
- ...

Solid Energy's recommendation

- 22.5 In Solid Energy's view, the existing functional and policy division between obtaining consents under the Resource Management Act 1991, obtaining permits under the Crown Minerals Act 1991 and obtaining access to the land are appropriate. Solid Energy would not, for example, support the New Zealand Petroleum and Minerals business unit of the Ministry of Economic Development having a safety and health/detailed mine planning approval function.
- 22.6 Solid Energy understands the concerns expressed as part of the Commission's proceedings that there was no threshold through which the Pike River mine plan (including such features as an underground main fan and no practicable second means of egress) had to pass. In Solid Energy's view ensuring that New Zealand has a competent inspectorate is a better response than endeavouring to add non-core functions to the existing roles of local authorities, the Department of Conservation and New Zealand Petroleum and Minerals.
- 22.7 That is not to say Solid Energy sees the role of New Zealand Petroleum and Minerals as unimportant. Resourcing New Zealand Petroleum and Minerals with appropriate skills and people is supported. Solid Energy regards section 8.1 of the Minerals Programme for Minerals (Excluding Petroleum) 2008 as an important test, the robust application of which (together with work programme requirements) should reduce the chance of valuable mineral resources being unutilised, underutilised, or sterilised by inexperienced or financially under-resourced mine operators.
- 22.8 In relation to land access arrangements, Solid Energy doubts that it is practical to devise a regime whereby safety and health requirements take precedence over other matters which the entity responsible for administering the land (such as the Department of Conservation), considers important. The extent to which extractive activities are allowed to take place on the Crown estate is a wider policy debate that New Zealanders need to have. It would, however, be useful for:
- 22.8.1 The inspectorate to be consulted as part of an application for an access arrangement. This would reduce the risk of an applicant agreeing to unrealistic conditions simply to have an access arrangement agreed.
 - 22.8.2 The appropriate Minister being required to take safety and health into account when considering what conditions to impose on an access

arrangement (i.e. an amendment to section 61(2) of the Crown Minerals Act 1991).

23 Resourcing and administration of the inspectorate

- 23.1 Solid Energy agrees with the statement made in the Kenner Review that the role of the regulator, while very important in contributing to safe workplaces, is not to keep the mining industry safe. That is the responsibility of the duty holders. The Kenner Review goes on to find that the role of the inspectorate should be to:¹²⁷
- 23.1.1 Advise and assist duty holders to achieve and provide incentives to exceed compliance with their legal obligations to maintain a safe workplace;
 - 23.1.2 Take appropriate administrative and criminal enforcement measures as may be necessary in an appropriate case;
 - 23.1.3 Advise government on and to develop policy and recommendations for legislative change; and
 - 23.1.4 Engage in health and safety awareness and promotional activity in the broader mining community.
- 23.2 In Solid Energy's view fulfilling these roles for a specialised and highly technical industry like underground coal mining requires the inspectorate to have a critical mass of personnel with skills across broad range of areas.
- 23.3 Australian mine operators have been surveyed in the past about their needs and expectations of the mines inspectorate. A report by the Chamber of Mineral and Energy, '*Future Role of the Mines Inspectorate Survey*', September 1996 summarised the overall responses to that survey as follows:
- *Safety performance and standards were held extremely important to the industry.*
 - *Safety performance could be improved considerably.*
 - *Management, company culture, consultative mechanisms and an informed and professional mines inspectorate were the major influences on health and safety performance.*
 - *The role of the Inspectorate should be to promote the development of standards, codes and guidelines, give advice on health, safety and technical matters, attend operations frequently and be readily available for all those purposes.*
 - *The professional specialisations available in the Inspectorate should include:*
 - *Safety Management and Systems*
 - *Mining, Civil and Electrical Engineering*
 - *Occupational Health/Hygiene*
 - *Risk Analysis and Management**and should provide a broad base of expertise available to provide advice and support rather than an 'inspection' mentality.*
 - *More emphasis should be placed on the personal attributes of Mines Inspectors if they are to fill the role identified by industry.*

¹²⁷ Kenner Review, paragraph 633.

- *Communication skills, approachability and commitment to the philosophy underpinning mining legislation were considered essential.*
- *Adequate remuneration was strongly identified by industry as the principal risk of loss of inspectorial expertise. Across the board support was given for salary packages commensurate with industry and this problem needed to be addressed urgently.*
- *Retention of a dedicated inspectorate for the industry was considered imperative.*
- *A more flexible approach to the use of specialist personnel on a needs basis was recognised.*
- *Strong support for a continuation of technical service and information functions was expressed.*
- *An increased liaison with manufacturers in the safety aspect associated with mechanisation and the design standards on plant and equipment was identified as a priority.*

The comparators and the features of their systems

- 23.4 Refer to paragraphs 21.4-21.40 of this document. Western Australia, Queensland and New South Wales each have a specialist mining inspectorate that is standalone from the inspectorate responsible for enforcing general safety and health legislation.
- 23.5 The QMI has relatively recently been the subject of the Ombudsman Review. The recommendations formed by the Ombudsman included that 'a proposal be developed for the Minister to give legislative recognition to the existence and role of the QMI and to recognise its operational independence'. In other words, the Ombudsman supported retaining a specialist mining inspectorate, albeit responding to criticisms that having the QMI as part of the then Department of Mines and Energy made it potentially vulnerable to capture by industry interests.¹²⁸
- 23.6 The Ombudsman Review also includes:
- 23.6.1 'QMI staff were adamant that the mining industry is an area of unique specialisation, and that risks are encountered in the industry which do not exist elsewhere. ... For this reason, those we interviewed at the QMI were strongly of the opinion that generic workplace health and safety inspectors would not be well placed to handle mine safety matters.'
- 23.6.2 Section 4.2, which deals with salary issues.¹²⁹ It is clear that QMI inspectors are paid significantly more than generalist inspectors and, despite this, the salaries offered by mine operators means that 'QMI has an uphill battle to attract and retain competent and qualified inspectors'.¹³⁰
- 23.6.3 'Ideally, the regulator of such a key industry should be a highly respected and well-resourced organisation that would attract quality staff from the industry itself and elsewhere. This would minimise the risk of regulatory

¹²⁸ Ombudsman Review, page 19 includes the following 'representative criticism': '... the coal mine inspectorates in NSW and Queensland suffer from a similar structural problem. They are both located in mining departments whose primary role is to assist industry to develop the states' resources. They are inevitably compromised by this location But if the logic of the Piper Alpha inquiry is applied, they should be relocated in the generalist occupational health and safety inspectorates in these two states.'

¹²⁹ Ombudsman Review, pages 22-24.

¹³⁰ Ombudsman Review, page 22.

capture as well as improve staff retention. ... transferring [the QMI] to the Department of Employment and Industrial Relations ... could also have the undesirable effect of blurring its identity and reducing its expertise.¹³¹

23.7 In relation to Western Australia, the Kenner review found that:¹³²

The hazard profile of the mining industry is unique. The physical characteristics of a mine, open cut or underground, in terms of geological and geotechnical considerations are subject to constant change. Other major risk factors include ventilation, in-rush/flooding, explosion, fire and mine wall stability. ...

...

There should be no amalgamation with WorkSafe. A well resourced and independent Mines Inspectorate is essential for the promotion and enforcement of mines safety in Western Australia. ...

23.8 The Kenner Review also contains at paragraphs 752-781 a discussion about resourcing of the Western Australia inspectorate, which includes the following recommendations:¹³³

That there is a substantial increase in the resourcing of the RSD to ensure that the Mines Inspectorate is able to meet the demands placed upon it by the mining industry.

That ... there is a review of remuneration levels and conditions of appointment within the Mines Inspectorate to ensure that, as far as possible, there is a closer correlation between salaries and conditions of appointment offered, to those prevailing in the mining industry.

23.9 In New South Wales the Wran Review recommended that the independent inspectorate be 'supported and strengthened', including by ensuring that it is adequately resourced and funded.¹³⁴

The High Hazards Unit

23.10 The HHU was established in response to the DoL document, '*Practical Proposals for Improving the Department of Labour's Approach to High Hazard Industries*', July 2011. This found that the DoL's 'specialised resources for the high hazard extractives and petroleum industries are currently inadequate'.

23.11 Solid Energy notes that 'overarching principles' 23 and 24 of the NMSF Legislation Framework are that:

Legislation shall provide for the establishment of a professional and technically competent mines inspectorate with appropriate experience, skills and qualifications.

The inspectorate shall be provided with adequate powers and resources to undertake an independent evaluation of the operator's safety and health management system. ...

23.12 Solid Energy is not convinced that the HHU is the best or a sustainable way of meeting these objectives and fulfilling the roles listed in paragraph 23.1 of this document. While the HHU has benefited from the temporary appointment of Gavin Taylor, Solid Energy does not believe it is sustainable for the HHU's success as a regulator of underground coal mines to rely on the DoL's ability to appoint a

¹³¹ Ombudsman Review, pages 136 and 137.

¹³² Kenner Review, paragraphs 430 and 434.

¹³³ Kenner Review, page 186.

¹³⁴ Wran Review, page 51.

succession of very experienced people with deep links in Australia into the position of Chief Inspector. If New Zealand is to step up to a regulatory framework on par with Queensland, then, in the medium to long-term, the HHU will need to attract and retain staff of sufficient calibre and who collectively possess a wide enough skill base. For example, the Kenner Review commented:¹³⁵

682. *The issue that arises then is what are the core functions of a regulator and to what extent is there the necessity for a Mines Inspector, to be able to stand on equal terms with those whom they are charged with the task of regulating? When discussing the role of a regulator in a world class safety case regime, the MSIG commented:*

"Regulatory staff must therefore have personal credibility with senior company staff. A key aspect of this credibility is knowledge and (preferably) first hand experience of managing a complex operation in a technically challenging environment."

