NSW GOVERNMENT

# STATUTORY REVIEW OF THE WORK HEALTH AND SAFETY (MINES AND PETROLEUM SITES) ACT 2013 AND REGULATION

Report by Independent Reviewer, Kym Bills

October 2020

# STATUTORY REVIEW OF THE WORK HEALTH AND SAFETY (MINES AND PETROLEUM SITES) ACT 2013 AND REGULATION

**Author**

This report has been prepared by Independent Reviewer Kym Bills.

**Disclaimer**

Views, analysis and recommendations expressed in this report are those of the Independent Reviewer and may not reflect the views of the New South Wales Government, including the Resources Regulator.

In particular, this publication incorporates views or information from third parties, which do not necessarily reflect the views of the Independent Reviewer or the NSW Resources Regulator. The inclusion of such material does not indicate an endorsement of that material or a commitment to any particular course of action. The views in this publication should not be taken to represent the views of the Resources Regulator unless otherwise expressly stated.

The discussion in this Report should not be considered to be legal or technical advice. Readers should take their own professional advice before taking action in their work circumstances that may impact health and safety outcomes.

**Document control**

Published by NSW Resources Regulator

Title: Statutory Review of the Work Health and Safety (Mines and Petroleum Sites) Act 2013 and Regulation

First published: October 2020

CM9 reference: DOC20/445520

| AMENDMENT SCHEDULE | | |
|---|---|---|
| Date | Version | Amendment |
| | | |

# Letter of transmittal

The Hon. John Barilaro MP
Deputy Premier,
Minister for Regional New South Wales, Industry and Trade
52 Martin Place
Sydney NSW 2000

Dear Deputy Premier

I am pleased to provide you with my independent report on the statutory review of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* as required by section 77 of the WHS (MPS) Act, and on the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

In addition to face-to-face (and post COVID-19, Zoom) meetings with key stakeholders across the State, various options for engagement and input were provided, including an online survey. The 24 submissions and 18 survey responses received reflected all areas and types of the State's mining industry. However, despite several requests, no submissions were made regarding on-shore petroleum. I am grateful to all stakeholders who made the time to assist with this Review.

Stakeholders were broadly supportive of the current Act and Regulation but inevitably there were suggestions for improvement, particularly in the Regulation, which are addressed in the report. In a number of cases, additional guidance is suggested. There were also a few areas where the NSW laws may be improved by incorporating additional material agreed through the National Mine Safety Framework process or from the other Australian major mining and extraction states.

The strong support I received from your Department, through the NSW Resources Regulator, was essential in enabling this report to be written with appropriate legal and technical expertise. However, the final report is independent and reflects my judgment on the matters put to me and in considering the terms of reference. I hope that you find the report helpful as a basis for better achieving the objectives of the WHS (MPS) Act.

Yours sincerely

Kym Bills
Independent Reviewer
14 September 2020

# Contents

# 1. Executive Summary

Mining health and safety laws in NSW remain among the best in the world. After examining and considering the provisions of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* (WHS (MPS) Act) and the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 (WHS (MPS) Regulation), and stakeholder views on their operation, the Review found that the section 3 objectives of the WHS (MPS) Act remain valid and its terms generally appropriate for securing those objectives. In particular, the WHS (MPS) Act and WHS (MPS) Regulation (collectively known as the WHS (MPS) laws) assist in securing the objective of the *Work Health and Safety Act 2011* (WHS Act) *"to provide for a balanced and nationally consistent framework to secure the health and safety of workers and workplaces"*.

The main qualification to this is that the onshore petroleum industry is embryonic in NSW and no submissions were received concerning the laws covering petroleum sites. If a major petroleum project such as Santos's proposed Narrabri project proceeds, further consideration of the laws should be undertaken, having regard to the experience from similar operating arrangements in Queensland. The WHS (MPS) laws also cover carbon capture and storage (CCS) and additional scrutiny is appropriate if a large-scale CCS project were to proceed.

The WHS (MPS) laws remain largely consistent with the National Mine Safety Framework (NMSF) principles, although outcomes have been complicated by delays and differences within other jurisdictions, such that the framework has not facilitated the level of effective interstate regulatory cooperation originally intended. Additional cross-jurisdictional collaboration on comparative health and safety data and analysis and to ensure the best possible shared learning from incident investigation to help avoid future accidents is considered a priority. Some legislative amendments are desirable. The *Coal Industry Act 2001* is also overdue for review, including its actual and perceived overlaps with the WHS (MPS) laws.

The Mining and Petroleum Competence Board provides an important technical and oversight mechanism, and the Mine Safety Advisory Council has provided collaborative and helpful advice to Ministers. Board of Inquiry provisions, while not yet exercised, are broadly appropriate.

Most importantly, the framework of duties to protect workers including safety management systems, principal hazard management plans, controls and principal control plans, and licensing, authorisations and statutory functions remains appropriate and essential for these high-hazard industries. However, some amendments should be considered based on this Review and further simplification considered based on the scale and risk of operations and the past history of issues arising. Opal mining already has simplified provisions and guidance and similar arrangements could be further developed and publicised

such as for small quarries and gravel pits. In any simplification, key controls such as for dust diseases and other provisions necessary to manage any serious hazards that are present should not be compromised.

There are a few areas of the WHS (MPS) laws that have had unintended outcomes, principally stakeholder difficulty and confusion with the varying requirements for incident notification reporting to the regulator that are found in various places within the WHS Act and Work Health and Safety Regulation 2017 and the WHS (MPS) laws. Consolidated amendment and cross-referencing within the WHS (MPS) Regulation is recommended along with additional regulatory guidance.

A total of 40 recommendations have been made. Four recommendations relate to consistency with the NMSF and improving collaboration among major mining jurisdictions; 11 recommendations address the WHS (MPS) Act including associated guidance and some overlap with the *Coal Industry Act 2001*; 23 recommendations address the WHS (MPS) Regulation and associated guidance; and two recommendations are in relation to a possible major on-shore petroleum project or CCS project.

# 2. Recommendations

*Consistency with the National Mine Safety Framework and collaboration among major mining jurisdictions*

(1) Recent mine health and safety amendments in Queensland since 2018 should be reviewed by the Resources Regulator, with input from Mine Safety Advisory Council, to consider whether any have sufficient merit to be adopted in NSW.

(2) When the Work Health and Safety Act and regulations have been finalised by the Parliament of Western Australia they should be reviewed by the Resources Regulator, with Mine Safety Advisory Council input, to assess whether any provisions should be adopted to meet *Work Health and Safety (Mines and Petroleum Sites) Act 2013* objectives and improve safety and health outcomes in NSW.

(3) NSW should reinvigorate its work with Queensland, Western Australia and any other jurisdictions prepared to collaborate to share safety and health data and work towards commonality in definitions, classification, data storage fields, and data publication.

(4) NSW should seek to collaborate with Queensland (and possibly other jurisdictions such as Western Australia and South Australia) to improve the quality and consistency of both industry and regulator accident and incident investigations and ensure the results are shared among regulators and published to maximise opportunities for industry learning.

*Work Health and Safety (Mines and Petroleum Sites) Act 2013*

(5) The necessary heads of power for notifications should continue to be included in Part 3 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* with additional details consolidated and cross-referenced in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

(6) Provisions in relation to 'causal' investigation should be reviewed and broadened beyond the current section 18(2)(c) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and clause 14(1)(n) and (o) of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 and include contributing factors and a systemic approach. This should also include formalising the Resources Regulator's 'causal investigation policy' within legislation with associated protections. Part 3 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* should be renamed 'Incident notification and investigation' with a new head of power provided for investigation of incidents for the purpose of establishing 'causality' and future safety improvements. Industry investigations should be more professional and consistent. Industry investigation reports should be provided to the Resources Regulator within 30 days under clauses 11 and 12 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 with appropriate protections. These protections should be considered by a tripartite forum such as Mine Safety Advisory Council. Causal investigation should be separate from any investigation for the purpose of enforcement (e.g., via the current section 70(1)(b) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013*) with details concerning the different types of investigation included in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

(7) Section 42(3) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* should be amended to enable mine safety and health representatives to 'participate' in investigations similarly to industry safety and health representatives under section 29(2)(b).

(8) Section 28 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* should be amended to include a new subsection 1(c) stating that an eligible person must satisfy probity checks, and a new subsection (2B) stating that the Minister may appoint additional persons as industry health and safety representatives if they meet the eligibility requirements in section 28(1) and there are no fewer than four persons appointed under section 28(2) and (2A). The Minister should seek additional evidence of costs and benefits and obtain Mine Safety Advisory Council advice before proposing amendments to extend industry safety and health representative roles beyond coal in Part 5, Division 2 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013*.

(9) The arrangements for safety and health representatives for coal mines in Part 5 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* should include similar provisions to sections 146 and 148 of the *Work Health and Safety Act 2011* when industry safety and health representatives and mine safety and health representatives are exercising *Work Health and Safety (Mines and Petroleum Sites) Act 2013* powers, namely to not unreasonably and intentionally delay, hinder, obstruct or disrupt work, and to not use or disclose documents for a non-WHS related purpose.

(10) The *Work Health and Safety (Mines and Petroleum Sites) Act 2013* section 56(1) Board of Inquiry purpose statement should be expanded to include 'contributing factors' and to explicitly allow for high potential emerging and systemic issues and the making of potential findings and recommendations to reduce the likelihood of future accidents and incidents.

(11) The Chairperson of the Mining and Petroleum Competence Board should be required to be an independent person similarly to the Chairperson of the Mine Safety Advisory Council and Part 8 Division 2 of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Part 11 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should be amended accordingly.

(12) The Mine Safety Advisory Council and Mining and Petroleum Competence Board should publish meeting agendas ahead of their scheduled meetings with sufficient time to allow for industry stakeholders to provide input.

(13) The Resources Regulator should develop further guidance material on industry better practice documentation for safety controls, policies and procedures. Such documentation should be developed with, and tailored for, those who are required to use them and minimise unnecessary words and complexity of language.

(14) Consistent with changes made to the *Work Health and Safety Act 2011* and the Work Health and Safety Regulation 2017, penalty amounts under the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should be amended to specify penalty units and desirably should be automatically indexed with the Consumer Price Index.

(15) Because the NSW *Coal Industry Act 2001* contains various provisions that overlap or are perceived to overlap with the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 and has not been reviewed since 2007, the *Coal Industry Act 2001* should be reviewed to ensure that it reflects best practice and there is clarity of regulation between the two Acts and regulatory staff. Memoranda of Understanding and/or guidance material in relation to overlapping functions between the Resources Regulator and relevant approved *Coal Industry Act 2001* companies is also desirable.

*Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*

(16) References to all standards in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should be reviewed. Some such as AS/NZS 1972 in clause 80(3)(b) should be updated with Resources Regulator consideration given to automatically updating to the latest version or whether enduring mining and petroleum related elements in some standards are better specified in the Regulation or in a code of practice. The Resources Regulator, in consultation with the Mining and Petroleum Competence Board should consider a formal provision to enable a professional engineering demonstration of an alternate means of compliance that entails a level of risk equivalent to, or better than, following a standard.

(17) The Resources Regulator, in consultation with the Mining and Petroleum Competence Board, should consider and recommend to the Minister whether, given the extensive arrangements already in place in NSW, engineering roles in mining and petroleum should be specified in legislation similarly to professional engineering roles in construction under the *Design and Building Practitioners Act 2020*.

(18) The Resources Regulator should consider broadening the exemptions in clause 184 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 for small gemstone, opal and tourist mines to include low risk 'tier 3' mine sites such as small surface gravel pits used by regional and remote councils for roadworks, and small exploration sites.

(19) The Resources Regulator should provide additional guidance to assist with the utilisation of existing provisions in the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 that provide flexibility and how they will be interpreted to reduce the regulatory burden for smaller and lower risk mining and extraction such as gravel pits for roadworks and in exploration.

(20) Notwithstanding the provisions of Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 clauses 179(j), 23(1) and Schedule 1, consideration should be given by the Resources Regulator to clarifying that rock and coal bursts and related pressure bursts are a principal mining hazard (or an important element of an existing principal mining hazard).

(21) The Resources Regulator should provide additional information and guidance to industry on the rationale for the amendments to the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 effective on 1 February 2020, especially the change to make a less serious instance of spontaneous combustion at a surface coal mine a high potential incident rather than a dangerous incident.

(22) The Resources Regulator should provide guidance to ensure that all significant electricity risks in mining, such as electrical protection settings, are addressed in the Electrical Engineering Control Plan and included in the mine record. Consideration should also be given to updating EES-005 'Electrical protection and earthing guideline' and EES-011 'Technical principles for design of electrical systems' and providing guidance in relation to electrical control systems.

(23) The Resources Regulator should reference the August 2020 Global Industry Standard on Tailings Management in its guidance material and consider potential legislative amendments to incorporate aspects of the standard.

(24) The Resources Regulator should seek amendments linked to clause 34 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 that clarify: that safety devices like oxygen candles can be used in refuge chambers during an emergency under clause 3(1)(d) of Schedule 4 to the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014; and that the prohibitions in relation to explosives testing and exploders storage and battery changing at clause 5(2) and 5(3) of Schedule 4 should refer to while 'underground at an underground coal mine' rather than anywhere on site.

(25) The Resources Regulator should undertake or sponsor a technical study to consider the hazardous zone classification, including clauses 3, 65, 78, 80 and 82 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 of longwall homotropal conveyor roadways and standing faces and development panels.

(26) The Resources Regulator should review whether emergency sealing in clause 68 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should make provision for re-entry and if so, include an airlock.

(27) The Resources Regulator should consider whether: sampling of airborne dust at coal mines in Schedule 6 Part 1 clause 2 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should be amended to change the minimum sampling period from at least five hours to a minimum of 80% of a shift; Part 1 clause 2(8) should be strengthened to require analysis of the level of respirable silica for each respirable dust sample; and for surface coal mines, Part 3 clause 7 should include more detail on sampling of the drill and blast area, and areas involving mobile equipment and maintenance, coal handling preparation and mobile crushing plant.

(28) Guidance material in other major Australian mining and petroleum jurisdictions should be reviewed by the Resources Regulator to consider whether NSW guidance material should be supplemented or revised. This review should include Queensland's QGL02 dated April 2020 covering the management of respirable dust in mineral mines and quarries.

(29) The Resources Regulator, with input from the Mine Safety Advisory Council, should review whether in clauses 93 and 95 and Schedule 7 clause 4(3) of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 there should be additional prescription in relation to testing of, and training in relation to, the emergency plan with a minimum workforce to be trained in mine rescue for underground coal mines and possibly other underground mines.

(30) The emergency plan and associated provisions in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should require specific details of the underground coal mine escape and rescue plan to be displayed at all times with key features such as exits, refuges, firefighting equipment, communications and oxygen stations clearly indicated. Mine workers should have a reasonable opportunity to utilise the exits during periodic training.

(31) Given recent issues with silicosis, the Resources Regulator should review the drafting of Part 3 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 and consider whether elements of the former wording prior to the April 2018 amendment or other elements at Part 26 of the National Mine Safety Framework consolidated non-core drafting instructions, or the provisions used in other jurisdictions would better ensure ongoing worker health and safety.

(32) All incident notification requirements should be consolidated in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 including with clear specification of notification timing and a reference to any notifications that are required under the *Work Health and Safety Act 2011* and Work Health and Safety Regulation 2017 and the *Work Health and Safety (Mines and Petroleum Sites) Act 2013*.

(33) The proposed consolidated provisions in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 in relation to incident notification to the regulator should be supported by further guidance from the Resources Regulator.

(34) The scope of the functions in Schedule 10 should be reviewed by the Mining and Petroleum Competence Board to ensure that there are no significant omissions or inflexibilities. For example, the significance of an electrical engineer in clauses 20, 28 and 33 of Schedule 10 not having a monitoring role in the absence of a position of electrical engineering manager, the scope of a mining engineering manager's duties, any need for a power system protection specialist, and if requirements for a qualified mechanical tradesperson in clause 15(2) of Schedule 10 unduly lack flexibility and an alternative such as a Certificate III in Heavy Commercial Vehicle Mechanical Technology may be appropriate in some circumstances.

(35) The Resources Regulator should further consider the scope to simplify plant registration requirements under clause 177 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 and in doing so seek the advice of the Mine Safety Advisory Council.

(36) Minor amendments should be made to update section 5(1) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* to change the Department name from the Department of Planning and Environment to the Department of Regional NSW. Minor updates should be made in the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 such as the titles of the interstate regulators with which the NSW Resources Regulator cooperates, including in clause 145(5) to cite the Western Australian Department of Mines, Industry Regulation and Safety (DMIRS) and Resources Safety and Health Queensland (RSHQ). Clause 181 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 in relation to corresponding laws should also be updated where necessary. Transitional clause 185 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should be removed.

(37) The Resources Regulator should consider additional stakeholder education on the meaning and application of 'reasonably practicable' in relation to the elimination and reduction of risk especially as new technology and control options become available, and also further education and compliance activity with regard to officer 'due diligence'.

(38) After the Minister and Parliament have considered this Review report and when the Resources Regulator is preparing to consult with industry on amendments to the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014, it should check to ensure that no issues in submissions have been overlooked or developed subsequently that should be discussed with industry and drawn to the Minister's attention.

*Petroleum and Carbon, Capture and Storage*

(39) If a major onshore petroleum project such as Santos's proposed Narrabri project gains approval to proceed, the provisions in the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 for petroleum should be further reviewed having regard to relevant experience in Queensland.

(40) If a major carbon capture and storage project is approved in NSW, the provisions in the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 should be reviewed in light of Australian and international best practice.

# 3. Framework of the NSW WHS (MPS) Laws

In NSW, the WHS Act and the Work Health and Safety Regulation 2017 (WHS Regulation) provide the framework for regulating WHS in all workplaces. These laws commenced on 1 January 2012 and have already been the subject of a five-year statutory review in 2017. The WHS Act states that *"(1) The main object of this Act is to provide for a balanced and nationally consistent framework to secure the health and safety of workers and workplaces by –*

*(a) protecting workers and other persons against harm to their health, safety and welfare through the elimination or minimisation of risks arising from work or from specified types of substances or plant, and*

*(b) providing for fair and effective workplace representation, consultation, co-operation and issue resolution in relation to work health and safety, and*

*(c) encouraging unions and employer organisations to take a constructive role in promoting improvements in work health and safety practices, and assisting persons conducting businesses or undertakings and workers to achieve a healthier and safer working environment, and*

*(d) promoting the provision of advice, information, education and training in relation to work health and safety, and*

*(e) securing compliance with this Act through effective and appropriate compliance and enforcement measures, and*

*(f) ensuring appropriate scrutiny and review of actions taken by persons exercising powers and performing functions under this Act, and*

*(g) providing a framework for continuous improvement and progressively higher standards of work health and safety, and*

*(h) maintaining and strengthening the national harmonisation of laws relating to work health and safety and to facilitate a consistent national approach to work health and safety in this jurisdiction.*

*(2) In furthering subsection (1) (a), regard must be had to the principle that workers and other persons should be given the highest level of protection against harm to their health, safety and welfare from hazards and risks arising from work or from specified types of substances or plant as is reasonably practicable."*

The WHS (MPS) laws in relation to mine sites commenced on 1 February 2015 and give effect to the National Mine Safety Framework (NMSF) consolidated non-core drafting instructions discussed at part 6.1 of this report in relation to Work Health and Safety (WHS) in mining. The NSW laws were amended

to incorporate onshore petroleum sites during 2015 with effect from 1 February 2016. The WHS (MPS) laws consist of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* (WHS (MPS) Act) and the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 (WHS (MPS) Regulation).