...

686. *The Westray Royal Commission Report along with the Moura and Gretley disasters, are yet more sobering reminders of the inherent hazards of underground coal mining, and underground mining generally, and how an operation can go catastrophically wrong. In particular, in relation to the role of the Mines Inspectorate, reference is made to the following passage from the Report of Justice K Peter Richard, the Commissioner, as follows:*

*"It has been stressed on several occasions that mine inspectors must be certified mining engineers. This follows the approach to mine inspection adopted in the United Kingdom and in most Canadian jurisdictions. The US approach is to engage technicians who enforce very comprehensive regulations and who have engineering back-up when needed. Virtually all mine managers and most underground managers are professionally trained mining engineers. **The inspectorate must be able to face them on an equal professional basis.**"¹³⁶*

...

697. *Having regard to the demands placed upon the industry, in terms of the increasingly complex mining environment that will unfold in the future, and the inevitable likely expansion of the underground sector, a core skill of the regulator must remain that of mining engineering. That is the mining engineering discipline should be seen as the 'hub of the wheel', supported by a broad range of specialist and generalist skills and experience, as may be required.*

698. *Such an approach does not in any way diminish the need for a broad range of skills to be available to the Inspectorate. On the contrary, the existing skills base can and should be expanded to accommodate a range of generalists and specialists, to provide a balanced approach between core mining engineering skills, and other disciplines. This is particularly so, in moving towards a risk management model of regulation. Amongst others, a key and necessary skill within the regulator, for all Inspectorate personnel, will be appropriate training in risk management. This competency should be an inherent requirement of all those exercising inspectorial functions, regardless of whether they be mining engineers, health and safety specialists or from other disciplines.*

¹³⁵ The underlined words echo the phase one evidence of Robin Hughes, SOL.347124, paragraph 20.

¹³⁶ Emphasis in original.

699. In addition to the above technical and safety and health skills, an Inspector needs to possess appropriate communication and leadership skills in order to influence and lead behaviour of those who are the subject of regulatory activity, on mine sites. ...¹³⁷

- 23.13 In Solid Energy's view the HHU will struggle, both to attract people of the type described above and to employ a sufficient number of people with a wide enough range of expertise. Solid Energy is therefore recommending that, for underground coal mines, the DoL's inspectorate function should be contracted out to the QMI rather than being undertaken by the HHU.

The requirements of a New Zealand inspectorate and the nature of its role

- 23.14 What is required for New Zealand to have a best practice inspectorate for underground coal mining and the nature of its role is discussed in paragraphs 23.1 and 23.3 of this document. In Solid Energy's view the capability and willingness to advise and assist is essential. It would be a backward step for the inspectorate to adopt a policing approach rather than the advisory, cooperative approach traditionally adopted by mines inspectors. The preparedness of respected and capable inspectors to resolve safety and health matters through discussion would be highly valued. While there remains a need for the regulator to have the ability to undertake enforcement, it is also necessary for the industry and regulator to establish a cooperative and trusting environment and have open and meaningful discussion on issues, rather than an adversarial relationship. Adopting a narrowly focussed prosecutorial approach to enforcement would not necessarily lead to improved safety performance.
- 23.15 For example, a policy of automatic prosecution in the industry may in fact have negative consequences for safety as:¹³⁸
- 23.15.1 Increased prosecution may impede cooperation between regulators and industry in determining the root causes of incidents, and appropriate improvement strategies;
 - 23.15.2 Lessons learned from incidents are not disseminated throughout the industry due to legal privilege considerations;
 - 23.15.3 The fear of prosecution may discourage 'near-miss' reporting;
 - 23.15.4 Such a policy may work against a culture of continuous safety improvement; and
 - 23.15.5 A perception of increased prosecution risk may discourage those who would otherwise wish to enter the industry from doing so.
- 23.16 Solid Energy also notes the discussion at pages 102-107 of the Ombudsman Review of:
- 23.16.1 No blame accident investigations in South Africa; and
 - 23.16.2 Aviation safety regulation in Australia being built on the concept that the first priority is safe aviation; ascertaining culpability and meting out punishment

¹³⁷

Emphasis added.

¹³⁸

Galvin, 'Occupational Health and Safety Acts - Performance and Prosecution in the Australian Minerals Industry', Mining Technology, 114(4), pages 251-256. Referred to in Ombudsman Review, page 111.

are secondary. In such an environment the primary focus is on finding out why an incident or near-miss occurred, and taking steps to prevent similar incidents from happening, anywhere in the industry.

- 23.17 While Solid Energy is by no means suggesting that it is never appropriate to charge mine operators under the HSEA, it is this kind of sophisticated and safety-focussed thinking that an underground coal mining inspectorate should be considering and staying up to date with.

Solid Energy's recommendation

- 23.18 The HHU should be retained, but it should seek to contract out its role as the inspectorate for underground coal mining to the QMI. In respect of underground coal mining, the HHU's functions should be limited to:
- 23.18.1 Supporting the QMI as the underground coal mining inspectorate for New Zealand. For example, this might include providing staff to assist with an investigation and then conducting any prosecution under the HSEA.
 - 23.18.2 Providing local staff for any urgent matters that require a HSEA inspector to attend an underground coal mine immediately.
- 23.19 The programmed inspections and advice giving functions of the inspectorate would be carried out by the QMI. The QMI would be able to immediately apply the Mine Inspection Planning System ('MIPS') and Incident Cause Analysis Method ('ICAM') of investigation to New Zealand underground coal mines.

Appendix 1

Queensland regulatory arrangements - refer to part D21

This appendix sets out the analysis of Queensland's mining laws which has informed Solid Energy's recommendation to adopt parts of the CSMH Regulation and the CSMH Act.

Coal Mining Safety and Health Regulation 2001

Chapter 1	Preliminary	
Sections 1-3	<i>Short title; commencement; definitions.</i>	
Chapter 2	All coal mines	
Part 1	Preliminary	
Section 4	<i>Chapter 2 applies to both surface and underground mines.</i>	Solid Energy's view is that the New Zealand regulations should apply to all underground coal mining. Underground coal mining raises the most pressing safety concerns and requires the greatest level of expertise within an inspectorate. Solid Energy's recommendations are to make simultaneous changes to both the regulations and inspectorate for underground coal mining. Including other types of mining, such as opencast and quarrying, will slow the pace of regulatory change by introducing policy problems around matters such as how to treat very small operations. In Solid Energy's view other types of mining have less immediate need for a highly specialised regulatory framework and inspectorate.
Section 5	<i>Safety and health obligations may only be discharged in the prescribed ways.</i>	Solid Energy supports mandatory risk management obligations.
Part 2	Safety and health management system	
Division 1	General	
Sections 6-8	<i>Basic elements of safety and health management system; potential hazards which may require management and control; access to risk assessments and underlying data; worker notification of safety and health issues.</i>	Supported.

Division 2	Standard operating procedures	
Sections 9-11	<i>Requirement to have standard operating procedures (SOPs) for hazards; developing SOPs; worker access to SOPs.</i>	Solid Energy agrees with a requirement to have SOPs. While employee participation in the development of SOPs is supported, in Solid Energy's view the section 10 process is overly prescriptive and unnecessary.
Division 3	Recognised standards	
Section 12	<i>Worker access to recognised standards.</i>	Supported, although the reference to recognised standards would need to reflect the HSEA equivalents.
Division 4	Principal hazard management plan	
Sections 12A-12B	<i>Requirement to have a principal hazard management plan that complies with the Mineral Resources Regulation 2003 (Queensland).</i>	These provisions relate to the interaction between overlapping extractive operations. While Solid Energy does not oppose similar obligation, it is suggested that similar provisions are probably not required as part of New Zealand regulations focussed on safety and health for underground coal mining.
Part 2A	Safety and health fee	Not required.
Part 2B	Election of site safety and health representatives	Solid Energy's position on employee participation is in Part D, paragraphs 21.79-21.87 of this document.
Part 3	Accidents, high potential incidents and injuries	
Sections 13-14	<i>High potential incidents listed in schedule 1 must be notified under section 198 of the CSMH Act; the sites of serious accidents and high potential incidents listed in part 1 of schedule 2 must not be interfered with under section 200 of the CSMH Act; investigation reports for serious accidents and high potential incidents listed in part 2 of schedule 2 must be provided to an inspector.</i>	Supported, although aspects may not be required as a consequence of the HSEA being the parent legislation instead of the CSMH Act.
Section 15	<i>Process for the internal investigation of accidents and incidents.</i>	Supported.

Section 16 <i>Process for giving notice of incidents to an inspector and workers.</i>		Solid Energy agrees with a requirement to give notice of incidents to the inspectorate and workers. Section 16 refers to 'site safety and health representatives' and 'industry safety and health representatives' (i.e. check inspectors and union inspectors). Solid Energy's position on employee participation is in Part D, paragraphs 21.79-21.87 of this document.
Part 4	Electrical activities, equipment and installations	
Division 1	Electrical activities	
Subdivision 1	Controlling and managing electrical engineering activities	
Sections 17-18 <i>Electrical engineering managers must have recognised competencies; duties of electrical engineering managers.</i>		Supported.
Subdivision 2	Other provisions about electrical activities	
Sections 19-22 <i>Duty to notify an inspector of proposed introduction of electricity; persons carrying out work on electrical equipment must have recognised competencies; SOP required for accessing exposed electrical conductors; SOP required for re-energising a tripped electrical circuit.</i>		Supported.
Division 2	Electrical equipment and installations	
Subdivision 1	General	
Sections 23-24 <i>Requirements for the design, installation and maintenance of electrical equipment and installations; requirements for full current isolators for equipment driven by electricity.</i>		Supported.
Subdivision 2	Electrical control systems	
Sections 25-27		Supported.

<i>Standards for electrical control systems; requirements for control circuits; requirements for the modification of electrical control systems.</i>		
Subdivision 3	Electrical protection	
Sections 28-31	<i>Requirements for electrical protection for power outlets for low voltage electrical equipment; requirements for operating times and tripping current for circuit protection devices; restrictions for changing electrical protection settings; requirements for unearthed electrical installations.</i>	Supported.
Subdivision 4	Electrical drawings and plans	
Sections 32-33	<i>Requirements for drawings of electrical installations; requirements for plans of a mine's communication system and main electrical installations.</i>	Supported.
Subdivision 5	Records about electrical activities, equipment and installations	
Section 34	<i>Requirements for records of various matters about a mine's electrical activities, equipment and installations.</i>	Supported.
Part 5	Emergencies	
Sections 35-38	<i>A mine's safety and health management system must provide for managing emergencies and include provision for the matters in section 35(2); visitors entering an operating area must be able to self-escape; a mine's safety and health management system must provide for the fire matters in section 37(1) and (2); SOP required for the discovery of fire; a mine's safety and health management system must provide for first aid and include provision for the matters in section 38(2); SOP required for accidents involving electricity.</i>	Supported.

Part 6	Fitness for work	Not required. In Solid Energy's view issues around fitness for work are already adequately dealt with under the HSEA.
Part 7	Hazardous substances	Not required. In Solid Energy's view issues around hazardous substances are already adequately dealt with under the Hazardous Substances and New Organisms Act 1996.
Part 8	Mine plans and other information about mines	
Sections 58-62 <i>Any inaccuracy in the plans of mine workings required by section 67 of the CSMH Act must be clearly marked; information about adjoining mines and potential inrush must be sufficiently accurate to achieve and acceptable level of risk; requirements for survey grid system; requirements for record of drilling activities; requirements for record of abandoned boreholes; requirements for survey plans of mine workings; mine plans must show the extent and position of any highwall mining underground excavation.</i>		Supported.
Section 63 <i>A mine rescue plan which shows the matters in section 63(1) and (2) must be kept at the mine which can be made available to mines rescue teams.</i>		Supported.
Part 9	Personal protective equipment	Not required. In Solid Energy's view issues around personal protective equipment are already adequately dealt with under the HSEA.
Part 10	Plant	
Division 1	Fixed and mobile plant	
Sections 66-72 <i>A mine's safety and health management system must provide for the continued effectiveness of braking systems on plant and include provision for the matters in section 66(2); a mine's safety and health management system must provide for machine guarding or fencing; SOP required for modifying plant; a mine's safety and health management system must provide for keeping records and managing the risk of modifying</i>		Supported.

<p><i>plant; a mine's safety and health management system must provide for pre-start warnings; a mine's safety and health management system must provide for safe access to plant; a mine's safety and health management system must provide for safety checks of plant by competent persons; SOPs required for the matters listed in section 72.</i></p>	
<p>Division 2 Mobile plant</p>	
<p>Sections 73-77 <i>SOP required for checking mobile plant; plant at risk of overturning or being struck from above must have a protective structure; requirement to risk assess the need for seat belts and wear seat belt if installed; SOP required for using mobile plant; requirement for warning system if mobile plant operator's visibility is restricted.</i></p>	<p>Supported.</p>
<p>Division 3 Miscellaneous</p>	
<p>Sections 78-81 <i>SOP required for the matters listed in section 78 (isolating and tagging procedures); SOP required for electrical and mechanical equipment used for inspecting, testing and maintaining the safe operation of plant; a mine's safety and health management system must provide for managing the risk from using fluids above or below atmospheric pressure; action to be taken if certified equipment does not meet certification requirements or is likely to create an unacceptable level of risk.</i></p>	<p>Supported.</p>
<p>Part 11 Training</p>	
<p>Sections 82-85 <i>A mine's safety and health management system must provide for a training scheme and include provision for the matters in section 82(2) and (3); a person starting work at a mine must not carry out any task until completing induction training; the site senior executive must ensure each worker is given refresher training at least once every five years; a worker must not carry out designated tasks unless assessed as competent to do so.</i></p>	<p>Supported.</p>

<p>Part 12</p> <p>Work and work environment</p>	<p>Much of Part 12 is prescriptive and not required as general issues around the work environment/conditions are already adequately dealt with under the HSEA. Exceptions are listed to the left.</p>
<p>Section 88</p> <p><i>A mine's safety and health management system must provide for controlling risks from cutting, drilling or excavating near a concealed service and include provision for the matters in section 88(2).</i></p>	<p>Supported.</p>
<p>Section 89</p> <p><i>A mine's safety and health management system must control the risks of dust, including by providing ways of ensuring that workers' exposure to respirable dust is kept to an acceptable level, monitoring, and keeping records of respirable dust.</i></p>	<p>Supported.</p>
<p>Section 93</p> <p><i>A mine's safety and health management system must provide for controlling the risk associated with working near a body of water.</i></p>	<p>Supported.</p>
<p>Section 94</p> <p><i>SOP required for checking the condition of work areas and checking for hazards before workers enter and start work.</i></p>	<p>Supported.</p>
<p>Part 13</p> <p>Miscellaneous</p>	
<p>Sections 97-99</p> <p><i>The deformation of natural and artificial structures caused by mining operations must be monitored and recorded; a mine's safety and health management system must provide for reporting and rectifying defects; a mine's safety and health management system must provide for restricting access to parts of the mine.</i></p>	<p>Supported.</p>
<p>Section 100-100AD</p> <p><i>In relation to drilling or abandoning surface boreholes the senior site executive must ensure parts of the Petroleum and Gas (Production and Safety) Regulation 2004 are complied with.</i></p>	<p>Solid Energy will need to review the relevant parts of the Petroleum and Gas (Production and Safety) Regulation 2004 before it can support these provisions.</p>

<p>Section 100A</p> <p><i>Particular substances must not be used at a mine for the prohibited purposes listed in schedule 2A to the CSMH Regulation.</i></p>	Supported.
<p>Chapter 3 Surface mines</p>	Not required.
<p>Chapter 4 Underground mines</p>	
<p>Part 1 Preliminary</p>	
<p>Sections 147-148</p> <p><i>Application of chapter 4; safety and health obligations may only be discharged in the prescribed ways.</i></p>	Supported.
<p>Part 2 General</p>	
<p>Section 149</p> <p><i>A mine must have principal hazard management plans that provide for at least emergency management; gas management; methane drainage; mine ventilation; spontaneous combustion; and strata control.</i></p>	Supported.
<p>Section 150</p> <p><i>A person must not go underground without the authority of the mine manager.</i></p>	Supported. Any conflict between this section of the CSMH Regulation and section 31 of the HSEA (powers of entry and inspections) will need to be resolved. Solid Energy is not opposed to unannounced and/or unaccompanied inspections, provided that the mine manager has authorised the particular inspector as being competent to go underground unaccompanied. This includes both the inspector's personal competencies, as well as his or her knowledge of the mine and what is happening on that shift. Solid Energy does not agree that inspectors should go underground unaccompanied who are not competent or are not familiar with the mine, what work is going on, and any safety and health access restrictions in place at the time.
<p>Sections 151-152</p> <p><i>SOP required for flammable substances underground; limit to external surface temperature of equipment used underground.</i></p>	Supported.

<p>Section 153</p> <p><i>A person must not give a technical direction about a safety and health matter to someone appointed by the mine manager to (a) be responsible for the control and management of underground activities, or (b) control activities in an explosion risk zone unless that person has the necessary technical competency and is authorised by the mine manager to give such directions.</i></p>	<p>While not opposing it, Solid Energy is unsure of the policy/purpose of this section.</p>
<p>Part 3 Emergencies</p>	
<p>Division 1 Fire prevention and control</p>	
<p>Section 154</p> <p><i>Structures underground or at a surface intake opening must be constructed of non-flammable material.</i></p>	<p>Supported.</p>
<p>Section 155</p> <p><i>The mine manager must appoint at least one fire officer; the responsibilities of fire officers are listed in section 155(2).</i></p>	<p>Supported.</p>
<p>Division 2 Entry airlocks and emergency mine sealing</p>	
<p>Section 156-158</p> <p><i>Each entrance to a mine from the surface must be capable of being safely sealed; at least one entrance to a mine must have a mine entry airlock capable of withstanding 70kPa; a mine must have facilities that, after sealing, allow for (a) safe use of inertisation equipment; (b) safe monitoring of the atmosphere behind the seal; (c) re-entry of the mine; (d) large mobile equipment to enter or exit the mine through an airlock; the operation of each airlock must be tested at least once a year; facilities for the use of inertisation equipment must be tested at appropriate intervals.</i></p>	<p>Solid Energy supports these requirements for new mines and, with an appropriate transitional period, existing mines. A transitional period will be necessary as seals and airlocks will be very difficult and expensive to retrofit.</p>
<p>Part 4 Rescue and communication</p>	
<p>Division 1 Self-rescuers and other breathing apparatus</p>	