The WHS (MPS) laws are to be construed with, and as if they formed part of, the WHS Act and the WHS Regulation. Section 4 of the WHS (MPS) Act sets out the principles of the interaction between the WHS (MPS) laws and the WHS Act and WHS Regulation. This relationship is discussed at part 6.2 of the report.

The WHS Act and the WHS Regulation implemented the national model WHS Act and model Regulation. These laws provide for some limited jurisdictional variations based on local conditions, including the arrangements for regulators and the implementation of provisions for mining health and safety.

Because a national review of the model WHS Act was planned for 2018, only the NSW variations to the model WHS Act were reviewed in 2017[1] in accordance with the requirements of the NSW WHS Act[2]. Integrated with this, the WHS Regulation was reviewed and remade in 2017 in accordance with the requirements of the NSW *Subordinate Legislation Act 1989*. The combined review included input from the Resources Regulator and a number of mining industry stakeholders, and its findings have been considered where relevant below. The model WHS Act and Regulation were reviewed at a national level by Ms Marie Boland in 2018[3] resulting in further amendments to the WHS Act[4].

Work health and safety is overseen by two regulators: the Secretary of the Department of Customer Service (incorporating SafeWork NSW) and the Secretary of the Department of Regional NSW (through the Resources Regulator). SafeWork NSW is responsible for administering the WHS Act at all workplaces except for mining and petroleum workplaces at which the WHS (MPS) Act or the *Petroleum (Offshore) Act 1982* applies. The Resources Regulator operates as the WHS regulator for NSW mines and petroleum sites in administering both the WHS Act and the WHS (MPS) Act and their respective regulation. SafeWork NSW and the Resources Regulator have a co-operative relationship and meet regularly and as

[1] The statutory review of the WHS Act, together with its Regulation, was conducted by the Better Regulation Division within the NSW Department of Finance, Services and Innovation. It *"found that, overall, the objectives of the WHS act remain valid and its terms remain generally appropriate to secure those objectives"* and made 7 recommendations on the terms of the Act, a recommendation to develop a model for tripartite consultation, and 3 recommendations in relation to the WHS Regulation. The full Review report is available here: https://www.safework.nsw.gov.au/resource-library/whs-act-statutory-review-2017/work-health-and-safety-act-2011-statutory-review-report-june-2017

[2] Amendments to the WHS Act arising from the statutory review – *Work Health and Safety Amendment Act 2018 No 12* – commenced on 21 March 2018 and are outlined in this Fact Sheet: https://www.safework.nsw.gov.au/resource-library/whs-act-statutory-review-2017/amendments-to-the-nsw-work-health-safety-act-2011

[3] *Review of the model Work Health and Safety Laws Final report* (December 2018) published by Safe Work Australia: https://www.safeworkaustralia.gov.au/doc/review-model-whs-laws-final-report

[4] Amendments to the WHS Act and WHS Regulation arising from the *Work Health and Safety Amendment (Review) Act 2020 No 10* commenced on 10 June 2020, see: https://www.legislation.nsw.gov.au/#/view/act/2020/10/full

required to discuss policy and legislative issues. However, they work independently to regulate WHS within NSW.

The Resources Regulator is based in Maitland and has approximately 200 staff headed by an Executive Director. This position reports to the Deputy Secretary, Strategy, Delivery and Performance of the Department of Regional NSW, who in turn reports to the Secretary of the Department of Regional NSW. Within the Resources Regulator, inspectors report to the Executive Director through a Chief Inspector.

The WHS (MPS) Act provides for the exercise of functions by the regulator (typically through inspectors) and other officials at NSW workplaces under the NSW WHS laws[5] (section 12A of the WHS (MPS) Act)[6]. This ensures that the Resources Regulator can comprehensively investigate incidents and other matters at a mine and everywhere work is undertaken at a distance from mine or petroleum sites (such as in control rooms or certain services) that impact on health and safety at mine or petroleum sites.

The WHS (MPS) Act also allows for efficiencies and consistency in the administration of the WHS Act and WHS Regulation in relation to mines and petroleum sites by WHS regulators in NSW. For example, the functions of the regulator under the WHS Act for issuing certain authorisations to carry out work in relation to all workplaces including mines or petroleum sites are exercised by SafeWork NSW when it has that expertise, while other functions under the WHS Act and Regulation are exercised by the Resources Regulator. This assists the Resources Regulator to focus its expertise on the hazards and operational matters associated with mining and petroleum (see also below at part 6.2 of this report).

Because the WHS Act and WHS Regulation are based on the national model WHS Act and model WHS Regulation, potential changes in NSW are discussed through Safe Work Australia at the national level to seek to maintain and increase national consistency through harmonisation. Requirements in relation to mines and petroleum sites may also be discussed in consultation with Safe Work Australia if considered appropriate for national consistency, with exposure standards being an important example.

The WHS (MPS) Regulation has been amended since its introduction. Since petroleum was added to mining in 2016, the first amendment of significance was published on 19 March 2018[7], taking effect on 13 April 2018, and most relevantly for this Review included:

- to update the requirements for the use of explosion-protected electrical plant in a hazardous zone in an underground coal mine;

[5] When used in relation to mines and petroleum sites in NSW, the term 'NSW WHS laws' is a collective reference to the WHS Act and the WHS Regulation plus the WHS (MPS) Act and the WHS (MPS) Regulation

[6] See the Factsheet: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0004/834790/Exercising-powers-outside-mining-or-petroleum-sites.pdf

[7] See: https://www.legislation.nsw.gov.au/view/pdf/asmade/sl-2018-96

- to remove provisions relating to a mine operator's obligations to monitor the health of mine workers and instead enable the regulator to direct persons conducting a business or undertaking at a mine or petroleum site to provide health monitoring to workers. (The health monitoring obligations under the WHS Act continue to apply.);
- to include various events that occur at mines as high-potential incidents or notifiable incidents, which are required to be notified to the regulator by the mine operator;
- to make it an offence for a person conducting a business or undertaking (PCBU) at an underground coal mine to use certain kinds of plant in the mine unless the person has taken all reasonable steps to ensure that the plant had been repaired under a licence;
- to update the qualifications required by persons exercising statutory engineering functions at mines; and
- to prescribe certain offences against the WHS (MPS) Act and the WHS (MPS) Regulation as offences for which a penalty notice may be issued and to prescribe the amounts of the penalties payable.

The most recent amendments to the WHS (MPS) Regulation were published on 20 December 2019[8], taking effect on 1 February 2020[9]. The amendments included:

- to define certain events at mines as high potential incidents (including uncontrolled fires on mobile plant and spontaneous combustion occurring at the surface of a coal mine), which are required to be notified to the Secretary of the Department (the regulator) by the mine operator;
- to require operators of mines and petroleum sites to ensure that persons at those mines and sites are not exposed to diesel particulate matter beyond a prescribed maximum atmospheric concentration and, in the case of underground mines, to ensure that the ventilation system in those mines provides air of sufficient quality to meet that requirement (a workplace exposure standard of 0.1 milligram per cubic metre of air for diesel particulate matter after a 12 month transition period);
- to make it an offence for the holders of practising certificates and licences to fail to comply with conditions imposed on those practising certificates and licences;

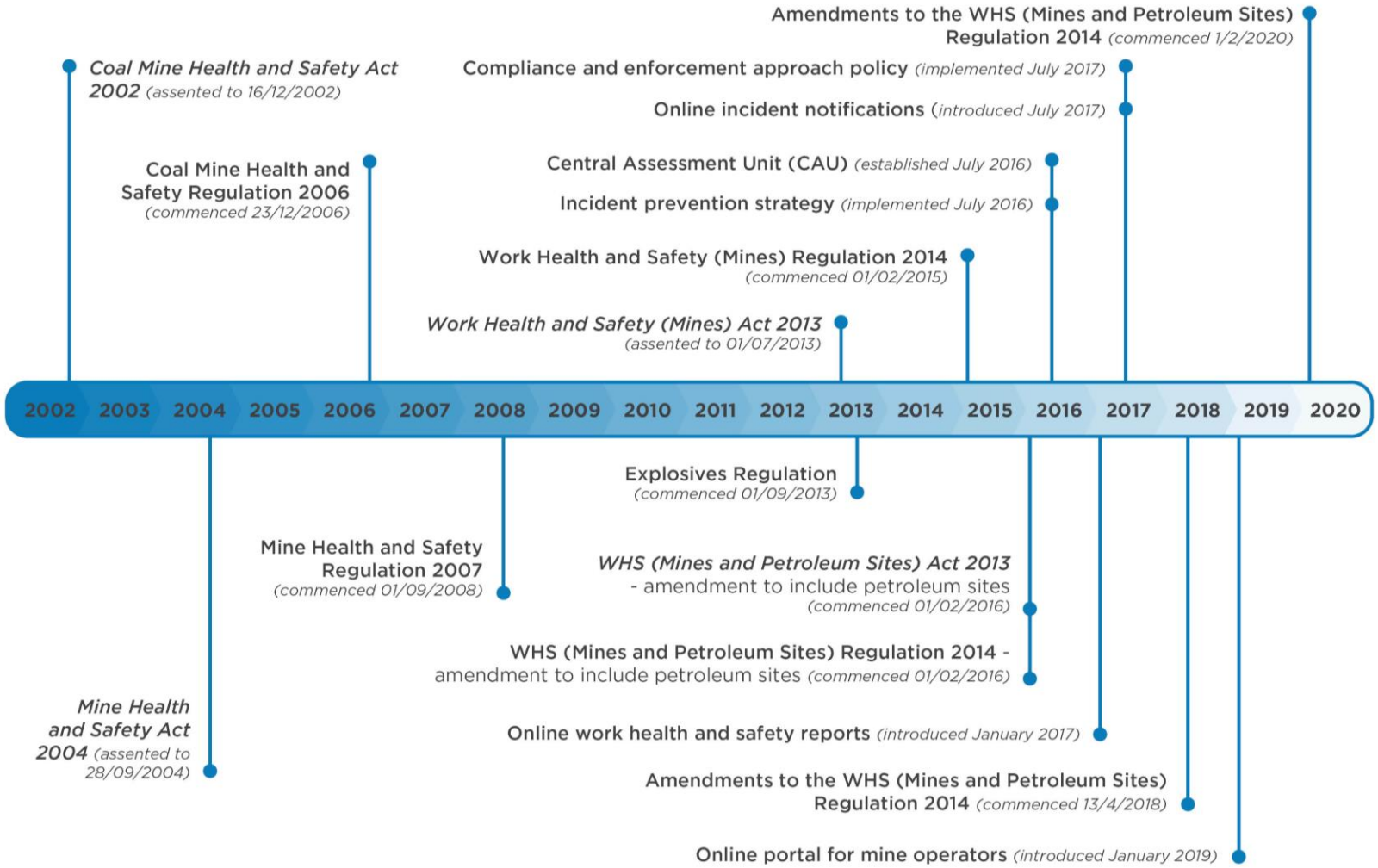
[8] See: https://www.legislation.nsw.gov.au/view/pdf/asmade/sl-2019-648
[9] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/whs-mines/whs-mines-and-petroleum-sites-regulation-2018-amendments

- to clarify and provide for various matters relating to licences, including eligibility to hold licences, the voluntary surrender of licences and the making of minor amendments to licences by the regulator;
- to prescribe spontaneous combustion at a surface coal mine as a dangerous incident for the purposes of section 14(c) of the WHS (MPS) Act if immediate or imminent exposure to the combustion exposes a worker or any other person to a serious risk to a person's health or safety (otherwise it is a high potential incident);
- to update requirements relating to emplacement areas;
- to identify the establishment, operation, alteration or decommissioning of a tailings storage facility at certain mines as a high risk activity and specify the information and documents to be provided in relation to that activity;
- to prescribe certain offences as offences for which a penalty notice may be issued and the amounts of the penalties payable;
- to update the 'Wiring rules' to reference the latest standard *AS/NZS 3000: 2018 Electrical installations to mines and petroleum sites*;
- to extend the period of plant item registrations from one to five years; and
- to change the requirements for quarterly work health and safety reporting to annual.

As will be seen, a substantial number of the submissions made to this Review and the discussion therein related to these two sets of amendments in one way or another – sometimes wishing to wind them back, sometimes seeking to go further, and sometimes not being fully aware that the changes had been made.

Then following diagram illustrates key regulatory changes in NSW mining laws from 2002 to 2020.

**Diagram 1 Key regulatory changes in NSW mining 2002 - 2020**



# 4. The Statutory Review

## 4.1. Requirement for review

Section 77 of the WHS (MPS) Act provides that:

*(1) The Minister is to review this Act to determine whether the policy objectives of the Act remain valid and whether the terms of the WHS (MPS) Act remain appropriate for securing those objectives.*

*(2) The review is to be undertaken as soon as possible after the period of 5 years from the commencement[10] of the WHS (MPS) Act.*

*(3) A report on the outcome of the review is to be tabled in each House of Parliament within 12 months after the end of the period of 5 years[11].*

Without an extension, after five years the WHS (MPS) Regulation is subject to automatic repeal under the *Subordinate Legislation Act 1989*. This means the WHS (MPS) Regulation needs to either be remade or allowed to lapse. An extension was made to enable the WHS (MPS) Regulation to be reviewed in the same timescale as the WHS (MPS) Act because the WHS (MPS) Regulation provides the operational structure and detail for many of the provisions in the Act, and it would be difficult for stakeholders to comment meaningfully on the WHS (MPS) Act without the accompanying Regulation.

## 4.2. Review focus and scope

To assist the Minister to undertake the required statutory review, the Resources Regulator contracted Mr Kym Bills as Independent Reviewer[12]. In a Foreword to the Review Discussion paper welcoming all stakeholder input (see **Appendix B**), the Independent Reviewer emphasised that the focus of the review "is on the WHS (MPS) laws, not the general *Work Health and Safety Act 2011* (WHS Act), or on the operations of the Resources Regulator, or on the merits of mining and petroleum production".

The terms of reference of the review were to:

[10] As noted in section 3, the WHS (MPS) Act commenced on 1 February 2015.
[11] That is by 1 February 2021. Allowing for the proposed sitting schedule of the Parliament, this is required by November 2020.
[12] Department of Planning, Industry and Environment Media Release dated 26 November 2019. The contract enabled approximately 55 days of part-time work to be undertaken over a nine-month period in addressing the terms of reference.

1. *Examine and report on the operation of the WHS (MPS) laws by considering whether the objectives of the WHS (MPS) laws (section 3 of the WHS (MPS) Act 2013) are valid and whether the terms of the Act remain appropriate for securing those objectives and consider whether:*
   - *(a) the WHS (MPS) laws assist in securing the objectives of the WHS Act 2011 for the protection from harm of workers and other persons on mine and petroleum sites from health and safety risks*
   - *(b) there are any areas of the WHS (MPS) laws that have had unintended outcomes*
   - *(c) the WHS (MPS) laws remain consistent with the National Mine Safety Framework principles.*
2. *Consider whether the following provisions are appropriate:*
   - *(a) the framework of duties to protect workers including safety management systems, principal hazard management plans, control and other plans and specific controls*
   - *(b) specific emergency management provisions*
   - *(c) worker representation provisions in coal mines*
   - *(d) the additional compliance and enforcement measures for a high-hazard industry*
   - *(e) licensing, authorisations and statutory functions provisions*
   - *(f) Mining and Petroleum Competence Board as an oversight mechanism*
   - *(g) Mine Safety Advisory Council in providing advice to the Minister*
   - *(h) Board of Inquiry provisions*
   - *(i) notifications required to be provided to the regulator*
   - *(j) the framework has facilitated effective interstate regulatory cooperation.*
3. *As required by section 77 of the WHS (MPS) Act, undertake a review as soon as possible after the period of five years from the commencement of the Act to enable the Minister to report on the outcomes of the review tabled in each House of Parliament within 12 months after the period of five years.*

## 4.3. Consultation

Through the Resources Regulator, the Independent Reviewer sought public submissions and comments to assist and inform the Review. This was to identify, through analysis of the information and data received, the major themes and issues arising, including clarifying any comments made during the public consultation process.

The public consultation period for the Review ran from 1 March 2020 until 1 May 2020 (having been extended from 17 April). During this time, industry stakeholders and individuals were invited to provide feedback by one or all of the following:

- attending a public forum
- completing an online survey
- providing a written submission.

## Public forums and targeted stakeholder meetings

The Independent Reviewer, with the Resources Regulator, conducted eight public forums across the State. Five of these forums were conducted as face-to-face sessions and three were conducted online due to the COVID-19 restrictions.

The Independent Reviewer also held meetings with representatives from targeted stakeholder groups. **Appendix C** provides a list of the public forums and targeted stakeholders. Some key terms and abbreviations used in this report can be found at **Appendix A**.

## Online survey

Members of the public were invited to complete an online survey to provide input for the Review. The survey was open from 1 March 2020 to 1 May 2020 and took approximately 15 to 25 minutes to complete. The survey was communicated to stakeholders through the Resources Regulator's website, the Resources Regulator's external newsletter *Mine Safety News* and during the public forums. There were 18 persons who completed the survey from a wide range of industry sectors and with a wide range of the type and discipline of roles held. **Appendix D** provides a summary of the online survey outcomes.

## Discussion paper and submissions

Through the Resources Regulator, the Independent Reviewer released a Discussion Paper (**Appendix B**) which provided important background information about the WHS (MPS) laws. The Discussion Paper explained and discussed the objectives of the WHS (MPS) Act and its provisions and associated issues as well as national context and the detail in the WHS (MPS) Regulation and included electronic links to relevant provisions. This was to ensure that everybody in NSW, and those involved with the mining and petroleum industries in particular, had the opportunity to contribute to the review. Stakeholders were invited to respond to some or all of the questions in the Discussion Paper and online survey.

Through the list of recipients of *Mine Safety News* and via direct emails, approximately 7,545 stakeholders were invited to contribute to the Review. A general call for input was also included on the Resources Regulator's website.

There were 24 submissions made to the Review which reflected all areas and types of the State's mining industry but did not include petroleum. A list of submissions is at **Appendix E**.

The online survey results and all 24 submissions were published on the Resources Regulator's website[13].

[13] The submissions are publicly available at www.resourcesregulator.nsw.gov.au/about-us/have-your-say

# 5. Overview of the mining and petroleum industry in NSW

## Industry sectors

The NSW mining and petroleum industry consists of coal mines (surface and underground), metalliferous mines (surface and underground), petroleum sites, quarries and extractive operations, tourist mines, opal and other small-scale mines and mining exploration activities.

Table 1 below shows the breakdown of active[14] mines and petroleum sites as at 30 June 2020 as categorised by the Resources Regulator.

**Table 1 Active mines and petroleum sites in NSW (as at 30 June 2020)**

| SECTOR | ACTIVE MINES (30 JUNE 2020) |
|---|---|
| **Coal mines**<br>*Open cut, underground and coal preparation plants* | 122 |
| **Large mines**<br>*Quarries that produce greater than 900,000 tonnes per annum and large open cut or underground metalliferous mines* | 39 |
| **Small mines**<br>*Quarries and other mine types (e.g. sand, clay, lime) that produce 900,000 tonnes per annum or less, open cut or underground metalliferous mines and gemstone mines* | 2,671 |
| **Petroleum and geothermal**<br>*Onshore petroleum and geothermal production and exploration sites* | 194 |
| **Opal mines**<br>*Opal mines at Lightning Ridge and White Cliffs* | 3,944 |
| **Exploration**<br>*Exploration sites (excluding petroleum)* | 779 |
| **TOTAL** | **7,749** |

*Source: NSW Resources Regulator Quarterly safety report, April to June 2020*

[14] Active mines have the status: open, intermittent, mines under care and maintenance, open tourist mines, planned and small-scale titles that are current or pending.

## Industry statistics

For the 2018–19 financial year:

- total NSW mining production was valued at $31 billion
- NSW mining production had a total export value of $29.3 billion
- NSW coal had an export value of $23.1 billion, making it NSW's largest export earner
- annual royalties paid to the NSW Government totalled $2.1 billion
- securities held for current NSW mining and petroleum titles totalled $2.81 billion
- there were 29,600 direct and 118,000 indirect mining-related jobs in NSW.

*Source: NSW Mining Industry Overview FY 2018-2019[15], prepared by Mining, Exploration and Geoscience, Department of Regional NSW*

**Table 2 Full-time equivalent employees and hours worked**

| SECTOR | FULL TIME EQUIVALENT WORKERS (2018-19) | MILLION HOURS WORKED (2018-19) |
|---|---|---|
| Coal underground | 7,466 | 14.9 |
| Coal surface | 17,111 | 34.2 |
| Metalliferous underground | 3,777 | 7.5 |
| Metalliferous surface | 3,233 | 6.4 |
| Extractives | 2,958 | 5.9 |
| **TOTAL** | **34,545** | **69** |

*Source: NSW Resources Regulator, Mine Safety Performance Report 2018-19*

**Note**: Petroleum sites, underground small gemstone mines, opal mines and tourist mines are not represented in NSW hours worked figures because mining operators in these sectors are not required to submit work health and safety reporting data to the Regulator.

[15] Available at www.resourcesandgeoscience.nsw.gov.au/investors/online-prospectus/industry-overview

## Major minerals extracted

There are two types of coal mined in NSW[16]: thermal coal (used for power generation); and higher quality coking coal, also known as metallurgical coal (used in the production of steel).

NSW is a major producer of gold, copper, zinc, silver and lead. NSW is also a significant international exporter of heavy mineral sands (rutile, zircon and ilmenite), clay minerals, diatomite, gypsum, magnetite and magnesium minerals from magnesite. NSW is well known for gemstones such as the unique black opal and has been a significant producer of industrial diamonds, corundum, rhodonite and topaz (silexite).

More information about NSW mineral resources is available at www.resourcesandgeoscience.nsw.gov.au.

## High-hazard industry

The NSW mining and petroleum industries are high-hazard industries with significant health and safety risks. For the quarter ending 30 June 2020, the Resources Regulator received 479 incident notifications based on requirement to report. These incident notifications comprised:

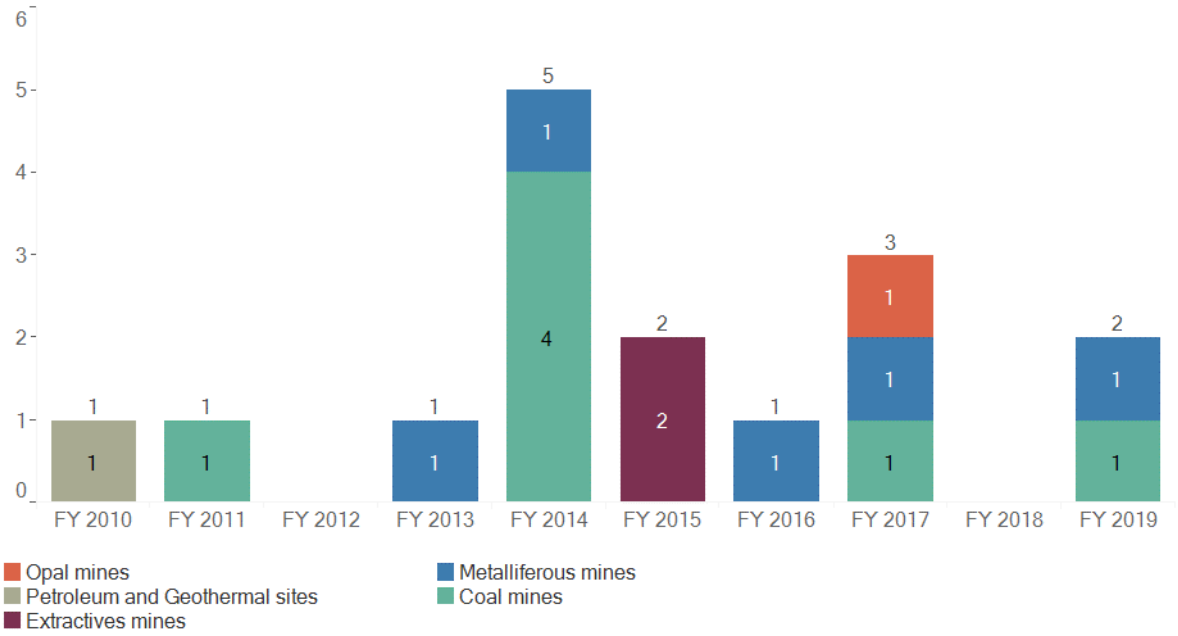
- 88 dangerous incidents[17]
- 91 potentially dangerous incidents[18]
- 157 other high potential incidents[19]
- 1 explosives regulation[20]
- 29 serious injury/illness[21]
- 77 lost time/restricted duty (>7 days)[22]
- 36 medical treatment injury/illness[23]

*Source: NSW Resources Regulator Quarterly safety report, April to June 2020*

[16] Information on major minerals extracted is sourced from www.resourcesandgeoscience.nsw.gov.au/miners-and-explorers/geoscience-information/nsw-geology-overview/mineral-resources
[17] As defined in section 14(c) of the WHS (MPS) Act and clause 179 of the WHS (MPS) Regulation
[18] As defined in clause 128(5)(a) of the WHS (MPS) Regulation
[19] As defined in clause 128(5)(b) - (v) of WHS (MPS) Regulation (except those notified under clause 128 (5)(n) and cl 128(5)(o))
[20] As defined in clauses 102 and 103 of the Explosives Regulation 2013
[21] As defined in section 14(b) of the WHS (MPS) Act and clause 178 of the WHS (MPS) Regulation
[22] As defined in clause 128(5)(n) and clause 128(5)(o) of the WHS (MPS) Regulation
[23] As defined in clause 128(1)(a) of the WHS (MPS) Regulation

In the decade to 30 June 2019, there were 16 fatalities at NSW mine sites distributed across mining sectors each year as shown in Figure 1 below. In Queensland the recent Brady Review[24] reported that the average number of deaths per year was five, whereas the average in NSW was 1.6, with the worst result being five deaths that occurred in 2013-14, four in coal mining and one in metalliferous mining. No loss of life at workplaces is acceptable but raw numbers in Queensland are much worse than in NSW.

**Figure 1 NSW fatal injuries by sector 2009-10 to 2018-19**

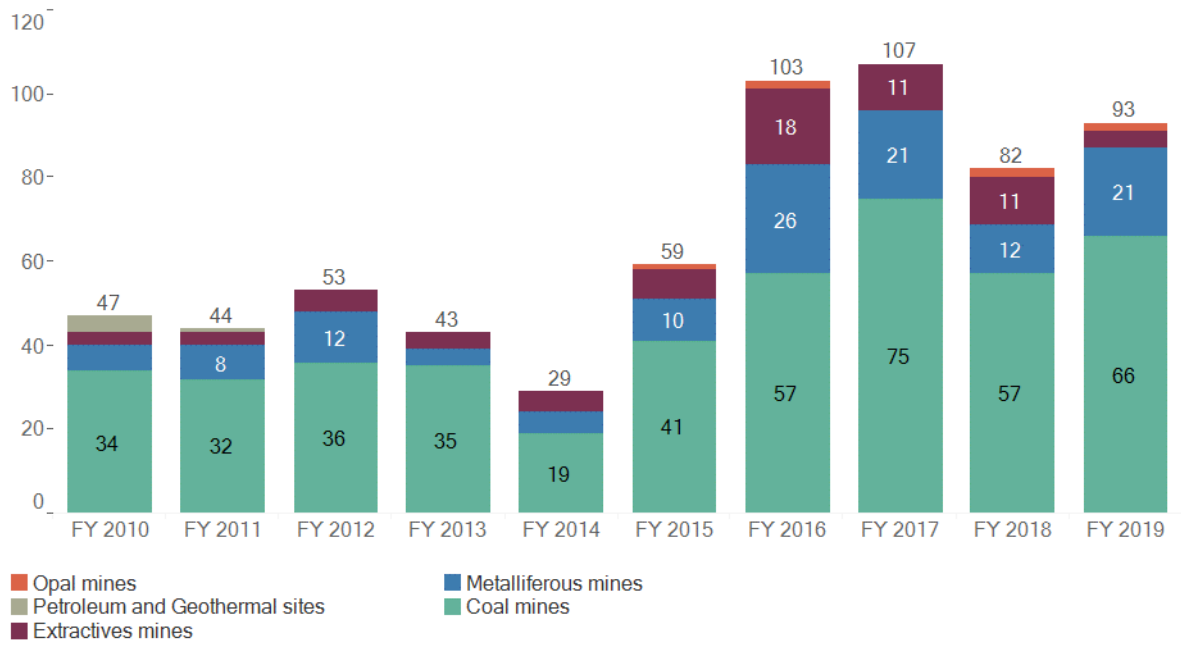



Serious injuries in NSW over the same decade to 30 June 2019 totalled 660 or an average of 66 each year. Their distribution across years and sectors is shown in Figure 2 below. The worst year was 2016-17 with 107 serious injuries, 75 in coal mining, 21 in metalliferous and 11 in extractive mines (quarries). However, the definition of serious injury was expanded from 2014-15 when the new WHS (MPS) Regulation came into force which makes the prior years not directly comparable.

Unfortunately, the definition of serious injury is also different between NSW and Queensland. NSW also includes notifiable serious injuries such as a broken arm that do not require hospitalisation. The method of notification also varies between the two states - in Queensland reports are made to dedicated inspectors. This means that the data from the two states is not directly comparable.

[24] This report https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2020/5620T197.pdf is discussed further at 6.3 below.

**Figure 2 NSW serious injuries by sector 2009-10 to 2018-19**




The Review also sought to compare NSW data with Queensland data normalised by hours worked. Unfortunately, while NSW uses a five-year rolling average of hours worked, Queensland uses actual annual data. The NSW hours worked data include coal, metalliferous and extractives but not other mining such as by opal miners. On this basis, for 2009-10 to 2018-19 the NSW fatal incident frequency rate (FIFR) is shown in Figure 3 and the NSW serious injury frequency rate (SIFR) is shown in Figure 4.

**Figure 3 NSW fatal injury frequency rate 2009-10 to 2018-19 (five-year rolling average)**

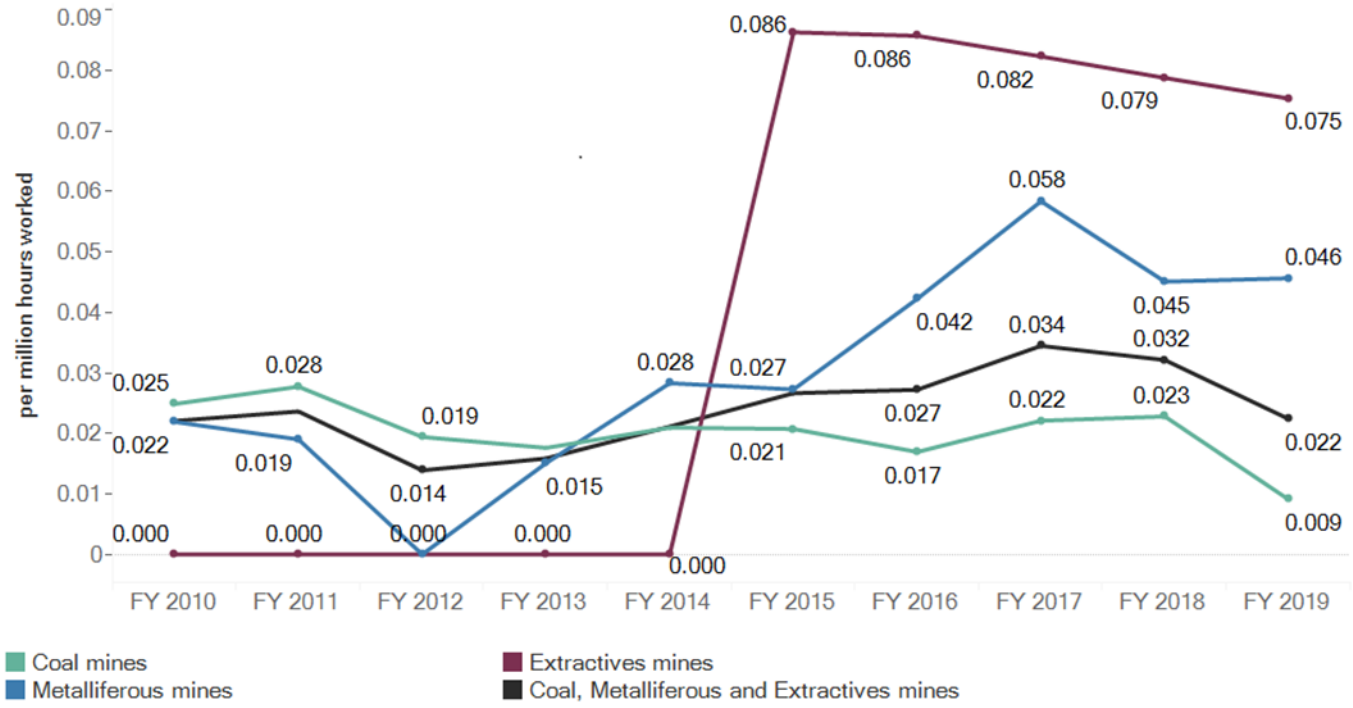
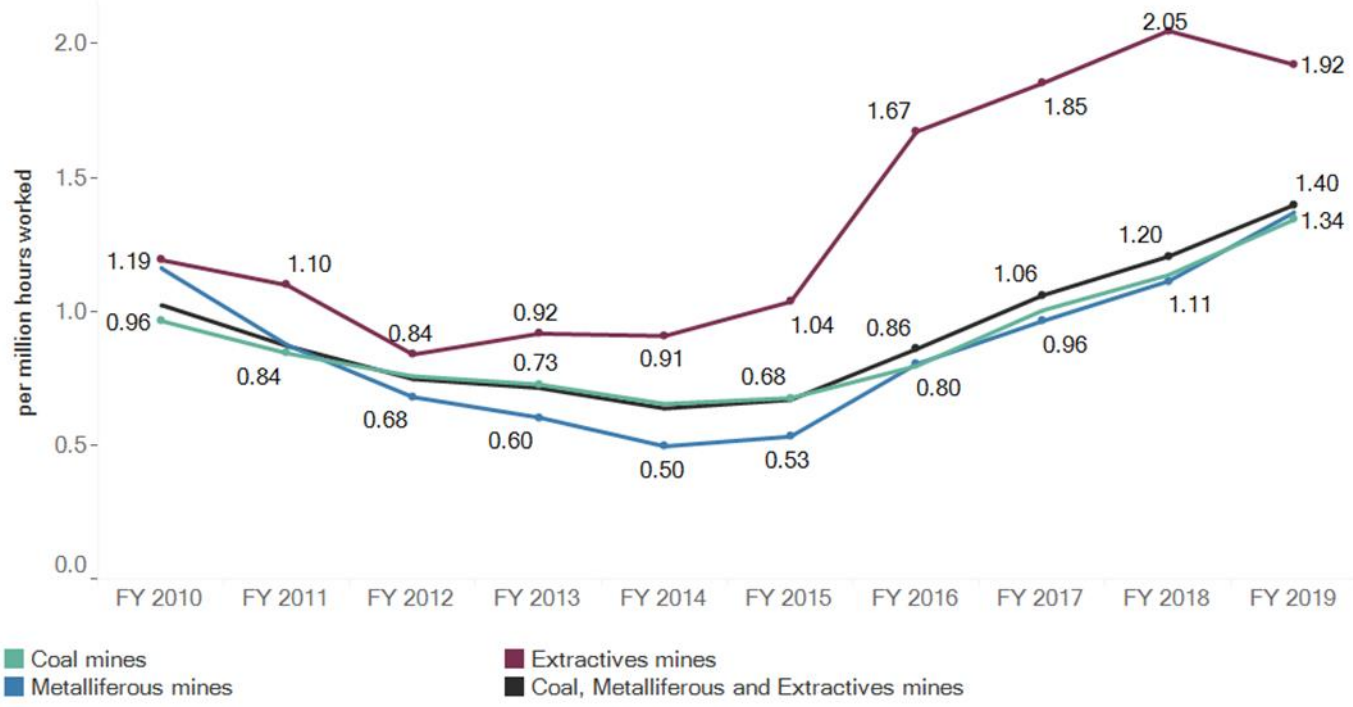



**Figure 4 NSW serious injury frequency rate 2009-10 to 2018-19 (five-year rolling average)**



# 6. National Mine Safety Framework

## 6.1. NMSF background

In 2008, the Council of Australian Governments (COAG) agreed to implement separate tripartite processes for a coordinated national approach in the areas of uniform work health and safety laws and consistent mine safety regulation through a NMSF.

The NMSF identified seven strategies to progress, of which nationally consistent legislation was the foundation. These were listed in the Discussion Paper released for public consultation at **Appendix B** and are as follows:

- nationally consistent legislation
- competency support
- compliance support
- a nationally coordinated protocol on enforcement
- consistent and reliable data collection and analysis
- effective consultation mechanisms
- a collaborative approach to research.