<p>Sections 158-160</p> <p><i>A mine's safety and health management system must provide for self-rescuers and other breathing apparatus, including maintenance, training and the use of self-rescuers by visitors/non-permanent workers; restriction on person going underground without a self-rescuer he or she is trained to use; responsibility of person carrying a self-rescuer to keep it safe.</i></p>	<p>Supported.</p>
<p>Division 2 Cap lamps</p>	
<p>Sections 161-167</p> <p><i>A mine's safety and health management system must provide for cap lamps of a certified type and explosion protection category; records to be kept of each cap lamp type used at a mine; a mine must have specified facilities and equipment for cap lamps; cap lamps must be maintained and tested with records kept; cap lamps must have a unique identification and records kept of who each cap lamp is issued to; restriction on person going underground without a cap lamp he or she is trained to use; a mine's safety and health management system must provide for the use of cap lamps by visitors/non-permanent workers; responsibility of person wearing a cap lamp to keep it safe.</i></p>	<p>Supported.</p>
<p>Division 3 Self-escape, aided escape and emergency evacuation</p>	
<p>Section 168-171</p> <p><i>A mine's safety and health management system must provide for self-escape to a place of safety; the system must be developed through a risk assessment that includes consideration of the matters in section 168(2); SOP required for self-escape and the use of exercises under simulated incident conditions; a mine's safety and health management system must provide for aided escape to a place of safety; a mine's safety and health management system must provide for the emergency evacuation of persons to a place of safety and include providing for the matters in section 171(2); the trigger points for evacuating a mine must be developed using the process in section 10.</i></p>	<p>Supported save for the process linked to section 10. While employee participation in the development of trigger points is supported, in Solid Energy's view the section 10 process is overly prescriptive and unnecessary.</p>
<p>Division 4 Mines rescue</p>	

<p>Section 172</p> <p><i>A mine must have emergency response strategies for mines rescue services; the strategies must provide for external assistance under either a mutual assistance scheme or a mines rescue agreement.</i></p>	<p>Solid Energy's position on emergency management is in Part C, paragraphs 16.28-16.39 of this document.</p>
<p>Section 173</p> <p><i>A mine must have 5% of its workers (but no fewer than 5 persons) trained in emergency rescue procedures using CABA.</i></p>	<p>Supported. In New Zealand it would be expected that the trained workers were Mines Rescue Service Brigadesmen.</p>
<p>Section 174</p> <p><i>A mines rescue agreement for a mine must state the matters in section 174(a)-(d).</i></p>	<p>Supported, although a discussion between the industry, Mines Rescue Service, the EPMU and Government is required regarding the availability of inertisation equipment within New Zealand.</p>
<p>Section 175</p> <p><i>An accredited corporation (i.e. approved mines rescue service) must have an operational inertisation capability.</i></p>	<p>A discussion between the industry, Mines Rescue Service, the EPMU and Government is required regarding the availability of inertisation equipment within New Zealand.</p>
<p>Division 5 Communication systems</p>	
<p>Sections 176-178</p> <p><i>A mine's telephonic communication system must comply with section 176 and have an adequate fail safe or backup power supply; each worker must be competent in operating the mine's telephonic communication system; a mine must have notice boards at the surface and in each crib room for displaying safety and health notices and plans; the safety and health notices in section 178(3) must be displayed as prescribed.</i></p>	<p>Supported.</p>
<p>Part 5 Electrical equipment and installations</p>	
<p>Division 1 General</p>	
<p>Section 179</p> <p><i>A mine's safety and health management system must provide for the safe and secure location of the mine's electrical equipment and installations and the design and operation of liquid filled electrical equipment.</i></p>	<p>Supported.</p>
<p>Division 2 Suitability of electrical equipment and installations</p>	

<p>Sections 180-185</p> <p><i>Division 2 does not apply during a life-threatening emergency; requirements for electrical equipment in ERZ0, ERZ1 and NERZ; enclosure containing switchgear at a mine must be suitably rated and have adequate arc fault control; the electrical engineering manager must keep records of certification and the use for which electrical equipment and installations are suitable.</i></p>	<p>Supported.</p>
<p>Division 3 Live testing of electrical equipment and installations</p>	
<p>Sections 186-187</p> <p><i>Restrictions on live testing electrical equipment or installations in an ERZ0; a mine's safety and health management system must provide for the live testing matters in section 186(2); SOP required for live testing electrical equipment and installations in a NERZ which includes provision for the matters in section 187(2).</i></p>	<p>Supported.</p>
<p>Division 4 Electrical cables and accessories</p>	
<p>Section 188-189</p> <p><i>A mine's safety and health management system must provide for selecting, installing and using electrical cables and accessories; a mine's safety and health management system must provide for repairing and testing reeling, trailing and feeder cables; restrictions on the use of defective reeling, trailing or feeder cables.</i></p>	<p>Supported.</p>
<p>Division 5 Electrical control systems</p>	
<p>Sections 190-195</p> <p><i>Requirements for circuit separation; requirements for earth fault current limitation; requirements for earth leakage protection; requirement for test buttons on earth leakage protection devices and earth continuity protection devices; a mine's earthing conductor must not carry an electrical circuit's normal current; requirements for earthing electrodes.</i></p>	<p>Supported.</p>
<p>Division 6 Miscellaneous</p>	

<p>Sections 196-202</p> <p><i>A mine's safety and health management system must provide for battery charging stations and battery powered vehicles; vehicles powered by traction batteries must be protected from battery earth leakage current and the traction battery must be adequately ventilated; trolley wire traction vehicles are restricted to NERZ; a mine must have at each portal either a way to switch off the electricity supply or a communication system for advising another person to switch off the electricity supply; a mine's safety and health management system must provide for the safe use of fibre optic equipment; a mine's safety and health management system must provide for using portable electrical equipment in an ERZ1; SOP required for using portable electrical equipment.</i></p>	<p>Supported.</p>
<p>Part 6 Explosives and explosive powered tools</p>	<p>Much of Part 6 is prescriptive. Solid Energy's view is that the same safety and health outcomes could be achieved by requirements to (a) carry out a risk assessment for the use of explosives and explosive powered tools (section 203); (b) have SOPs for the use of explosives and explosive powered tools (section 221); (c) only use explosive types authorised by an appropriate person (section 204).</p>
<p>Part 7 Gas monitoring</p>	
<p>Division 1 Safety and health management system</p>	
<p>Sections 221A-222</p> <p><i>Application of division 1; a mine's safety and health management system must provide for a gas monitoring system which complies with section 222 and includes the matters in section 222(2) and (3).</i></p>	<p>Supported.</p>
<p>Section 223</p> <p><i>A mine's safety and health management system must provide for monitoring and sampling the mine atmosphere in accordance with section 223(1), (1A) and (1B); a mine's safety and health management system must provide for a plan to be kept of sampling points and ventilation control devices; sampling equipment must not be relocated with the ventilation officer's</i></p>	<p>While Solid Energy supports section 223, it has not assessed exactly where subsections (1), (1A) and (1B) would require sampling and monitoring points at its mines. It is possible that, given the relatively small size of New Zealand underground coal mines, Solid Energy would recommend some minor amendments to how subsections (1), (1A) and (1B) applied in practice.</p>

<i>authorisation.</i>		
Sections 224-226		Supported.
<i>A mine's principal hazard management plan for gas monitoring must state the values and ratios for gas that are gas alarm levels; SOP required for changing gas alarm levels; gas alarm levels must not be changed without the ventilation officer's authorisation; SOP required for acknowledging gas alarms.</i>		
Division 1A	Gas monitoring system for drifts driven from mine surface in material other than coal	
Section 226A		Supported.
<i>A drift in stone must contain equipment that continuously monitors the atmosphere to detect the products of combustion and automatically activates an alarm when such products are detected.</i>		
Division 2	Methane and other gas detectors	
Subdivision 1	General	
Sections 227-229		Supported.
<i>A mine must have sufficient portable gas detectors for CH₄, CO and O₂; each portable gas detector must be certified as prescribed; persons appointed to control and manage underground activities and persons controlling activities in ERZ must be provided with a portable gas detector; portable gas detectors restricted to competent persons appointed by the mine manager; requirements for fixed methane detectors.</i>		
Subdivision 2	Plant to be protected by methane detectors	
Sections 230-240		Supported.
<i>Specified plant items must be protected by methane detectors; requirements for auxiliary and booster fans; requirements for main exhausting fan; requirements for coal cutter, continuous miner, tunnel boring and road heading machines; requirements for longwall</i>		

<p><i>shearers; requirements for mobile bolting machines; requirements for explosion protected electrically powered loaders; requirements for explosion protected load-haul dump vehicles powered by a battery or internal combustion engine; requirements for other explosion protected plant powered by a battery or internal combustion engine; requirements for other explosion protected plant powered by a trailing cable; requirements for non-explosion protected plant.</i></p>	
<p>Subdivision 3 Places where methane detectors must be located</p>	
<p>Sections 241-244 <i>Methane detectors must be located at the places specified in subdivision 3; requirements for methane detectors in intake airways and the interface between ERZ; requirements for methane detectors in return airways; requirements for methane detectors at longwall faces.</i></p>	<p>Supported.</p>
<p>Division 3 Action to be taken if methane is detected or methane detector is non-operational</p>	
<p>Sections 245-250 <i>Actions required for explosion protected electrically powered loader; actions required for explosion protected vehicle powered by a battery or internal combustion engine; actions for other explosion protected plant powered by a trailing cable; actions for non-explosion protected vehicles powered by a battery or internal combustion engine; SOP required for methane detected at a ventilation split or main return roadway; SOP required for the matters in section 250 (specified methane detectors activate or are non-operational).</i></p>	<p>Supported.</p>
<p>Division 4 Miscellaneous</p>	
<p>Sections 251-253 <i>Records must be kept where electricity supply is tripped by specified methane detectors; a mine's principal hazard management plan for gas monitoring must provide for the use of portable gas detectors as a back-up in the event of</i></p>	<p>Supported.</p>

<p><i>system failure; SOP required for using portable gas detectors as a back-up in the event of system failure; in the event of a gas monitoring system failure all persons must withdraw to a place of safety unless there is an operational back-up using portable gas detectors which achieves an acceptable level of risk.</i></p>	
<p>Part 8 Mechanical</p>	
<p>Division 1 Aluminium alloys</p>	
<p>Sections 254-255 <i>Restrictions on the use of specified aluminium alloys; SOP required for aluminium alloy objects underground.</i></p>	<p>Supported.</p>
<p>Division 2 Conveyors</p>	
<p>Section 256-258 <i>Each belt conveyor must have an emergency stop system and certified fire resistant and antistatic belting and drum lagging; a mine's safety and health management system must provide for designing, installing, inspecting and maintaining conveyors; restrictions on riding on, or crossing over or under, a conveyor.</i></p>	<p>Supported.</p>
<p>Division 3 Stored energy</p>	
<p>Section 259 <i>A mine's safety and health management system must provide for managing risk from using compressed air underground, including the bonding to earth of compressed air equipment likely to develop static electrical charges.</i></p>	<p>Supported.</p>
<p>Division 4 Transport</p>	
<p>Sections 260-262 <i>A mine's safety and health management system must provide for the safe transport of persons, material and equipment at the mine, and include provision for the matters in section 260(2); plant powered by a non-explosion protected internal combustion engine must comply with section 261(1)(b) and may only be used in a NERZ; an internal combustion engine used to power plant in an ERZ1 must comply with section 261(2); an internal combustion engine must not be used to</i></p>	<p>Supported.</p>

<p><i>power plant in an ERZO; requirements for underground trains.</i></p>	
<p>Division 5 Hot work</p>	
<p>Section 263-266 <i>Authorisation from the mine manager required for hot work outside of a permanent underground workshop; inspector must be notified of hot work taking place outside of a permanent underground workshop; a mine's safety and health management system must provide for carrying out hot work outside of a permanent underground workshop, and include provision for the matters in section 265(2).</i></p>	<p>Supported.</p>
<p>Division 6 Winder, slope haulages and hoists</p>	
<p>Subdivision 1 Design and installation of equipment and shafts generally</p>	
<p>Sections 267-269 <i>Requirements for winders and slope haulages; required controls and safety devices for shaft conveyances; requirement that unsupervised winders and slope haulages have automatically operated fire extinguishers in the plant's engine room.</i></p>	<p>Supported.</p>
<p>Subdivision 2 Further provisions about design and installation for friction winders</p>	
<p>Sections 270-272 <i>Required safety devices for friction winding systems; speed restrictions for friction winding systems; requirements for the brakes on friction winding systems.</i></p>	<p>Supported.</p>
<p>Subdivision 3 Operating, maintaining and testing winders, slope haulages and hoists</p>	
<p>Sections 273-276 <i>Winders, slope haulages and hoists must be fit for purpose; a mine's safety and health management system must provide for carrying out a risk assessment, and establishing and</i></p>	<p>Supported.</p>

<p><i>implementing controls, for the installation, operation, maintenance and testing of winders, slope haulages and hoists; requirements for manually operated winders, slope haulages and hoists (operators must have recognised competencies); requirements where signals are used to communicate with a plant operator.</i></p>	
<p>Subdivision 4 Winder and slope haulage ropes</p>	
<p>Sections 277-281</p> <p><i>Winder and slope haulage rope must be certified and tested, with records kept; restrictions, requirements and safety factors for winder and slope haulage rope; requirements for attaching winder ropes to conveyance or counterweight; a mine's safety and health management system must provide for regular, non-destructive testing of winder and slope haulage ropes and establish discard criteria.</i></p>	<p>Supported.</p>
<p>Part 9 Mine design</p>	
<p>Division 1 Mine plans</p>	
<p>Section 282-285</p> <p><i>A plan of mine workings required by section 67 of the CSMH Act must comply with section 282; the plan of a mine's surface land must comply with section 283; requirement for a plan of surface facilities which shows the matters in section 284(1) and is provided to the chief inspector, mines rescue and the Police; requirement for a fire fighting and mines rescue plan which complies with section 285.</i></p>	<p>Supported.</p>
<p>Division 2 Establishing and identifying explosion risk zones</p>	
<p>Sections 286-291</p> <p><i>A risk assessment must be carried out to identify the location and type of each ERZ at a mine; definition of ERZ0; definition of ERZ1; definition of NERZ; requirements for signposting ERZ boundaries; updated plan of ERZ boundaries required and must be displayed.</i></p>	<p>Supported.</p>
<p>Division 3 Precautions against inrushes</p>	

<p>Sections 292-295</p> <p><i>Requirement to keep specified data about potential inrushes; where a risk of inrush exists, a risk assessment must be carried out; SOP required where an inrush source exists; requirements to prevent inrushes through boreholes.</i></p>	<p>Supported.</p>
<p>Division 4 Escapeways and refuges</p>	
<p>Section 296 Escapeways</p> <p>(1) <i>The site senior executive must ensure the mine has at least 2 trafficable entrances (escapeways) from the surface that are separated in a way that prevents any reasonably foreseeable event happening in 1 of the escapeways affecting the ability of persons to escape through the other escapeway.</i></p> <p>(2) <i>The site senior executive must ensure each ERZ1 at the mine where a person works has 2 escapeways leading to the surface or a refuge.</i></p> <p>(3) <i>Subsection (2) does not apply to an ERZ1—</i></p> <p>(a) <i>where an inspection is being carried out under the mine's safety and health management system and no one else is working; or</i></p> <p>(b) <i>in a single entry drive or shaft that is being sunk.</i></p>	<p>Supported subject to Solid Energy's understanding that normal intake and return roadways trafficable by foot would satisfy the requirements of section 296.</p>
<p>Section 297 Headings for intake air</p> <p><i>The site senior executive must ensure each group of main roads developed after the commencement of this section at the mine includes at least 2 headings for intake air.</i></p>	<p>Solid Energy's position on multiple headings for intake air is in Part D, paragraphs 21.65 and 21.66 of this document.</p>
<p>Section 298 Primary escapeways</p> <p>(1) <i>The site senior executive must ensure—</i></p> <p>(a) <i>at least 1 of the escapeways at the mine mentioned in section 296(1) is—</i></p> <p>(i) <i>an intake airway or a combination of adjacent intake airways; and</i></p>	<p>Supported.</p>

<p>(ii) <i>designated as the primary escapeway; and</i></p> <p>(iii) <i>separated, as far as practicable, from all other roadways by a separation stopping that is antistatic, fire resistant and of substantial construction providing for minimal leakage; and</i></p> <p>(iv) <i>as far as practicable, free from the risk of fire; and</i></p> <p>(b) <i>fire fighting equipment is located on, or near, any equipment installed in the primary escapeway.</i></p> <p>(2) <i>For mine workings developed after June 2001, the site senior executive must ensure a roadway designated as a primary escapeway is trafficable by mechanised equipment, unless the workings are being driven as either single or 2 heading developments.</i></p>	
<p>Section 299 Safety of persons when only 1 escapeway available for use</p> <p>(1) <i>An underground mine's safety and health management system must provide for the safety of persons when only 1 escapeway from the mine is available for use.</i></p> <p>(2) <i>The mine's safety and health management system must include a standard operating procedure that provides for the safety of persons when an event mentioned in subsection (1) happens.</i></p> <p>(3) <i>The standard operating procedure may provide for the undertaking of activities underground only if the activities are solely connected with—</i></p> <p>(a) <i>ensuring the safety of the mine or persons at the mine; or</i></p> <p>(b) <i>restoring an escapeway.</i></p>	<p>Supported.</p>
<p>Part 10 Mining operations</p>	
<p>Division 1 Coal dust explosion prevention and control</p>	

<p>Section 299A-303</p> <p><i>Application of division 1; a mine's safety and health management system must provide for minimising the risk of a coal dust explosion, suppressing a coal dust explosion, limiting its propagation to other parts of the mine, and include provision for the matters in section 300(2); SOP required for monitoring coal dust and applying stonedust; requirements for dust sampling; requirements for stonedusting; action required where dust sample does not comply with stonedusting requirements; records must be kept of dust sampling.</i></p>	<p>Supported.</p>
<p>Division 2 Inspections under safety and health management system</p>	
<p>Subdivision 1 General</p>	
<p>Sections 304-308</p> <p><i>Application of division 2; only competent persons may be appointed by the mine manager to carry out inspections; only an appointed person and ERZ controller may carry out inspections; ERZ controller for an ERZ must carry out a regular inspection; ERZ controller must read and acknowledge record of most recent regular inspection; requirements of person carrying out an inspection.</i></p>	<p>Supported.</p>
<p>Subdivision 2 Procedure for carrying out inspections</p>	
<p>Section 309-314</p> <p><i>A mine's safety and health management system must provide for inspections, including the appointment of a sufficient number of competent persons to carry out inspections; SOP required for inspections which includes a risk assessment, provision for the matters in schedule 5 to the CSMH Regulation, record keeping, action responses, and when regular inspections must be carried out; ERZ inspection results must be placed on a notice board; actions required if inspection not carried out when required under SOP; a mine must be divided into inspection districts having regard to the matters in section 312(2); inspection district boundaries must be recognisable by workers</i></p>	<p>Supported.</p>