Nationally consistent legislation was the overarching priority. Commonalities between the processes and legislative objectives were subsequently identified and progressed to identify requirements relevant to mining work in all states and territories consistent with the overarching WHS framework (the core requirements). These requirements became Chapter 10 of the model WHS Regulation. The NMSF process was chaired by former Western Australian Minister the Hon. Clive Brown and supported by a secretariat provided by the Australian Government with Mr Kym Bills engaged as NMSF Project Director. Mr Michael Tooma was contracted as the senior WHS legal expert who developed the core drafting instructions based on the tripartite discussion and agreements.

A separate tripartite tri-state process developed additional provisions to manage the significant risks involved with mining undertaken in the three major mining states, that is, NSW, Queensland and Western Australia. These additional provisions were to ensure safety standards in large-scale mining and particularly in underground coal mining were retained called the ‘non-core’ requirements.

The additional provisions were developed cooperatively by NSW, Queensland and Western Australian regulators, unions and employer groups with the process again supported by the Australian Government

with Mr Kym Bills as Project Director and Mr Michael Tooma as the legal expert who developed the non-core drafting instructions. The NMSF non-core drafting instructions incorporated provisions of the then NSW mine safety legislation that had evolved over many years to address the risks associated with mining in NSW as well as similar provisions from Queensland and Western Australia. These included enforcement measures, inquiries and mechanisms to ensure the competency of workers.

To ensure the agreed non-core priorities were fully reconciled with Chapter 10 (Mines) of the model WHS Regulation, the tri-state implementation group built non-core enhancements into the model provisions. This final stage checked for any overlap and duplication between the core provisions and non-core provisions. The core and non-core drafting instructions were merged by Mr Tooma for use by NSW, Queensland and Western Australia with a final version 6 dated June 2011[25] agreed by all three states. It was this outcome that provided the basis and gave rise to the form and content of the NSW WHS (MPS) laws.

## 6.2. NSW approach

The NSW Government's commitment to nationally uniform work health and safety legislation and national consistency in mine safety regulation led to a decision to apply the requirements of the WHS Act and WHS Regulation to all workplaces in NSW unless otherwise addressed. This has been the case since they commenced on 1 January 2012, and it continued the arrangements that existed under the former NSW *Occupational Health and Safety Act 2000*.

The WHS (MPS) laws aimed to provide a WHS legislative framework appropriate for the management of the significant risks associated with mining. Rather than retain separate legislation for coal mining and metalliferous and other mining and to replicate provisions from the WHS Act in separate Acts, the NSW Government decided to combine the former legislation and develop a new consolidated mining safety Act and Regulation that supplemented and complemented the WHS Act and WHS Regulation.

The WHS (MPS) laws replaced the *Coal Mine Health and Safety Act 2002* and the *Mine Health and Safety Act 2004*, which together managed the risks associated with the different mining sectors in NSW. These former Acts co-existed with the NSW WHS Act until the WHS (MPS) laws commenced on 1 February 2015. The NSW Resources Regulator was formed on 1 July 2016 to undertake the regulatory compliance and enforcement functions under the WHS (MPS) laws. On 4 July 2016 a process of centralised incident notification reporting was introduced for all incident notifications[26].

[25] Final version 6 of the Non-Core Merged Drafting Instructions dated June 2011 can be accessed here: https://www.commerce.wa.gov.au/sites/default/files/atoms/files/nmsf_non-core_drafting_instructions.docx

[26] See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0003/683625/Implementing-the-Incident-Prevention-Strategy-October-2016-update.pdf

What became the WHS (MPS) Act (initially it did not include onshore petroleum) was designed to incorporate the necessary heads of power and provisions additional to the WHS Act and the WHS Regulation, which apply only to mining (and now also petroleum) sites. The purpose of the WHS (MPS) laws is to supplement the provisions of the WHS Act and WHS Regulation and not duplicate those provisions. Certain modifications to the application of WHS Act and WHS Regulation to mines and petroleum sites required to avoid identified inconsistencies between the two Acts and their regulations, were included in the WHS (MPS) laws. These included provisions in the WHS (MPS) Act for safety and health representatives (SHRs) and application of exposure standards in the WHS (MPS) Regulation.

Importantly, the WHS (MPS) Act provides for the interaction between the WHS (MPS) laws and the WHS Act and WHS Regulation in section 4 of WHS (MPS) Act including that the WHS (MPS) Act *"is to be construed with and as if it formed part of the WHS Act"*, and similarly with the WHS (MPS) Regulation. The two Acts and sets of Regulation are to be considered and applied together. This includes, for example, key provisions of the WHS Act like section 17: *"A duty imposed on a person to ensure health and safety requires the person (a) to eliminate risks to health and safety, so far as is reasonably practicable, and (b) if it is not reasonably practicable to eliminate risks to health and safety, to minimise those risks so far as is reasonably practicable."* (The primary duty of care is then specified in section 19.) Reasonably practicable is defined in section 18: *"**reasonably practicable**, in relation to a duty to ensure health and safety, means that which is, or was at a particular time, reasonably able to be done in relation to ensuring health and safety, taking into account and weighing up all relevant matters including (a) the likelihood of the hazard or the risk concerned occurring, and (b) the degree of harm that might result from the hazard or the risk, and (c) what the person concerned knows, or ought reasonably to know, about (i) the hazard or the risk, and (ii) ways of eliminating or minimising the risk, and (d) the availability and suitability of ways to eliminate or minimise the risk, and (e) after assessing the extent of the risk and the available ways of eliminating or minimising the risk, the cost associated with available ways of eliminating or minimising the risk, including whether the cost is grossly disproportionate to the risk."*

The additional requirements of the WHS (MPS) laws to regulate WHS in mining workplaces had support in the 2014 Wilkinson Fatality Review Report[27] initiated by the then Minister prior to commencement of the WHS (MPS) laws. The aim of that review was to foster improved health and safety performance in the NSW mining industry by identifying and responding to any systematic and underlying issues contributing to fatalities and serious incidents at mines. The review was carried out by Mr Peter Wilkinson of the Noetic Group under the auspices of the Mine Safety Advisory Council (MSAC). The report made three recommendations:

[27] See: https://noeticgroup.com/wilkinson-fatality-review-mine-safety/

1. MSAC should consider how information on the implementation of risk controls for significant risks could be routinely collected, analysed and used to support a data led accident prevention strategy;
2. Drawing on the discipline of Human Factors, including human and organisational factors expertise, identify the reasons which make it more likely risk controls will be successfully and reliably implemented; and
3. Consider if the regulator should explicitly focus on critical controls for significant risks as part of an incident prevention strategy.

The recommendations emphasised that mining is a high-hazard environment to which the Resources Regulator should respond as a high-hazard regulator with targeted activities based on evidence (good data) to proactively verify compliance by industry with critical controls for principal mining hazards. This would be supported by the WHS (MPS) Regulation requiring SMSs and other management and control plans to be in place, and extensive incident reporting. The current Reviewer is in full agreement with these important recommendations focused around controls. In the analysis below, the Reviewer also recommends improvement in the arrangements for incident notifications, the quality of data from incident investigations, and collaborative sharing with other major mining jurisdictions.

# 6.3. Arrangements in Queensland and Western Australia

Like NSW, as was noted in 6.1, the other major mining states of Queensland and Western Australia agreed in 2011 to legislate to give effect to the NMSF non-core drafting instructions they had approved. These built on the core NMSF WHS mine safety agreed material in Chapter 10 of the WHS Regulation.

## Queensland

Several interest groups in Queensland were not supportive of aspects of the NMSF non-core package and ultimately their opposition meant that Queensland did not legislative either to incorporate mining within or integrated with, its general WHS legislation. Instead, separate laws were retained for coal mining, metalliferous and other mining, and for onshore petroleum[28]. Queensland's existing mine safety legislation was considered during the lengthy development of the NMSF consolidated core and non-core drafting instructions which included compromises to include some matters particularly important in Queensland such as a statutory role of Site Senior Executive (SSE).

While the NMSF drafting instructions were not legislated, a number of other changes were made by amendment to the Queensland mining legislation, including as a result of serious worker health issues and a series of mine accidents. The former involved a resurgence of cases of coal miner's black lung

[28] The *Coal Mining Safety and Health Act 1999*, the *Mining and Quarrying Safety and Health Act 1999*, and the *Petroleum and Gas (Production and Safety) Act 2004*

disease (coal worker's pneumoconiosis) not picked up as part of the heath monitoring regime. The latter included fatal accidents (total 47 fatalities) from 2000 to 2019 that were investigated in a report by Dr Sean Brady dated December 2019[29]. Most recently, a Board of Inquiry was established after a methane gas explosion at the Grosvenor underground coal mine near Moranbah on 6 May 2020 that injured five miners, four seriously[30]. The Board of Inquiry is also considering 40 precursor events. It commenced hearings on 4 August 2020.

As in some other jurisdictions, Queensland has introduced industrial manslaughter (IM) legislation that applies generally to all workplaces including mining. This broader policy matter was considered out of scope for this NSW Review. Petroleum health and safety is considered below at part 11 of this report.

In relation to mine health and safety, one substantial change was to legislate through the Queensland *Resources Safety and Health Act 2020* for a separate new regulatory authority, Resources Safety and Health Queensland (RSHQ). RSHQ has been established to be fully independent from its former Department and the Queensland Government's broader function of growing and facilitating a productive resources sector. This is to seek to ensure that health and safety is not compromised by a regulator that may face internal departmental economic (e.g. royalties) and investment development pressures.

Major accidents around the world have been associated with such compromises, including the US ValuJet crash in 1996 that the National Transportation Safety Board and Congressional inquiries linked to such a 'dual mandate' by the Federal Aviation Administration[31]. An Australian accident involving multiple high pressure gas pipeline explosions on Varanus Island offshore Western Australia in 2008 at a reported cost of $3 billion was investigated by Kym Bills and David Agostini who raised concerns about the focus on departmental safety and integrity regulation having been compromised by other (legitimate) resource priorities[32].

Queensland's RSHQ commenced on 1 July 2020 and is headed by a CEO reporting to the responsible Minister, with a separate WHS Prosecutor and an independent Commissioner for Resources Safety who has oversight across the resources sector.

The Queensland *Mineral and Energy Resources and Other Legislation Amendment Act 2020* took effect from 1 July 2020. It includes an 18-month transitional period for statutory officeholders under the Queensland *Coal Mining Safety and Health Act 1999* to become employees of the coal mine operator (rather than consultants). The justification for this is that employees are less likely to compromise on health and safety than consultants. While there are always some pressures to trade-off production and

[29] See https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2020/5620T197.pdf
[30] See https://coalminesinquiry.qld.gov.au/
[31] A very short summary is provided here: http://aerossurance.com/safety-management/valujet-flight-592-accident/
[32] See https://www.slp.wa.gov.au/salesinfo/varanusinquiry.pdf

profits against health and safety, this seems a weak argument in three main respects. First, it suggests that mine operators are typically unethical and lack concern for health and safety. Second, it suggests that consultants are less ethical than employees and do not have the courage to say no and if necessary, resign and seek other consultancy work. Third, it suggests that employees who may have relocated their family to live near a mine site may not have equal or greater concerns for their security of employment if they do not do what an unethical mine operator favours instead of properly discharging their statutory roles and job functions. The Brady Review did not find evidence that the more than 50 per cent of the Queensland mining industry who are consultants of one type or another were any less safe than employees. For smaller operations that may not be able to afford or attract full or part-time employees to fill statutory roles, the lack of flexibility in use of consultants could have negative economic and health and safety impacts. Accordingly, this is not an amendment recommended for NSW.

Previous mine safety and health amendments in Queensland took effect through the Queensland *Mines Legislation (Resources Safety) Amendment Act 2018*. The amendments applied to both the Queensland *Coal Mining Safety and Health Act 1999* and the Queensland *Mining and Quarrying Safety and Health Act 1999*. They included provisions to improve health and management systems and increase competencies required for mine workers, increase transparency and accountability, and strengthen regulatory compliance and enforcement powers. Competency changes were included for underground coal mine ventilation officers and SSEs at mineral mines and quarries with more than 10 persons and continuing professional development for all those holding certificates of competency. A number of measures are similar to those under the WHS Act framework such as proactive safety and health obligations for officers of corporations (compare section 27 WHS Act officer due diligence) or are addressed within the NSW WHS (MPS) laws. Others such as suspension of certificates of competency, expanding notification requirements for reportable diseases, and allowing for proactive release of information to improve safety learnings without prejudicing future investigations, include aspects not fully covered in NSW and should be considered.

Queensland has recently favoured making some codes of practice mandatory. This would undermine the generally agreed hierarchical structure of Act of Parliament, Regulation, code of practice and guidance material established since the landmark UK Robens Committee Report in 1972[33] that was adopted across Australia, including most recently though Safe Work Australia[34]. Codes of practice are an important means by which persons conducting a business or undertaking can implement proven workplace safety and health controls and should an accident occur, compliance with a code can be used either to reduce the likelihood of prosecution or as evidence in defence during court proceedings. If the content of a code is required to be mandatory on evidence-based and policy grounds, this Reviewer

[33] See http://www.mineaccidents.com.au/uploads/robens-report-original.pdf
[34] See https://www.safeworkaustralia.gov.au/law-and-regulation/model-whs-laws

believes that it should be included in an Act or Regulation and not depart from the agreed Safe Work Australia model WHS framework. So-called 'mandatory codes' are not recommended for NSW.

The December 2019 *'Review of all fatal accidents in Queensland mines and quarries from 2000 to 2019'* by Dr Sean Brady contains 11 recommendations, each which has some merit. In some cases, they appear to rely on the reviewer's judgement rather than necessarily flowing from the data. An example is the usefulness of High Reliability Organisation principles to avoid complacency, with which this Reviewer agrees (without necessarily accepting the existence of the five-yearly 'fatality cycle' posited by Dr Brady). In other cases, recommendations may not fully address some of the issues arising from the review because doing so is far from simple. An example involves the well-known inadequacy of using the lost time injury frequency rate (LTIFR) as a safety indicator[35]. The Serious Accident Frequency Rate preferred and recommended by Dr Brady is likely to be less open to manipulation and compromise and is worth monitoring. But it remains a lagging indicator and choosing appropriate leading indicator measures is less straightforward.

Dr Brady's recommendation for industry to ensure that workers are appropriately trained and supervised is indisputable, without necessarily accepting the completeness of the investigations that led to those factors being given prominence. Effectiveness and enforcement of controls and ensuring that the hierarchy of controls is properly utilised to address hazards at their source in preference to administrative policies and personal protective equipment (PPE) is also, of course, very important and fully supported within NSW.

Two recommendations by Dr Brady are particularly relevant to issues to be addressed in this Review: recommendation 8 regarding unambiguous and simplified incident reporting that encourages open reporting; and recommendation 2 regarding the quality of incident investigations by mining companies that should strive to capture combinations of causal factors and not overly simplify to what Dr Brady summarises as *"a single cause, such as human error, bad luck or freak accidents, which has the potential to mask the underlying system failures"*. Further careful consideration of the Brady Review provides free lessons for the NSW mining industry and underlines the potential benefit from ongoing collaboration among major mining jurisdictions.

In its submission, the Australian Workers Union (AWU) proposed that NSW consider implementing recent legislative and other developments in Queensland. Without endorsing their examples (see further below), this is supported.

[35] For example, see Andrew Hopkins in a 2002 paper involving NSW: http://158.132.155.107/posh97/private/performance-indicators/PPI-NOHSC-06.pdf and more recently in chapter 5 of his book *Quiet Outrage*, Wolters Kluwer, 2016.

***1. It is recommended that*** *recent mine health and safety amendments in Queensland since 2018 should be reviewed by the Resources Regulator, with input from MSAC, to consider whether any have sufficient merit to be adopted in NSW.*

## Western Australia

Notwithstanding the Intergovernmental Agreement signed in 2008[36], Victoria and Western Australia did not legislate to introduce the model WHS Act: Victoria by explicit decision, Western Australia via repeated delay. Western Australia did have concerns about safety in its mining industry including as a result of the 52 fatalities between 2000 and 2012 that were reviewed in a 2014 report[37]. However, although that report found that (p16) *"the major principal hazards identified in national model legislation correspond closely to those identified as the ten critical activities over the review period"*, Western Australia did not legislate the consolidated NMSF core and non-core model WHS drafting instructions agreed in 2011 into law.

The McGowan Government has made passage of a WHS Act a greater priority than its predecessor[38] and at the time of writing, the Bill[39] had passed the lower house and an upper house committee had considered it and had reported back in a largely favourable manner on 11 August 2020[40]. Through his Department, the responsible Minister, the Hon. Bill Johnston, has previously released extensive details to be included in three sets of regulations to sit under the WHS Act: general WHS regulations, WHS mines regulations[41], and WHS petroleum and geothermal energy operations regulations[42]. The proposed WHS mines regulations are based on the NMSF core and non-core drafting instructions, while having regard to existing Western Australia regulations. There is no major underground coal industry in Western Australia but many other mining and petroleum activities are of a massive scale and relevant to NSW and Queensland.

The McGowan Government has restructured and reduced the number of public service departments. Safety and industry regulation were brought together in a Department of Mines, Industry Regulation

[36] See https://www.coag.gov.au/sites/default/files/agreements/OHS_IGA.pdf
[37] See https://www.dmp.wa.gov.au/Documents/Safety/MSH_R_FatalAccidents200012.pdf
[38] See https://www.commerce.wa.gov.au/worksafe/development-modernised-work-health-and-safety-bill
[39] https://www.parliament.wa.gov.au/parliament/bills.nsf/BillProgressPopup?openForm&ParentUNID=8F320741B83643A8482584BF000CF89B
[40] https://www.parliament.wa.gov.au/publications/tabledpapers.nsf/displaypaper/4014071c5b3bbd4dd0a4f30a482585c2000478f5/$file/tp-4071.pdf
[41] See https://msc.ul.com/wp-content/uploads/2019/09/002096.safety.comms__0.pdf
[42] See https://msc.ul.com/wp-content/uploads/2019/09/002237.safety.comms__0.pdf

and Safety[43] (DMIRS). Within DMIRS, mines, petroleum, electrical and general WHS are key areas, alongside major hazard facilities, dangerous goods and explosives.

***2. It is recommended that*** *when the WHS Act and regulations have been finalised by the Parliament of Western Australia they should be reviewed by the Resources Regulator, with MSAC input, to assess whether any provisions should be adopted to meet WHS (MPS) Act objectives and improve safety and health outcomes in NSW.*

[43] See https://www.dmirs.wa.gov.au/content/about-department

# 7. Consideration of submissions

A Steering Committee of Departmental officers, with a core group comprising the most senior members of the Resources Regulator, met with the Independent Reviewer to establish a framework for the Review based on the terms of reference, and then at regular intervals to ensure that there was as much support as needed to meet the timescale for a thorough Review.

The Reviewer considered the NSW principles for better regulation[44] and the June 2017 statutory review of the NSW WHS Act and WHS Regulation[45] and the discussion and analysis therein that had implications for mine and petroleum health and safety. Also considered was the SafeWork NSW summary titled 'Our approach to work health and safety regulation'[46].

Other material read to provide background included various annual reporting and Resources Regulator website documentation (e.g. investigation reports and PowerPoint courses on learning from past mining disasters), NSW *Regulatory Reform Review* reports by the Noetic Group in 2016 and 2018, an *Independent Review of the Mine and Petroleum Site Safety Levy* conducted by the Hon. Carl Scully in 2017, and a *Review of Certificate of Competence Examination Processes* by Johnstaff in 2019.

As noted (see 4.3 above), multiple avenues were taken to publicise the Review and to enable stakeholders to participate. The online survey results and all 24 submissions were published on the Resources Regulator's website. Notwithstanding several requests, no submissions were made regarding petroleum. This may reflect the current small size of the industry in NSW and that there are no major issues. Petroleum is discussed further in part 11 below. In addition to meetings with industry stakeholders, the Reviewer also met (online) with senior members of the Resources Regulator and with members of the inspectorate to seek their views on any issues or potential improvements that they believed should be considered in the WHS (MPS) Act and WHS (MPS) Regulation.

With the background from the preparation of the Discussion Paper and stakeholder consultations, the approach taken in considering the survey and 24 submissions made was to review each separately and to then consider common themes and differences. This review included policy, technical and legal issues for which expert input from the Resources Regulator was actively sought and obtained. However, it was clear on both sides that the final judgement on the issues raised in submissions and through reviewing other published sources, including experience from the other major mining jurisdictions, would be by the Independent Reviewer based on addressing the terms of reference reproduced at 4.2 above.

[44] Within: https://www.treasury.nsw.gov.au/sites/default/files/2019-01/TPP19-01%20-%20Guide%20to%20Better%20Regulation.pdf
[45] See: https://www.safework.nsw.gov.au/resource-library/whs-act-statutory-review-2017/work-health-and-safety-act-2011-statutory-review-report-june-2017
[46] See: https://www.safework.nsw.gov.au/resource-library/our-approach-to-work-health-and-safety-regulation

During the face-to-face industry consultations and online it was emphasised that whilst there were 25 questions in the Discussion Paper, these were not exhaustive and respondents were welcome to answer as many as they wished where they had some suggestions for change or improvement, or to add additional points. Some questions were quite specific while others allowed for broad comments to be made on the WHS (MPS) Act or Regulation or to pick up on an area not specifically addressed. To be most persuasive, any views should be backed by evidence and potentially with an alternative. The Review focus was on the WHS (MPS) Act and Regulation and not the provisions in the general WHS Act or WHS Regulation except insofar as there were gaps or confusion between the two sets of complementary legislation. Further, the Review was focusing on the WHS (MPS) laws and not on operational regulatory matters unless these were the result of issues with the drafting of the laws.

The Independent Reviewer stated during consultation sessions that the NSW WHS (MPS) laws would be considered on their own merits but also in light of the NMSF drafting instructions and what had been implemented for mine and petroleum in the two other major mining and extraction states of Queensland and Western Australia. So as to minimise disruption to stakeholders in the industry, a presumption would be made that changes should not be recommended unless there were good reasons to do so. But that should not preclude stakeholders suggesting sensible changes that improved health and safety and/or reduced unnecessary administrative burden without increasing risk. The Reviewer was keen to hear any suggestions along these lines.

The 24 submissions included large industry bodies (union and employer), large and smaller coal and metalliferous companies and other bodies (both mine operating and service providers), smaller industry associations and individuals associated with one or more of the foregoing. The two large industry unions were the AWU and the Construction, Forestry, Maritime, Mining and Energy Union – Northern Mining and NSW Energy District and South Western District (CFMMEU). The large employer associations were the NSW Minerals Council (NSWMC), Cement Concrete and Aggregates Australia (CCAA) and Association of Mining and Exploration Companies (AMEC). Smaller associations were Australian Institute of Mine Surveyors (AIMS), Consulting Surveyors NSW, Mine Managers Association of Australia (Mine Managers), Association of Professional Engineers, Scientists and Managers Australia (APESMA) and the Lightning Ridge Miners' Association (LRMA). Companies and other bodies were Coal Services, Mines Rescue, Glencore, Ulan West, Bengalla Mining, Tomingley Gold, BIS Industries, Ampcontrol, and the Brewarrina Shire Council. There were five individuals, one a consultant to the Wagga Wagga Council, and the others with particular focuses on electrical protection, tailings dam safety, survey and mine plans, and one on underground mining more generally. It was very important that the Review obtained these diverse and considered submissions and the Reviewer is grateful for those who took the trouble to do this and to the 18 people who contributed to the online survey.

Assessment of the submissions is undertaken below in parts 8, 9 and 10 of the report in concert with the other inputs noted above. There is some overlap and artificiality in what topics or parts of topics are

discussed in each of these sections. In broad terms part 8 addresses issues with national consistency and particularly the extent to which NSW has remained consistent with NMSF principles and drafting instructions and the arrangements in the other major resource extraction states of Queensland and Western Australia. Part 9 addresses the WHP (MPS) Act directly in terms of the objectives, scope and content of its provisions read alongside the WHS Act and stakeholder responses and submissions. Part 10 summarises a similar process with respect to the WHS (MPS) Regulation and includes reference to guidance material. Part 11, considers petroleum as well as Carbon, Capture and Storage and geothermal energy that are covered by the WHS (MPS) laws but on which there were no stakeholder submissions.

# 8. National Consistency

## Stakeholder responses and Review discussion

Most respondents to the four initial questions in the Discussion Paper indicated that the WHS(MPS) laws are broadly consistent with the NMSF principles and that the objective of seeking national consistency for WHS in relation to mines remains valid. Half (nine of 18) of the respondents to the online survey strongly agreed that the objective of seeking national consistency in WHS in relation to mines and petroleum sites is still valid, one third (six) agreed and the remainder (three) neither agreed nor disagreed. In response to a further survey question on the importance of consistency between the NSW WHS (MPS) laws and those in the other major mining jurisdictions of Western Australia and Queensland, there was slightly less support with half still strongly agreeing, four respondents agreeing, three neither agreeing nor disagreeing, and two respondents disagreeing.

It was noted in submissions that other jurisdictions had not implemented all the NMSF principles. Nationally consistent legislation for most smaller mining jurisdictions had largely occurred under Chapter 10 (Mines) of the WHS Regulation, but Victoria had not legislated the model WHS Act or adopted its Regulation. Of the major mining and extraction states, only NSW had legislated the consolidated NMSF core and non-core drafting instructions, Queensland had decided not to do so, and Western Australia was only now doing so.

The CCAA and AMEC submitted that larger organisations that operate across jurisdictions considered national consistency was desirable to reduce unnecessary red tape and complexity, as well as to minimise confusion. Mine Managers observed that if every state had the same legislation, misapplication of legislation could be minimised by individuals who have spent time in another jurisdiction. Ulan West commented that when the industry is the same in terms of operation and hazards, the legislation should be consistent. The Reviewer strongly agrees.

The AWU and Mine Managers considered that improvements could be made to the WHS (MPS) laws to better achieve the NMSF principles, particularly in relation to the WHS (MPS) Regulation but also in non-regulatory approaches across jurisdictions (e.g., suggesting sentencing inconsistencies for WHS breaches).

Stakeholders acknowledged that NSW had led with implementation of the combined NMSF core and non-core drafting instructions and in seeking to achieve harmonisation and should continue to review the legislative frameworks in other jurisdictions and align wherever possible.

**Has effective interstate cooperation been facilitated?**

The NSWMC maintained that there remains room to enhance interstate regulatory cooperation, particularly in relation to the sharing of data and learnings across the jurisdictions. Further, each of the

relevant regulators continued to have different compliance and enforcement approaches and prosecution guidelines. The NSWMC stated that *"the regulators also take state-based approaches to other regulatory activities such as the conduct of causal investigations and the publication of industry alerts. To assist the industry there is an opportunity to enhance the sharing of information and lessons between the regulators and the consistent communication of learnings to industry."* This important theme will be considered further below.

The CCAA considered that the present framework has not been effective in achieving or delivering enhanced co-operation as some states have chosen to 'hang on to' existing legislation.

AMEC understood that the WHS framework had facilitated effective interstate regulatory co-operation and encouraged the NSW Government to continue to lead and facilitate this process to maximise consistency across jurisdictions.

Glencore considered there to be good evidence of information sharing between states. For example, if an industry hazard such as airborne dust exposure is raised as a priority in one state then this is generally communicated and acted upon effectively in other states. However, Glencore would welcome closer interstate regulatory cooperation to achieve a legislative regime that is more consistent across the mining states than is currently the case.

In the online survey, half of the 18 respondents strongly agreed that it is important for the WHS (MPS) laws to facilitate effective interstate regulatory cooperation; seven more agreed and the remaining two were neutral.

**Improvements to legislative framework and retaining consistency**

In general, achieving national consistency in mining safety and health legislation was seen to be a priority by most stakeholders. However, stakeholder support for specific changes varied. Particular differences were evident between the NSWMC (and associated employers such as Glencore) compared with unions with respect to introduction of (varying) industrial manslaughter provisions across the nation and an alternative standard involving 'gross negligence' for Category 1 offences. However, these are matters addressed through the WHS Act and were not considered to be in scope for this Review.

Dust and respirable crystalline silica management was highlighted as a key issue for CCAA members, in light of the 1 July 2020 change to the respirable crystalline silica exposure standard in NSW[47]. It was submitted that the current legislation in Queensland, using the QGL02 guideline[48] provides a stronger understanding and a more flexible approach for managing potential dust exposures on-site and adoption of the Queensland model would lead to the provision of clear and standardised requirements

[47] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/airborne-contaminants-and-dust#SIEPcampaign
[48] https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/legislation-standards/recognised-standards

across mine and quarry sites while ensuring the regulator maintains a proper understanding of the challenges and level of risk across each site. This is addressed at 10.5 below with an associated recommendation.

Glencore submitted its view that a coal mine in NSW and a coal mine in Queensland have the same hazards and, largely, the same controls. As such, it would be sensible and efficient to have a common set of mine safety laws. That said, due to the differences in coal and metalliferous mines, they considered that separate industry-specific safety legislation for those categories of mines was appropriate, such as occurs in Queensland.

BIS Industries submitted that in the current economic climate, a review of the workers compensation arrangements within coal mining in NSW to bring them into line with the arrangements in other states and with other industries in NSW would be of great benefit. They submitted that the NSW *Coal Industry Act 2001* which creates the variation in arrangements, requires a thorough review.

NSWMC highlighted its lack of support for additional statutory positions. This was regardless of whether they are in the NMSF drafting instructions or applied in other jurisdictions such as Queensland and Western Australia. It submitted that *"Changes should not be implemented unless there is a compelling reason to do so"*.

Provisions that apply or are likely to be applied in Queensland and Western Australia were discussed at 6.3.

**Consistent and reliable data collection and analysis**

The NMSF included a key goal of developing and supporting consistent and reliable data collection and analysis across all jurisdictions in Australia. The NMSF non-core drafting instructions include supporting detail on this at section 33 and Schedule F[49]. Unfortunately, despite support from NSW, the proposed National Mine Safety Database was not properly established and in 2018 the Conference of Chief Inspectors of Mines agreed to formally decommission it[50]. Queensland had already removed the additional NMSF fields and classification options previously added in 2014 to its data reporting form[51].

Considering trends in safety and health data in a comparable manner across jurisdictions and learning from the experience of others remains an important goal and mechanism to improve outcomes in NSW and nationally. This would be consistent with the thrust of the submission by the NSWMC and others. As noted in part 5 above, it is currently not possible to compare NSW and Queensland fatal and serious

[49] See: https://www.commerce.wa.gov.au/sites/default/files/atoms/files/nmsf_non-core_drafting_instructions.docx
[50] See: https://www.industry.gov.au/data-and-publications/national-mine-safety-framework-implementation-report
[51] See page 135 of the December 2019 Brady Review
https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2020/5620T197.pdf

injury rates or even raw serious injury numbers because of different methodologies and definitions.

> ***3. It is recommended that*** *NSW should reinvigorate its work with Queensland, Western Australia and any other jurisdictions prepared to collaborate to share safety and health data and work towards commonality in definitions, classification, data storage fields, and data publication.*

**Incident investigation**

The consolidated (non-core merged) NMSF drafting instructions (v6 of 11 June 2011) include specific provisions (at section 35) for incident investigation in the following terms: *"The Mine Operator must investigate all health and safety incidents arising from mining operations. Following a high potential incident or notifiable incident, a mine operator must investigate the incident to the extent reasonably practicable. The duty to investigate incidents must include identifying any key safety issues and recommendations arising from the incident and taking action to review and revise the health and safety management system (or its relevant parts) accordingly. The mine operator must prepare a report following the investigation that includes causes of the incident and the recommendations to prevent such an accident occurring in the future. A mine operator must report the findings of its investigation into a high potential incident or notifiable incident to the regulator within 30 days."*[52]

The following section 36, 'Release of Information Regarding Incidents by Regulator', includes a drafting note that *"The proactive release of information by the regulator assists the industry with the development of improved health and safety management and prevention strategies."* and then provides: *"The Minister or the regulator or a Chief Inspector may make or issue a public statement identifying, and giving information about, the following … investigations conducted under this Act about serious accidents; … The public statement may identify particular information and persons. The Minister and the regulator and the Chief Inspector must not issue a public statement under this section unless satisfied that it is in the public interest to do so. The regulator may release an incident alert in relation to any mining incidents known to the regulator that may be of assistance to mine operators, workers and others in discharging their obligations under the mining legislation. The regulator and each officer and agent of the regulator will not be liable for any loss or damage caused by the exercise of their function in good faith under this section (the making of public statements and release of information regarding*

[52] These are requirements of Article 10(d) to the *ILO Convention 176 concerning Safety and Health in Mines*.

*incidents). Incident alerts released under this part are not admissible in any proceedings brought under the mining legislation."*

In its 2014 report reviewing 52 fatalities, Western Australia took an approach supportive of Professor James Reason's models[53] linked to active and latent failures as used in basic methods of multi-causal investigation[54]. While investigation methodology has developed in recent decades, even if industry were to rigorously apply the Incident Cause Analysis Method (ICAM), TapRooT or event and causal factors analysis methods cited in the Western Australia report and the results were consistently published, there would be a stronger starting point than currently. The proposed new Western Australia Mine Safety Regulation includes within the required SMS the *"procedures for notifiable incident response and investigation at the mine"*.

Queensland's separate Acts covering coal, metalliferous and quarries, and petroleum contain varying provisions with respect to types of investigation plus a Schedule that lists types of matter to be included in its regulations such as *"Investigations and reports by coal mine operators of accidents and incidents at coal mines".* Queensland's mines inspectorate conducts 'nature and cause' investigations using ICAM[55]. Many of the same companies operate in NSW as in Queensland and it is likely that many conclusions of the December 2019 Brady Review will be applicable in NSW. As noted at 6.3, this includes the need to encourage and conduct better investigations.

The 2014 Wilkinson Fatality Review in NSW noted that NSW used a Reason-based incident causation model (adopted in ICAM)[56]. Given the Brady Review and current Board of Inquiry in Queensland, there is an opportunity for NSW to work with Queensland to develop better practice investigation arrangements for industry (PCBUs and safety and health representatives) in their own workplaces as well as for regulatory staff undertaking 'no blame' 'causal' investigations separate from their inquiries leading to potential compliance and enforcement action. Other jurisdictions such as Western Australia and South Australia may also be keen to participate in such collaboration.

A respondent to the Review's online survey wrote *"I would like to have more access to a history of safety related incidents from which we can all learn."* The Resources Regulator does have investigation reports since 1999 on its website[57] as well as PowerPoint presentations covering learning from major past accidents[58], but more could be done. This could include additional 'causal' investigations undertaken by the Resources Regulator, rigorous 'causal' type investigations undertaken by industry itself and links to

[53] See Reason, James. 1990. *Human Error*. Cambridge University Press; Reason, James. 1997. *Managing the Risks of Organizational Accidents*. Ashgate; and Reason, James. 2016. *Organizational Accidents Revisited*. Ashgate.
[54] See page 2 in https://www.dmp.wa.gov.au/Documents/Safety/MSH_R_FatalAccidents200012.pdf
[55] See Brady pp9, 22 https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2020/5620T197.pdf
[56] See pp3-4 in https://noeticgroup.com/wilkinson-fatality-review-mine-safety/
[57] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/incidents/investigation-reports
[58] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/events/learning-from-disasters

quality investigations of both types in other jurisdictions.

> ***4. It is recommended that*** *NSW should seek to collaborate with Queensland (and possibly other jurisdictions such as Western Australia and South Australia) to improve the quality and consistency of both industry and regulator accident and incident investigations and ensure the results are shared among regulators and published to maximise opportunities for industry learning.*

Proposed legislative changes in NSW relating to investigation are further discussed at 9.2 below, with a detailed associated recommendation.

# 9. WHS (MPS) Act

As noted at 6.2 above, the NSW WHS (MPS) Act and its Regulation is to be read and applied as if it were part of the WHS Act and its Regulation. As outlined in section 5 of the Discussion Paper for this Review (**Appendix B**), the WHS Act includes as key elements a primary duty of care requiring persons conducting a business or undertaking (PCBUs) to, so far as is reasonably practicable, ensure the health and safety of workers and others who may be affected by the carrying out of work; a requirement for PCBU 'officers' to exercise 'due diligence' in relation to health and safety; worker consultation and involvement in WHS matters; and reporting requirements for 'notifiable incidents'. These and other elements in the WHS Act apply to mines and petroleum sites which the Resources Regulator regulates to seek to ensure compliance.

The provisions of the WHS (MPS) Act apply in addition to clarify and extend the provisions of the WHS Act for the particular high-risk activities in mining and petroleum extraction, for which an experienced and competent regulator in relation to those hazards, risks and controls can provide additional assurance to the public. The WHS (MPS) Act thereby assists in meeting the objectives of the WHS Act. An overview of the WHS (MPS) Act is provided in section 6 of the Review Discussion Paper. Links to all the NSW WHS laws are provided in **Appendix A**.

## 9.1. Objectives and Application [Parts 1 and 2 of the Act]

### Stakeholder responses

Stakeholders were broadly supportive of the objectives of the WHS (MPS) Act. They considered that the policy objectives remain valid. The submissions also indicated that the terms of the WHS (MPS) laws are generally appropriate to secure those objectives without unintended outcomes but there was scope for improvement, particularly in the WHS (MPS) Regulation. Three of the 18 respondents to the Review's online survey disagreed or strongly disagreed that the objects of the WHS (MPS) Act were still valid and appropriate and working as intended. At least two responses were consistently negative about the WHS (MPS) laws until the questions towards the end of the survey including the importance of training, instruction and worker protection. It is unclear why they responded in this manner. The maximum number of respondents disagreeing or strongly disagreeing with any of the 25 survey questions was five.