<p><i>and shown on a mine plan and notice boards; a person must not enter an inspection district without notifying the ERZ controller for each ERZ1 in the district.</i></p>	
<p>Subdivision 3 Miscellaneous</p>	
<p>Sections 315-316 <i>The ERZ controller for an ERZ1 must be present in the zone (or a specified adjacent zone) whenever specified mining activities are being carried out in it; persons prohibited from entering part of a mine that has not been inspected and declared to be safe.</i></p>	<p>Supported.</p>
<p>Division 3 Second workings</p>	
<p>Sections 317-320 <i>A risk assessment must be carried out to decide a safe method of extraction for second workings which has regard to the matters in section 317(2); SOP based on the risk assessment required for carrying out second workings which includes provision for the matters in section 318(5); requirement for new risk assessment and amended SOP if conditions, hazards or mining methods change; inspector must be given notice about proposed second workings.</i></p>	<p>Supported.</p>
<p>Division 4 Strata control</p>	
<p>Section 321 <i>A mine's safety and health management system must provide for ensuring the stability of mine workings, and provide for the matters in section 321(2).</i></p>	<p>Supported.</p>
<p>Section 322 <i>If coal extraction is likely to cause subsidence resulting in an unacceptable level of risk, then appropriate measures must be taken to ensure the long term stability of the site.</i></p>	<p>Solid Energy supports this provision provided that it is limited to ensuring the safety and health of persons, and does not require all surface subsidence to be avoided where any risk to persons can be managed by other controls.</p>
<p>Sections 323-324 <i>Requirements for strata support; SOP required for installing strata support; restrictions on entering or working in an unsupported place; a mine's safety and health management system must provide for monitoring the effectiveness and integrity of strata support and maintaining</i></p>	<p>Supported.</p>

<i>the integrity of strata support.</i>		
Division 5	Routine and emergency sealing	
Section 325	<i>Seals installed underground must be of a specified type.</i>	Supported.
Section 326	<i>Notice of the matters specified in section 326(2) must be given to an inspector and safety and health representative 30 days before part of a mine is sealed.</i>	Solid Energy agrees with a requirement to give notice of sealing to the inspectorate and workers. Section 326 refers to 'site safety and health representatives' and 'industry safety and health representatives' (i.e. check inspectors and union inspectors). Solid Energy's position on employee participation is in Part D, paragraphs 21.79-21.87 of this document.
Sections 327-329	<i>Part of a mine must not be sealed unless an inspector has been given notice under section 326 and acknowledged that he or she is satisfied with the details of the proposed sealing; an inspector must be notified if it is necessary to change the proposed sealing method; requirements for emergency sealing; persons without an inspector's consent prohibited from entering sealed mine or sealed part of mine.</i>	Supported.
Division 6	Construction work	
Sections 331-339	<i>Risk assessment required before construction work starts; requirements for excavations, dumping stations, chutes and bins; requirements where there is a risk from flooding to persons working in an excavation; requirements to prevent explosive atmosphere while a blind shaft, raise or tunnel borer is operating; SOP required for carrying out construction work; an inspector must be given notice before a drift or shaft is sunk; requirements for evacuation and escape from drifts and shafts being sunk; restriction on riding on the lip of a kibble; restriction on drilling into the butt of another drill hole in which explosives have been placed.</i>	Supported.
Part 11	Ventilation	
Division 1	Ventilation officer	

<p>Sections 340-342</p> <p><i>Ventilation officer may hold another appointment; functions of a ventilation officer specified in section 341; requirements for reports prepared by ventilation officer.</i></p>	<p>Supported.</p>
<p>Division 2 Ventilation system</p>	
<p>Sections 343-345</p> <p><i>The mine's ventilation system must be designed, implemented and monitored to ensure the atmosphere in each part of the mine has a general body concentration as specified in section 343(1) for particular contaminants and gases; records must be kept of the results of monitoring; a mine's ventilation system must provide for the matters in section 344(1); requirements for minimum average velocity of ventilation current; specified parts of a mine exempted from sections 343 and 344.</i></p>	<p>Supported.</p>
<p>Division 3 Safety and health management system and standard operating procedures for ventilation</p>	
<p>Sections 346-349</p> <p><i>A mine's safety and health management system must provide ways of (a) either preventing intake air from travelling across the face of a permanent seal or ensuring the matters in section 346(2), and (b) minimising the risks of inrush and leakage into intake airways of atmospheric contaminants from goaf areas and abandoned or sealed workings; SOP required for ventilating workplaces; SOP required for evacuating persons to a safe place if specified ventilation alarms are triggered; SOP required for action to be taken to ensure the safety of persons if the mine ventilation system fails totally or partially for more than 30 minutes.</i></p>	<p>Supported.</p>
<p>Division 4 Ventilation control devices</p>	
<p>Sections 350-352</p> <p><i>The ventilation control devices listed in schedule 4 to the CSMH Regulation must meet the specified design criteria; restrictions on temporary stoppings; restrictions on interfering with ventilation control devices; SOP required for</i></p>	<p>Supported.</p>

<p><i>constructing, installing, using and maintaining ventilation control devices.</i></p>	
<p>Division 5 Fans</p>	
<p>Sections 353-358</p> <p><i>A mine's safety and health management system must provide for using fans underground; SOP required for each type of specified fan used at a mine; regard must be had to ways of ensuring a compressed air powered auxiliary fan is de-energised promptly if the main ventilation system fails; a mine's principal hazard management plan must state (a) the general body concentration of methane in the ventilation air passing through a main exhausting fan that must not be exceeded and the action responses if an alarm is activated, and (b) the procedures for using any booster fan and the action responses if a methane detector monitoring the air passing through the fan activates an alarm; auxiliary fans must be located and operated in a way that prevents recirculation; other restrictions on the use of auxiliary fans; scrubber fans must be located and operated in a way that prevents recirculation; requirements for automatic monitoring of main exhausting fans and booster fans; restrictions on dealing with a fan that is ventilating a place underground.</i></p>	<p>Supported.</p>
<p>Division 6 Controlling exposure to atmospheric contaminants</p>	
<p>Sections 359-361</p> <p><i>Restrictions on exposure to atmospheric contaminants other than CO (refer to schedule 6 to the CMSH Regulation); restrictions on exposure to CO; a mine's safety and health management system must provide for controlling exposure to internal combustion engine pollutants; prohibition on working or travelling in a place where the general body concentration of an atmospheric contaminant exceeds the limits specified in section 361(1).</i></p>	<p>Supported.</p>
<p>Division 7 Monitoring atmosphere</p>	
<p>Sections 362-365</p> <p><i>A mine's air quality and flow rate must be measured and recorded as specified; a mine's atmosphere must be monitored for internal</i></p>	<p>Supported.</p>

<p><i>combustion engine pollutants as required under its safety and health management system; barometric pressure at the surface must be continuously measured, recorded and checked; the wet and dry bulb temperature and the resultant effective temperature of the atmosphere at each active face must be measured and recorded; air flow rates must be measured and recorded immediately following any ventilation system change.</i></p>	
<p>Division 8 Miscellaneous</p>	
<p>Section 366 <i>All persons must withdraw to a place of safety from any part of a mine required to be ventilated which has a general body concentration of methane of 2.5% or more.</i></p>	<p>Supported.</p>
<p>Part 12 Working environment</p>	
<p>Division 1 Contraband</p>	
<p>Sections 367-368 <i>The materials and objects specified in section 367(1) are classified as contraband; a mine's safety and health management system must provide for a procedure for searching for contraband; search procedure must be established using the process in section 10.</i></p>	<p>Solid Energy agrees with a requirement to have a procedure for contraband searches. While employee participation in the development of such a procedure is supported, in Solid Energy's view the section 10 process is overly prescriptive and unnecessary.</p>
<p>Division 2 Heat stress management</p>	
<p>Sections 369-370 <i>A mine's safety and health management system must provide for ensuring the health of persons in places where the wet bulb temperature exceeds 27°C; requirements for the heat stress part of a mine's safety and health management system; restrictions on working in places where the effective temperature exceeds 29°C; a mine's safety and health management system must provide for the way of calculating the effective temperature of the atmosphere at the mine.</i></p>	<p>Supported.</p>
<p>Chapter 5 Miscellaneous</p>	<p>Only section 371 is relevant.</p>
<p>Section 371 <i>The tasks which require a recognised</i></p>	

<i>competency to qualify a person to perform them are listed in schedule 7 to the CMSH Regulation.</i>		
Chapter 6	Transitional provisions	Not directly relevant, although the promulgation of New Zealand regulations will require comprehensive transitional provisions. Solid Energy's position on transitional provisions is in Part D, paragraph 21.63 of this document.
Schedule 1A	Potential hazard guide - coal seam gas or petroleum	
Schedule 1B	Prescribed site safety and health representative election process	
Schedule 1	Types of high potential incidents for section 198 of the Act	
Schedule 2	Types of serious accidents and high potential incidents for sections 200(1) and 201(1) of the Act	
Schedule 2A	Prohibited substances	
Schedule 3	Chapter 4 provisions applying while abnormal circumstances declaration is in force	
Schedule 4	Ventilation control devices and design criteria	
Schedule 5	Matters to be covered in inspections	
Schedule 6	General body concentrations for atmospheric contaminants	
Schedule 7	Prescribed tasks for section 76(3(a) of the Act	
Schedule 8	Board of examiner's fees	
Schedule 9	Dictionary	