**Alignment of coal and non-coal industries**

The NSWMC suggested that the Resources Regulator intended to apply some coal-specific elements of the WHS (MPS) Act and WHS (MPS) Regulation to the non-coal sector. The NSWMC noted that these sectors operate under different historical contexts, risk profiles and operational conditions and stated that different control measures are therefore appropriate. They further stated that impacts and

relevance of particular provisions are 'disparate' between the different industries and submitted that it is important that prior to any changes being considered in the non-coal industry, there is a thorough analysis of the effectiveness of current provisions. The Resources Regulator advised the Independent Reviewer that it had no intentions or proposals to apply coal-specific elements of the WHS (MPS) laws to metalliferous mining and quarrying. If such recommendations arise from this Review any proposals would require thorough analysis and industry consultation, as is the Resources Regulator's standard practice. This may involve the Mining and Petroleum Competence Board (MPCB) or MSAC advice to the Minister and if so, the NSWMC nominates members to both the MSAC and the MPCB and is a key stakeholder.

The CCAA expressed a preference for greater clarification or distinction between the varying types of the operations covered under the Act such as underground coal mines, quarries and petroleum sites. Particular issues for which this has been argued with a rationale and evidence are considered later.

In contrast, the AWU drew attention to the commonality between the industry sectors and the suitability of applying provisions which apply to coal mines to non-coal mines, such as the provisions for SHRs, sampling and analysis of dust, and (indirectly) health assessment requirements. These too are addressed with associated evidence under the relevant sections below.

Two individuals in responding to the Review's online survey conveyed negative views about the operation of the WHS (MPS) laws. One considered that the Resources Regulator had *"adopted an adversarial and litigious approach with little regard for the viability of the industry"*. This was not supported by evidence or the weight of other submissions and is an operational rather than legislative matter. Another considered that NSW arrangements should be more like those in Queensland suggesting a higher profile than the Resources Regulator has within the NSW Department plus a separate Act for coal mining. This is discussed at 6.3 and 9.3. The individual also suggested managing competencies through a tertiary body such as the University of Wollongong. This is a reasonable suggestion but most submissions have not sought to replace the MPCB as discussed at 9.7 below.

**Basis of application to particular mines**

Some stakeholders suggested that there are unintended outcomes from the application of the WHS (MPS) Act as 'one size does not fit all' and not all provisions should apply if a hazard or risk is not in existence. Consistency in application of the WHS (MPS) laws and enforcement of the laws by the regulator and government officials was a related concern for some stakeholders. Operational issues are not a part of the terms of reference for this Review unless they are the result of the way in which the laws are drafted. When operational examples were given, the Resources Regulator undertook to follow them up.

Both Glencore and Ulan West considered that the objects of the WHS (MPS) Act were being applied uniformly to all coal mines irrespective of a mine's specific risk profile, and in consequence there was an

overly high regulatory burden on mines that are lower in risk profile. In contrast, the CCAA submitted that the Resources Regulator's focus on smaller independent quarries was not to the same safety standard as larger operations. The Resources Regulator confirmed that it takes a risk-based approach, and for quarries has established a three tier classification formally announced on 20 March 2020 to seek to better target regulatory resources and management competency requirements based on risk[59].

Glencore and Ulan West argued that there was excessive regulation in cases where a major hazard does not exist and that this was the case in the western coalfields of NSW where methane gas is 'not present' but the regulatory provisions applicable to gas still apply to those mines. There are indeed coal mines where methane gas is highly unlikely to be present in the explosive range. But there are also examples of major accidents occurring in mines considered to be low risk such as the explosion in the 'virtually gas-free' Cambrian Colliery north west of Cardiff in Wales on 17 May 1965 in which 31 miners died from the explosion or associated carbon monoxide poisoning[60]. Ulan West advocated a mechanism within the laws to allow relief from at least some, if not all, of the regulatory controls applying to that risk. The Resources Regulator advised that there is already an opportunity to seek exemptions under the WHS (MPS) laws if hazards and risks do not exist. Further discussion of hazardous zones, areas and classifications in coal mines is found at 10.5 below in response to Ampcontrol's submission on Clauses 3, 78 and 79 of the WHS (MPS) Regulation and on the AS/NZS 60079.10.1:2009 Standard.

The NSWMC and representatives of local councils submitted that application of the WHS (MPS) laws to mines comprising small gravel pits for the purposes of constructing roads and often used intermittently should not be subject to additional provisions above and beyond those under the WHS Act. One online survey respondent made a similar point, particularly in relation to quarterly reporting when many of 71 pits were inactive for 12 months or more. It was argued in the submissions that risks inside or outside the mine boundary when no mining extraction is taking place do not differ when carrying out work such as tyre repairs or minor welding hobs but without mining-specific equipment these may be considered non-compliant. Some considered that this type of extraction should be exempt and argued that this would be consistent with treatment of this type of activity under the State Planning rules when under the required threshold for development consent. Others noted that some specific hazards such as contractor management, moving plant and roads, and dust management are relevant even though operations are small. This is addressed further below with recommendations in relation to WHS (MPS) Regulation Clauses 130 and 184. Another survey respondent suggested that further consideration by the regulator is needed to reduce regulation on 'pure exploration sites'[61].

[59] See https://www.resourcesregulator.nsw.gov.au/news/2020/changes-to-the-issuing-of-quarry-manager-practising-certificates

[60] See http://www.welshcoalmines.co.uk/deathrolls/Cambrian.htm, https://www.nmrs.org.uk/mines-map/accidents-disasters/glamorganshire/cambrian-colliery-explosion-rhondda-1965/ and Barry Turner, *Man-made accidents*, 1978, pp 93-8.

[61] Current guidance is accessible here: https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/exploration

**Relationship between WHS Act and WHS (MPS) Act**

The NSWMC sought clarity on whether the WHS Act or the WHS (MPS) Act prevails to the extent of any inconsistency between them. They stated that clarifying the position in this regard would create clearer expectations and improve the ability of PCBUs to understand and give effect to industry-specific legislative requirements. As noted above, the two pieces of legislation are to be read together as if they were a single Act with no inconsistency. This Review provided an opportunity to examine any identified unintended inconsistency so that it could be addressed. There was no evidence to suggest that an hierarchical amendment is necessary. Amending the legislation to add a provision about which Act prevails could establish a different regime with unintended consequences more open to legal dispute and challenge.

The NSWMC also sought clarification to avoid the WHS (MPS) Act being applied to non-mining activities. It suggested that some inspectors had sought to apply the WHS (MPS) Act to the 'whole' of sites (particularly in non-coal operations) in a manner that was not consistent with the regulator's guidance on 'what is a mining operation'. The Review considered that while an individual inspector may have erred in the past, it was possible that some members of the NSWMC did not fully appreciate that Resources Regulator inspectors regulated using both the WHS (MPS) laws and the WHS Act and WHS Regulation (the WHS laws) and hence all mining and non-mining aspects were covered[62]. Guidance on exercising regulatory powers outside of mine and petroleum sites has also been developed[63].

## 9.2. Incident notification [Part 3 of the Act]

Incident notification is outlined in clauses 33 and 34 of the NMSF consolidated non-core drafting instructions. These include: *"The mine operator is required to report notifiable incidents to the relevant health and safety representative at the mine. The mine operator must be under an obligation to notify the regulator of certain mine specific notifiable incidents as soon as reasonably practicable, with written notice to be provided within 24 hours of a fatality and 48 hours for other incidents…."*[64]. Some reporting was intended to populate a national mine safety database referred to in section 8 above and this was to be used only for the purpose of data retention, analysis and collection and not to be admissible into evidence in any proceedings. However, the drafting instructions provided that reporting information

[62] The note to section 12A of the WHS (MPS) Act concludes by stating that either regulator (SafeWork NSW or the NSW Resources Regulator) can exercise any function of either regulator in relation to any workplace. The note at the top of Part 4 Division 1 of the WHS (MPS) Act states that *"section 156A of the WHS Act provides that a person appointed as a government official under this* [ie WHS (MPS)] *Act is deemed to be an inspector for the purposes of the WHS Act and has the functions of an inspector under that Act in relation to mining operations."*

[63] See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0004/834790/Exercising-powers-outside-mining-or-petroleum-sites.pdf

[64] See: https://www.commerce.wa.gov.au/sites/default/files/atoms/files/nmsf_non-core_drafting_instructions.docx

under this provision must not enable the mine operator to avoid its obligations to report notifiable incidents under the WHS Act or to avoid any consequential enforcement action.

## Stakeholder responses

Generally, the incident notification objectives under the WHS (MPS) Act were considered valid but a number of stakeholders questioned whether the terms of the Act and Regulation were working appropriately as intended.

One respondent to the Review's online survey who wrote that he had lost his job after suffering workplace injuries stated that *"I was injured because someone took a shortcut and I am paying the cost. My accident was covered up, the safety committee, check inspector and the department were not notified of my accident."* While the Review could not establish the circumstances of this event, there was anecdotal evidence of under-reporting or mis-reporting of notifiable incidents.

The NSWMC described the current framework as time-consuming and complex with provisions being located across the WHS (MPS) laws and submitted that they should be simplified and brought together[65]. This is a widely accepted view and is therefore addressed in Review recommendations. The NSWMC noted that unlike the duty to preserve an accident site in section 17 of the WHS (MPS) Act which is qualified by 'so far as is reasonably practicable' the duty for reporting notifiable incidents under section 15 'is not qualified in any way' but should be[66].

AMEC supported by some other submissions understood and endorsed the need for prompt notification but recommended that the word 'immediate' be changed to 'as soon as reasonably practicable' given other priorities when incidents occur.

The LRMA noted that a sole opal mine operator may have a serious incident and be hospitalised and/or in no condition to notify. It argued that in these circumstances the regulator will be aware of the incident and the requirement to notify should be waived.

Glencore noted that in its current form, industry would benefit from improved guidance issued by the regulator for the entire industry to support the regulatory requirements and assist sites in navigating the reporting requirements. This would improve consistency in reporting and clarify those incidents that do,

[65] It was noted that an operator must currently have regard to: section 14 of the WHS (MPS) Act; clauses 128, 178 and 179 of the WHS (MPS) Regulations; clause 699 of the WHS Regulation; and clause 13 of Schedule 9 of the WHS (MPS) Regulations.
[66] As noted below, the Review considers there are important differences because the impact of the accident site preservation requirement in section 17 is for immediate action by relevant persons unless personal action needs to be taken to address injuries or an unsafe situation, whereas for incident notifications the requirement is for a mine operator or PCBU (often a corporate body with many officers and employees) to report immediately after becoming aware of the incident with up to 48 hours to provide written notice. On a very small mine site if the same natural person was required to take section 17 action and to report under section 15, common sense for 'immediate' notification to be given after preventing further injury would prevail. There was no evidence that it has not.

or do not, need to be reported. AMEC submitted that further clarity about when incident notification is required should be provided either in the regulatory framework or through policy or guidance material from the regulator to reduce confusion within the industry.

Similarly, the CCAA commented that vague descriptions often lead to a struggle for a quarry manager to determine what is a notifiable incident and which matters require periodic notification. Local councils expressed concern about multiple lines of notification. It was submitted that processes differ depending on the work site and may require a report to SafeWork NSW under the WHS Act or to the Resources Regulator under the WHS (MPS) laws. It was stated that clear lines of reporting and who is responsible for the formal report to the appropriate regulator should be established.

The CFMMEU expressed a view that the notification of incident provisions in the WHS (MPS) Act are not working as intended in relation to dangerous incidents and that imprecision in the definition of 'high potential incidents'[67] has had unintended consequences in under-reporting of dangerous incidents as notifiable incidents under Part 3 of the WHS (MPS) Act. This is addressed further below.

Glencore requested a review of whether the current thresholds for reporting are too low, and whether the requirement to report certain incidents should involve a consideration of the effect on safety and health of people (if any) that resulted from the incident. While appreciating that incident notification provided valuable data to address trends or concerns, Glencore questioned whether there was a more suitable regulatory mechanism that could be used to achieve this objective.

The Reviewer accepts that at a minimum there needs to be additional consolidated guidance on mining WHS notifications and that the internal system developed by Glencore and supported by the NSWMC (the Incident and Injury Underground Assessment Tool) is a helpful starting point.

The Reviewer considered that there appeared to be some confusion in relation to reporting timeframes in the case of dangerous and other incidents that should be addressed in the consolidated guidance. For example, in the case of a sole opal miner who is the mine operator and suffers injury in a reportable incident, the Resources Regulator advised that notification should occur as soon as the medical situation reasonably allows. As regards submissions from AMEC and others with respect to 'immediate' reporting of the most serious notifiable incidents including a death, 'serious injury or illness', or prescribed 'dangerous incident', the immediate reporting typically by telephone (with a written follow up within 48 hours) is linked to preservation of the incident site. As noted, section 17 of the WHS (MPS) Act includes provisions stating that the requirements do not prevent other priorities being addressed such as assisting an injured person or making a situation safe. On many sites, there are sufficient personnel to immediately notify the regulator, preserve the site and assist anyone who requires medical treatment.

[67] See clause 128(5)(a) of the WHS (MPS) Regulation.

The NMSF non-core drafting instructions are silent as to whether all notifications should be consolidated but accept the reality of the WHS Act not including additional non-core mine-specific legislation. Consistent with the Brady Review in Queensland, simplified, unambiguous and consolidated incident reporting arrangements should be put in place that encourage thorough, open and consistent reporting. It may be clearer if the WHS (MPS) Act provides only the necessary heads of power for notifications not already in the WHS Act with the WHS (MPS) Regulation containing the necessary detail in a consolidated manner and providing notes with cross references to notification requirements in the WHS laws. This should also seek to ensure that no dangerous and high potential incidents go under-reported.

***5. It is recommended that*** *the necessary heads of power for notifications should continue to be included in Part 3 of the WHS (MPS) Act with additional details consolidated and cross-referenced in the WHS (MPS) Regulation.*

In section 10.11 below there is a recommendation in relation to a review of the WHS (MPS) Regulation with respect to incident notification consolidation and a further recommendation in relation to additional guidance material[68]. The NSWMC suggestion of a code was considered but is likely to be difficult to progress in a timely fashion given requirements for consultation nationally.

The AWU submitted that a PCBU in the mining industry (normally the mine operator) should be required to inform workers of attendance by the regulator (typically an inspector) on site (such as attending after notification of an incident) and any actions taken as a result of their attendance. This is a sensible suggestion to which section 163 of the WHS Act already applies: *"(2) An inspector must, as soon as practicable after entry to a workplace or suspected workplace, take all reasonable steps to notify the following persons of the entry and the purpose of the entry - (a) the relevant person conducting a business or undertaking at the workplace, (b) the person with management or control of the workplace, (c) any health and safety representative for workers carrying out work for that business or undertaking at the workplace."* The outcome of an inspector's visit and any actions taken by the mine operator should be advised to the workforce by the PCBU under the consultation provisions in Part 5 of the WHS Act if they involve hazards and controls, worker welfare and other significant matters. These existing

[68] Building on the Resources Regulator's publication: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0004/541534/GUIDE-Notification-of-incident-and-injury.pdf

provisions should meet the intent of the AWU submission but if necessary, the Resources Regulator could reinforce it with additional guidance material.

**Incident Investigation**

Part 8 of this report included initial discussion of incident investigation and cited the agreed provisions in the NMSF non-core consolidated drafting instructions.

The CFMMEU drew attention to the varying uses of the word 'investigation' in the WHS (MPS) laws and the differing roles that SHRs have, including by comparison with Queensland. They sought greater consistency and clarity. The Reviewer agrees while noting that formal investigations whether for enforcement or causality[69], should also not be confused with generic usage of the term 'investigation' such as the investigation of complaints in section 24(1) of the WHS (MPS) Act.

The NSWMC sought protection of records of certain reviews of control measures being admissible in evidence (records required to be provided to the regulator under clause 11 of the WHS (MPS) Regulation). They sought a similar provision to section 201 of the *Coal Mining Safety and Health Act 1999* (Queensland) which requires, in certain circumstances, an investigation to be conducted into an incident. Section 201(4) provides that a report prepared in response to section 201 is not admissible in evidence against the site senior executive, or any other coal mine worker mentioned in the report, in any criminal proceeding other than proceedings about the falsity or misleading nature of the report. This is a common provision applying in 'no blame' investigations that focus on establishing causality and safety recommendations and is addressed in the next recommendation below.

The NSW WHS (MPS) laws make several references to investigation, such as appointing a government official as an investigator in section 18(2)(c) of the WHS (MPS) Act, and in relation to safety and health representatives in Part 5 of the WHS (MPS) Act. The WHS (MPS) Regulation includes requirements at Clauses 11 and 12 to review control measures and keep records of "the causes (or likely causes) of the incident" and any recommendations, and at clause 14(1)(n) & (o) the requirement to investigate notifiable incidents. The Reviewer considers that references to investigation and causality[70] should provide more guidance for such an important matter. While a starting point for amendment may be the non-core merged NMSF drafting instructions, they are also overly narrow including by omitting

[69] Various rationales for, and types of, investigations are discussed in Sidney Dekker, The Field Guide to Understanding 'Human Error', 3rd edition, 2014. There is a large literature on investigation methodologies including by theorists who base their proposals on resilience engineering and 'new views' of safety. The Body of Knowledge free online publication by the Australian Institute of Health & Safety has a 2012 chapter on investigation that is currently being substantially rewritten by Dr Geoff Dell and Dr Yvonne Toft that will provide helpful guidance.

[70] See further the Australian Transport Safety Bureau publication 'Analysis, Causality and Proof' by Michael Walker and Kym Bills, Canberra, ATSB, 2008: https://www.atsb.gov.au/publications/2008/ar2007053/

'contributory' or 'contributing' factors noted by many experts in this field[71] and in the international agreement for civil aviation accident and incident investigation Annex 13 to the Chicago Convention[72].

Paragraph 5.4(d) of Annex 13 states that *"the investigation shall normally include … if possible, the determination of the causes and/or contributing factors"*.

The Resources Regulator has taken the initiative to itself undertake 'causal investigations' of safety matters with an undertaking to industry parties that evidence provided will not be used against them if they are forthcoming with its provision[73]. This is to be encouraged if safety lessons are to be learnt and applied to reduce the risk of future accidents. However, it could usefully be formalised in the WHS (MPS) laws. NSW should include a head of power in the WHS (MPS) Act to specify better practice investigation and protect publication with details included in the Regulation so that they can be more readily amended based on future collaboration outcomes. Provisions in relation to the investigation of accidents, incidents and significant events should be reviewed and broadened. As a first step, to "the causes (or likely causes) of the incident" in WHS (MPS) Regulation clauses 11(2)(a) & 12(2)(a) should be added 'and to establish any contributing factors, taking a systemic approach'.

All of the elements of a SMS and controls need to be regularly checked and audited. Operators need to assess whether new hazards have emerged either singly or in combination, whether reporting of safety and health issues is timely and comprehensive, and whether expectations of work done through written procedures in relation to high-hazard work correspond to what is actually happening in the workplace. Investigating accidents, incidents and other significant events is an important way to better understand the system of work and how it can be made safer to avoid serious accidents in the future. The Resources

---

[71] Scores of references could be cited. An early example involves a review of multiple hull losses in the 1950s of the world's first passenger jet aircraft, the Comet, of which De Havilland and Walker state: *"There is a modern trend which is steadily changing the overall character of investigations, though without affecting the basic principles. Accidents on the whole are becoming less and less attributable to a single cause, more to a number of contributory factors. This is the result of the skill of the designers in anticipating trouble, but it means that when trouble does occur, it is inevitably complicated."*
(cited in Barry Turner, Man-made Disasters, London: Wykeham, 1978, pp 23-24).

[72] ICAO *Annex 13 to the Convention on International Civil Aviation: Aircraft Accident and Incident Investigation, 11th Edition*. International Civil Aviation Organization, 2016. See definitions of 'causes', 'contributing factors' and 'investigation' at 1-2: *"**Causes.** Actions, omissions, events, conditions, or a combination thereof, which led to the accident or incident. The identification of causes does not imply the assignment of fault or the determination of administrative, civil or criminal liability." "**Contributing Factors**. Actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability." "**Investigation**. A process conducted for the purpose of accident prevention which includes the gathering and analysis of information, the drawing of conclusions, including the determination of causes and/or contributing factors and, when appropriate, the making of safety recommendations."*

[73] The NSW Resources Regulator 'Causal investigation policy' is here: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0005/713597/Causal-investigation-policy.pdf and investigations undertaken by the NSW Resources Regulator, including those identified as 'causal' are published here: https://www.resourcesregulator.nsw.gov.au/compliance-and-enforcement/investigation-reports

Regulator does not receive industry investigation reports as a matter of course and anecdotally there is wide variation in their quality. The Review was unable to view evidence that investigation, reporting and follow-up is being done consistently or well across NSW. The Brady Review found that it was not in Queensland. The typical situation in NSW is unlikely to be better. The Reviewer considers that industry investigation reports in an agreed standardised format should be provided to the regulator on request and where appropriate, published with appropriate protection against being used in legal proceedings, to enable all industry stakeholders to learn and avoid future accidents. This would go some way to addressing the NSWMC submission with respect to clause 11 of the WHS (MPS) Regulation seeking to include protection of the records after an incident investigation against being admissible as evidence when required to be provided to the regulator.

However, some form of balance is required as has been made in the Resources Regulator 'Causal investigation policy'. On the one hand, the public interest is served if operators conduct and document thorough and professional incident investigations and take action on their findings and recommendations to improve future health and safety and if this information is available to the regulator and others in the industry in a timely manner. On the other hand, as the NSWMC has submitted, if an incident is a death or serious injury involving recklessness (a WHS category 1 offence) or a less serious category 2 or 3 offence, there would be public concern if the source material was quarantined and protected from use in an official prosecution. It is possible to protect 'no blame' investigations themselves and witness statements provided to them without prohibiting a parallel investigation by the regulator or police. However, the publication of a no blame investigation may need to be delayed until a potential prosecution is completed or there is agreement that it will not proceed.

***6. It is recommended that*** *provisions in relation to 'causal' investigation be reviewed and broadened beyond the current section 18(2)(c) of the WHS (MPS) Act and clause 14(1)(n) and (o) of the WHS (MPS) Regulation and include contributing factors and a systemic approach. This should also include formalising the Resources Regulator's 'causal investigation policy' within legislation with associated protections. Part 3 of the WHS (MPS) Act should be renamed 'Incident notification and investigation' with a new head of power provided for investigation of incidents for the purpose of establishing 'causality' and future safety improvements. Industry investigations should be more professional and consistent. Industry investigation reports should be provided to the Resources Regulator within 30 days under clauses 11 and 12 of the WHS (MPS) Regulation with appropriate protections. These protections should be considered by a tripartite forum such as MSAC. Causal investigation should be separate from any investigation for the purpose of enforcement (e.g., via the current section 70(1)(b) of the WHS (MPS) Act) with details concerning the different types of investigation included in the WHS (MPS) Regulation.*

# 9.3. Functions of government officials [Part 4 of the Act]

Section 18 of the WHS (MPS) Act provides for the regulator to appoint government officials, including inspectors, mine safety officers and investigators to regulate the mining and onshore petroleum industries in order to help ensure that the objects of the Act (and WHS Act) are met.

**Regulator and Chief Inspector**

In NSW under the WHS (MPS) Act section 5(1) the relevant Secretary is defined to be the regulator. This is similar to the arrangements under the NSW WHS Act and WHS Regulation and in other laws in the State. As noted, there is a policy issue concerning the extent of the desirable separation between a departmental role for industry development and the collection of resource royalties and the role encompassing health and safety regulation that may sometimes conflict. NSW established the Resources Regulator in 2016 to make a clear separation within the then department. Queensland has more recently gone further and established a regulator (RSHQ) separate from the former department. The NMSF non-core drafting instructions are not prescriptive as to arrangements to be legislated but in some places, such as in the initial background, suggest that the operational head is the regulator.

Within the Resources Regulator, the role of Chief Inspector is the primary technical expert for mines and petroleum and manager of all members of the inspectorate. However, the role is mentioned only once within the WHS (MPS) laws (section 18(5) of the WHS (MPS Act)). Western Australia currently has the position of State Mining Engineer which will become Chief Inspector of Mines to be appointed under the Western Australian WHS Act when enacted. In recognition of the scale of the Western Australian industry, there will also be a Chief Inspector Petroleum Safety. In Queensland there are roles defined for a Chief Inspector under each of the *Coal Mining Safety and Health Act 1999*, the *Mining and Quarrying Safety and Health Act 1999*, and the *Petroleum and Gas (Production and Safety) Act 2004*.

The consolidated NMSF non-core drafting instructions mention the role of Chief Inspector six times but do not formally define the role or the means for appointment. The NMSF drafting instructions (section 36) refer to when the Minister, regulator or Chief Inspector can proactively issue a public statement about important safety matters that are in the public interest. Section 38.4 refers to a need for external review of decisions by the regulator or Chief Inspector as compared with an initial internal review for decisions by subordinates. Section 38.6 states that *"The regulator may delegate any additional proactive powers to inspectors except for the power to require an independent technical study or expert report which can only be exercised by the Chief Inspector."*

Section 18(5) of the WHS (MPS) Act states that the regulator may appoint one or more inspectors as chief inspectors. The Reviewer considered whether more detail of the role of a chief inspector may be desirable within the legislation. However, unless an amendment specified additional functions and powers there would be little gained, and if functions and powers were particularised, advice was

provided that this could blur lines of accountability within the Resources Regulator. Given the lack of industry submissions on this matter, no change is recommended.

In light of the changes in Queensland, the possibility of having the Secretary appoint the head of the Resources Regulator as the 'regulator' under the Act was also considered. While doing so provides a structure closer to that in Queensland, it would entail a different model from Western Australia. There was no evidence that the current NSW arrangements were not operating independently and well and no stakeholders made submissions providing any evidence to suggest a change. On balance, there was considered to be insufficient rationale and evidence to make a recommendation that the regulator should be the head of the Resources Regulator rather than the Secretary of the Department.

Section 23 of the WHS (MPS) Act requires government officials other than investigators (i.e., inspectors and mine safety officers appointed under section 18) while exercising functions at a mine or petroleum site to give written notice to site operators of any matters that they become aware of relevant to safe operation or to the health and safety of workers. The Explanatory Notes to the original Bill[74] do not provide any illumination as to the rationale for this section. However, the Reviewer considers it reasonable that if inspectors and mine safety officers are concerned about health and safety on a site and the matter is non-trivial, that the operator is given written notice of the matter and so has the opportunity to address it. In some cases this will take the form of an improvement or prohibition notice. No change to section 23 is proposed.

## Stakeholder responses

There was general consensus among stakeholders who made submissions that the functions of government officials remain valid and appropriate.

Survey respondents provided a more mixed result with 10 of 18 agreeing or strongly agreeing that the provisions for functions of government officials are still valid, appropriate and working as intended. Four respondents disagreed or strongly disagreed (as with some other responses) but it is not clear why. There may be an element of a type of 'protest vote' occurring, perhaps based on a dislike of regulation.

Submissions from AMEC, Glencore, Ulan West and John Miller argued that the WHS (MPS) laws should require government officials to be subject to the site-specific rules at mines established by PCBUs to ensure work health and safety at their workplace. These include site induction, site access, and drug and alcohol testing requirements. It was considered that this would promote safety during the exercise of functions by government officials at a mine.

While seemingly appropriate in some respects, subjecting government officials (primarily inspectors) to site-specific requirements can waste the time available to inspect the mine site and in the event of an

[74] See: http://classic.austlii.edu.au/au/legis/nsw/bill_en/whasb2013283/whasb2013283.html

unannounced visit, make it difficult to assess the normal state of the site and its working environment and controls. Of course, mine personnel should accompany and assist inspectors and advise them of any hazard that may be about to be encountered. Many mines have requirements for zero alcohol residues when their workers are on 'swings' (remote working shift periods at mine sites) of up to several weeks. This is quite a different situation from a member of the inspectorate who may have a social drink after their working day and be unexpectedly called into work, or who may have a residual reading the next morning after a weekend or taking leave. The Resources Regulator has summarised its policy on the role and functions of inspectors in a publication available on its website[75].

The NSWMC (and some other stakeholders) submitted that it would be useful if this part of the WHS (MPS) Act specified that a person appointed as a government official must have experience in the mining/petroleum industries. The NSWMC noted that provision is made for the qualifications of government officials to be prescribed in the WHS(MPS) Regulation. They argued that this would 'mitigate' situations where it was considered that government officials have required specific controls to be put in place which were not considered appropriate by the mine for safety in the circumstances. While the focus of submissions was on inspectors, government officials under section 18 of the WHS (MPS) Act are a broader category than inspectors – mine safety officers and investigators are also included.

Section 19 of the WHS (MPS) Act states that: *"A person may be appointed as an inspector only if the regulator is satisfied that the person has - (a) appropriate knowledge and skills, and adequate experience, in mining operations or petroleum operations to effectively exercise the functions of an inspector, and (b) if qualifications are prescribed by the regulations for the purposes of this section, those qualifications or qualifications that the regulator determines to be equivalent to those qualifications."*

The WHS (MPS) Regulation does not specify qualifications for inspectors linked to section 19 of the WHS (MPS) Act but it does require qualifications in relation to government inspectors, investigators and mine safety officials linked to section 18 of the WHS (MPS) Act. Clause 174 of the WHS (MPS) Regulation states: *"For the purposes of section 18(3)(d) of the WHS (Mines and Petroleum Sites) Act, persons who hold tertiary qualifications in any one or more of the following areas are prescribed as a class of persons - (a) engineering, (b) occupational health and safety, (c) law, (d) policing, (e) regulatory studies."*

The Reviewer considers that clause 174 of the WHS (MPS) Regulation is satisfactory and to suggest going further in relation to required experience, training and competencies required for members of the inspectorate is not a simple matter. It is important that the inspectorate is led by a suitably qualified Chief Inspector who has significant experience in mining, management and regulation. Within the inspectorate, it is important that the range of technical disciplines is covered and that inspectorate

[75] See: https://www.resourcesregulator.nsw.gov.au/compliance-and-enforcement/inspectors

capabilities and experience corresponds broadly with the hazards, risks and controls that need to be regulated. However, numerous management studies have found that diversity (including gender, age, cultural background, personality, professional discipline and experience) are important in successful teams (a concept raised by the CFMMEU). Succession planning and development need to be managed to ensure that there is no large loss of capability through inspectors retiring at a similar time and this may require employment of younger inspectors with less industry experience.

These and other factors mean that legislating prescriptive training, competency and experience requirements for inspectors beyond the section 19 of the WHS (MPS) Act requirement for 'appropriate knowledge and skills, and adequate experience in mining operations or petroleum operations' can be overly simplistic and constraining. The Resources Regulator addresses additional matters in internal policy which is appropriate and can be varied as circumstances may change. Flexibility such as to enable employment of a few recent graduates and some recent retirees with particular expertise who may be prepared to work part-time could produce a healthier and more effective inspectorate than a less diverse cadre of inspectors with sometimes greater mining or petroleum operational experience.

This Reviewer considers that Government inspectors and other officials should not be verbally instructing or otherwise requiring specific controls, as some submissions suggested had happened, unless they are prescribed under legislation. If an instance of an inspector doing otherwise occurs, it should be raised with the Resources Regulator head office in Maitland. Should an inspector provide an inappropriate direction, this is more a matter of inadequate regulatory training than technical competency, especially as an individual inspector cannot be expected to be a domain expert in every discipline on which a particular mine site's controls may be based.

# 9.4. Worker Representation [Part 5 of the Act]

## Stakeholder responses

Provisions for SHRs for coal mines were considered valid and appropriate provisions. However varying changes were requested by different stakeholders in relation to their relationship with health and safety representatives (HSRs) and WHS entry permit holders under the WHS Act, clarification of SHR functions, and to expand their application including beyond coal mines.

The CFMMEU believed that there is some inconsistency in the terminology between the provisions for an industry safety and health representative (ISHR) and the HSRs under the WHS Act and also sought to expand the role of a mine safety and health representative (MSHR) under section 42(3) of the WHS (MPS) Act to participate in investigations similarly to an ISHR under section 29(2)(b) of the WHS (MPS) Act. The union also submitted that the provisions in the WHS Act should be amended to reflect the wording of the WHS (MPS) Act by including reference to both powers and functions. Discretionary

amendment of the WHS Act in relation to HSRs or otherwise is not within the scope of this Review. Potential WHS Act amendments were considered in the 2017 NSW statutory review and in response to the 2018 national Boland Review of the model WHS Act. Flowing from the earlier discussion on investigations, the Independent Reviewer does support consistency with regard to the MSHR and ISHR investigation role, as occurs in Queensland.

> ***7. It is recommended that*** *section 42(3) of the WHS (MPS) Act be amended to enable MSHRs to 'participate' in investigations similarly to ISHRs under section 29(2)(b).*

While the NSWMC is supportive of ISHRs and MSHRs established under the WHS (MPS) Act, it argues that there is unnecessarily costly, complex and inefficient duplication by also allowing for HSRs under the WHS Act. It submits that the WHS (MPS) Act should be amended to modify the application of these provisions so that they do not apply at coal mines. It further submits that there would be no reduction in safety outcomes and that this would be consistent with the approach in Queensland which sufficiently manages worker representation in that jurisdiction. Glencore considered such duplication to be an unintended consequence of the NMSF legislative reforms in 2012 and proposed *"retaining SHRs for coal mines without the additional role of the industry HSR for individual work groups"*. Ulan West considered that provisions for worker representation in coal mines were valid, appropriate and working as intended.

The NSWMC recognised the important role and functions of ISHRs but expressed concern that there were instances where ISHRs have exercised the powers with which they have been provided for industrial rather than safety outcomes. A person is only eligible to be an ISHR if they are also a WHS entry permit holder (section 28 of the WHS (MPS) Act). The NSWMC submitted that including safeguard requirements that apply to WHS entry permit holders[76] under the WHS Act would enhance the WHS (MPS) laws in relation to ISHRs (or MSHRs under delegated authority). Glencore argued in addition that 'union officials' should not have a right of entry to a coal mine if a SHR has been elected for that coal mine.

[76] Under sections 146 and 148 of WHS Act, a WHS entry permit holder a WHS entry permit holder must not delay, hinder or obstruct any person or disrupt work at workplace and prohibit the use or disclosure of information or documents obtained in the course of exercising their functions under the WHS Act from being used or disclosed for a purpose unrelated to the function that is exercised.

The AWU proposed that ISHRs be available to all mines as this would enhance safety outcomes in the metalliferous and extractives sector by providing for this independent representation of workers and play an important role in supporting and supplementing the work of inspectors from the regulator.

One respondent to the Review's online survey wrote *"Legislation can be difficult to understand. A plain English guide could prove useful. More ISHRs may assist in helping Mine Operators achieve compliance."*

Based on submissions and the preponderance of evidence in mining and other high-risk settings[77], the Reviewer considers that having more worker representatives committed to health and safety outcomes is generally better than less. For example, the Reviewer was advised that some coal mines such as Tahmoor and Appin, in recognition of the complexity and importance of mechanical hazards, have appointed additional mechanical SHRs. If there are cases when an individual SHR confuses their role and function with an industrial agenda, this should be dealt with on its merits through the Resources Regulator, including with the enhanced safeguards recommended below. Should a coal mine site wish to have only MSHRs it is possible under the WHS Act and Regulation for workers to decide not to elect HSRs. However, on large and complex mine sites, the health and safety issues in diverse workgroups and areas mean that HSRs can add real value in health and safety. Denying such workgroups the opportunity to elect HSRs would be deleterious to consultation and obtaining health and safety expertise from the workers who are actually doing the work.

Having ISHRs available to provide health and safety advice in relation to non-coal mines may have merit in some circumstances. Anecdotally this may already be occurring in some parts of the State on an informal basis but the Review did not have sufficient evidence to make a recommendation along these lines. However, an amendment to the legislation to enable appointment of eligible persons as additional ISHRs beyond the four that must be nominated by the CFMMEU would provide the flexibility for a Minister to appoint additional ISHRs nominated by the CFMMEU or otherwise. For eligibility, all appointees should be required to satisfy normal NSW probity checks to ensure that there are no serious conflicts of interest or issues with corruption or other criminality. To enable appointees to have non-coal roles would require additional amendment of the other sections within Part 5, Division 2 of the WHS (MPS) Act. Before any serious consideration of such an amendment, a study of the potential costs and benefits should be undertaken and the advice of the MSAC sought.

[77] For example, some of the major accident research by Professor Andrew Hopkins cited in the references at Appendix F. Professor Quinlan's 2014 book Ten Pathways to Death and Disaster: Learning from Fatal Incidents in Mines and Other High Hazard Workplaces is also apposite. The AWU cited the Queensland research study David Walters, Michael Quinlan, Richard Johnstone and Emma Wadsworth "Cooperation or resistance? Representing workers' health and safety in a hazardous industry" Industrial Relations Journal, 2016. Vol.47, Issue 4, pp379-395.