Coal Mining Safety and Health Act 1999

The CSMH Regulation works together with the CSMH Act. New Zealand regulations modelled on the Queensland regime will also require parts of the CSMH Act to function. Refer to the analysis below

Part 1	Preliminary	
Division 1	Introduction	Not required/HSEA.
1	Short title	
2	Commencement	
Division 2	Operation of Act	New Zealand regulations will need to prescribe what and who they apply to.
3	Act binds all persons	
4	What does this Act apply to	
5	Who does this Act apply to	
Division 3	Objects of Act	
6	Objects of Act	
7	How objects are to be achieved	
Division 4	Interpretation	New Zealand regulations will require many of these definitions to be adopted.
8	Dictionary	
9	Meaning of coal mine	
10	Meaning of on-site activities	
11	Meaning of safety and health	
12	Meaning of competence	
13	Meaning of consultation	
14	Meaning of standard operating procedure	
15	Meaning of accident	
16	Meaning of serious accident	
17	Meaning of high potential incident	
18	Meaning of risk	

19	Meaning of hazard	
20	Meaning of principal hazard	
21	Meaning of coal mine operator	
22	Meaning of geographically separated	
23	Meaning of physical overlapping of coal mining operations	
24	When is a coal mine operator not in control	
25	Meaning of site senior executive	
26	Meaning of supervisor	
27	Meaning of industry safety and health representative	
28	Meaning of site safety and health representative	
Part 2	The control and management of risk and other basic concepts	
Division 1	Control and management of risk	Not required/HSEA. New Zealand regulations might need to adapt parts of the CSMH Regulation so that they refer to 'all practicable step' instead of 'acceptable level of risk'.
29	What is an acceptable level of risk	
30	How is an acceptable level of risk achieved	
31	What happens if the level of risk is unacceptable	
Division 2	Cooperation	Not required/HSEA.
32	Cooperation to achieve objects of Act	
Part 3	Safety and health obligations	
Division 1	Preliminary	Not required/HSEA.
33	Obligations for safety and health	
34	Discharge of obligations	

35	Person may owe obligations in more than 1 capacity	
36	Person not relieved of obligations	
37	How obligation can be discharged if regulation or recognised standard made	
38	How obligations can be discharged if no regulation or recognised standard made	
Division 2	Generally applicable safety and health obligations of persons	To the extent that this provision imposes obligations specific to mining that are not duplicated by or in conflict with the HSEA it could be adapted for New Zealand regulations.
39	Obligations of persons generally	
Division 3	Obligations of holders, coal mine operators, site senior executives and others	To the extent that these provisions impose obligations specific to mining that are not duplicated by or in conflict with the HSEA they could be adapted for New Zealand regulations.
40	Obligations of holders	
41	Obligations of coal mine operators	
42	Obligations of site senior executive for coal mine	
43	Obligations of contractors	
44	Obligations of designers, manufacturers, importers and suppliers of plant etc. for use at coal mines	
45	Obligations of erectors and installers of plant	
45A	Obligations of designers, constructors and erectors of earthworks	
46	Obligations of manufacturers, importers and suppliers of substances for use at coal mines	
47	Obligation of provider of services at coal mines	

Division 4	Defences	Not required/HSEA.
48	Defences for div 2 or 3	
Part 4	Provisions about the operation of coal mines	
Division 1	Notices about coal mines	Solid Energy supports these provisions being part of New Zealand regulations.
49	Notices by holder	
50	Notices by coal mine operator	
51	Notice of management structure	
52	Notice about exploration activities	
52A	Notice about underground gasification activities	
Division 2	Management of coal mines	Solid Energy supports these provisions being part of New Zealand regulations. Section 59 would not be required.
53	Appointment of coal mine operator	
54	Appointment of site senior executive	
55	Management structure for safe operations at coal mines	
56	Competencies of supervisors	
57	Appointment of another site senior executive during temporary absence	
58	Other appointments during absences	
59	Additional requirements for management of surface mines	
60	Additional requirements for management of underground mines	
61	Appointment of ventilation officer	

Division 3	Safety and health management systems	Solid Energy supports these provisions being part of New Zealand regulations.
62	Safety and health management system	
62A	Additional requirement for coal mining operation for incidental coal seam gas	
63	Principal hazard management plan	
64	Review of principal hazard management plans and standard operating procedures	
Division 4	Records and reporting	Solid Energy supports these provisions being part of New Zealand regulations.
65	Changes in management structure to be reported to an inspector	
66	Management structure to be recorded in the mine record	
67	Plans of coal mine workings	
68	Mine record	
69	Display of reports and directives	
69A	Training and assessment record check	
Division 5	Protection of abandoned coal mines	Solid Energy supports this provision being part of New Zealand regulations.
70	Responsibility for protecting abandoned coal mines	
Part 5	Recognised standards	Not required/HSEA.
71	Purpose of recognised standards	
72	Recognised standards	
73	Use of recognised standards in proceedings	

Part 5A	Commissioner for Mine Safety and Health	Refer to paragraphs 21.88-21.90 of this document.
Division 1	Establishment and appointment of commissioner	
73A	Appointment of commissioner	
73B	Qualifications for appointment	
73BA	Acting commissioner	
73C	Commissioner's functions	
73D	Commissioner's powers	
Division 2	Report by commissioner	
73E	Annual report	
Part 6	Industry consultative arrangements	
Division 1	Purposes of part	
74	Purposes of pt 6	
Division 2	Coal mining safety and health advisory committee and its functions	
75	Coal mining safety and health advisory committee	
76	Functions of committee	
77	Annual report	
Division 3	Membership and conduct of committee proceedings	
78	Membership of committee	
79	Organisations to submit names to Minister	
80	Appointment of members	
81	Duration of appointment	

82	Conditions of appointment	
83	Member ceasing as member	
83A	Substitute members	
84	Times and places of committee meetings	
85	Presiding at meetings of the committee	
86	Quorum and voting at meetings of the committee	
87	Recommendation to Minister if vote not unanimous	
88	Taking part in meetings by telephone etc	
89	Resolutions without meetings	
90	Minutes by the committee	
91	Subcommittees	
Part 7	Site safety and health representatives	Not required/HSEA. Solid Energy's position on employee participation is in Part D, paragraphs 21.79-21.87 of this document.
Division 1	Purposes of part	
92	Purposes of pt 7	
Division 2	Site safety and health representatives	
93	Election of site safety and health representatives	
94	Further election if site safety and health representative not available	
95	Person must be qualified to act as site safety and health representative	
96	Ceasing to be a site safety and health representative	
97	Removal from office by Minister	
98	Election after removal from office	

99	Functions of site safety and health representatives		
100	Powers of site safety and health representative		
101	Stopping of operations by site safety and health representatives		
102	Effect of report		
103	Site senior executive not to restart operations until risk at an acceptable level		
104	Site safety and health representative not to unnecessarily impede production		
105	Protection of site safety and health representatives performing functions		
106	Site senior executive to tell site safety and health representatives about certain things		
107	Site senior executive to display identity of site safety and health representatives		
Part 8	Industry safety and health representatives		Not required/HSEA. Solid Energy's position on employee participation is in Part D, paragraphs 21.79-21.87 of this document.
Division 1	Purposes of part		
108	Purposes of pt 8		
Division 2	Industry safety and health representatives		
109	Appointment of industry safety and health representatives		
110	Industry safety and health representative to work full-time		
111	Funding of industry safety and health representative		
112	Termination of appointment		
113	Appointment after termination		

114	Filling of temporary vacancy		
115	Vacancy generally		
116	Persons not to pretend to be industry safety and health representatives if not appointed		
117	Industry safety and health representative restricted to safety and health purposes		
118	Functions of industry safety and health representatives		
119	Powers of industry safety and health representatives		
120	Industry safety and health representative not to unnecessarily impede production		
121	Inadequate or ineffective safety and health management systems		
122	Identity cards		
123	Failure to return identity card		
124	Production or display of identity card		
Part 9	Inspectors and other officers and directives		Not required. Solid Energy's recommendation is that QMI becomes the inspector of underground coal mines in New Zealand.
Division 1	Inspectors and inspection officers		
125	Appointments		
126	Qualifications for appointment as inspector		
127	Qualifications for appointment as inspection officer		
127A	Appointment conditions and limit on powers		
128	Functions of inspectors and inspection officers		

129	Further functions of inspectors	
Division 2 Authorised officers		Not required. Solid Energy's recommendation is that QMI becomes the inspector of underground coal mines in New Zealand.
129A	Appointments	
129B	Qualifications for appointment as authorised officer	
129C	Appointment conditions and limit on functions and powers	
129D	Functions of authorised officers	
129E	Information about functions and powers	
Division 3 Identity cards for inspectors, inspection officers and authorised officers		Not required/HSEA.
130	Identity cards	
131	Failure to return identity card	
132	Production or display of identity card	
Division 4 Powers of inspectors, inspection officers and authorised officers		Not required/HSEA.
Subdivision 1 Preliminary		
132A	Definition for div 4	
Subdivision 2 Power to enter places		
133	Entry to places	
Subdivision 3 Procedure for entry		
134	Consent to entry	
135	Application for warrant	
136	Issue of warrant	
137	Special warrants	
138	Warrants - procedure before entry	

Subdivision 4	General powers	
139	General powers after entering coal mine or other places	
140	Failure to help officer	
141	Failure to answer questions	
142	Site senior executive must help officer	
Subdivision 5	Power to seize evidence	
143	Seizing evidence at coal mine or other place	
144	Securing things after seizure	
145	Tampering with things subject to seizure	
146	Powers to support seizure	
147	Receipts to be given on seizure	
148	Forfeiture	
149	Return of things that have been seized	
150	Access to things that have been seized	
Subdivision 6	Power to stop and secure plant and equipment	
151	Officer may stop and secure plant and equipment	
Subdivision 7	Power to obtain information	
152	Power to require name and address	
153	Failure to give name or address	
154	Power to require production of documents	
155	Failure to produce document	
156	Failure to certify copy of document	

157	Power to require attendance of persons before an officer to answer questions	
158	Failure to comply with requirement about attendance	
159	Use of particular evidence in proceedings	
Subdivision 8 Additional powers of chief inspector		
160	Additional powers of chief inspector	
Division 5 Directives by inspectors, inspection officers and industry safety and health representatives		While inspectors and the DoL are already provided with powers under the HSEA (making the adoption of these provisions unnecessary), Solid Energy is interested in the views of other stakeholders about whether additional powers to give directions are required.
Subdivision 1 Power to give and way of giving directives		
161	Directive may be given	
162	How directive is given	
163	How directive is given for ss 166, 167 and 170	
Subdivision 2 Matters for which directives may be given		
164	Directive to ensure coal mine worker competent	
165	Directive to carry out test	
166	Directive to reduce risk	
167	Directive to suspend operations for unacceptable level of risk	
168	Directive to review safety and health management system and principal hazard management plans	
169	Directive to suspend operations for ineffective safety and health management system	
170	Directive to isolate site	

171	Directive about separate part of the mine		
172	Directive to provide independent engineering study		
Subdivision 3 Recording of directives and other matters			
173	Records must be kept		
174	Directives		
Subdivision 4 Review of directives			
175	Application for review		
176	Procedure for review		
177	Review of directive		
178	Stay of operation of directive		
Division 6 General enforcement offences			Not required/HSEA.
179	False or misleading statements		
180	False or misleading documents		
181	Obstructing inspectors, officers or industry safety and health representatives		
Part 10 Board of examiners		While most of Part 10 is not required as it relates to functions carried out in New Zealand by EXITO (refer to paragraphs 21.67-21.69 of this document), the functions in section 185(a) and (d) could, in New Zealand, be performed by either the Minister or the Secretary of Labour acting on advice.	
Division 1 Purposes of part			
182	Purposes of pt 10		
Division 2 Board of examiners and its functions			
183	Inspector for pt 10		
184	Board of examiners		
185	Functions of board of examiners		
186	Membership and conduct of board proceedings		

187	Board of examiners to appoint secretary	
188	Appointment of board of examiners	
189	Quorum and voting at meetings of the board	
190	Presiding at meetings of the board of examiners	
191	Conditions of appointment	
192	Proceedings of the board of examiners	
193	Subcommittees	
Division 3 General		
194	Examiners to be qualified	
195	Obtaining certificates of competency by fraud	
196	Return of certificate of competency	
197	Annual report	
Part 11 Accidents and incidents		
Division 1 Notification, information and inspections		
198	Notice of accidents, incidents, deaths or diseases	Solid Energy supports this provision being part of New Zealand regulations.
198A	Requirement to give primary information	Not required/HSEA.
199	Place of accident must be inspected	
Division 2 Site of accident or incident		Not required/HSEA.
200	Site not to be interfered with without permission	
201	Action to be taken in relation to site of accident or incident	

Part 12	Boards of inquiry	In Solid Energy's view mining does not require a specific board of inquiry regime.
Division 1	General	
202	Minister may establish boards of inquiry	
203	Role of board of inquiry	
204	Conditions of appointment	
205	Chief executive to arrange for services of staff and financial matters for board of inquiry	
Division 2	Conduct of inquiry	
206	Procedure	
207	Notice of inquiry	
208	Inquiry to be held in public except in special circumstances	
209	Protection of members, legal representatives and witnesses	
210	Record of proceedings to be kept	
211	Representation	
212	Board's powers on inquiry	
213	Notice to witness	
214	Inspection of documents or things	
215	Inquiry may continue despite court proceedings unless otherwise ordered.	
216	Offences by witnesses	
217	Contempt of board	
218	Change of membership of board	
Part 13	Mines rescue	Solid Energy supports these provisions being adapted to form part of New Zealand regulations, recognising that in New Zealand the only 'accredited corporation' is the Mines Rescue Service governed by the Mines Rescue Trust.
Division 1	Preliminary	
219	Purposes of pt 13	

220	Definitions for pt 13	Given this, sections 224, 227-231, 233 and 234 would not be required.
221	Meaning of mines rescue capability	
222	Meaning of mines rescue agreement	
Division 2 Obligations of coal mine operators and users		
Subdivision 1 All coal mine operators		
223	Coal mine operator must be a party to a mines rescue agreement	
224	Coal mine operator must contribute	
Subdivision 2 Further obligation of coal mine operators of underground mines		
225	Provision of a mines rescue capability	
Subdivision 3 Mine users		
226	Mine not to be used if ss 223–225 contravened	
Division 3 Accredited corporations		
Subdivision 1 Accreditation		
227	Accreditation	
228	Accreditation conditions	
229	Refusal to accredit	
230	Amending, suspending or cancelling accreditations—grounds	
231	Amending, suspending or cancelling accreditations—procedure	
Subdivision 2 Functions and performance		
232	Functions	
233	Performance criteria	
234	Reporting to Minister	

Subdivision 3	Miscellaneous	
235	Accredited corporation must keep records	
Part 14	Appeals	
Division 1	Appeals against particular decisions of Minister or board of examiners	Not required.
236	Appeals against Minister's decisions	
237	Appeals against board of examiners' decision	
238	How to start appeal	
239	Stay of operation of decisions	
240	Hearing procedures	
241	Powers of court on appeal	
242	Appeal to District Court on questions of law only	
Division 2	Appeals against chief inspector's directives and review decisions	
243	Who may appeal	
244	How to start appeal	
245	Stay of operation of directive or review decision	
246	Hearing procedures	
247	Assessors	
248	Powers of court on appeal	
Part 15	Legal proceedings	Not required/HSEA.
Division 1	Evidence	
249	Application of div 1	

250	Proof of appointments and authority unnecessary		
251	Proof of signatures unnecessary		
252	Evidentiary aids		
253	Expert reports		
254	Analyst's certificate or report		
Division 2 Proceedings			
255	Proceedings for offences		
256	Recommendation to prosecute		
257	Limitation on time for starting proceedings		
258	Court may order suspension or cancellation of certificate		
259	Forfeiture on conviction		
260	Dealing with forfeited things		
261	Responsibility for acts or omissions of representatives		
262	Executive officers must ensure corporation complies with Act		
263	Representation		
264	Costs of investigation		
265	Recovery of fees		
Division 3 Evidentiary provisions			
266	Service of documents		
267	How document to be given to coal mine operator		
Part 15A Injunctions			Not required/HSEA.
267A	Applying for injunction		
267B	Grounds for injunction		

267C	Court's powers for injunction	
267D	Terms of injunction	
Part 16	Offences	Not required/HSEA.
268	Person not to encourage refusal to answer questions	
269	Impersonating inspectors, officers or representatives	
270	Protection for officers	
Part 17	General	
Division 1	General safety matters	
271	Contraband must not be taken into an underground mine	Not required.
272	Children under 16 not to be employed underground	Solid Energy supports this provision being part of New Zealand regulations.
272A	Children under 16 not to operate or maintain plant	Solid Energy supports this provision being part of New Zealand regulations.
273	Withdrawal of persons in case of danger	Solid Energy supports this provision being part of New Zealand regulations.
274	Where coal mine worker exposed to immediate personal danger	Solid Energy supports this provision being part of New Zealand regulations.
275	Representations about safety and health matters	Solid Energy supports this provision being part of New Zealand regulations.
275AA	Protection from reprisal	Solid Energy supports this provision being part of New Zealand regulations.
275AB	Damages entitlement for reprisal	In Solid Energy's view a contravention of section 275AA in New Zealand should be either an offence under the HSEA or an employment issue under the Employment relations Act 2000, rather than a tort.
Division 2	Miscellaneous	
275AC	Public statements	Solid Energy supports this provision being part of New Zealand regulations.
275A	Disclosure of information	Solid Energy supports this provision being part of New Zealand regulations.

276	Protection from liability	Not required/HSEA.
Part 18	Administration	
277	Delegations	Not required.
278	Delegation of chief inspector's powers	This would need to be considered as part of any arrangements to appoint QMI as the inspector of underground coal mines in New Zealand.
279	Notices about coal industry statistics or information	Solid Energy supports this provision being part of New Zealand regulations.
280	Chief executive to keep records	Solid Energy supports this provision being part of New Zealand regulations.
281	Approved forms	Solid Energy supports this provision being part of New Zealand regulations.
Part 19	Regulations	Not required/HSEA.
282	Regulation-making power	
Part 20	Transitional provisions and repeals	
Schedule 2	Subject matter for regulations	
Schedule 3	Dictionary	