***8. It is recommended that*** *section 28 of the WHS (MPS) Act be amended to include a new subsection 1(c) stating that an eligible person must satisfy probity checks, and a new subsection (2B) stating that the Minister may appoint additional persons as ISHRs if they meet the eligibility requirements in section 28(1) and there are no fewer than four persons appointed under section 28(2) and (2A). The Minister should seek additional evidence of costs and benefits and obtain MSAC advice before proposing amendments to extend ISHR roles beyond coal in Part 5, Division 2 of the WHS (MPS) Act.*

The NSWMC did not support any change to allow a coal mine SHR to choose their own training course as was recommended for HSRs by the 2018 model WHS laws (Boland) Review. This was because training of SHRs covers content that is necessary to appropriately equip SHRs with the information necessary to fulfil their role. Training of SHRs for a coal mine continues to be in accordance with section 45 of the WHS (MPS) Act and requires a course of training accredited by the Resources Regulator[78]. The Resources Regulator has advised the Reviewer that no change is contemplated. In relation to HSR training that covers all workplaces, NSW has already legislated to implement this recommendation of the Boland Review in the NSW WHS Act and section 72(1) enables an HSR to choose which training course approved by the regulator (SafeWork NSW) he or she wishes to attend.

***9. It is recommended that*** *the arrangements for SHRs for coal mines in Part 5 of the WHS (MPS) Act should include similar provisions to sections 146 and 148 of the WHS Act when ISHRs and MSHRs are exercising WHS (MPS) Act powers, namely to not unreasonably and intentionally delay, hinder, obstruct or disrupt work, and to not use or disclose documents for a non-WHS related purpose.*

[78] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/events/safety-and-health-representatives-training-package

# 9.6. Enforcement Measures [Part 6 of the Act]

## Stakeholder responses

Stakeholders were generally supportive of the enforcement provisions in the WHS (MPS) Act with respect to the validity of the objects and appropriateness of the terms. In submissions, observations were made in relation to improvement and prohibition notices, and greater use of penalty notices but no comment was received on the WHS (MPS) Act section 51 stop work provisions. In the online survey, 11 of the 18 respondents agreed or strongly agreed that the provisions for enforcement were valid, appropriate and working as intended, with only two disagreeing or strongly disagreeing. On the specific matter of the regulator's stop work powers under section 51, 17 of the 18 respondents agreed or strongly agreed, with only one person neutral (neither agreeing nor disagreeing).

Ulan West noted that the enforcement measures in the WHS (MPS) Act were focussed on improvement or prohibition notices and stated that they can be enforced with little discretion applied to the extent or scale of issue identified by the inspector. As a result of past complaints, since its inception in July 2016 the Resources Regulator has sought to ensure that inspectors implement a consistent compliance and enforcement approach in administering NSW WHS laws in the mining industry. However, there is always an element of regulatory discretion in deciding not to issue an improvement notice[79] for a minor matter. Prohibition notices[80] by their nature are not issued for minor matters.

AMEC and the associated submission by Mr John Miller noted that the move from more prescriptive legislation requires additional interpretation as to what constitutes a breach by both a mine operator and the regulator. Additional guidance on likely interpretation was sought to clarify regulatory expectations, as well as legislative clarification of the process for disputing a notice and seeking arbitration. In relation to breaches leading to improvement and prohibition notices, existing guidance by the Resources Regulator[81] outlines internal and external processes for review. Insufficient evidence was provided to justify a recommendation that legislative change was needed. However, the Resources Regulator advised the Reviewer that it would provide additional guidance and education about its expectations in *Mine Safety News* and other future publications.

The NSWMC sought an expansion of the list of offences eligible for a penalty notice remedy under section 243 of the WHS Act beyond the list in Schedule 18A of the WHS Regulation. Other submissions such as by the AWU also sought an expansion of offences eligible for a penalty notice. A review of potential WHS (MPS) laws that may be eligible was conducted by the Resources Regulator in 2019 and

[79] https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2013-054#sec.49
[80] https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2013-054#sec.50
[81] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/review-of-regulator-or-inspector-decisions

the result is contained in Schedule 13[82] of the WHS (MPS) Regulation that took effect on 1 February 2020. Of the NSWMC examples proposed, all but clause 18 of the WHS (MPS) regulation were included among the much larger list in Schedule 13. The Resources Regulator advised the Reviewer that penalty notices for existing offences had been included in the new Schedule 13 to the fullest extent possible.

# 9.7. Boards of Inquiry [Part 7 of the Act]

## Stakeholder responses

No specific issues were raised regarding these requirements for the establishment and operation of a Board of Inquiry to assess industry performance and compliance, typically after a major accident that requires a formal inquiry. The NSWMC indicated its support for the provisions establishing Boards of Inquiry and noted that it has not been necessary for a Board of Inquiry to be established under the WHS (MPS) Act since its introduction. AMEC commented that a Board of Inquiry's operations and terms of reference must align with other similar inquiries should one be required in the future.

Half (nine) of the online Review survey responses agreed with the current provisions with seven of 18 neither agreeing nor disagreeing – a result which was not unexpected given that they have not been used yet.

The consolidated NMSF drafting instructions for Boards of Inquiry at section 39[83] include some elements that have not been reflected in the NSW WHS (MPS) Act at Part 7. These include a purpose statement: *"The purpose of a board of inquiry is to inquire into the nature, circumstances and causes or potential causes of the accident or incident or safety matter and provide findings and recommendations in order to avoid accidents or incidents in the future."* There is also more detail with respect to high potential emerging and systemic matters: *"The board of inquiry may investigate accidents, notifiable incidents and other safety related matters including high potential emerging and systemic issues. A board of inquiry may inquire into but is not limited to the following matters: any event or dangerous occurrence causing death or serious injury at a mining operation and its causes and circumstances; any dangerous occurrence at a mining operation and its causes and circumstances; any practice or other safety matter which in the opinion of the Minister adversely affects or is likely to adversely affect the health or safety of persons at a mine; any emerging or systemic issues affecting health and safety of persons in a mine."*

The drafting of section 56(1) of the WHS (MPS) Act is broad and includes 'a notifiable incident' (interpreted to include incidents plural) and *"any event, occurrence, or matter that may affect the health and safety of workers or other persons at a mine or petroleum site"*. The Minister can include additional

[82] https://www.legislation.nsw.gov.au/view/html/inforce/current/sl-2014-0799#sch.13
[83] See: https://www.commerce.wa.gov.au/sites/default/files/atoms/files/nmsf_non-core_drafting_instructions.docx

detail, such as in relation to purpose and emerging and systemic issues, in terms of reference. However, there is merit in including more detail in a redrafted section 56(1) of the WHS (MPS) Act. The purpose statement should be broadened to insert 'contributing factors' after 'causes' and before 'potential causes' to further underline that legal causality is not necessarily the focus[84] and allow for the fact that major accidents and incidents are typically multi-factorial and may involve non-linear systemic factors[85].

***10. It is recommended that*** *the WHS (MPS) Act section 56(1) Board of Inquiry purpose statement be expanded to include 'contributing factors' and to explicitly allow for high potential emerging and systemic issues and the making of potential findings and recommendations to reduce the likelihood of future accidents and incidents.*

## 9.8. Statutory Bodies [Part 8 of the Act]

There are two bodies established under the WHS (MPS) Act in Part 8 - the MSAC and the MPCB. The MSAC is an advisory body to the Minister on WHS policy in relation to mines (but not petroleum). The MSAC's constitution, membership, procedures and other matters are as specified in Part 10 and Schedule 11 of the WHS (MPS) Regulation. They include the appointment of some members independent of employer and union representatives, one of whom is appointed by the Minister as Chairperson of the Council. The Reviewer was advised that through the operation of section 47 of the *Interpretation Act 1987* (NSW) the Minister's power to appoint members under clause 160 of the WHS (MPS) Regulation includes a power to remove[86].

The MPCB is a decision-making body corporate in relation to competencies required in both mining and petroleum. After nominations by employer and employee representative bodies, its Board is appointed by, and is subject to, the control and direction of the Minister who also appoints up to four members with expertise separate from employer and union nominees, two Departmental officers and a Chairperson. Key provisions in relation to the MPCB are in Part 8 Division 2 of the WHS (MPS) Act with others in Part 11 of the WHS (MPS) Regulation. The Review was advised that through the operation of section 47 of the *Interpretation Act 1987* the Minister's power to appoint members under section 65 of

[84] See further the 2008 ATSB publication 'Analysis, Causality and Proof' by Michael Walker and Kym Bills: https://www.atsb.gov.au/publications/2008/ar2007053/

[85] See MIT Professor Nancy Leveson's July 2020 paper: http://sunnyday.mit.edu/safety-3.pdf

[86] The notes to section 18 and section 28 of the WHS (MPS) Act state that section 47 of the *Interpretation Act 1987* provides incidental powers with respect to appointments including providing a power to suspend or revoke any such appointment. A similar note could be added with respect to Part 8 of the Act but appears unnecessary.

the WHS (MPS) Act includes the power to remove. The arrangements appear satisfactory with the exception of not requiring the Chairperson to, in the Minister's opinion, be independent of employer and union nominating bodies. Similarly to the MSAC Chairperson, an independent MPCB Chairperson is considered desirable and consistent with broader NSW Government principles on conflicts of interest and probity[87].

***11. It is recommended that*** *the Chairperson of the MPCB be required to be an independent person similarly to the Chairperson of the MSAC and that Part 8 Division 2 of the WHS (MPS) Act and Part 11 of the WHS (MPS) Regulation be amended accordingly.*

## Stakeholder responses

Within submissions, the provisions for statutory bodies were considered valid and appropriate and should be retained. In the online survey, 10 of the 18 respondents agreed or strongly agreed, four were neutral, and four disagreed or strongly disagreed. The online survey also asked if respondents agreed that the provisions for statutory bodies ensure adequate representation in the provision of advice in relation to health and safety and competence. Eight of 18 agreed or strongly agreed, six neither agreed nor disagreed, and four respondents disagreed or strongly disagreed.

The Independent Reviewer held a telephone meeting with the Chairperson of the MSAC, the Hon. George Souris, about the operation of the MSAC in which the MSAC Chair emphasised the strong collaborative spirit among the tripartite members and how this had contributed and was contributing to the advice being provided to the Minister, such as in relation to dust measurement standards.

Submissions from both the NSWMC and CFMMEU indicated that they valued the opportunity to participate in these statutory bodies focussed on the health and safety at mining workplaces. This was also supported by individual PCBUs and, in the case of Glencore, in their capacity as a member on the MSAC as a nominee of the NSWMC.

Several submissions were more critical. In the current WHS (MPS) Regulation, members representing employers and workers are limited to the NSWMC, the CCAA, the CFMMEU and the AWU. This was not considered by some to sufficiently represent all mines. Mine Managers submitted that the current

[87] See https://arp.nsw.gov.au/assets/ars/99f08809f0/NSW_Government_Boards_and_Committee_Guidelines_-_Updated_September_2015.pdf and https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0020/1156601/Practice-Note-Probity-Screening-for-Ministerial-Appointments.pdf

provisions were not appropriate because MSAC and MPCB membership is too far removed from the 'coal face' and there should be more input from practitioners. They stated that there are currently no mining engineers with underground coal experience or mine managers on the MSAC or MPCB. They claimed that this is reflected in actions by the MPCB that are 'deleterious' to the coal industry. At the time of the submission and currently on the MSAC Mr Rob Cunningham was mining manager for a large underground metalliferous mine, and Glencore Chief Operating Officer Mr Ian Cribb is now a MSAC member and his 40-year coal mining background includes being underground engineering manager at Ulan. In terms of Mine Managers' particular concern with the MPCB membership, the Reviewer was advised that at the time of the submission, Mr Greg Shields was manager of mining engineering for an underground coal mine. Currently, as shown in the links footnoted below[88] one of the two CFMMEU nominated members is Mr Stephen Barrett who is a former mining engineering manager. Among other experienced MPCB members, Mr Garvin Burns is the Chief Inspector of Mines and Mr Andrew Grivas is an engineering manager and also a mine manager first class from Western Australia.

AMEC and an associated individual submission by Mr John Miller suggested that AMEC should be directly represented on both statutory bodies. They argued that the membership of the NSWMC does not include smaller metalliferous operators and the exploration sector.

While the Reviewer considers that additional coal mining expertise as suggested by Mine Managers and further views from AMEC's smaller metalliferous and exploration sector members could be helpful, it may be at the expense of workable size and a tripartite balance that is currently collaborative. The NSWMC emphasised that the NSW tripartite model from an industry perspective *"has worked well and created a respectful, open relationship among the stakeholders to deliver strong WHS outcomes. This model is driven through the Mine Safety Advisory Council … [MPBC and MSAC's existing representatives] continue to provide adequate representation in the provision of advice relevant to health and safety competence".*
The Resources Regulator confirmed that the NSWMC nominees are not restricted to representing NSWMC membership at meetings of MSAC and the MPCB and can represent AMEC and Mine Managers. AMEC is an existing member of the NSW Minerals Industry Safety and Health Engagement Forum (MISHEF).

AMEC and Mr John Miller suggested changes to the procedures for the operation of the MSAC and MPCB as a means of increasing the breadth and depth of discussion and transparency and inclusiveness in decision-making and outcomes. AMEC sought the prior release of agendas and a call for comments prior to meetings and a release of any recommendations for comment after meetings of the two bodies.

[88] MSAC: https://www.resourcesregulator.nsw.gov.au/safety-and-health/about-us/advisory-council/members-of-the-mine-safety-advisory-council and MPCB: https://www.resourcesregulator.nsw.gov.au/safety-and-health/about-us/competence-board

As a matter of transparency and to provide potential helpful industry input, the Reviewer supports the MSAC and MPCB posting their meeting schedules and meeting agendas on a public website. This would allow industry stakeholders such as AMEC to consider any particular advice that they may wish to convey to the meetings via the NSWMC or through the Department secretariat. Minutes of the MSAC and MPCB meetings inclusive of recommendations are already made public after meetings[89] and any stakeholder can take the initiative to make comments on any recommendations through their representative or to the relevant Chairperson through the Resources Regulator.

***12. It is recommended that*** *the MSAC and MPCB publish meeting agendas ahead of their scheduled meetings with sufficient time to allow for industry stakeholders to provide input.*

Mr Bruce Fulton provided a detailed individual submission regarding tailings dam management and the competence of persons required in the design, construction and management of tailings dams which is discussed further at 10.3 below. While not specifically related to the validity or appropriateness of the provisions for the MPCB, he raised a concern about the lack of formal or specific professional qualifications required of persons to effectively manage tailings dams at various stages of their life-cycle.

A function of the MPCB under the WHS (MPS) Act is to oversee the development of competence standards for persons exercising functions at a mine or petroleum site that may impact on the health and safety of any person. Mr Fulton requested that consideration be given to a mechanism through which a suitable, practical and industry-relevant and agreed framework be developed, noting that regulators will require input and there should be collaboration among all interested parties to allay community concerns and ensure mining companies have a social licence to operate.

As regards additional expert training, Mr Fulton indicated that the University of NSW (UNSW) had shown initial interest but would need support from other universities with a mining engineering focus. This could perhaps include Curtin University's School of Mines in Western Australia and a university with mining expertise in Queensland. There could be consideration and support by the Australasian Mining Competency Advisory Committee (AMCAC) and the Conference of Chief Inspectors of Mines (CCIM). While the NSW Dam Safety Committee has legislative powers for prescribed large tailings dams this is not their regulatory focus - but they may be prepared to support proposals for relevant further

[89] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/about-us/advisory-council/msac-meeting-minutes
https://www.resourcesregulator.nsw.gov.au/safety-and-health/about-us/competence-board/board-publication

education. As this matter does not fall within the terms of reference for this Review, no recommendation is made but there would be merit in the Resources Regulator briefing the MPCB and seeking its advice and support. Tailings dams are discussed further at 10.3 below.

## 9.9. Other matters

***Red tape***

During consultations, several stakeholders raised issues and concerns about excessive administrative red tape associated with the WHS (MPS) laws. The possibility of reducing the regulatory requirements for smaller lower risk mine sites, including exploration sites, is addressed later in this Review report. Some matters raised related to requirements under the WHS Act and Regulation. (As noted, the WHS Act was reviewed in 2017 and 2018 based on separate statutory requirements.) Some were less specific and in face-to-face discussion, involved misunderstandings such as a need to retain all pre-start workforce toolbox Take 5 and similar checklists. This raises a broader point about the desirability of documenting important procedures that can impact health and safety in a manner that reflects the actual work done in language and with formatting (that may include diagrams) that is understood by those who are expected to read and use it. Long complex text is often the result of laziness or may have an eye to making a case in future litigation instead of focusing on preventative health and safety[90]. A 2014 report by Deloitte estimated that two thirds of the regulatory burden faced by Australian industry is self-imposed[91]. That provides a further incentive for mine and petroleum site operators to reduce unnecessary procedures and paperwork that can clutter and obscure important health and safety controls and procedures. This is an area where ongoing education and further guidance[92] from the Resources Regulator can assist industry.

> ***13. It is recommended that*** *the Resources Regulator develop further guidance material on industry better practice documentation for safety controls, policies and procedures. Such documentation should be developed with, and tailored for, those who are required to use them and minimise unnecessary words and complexity of language.*

[90] See the book by Gregory Smith, *Paper Safe: the triumph of bureaucracy in safety management*, Wayland, 2018
[91] See https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Building%20Lucky%20Country/deloitte-au-btlc-get-out-your-own-way-230217.pdf
[92] Building on: https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/human-factors

**Penalties**

It is important that penalties under the WHS (MPS) laws reflect the seriousness of offences and maintain their value in terms of the Consumer Price Index. The NSW WHS Act and Regulation includes penalties expressed in penalty units and this should also be the case for the WHS (MPS) Act and Regulation.

> ***14. It is recommended that*** *consistent with changes made to the WHS Act and WHS Regulation , penalty amounts under the WHS (MPS) Act and WHS (MPS) Regulation should be amended to specify penalty units and desirably should be automatically indexed with the Consumer Price Index.*

**Minor updates**

There are typically minor updates to be made in legislation after five years or more of operation. In the context of other proposed amendments, the Department should review the WHS (MPS) laws and make any minor update changes required. For example, in section 5(1) of the WHS (MPS) Act the Department name should be changed from the Department of Planning and Environment to the Department of Regional NSW. A recommendation covering these minor Machinery of Government amendments and other minor matters in the WHS (MPS) Regulation is made at the end of Part 10 of this report.

***Mines Rescue and Coal Industry Act 2001***

The NSW *Coal Industry Act 2001*[93] provides the Minister with the power to approve a company or companies to undertake functions under the Act provided its shares are half held by the CFMMEU and half by the NSWMC. Three companies - Mines Rescue Pty Ltd, Coal Services Pty Ltd, and Coal Mines Insurance Pty Ltd - have been approved. The companies provide workers compensation, health and rehabilitation services, and other services to coal industry workers. They also monitor mine dust, undertake research, collect and disseminate coal worker accident and other health and safety data, provide mine rescue services, approve WHS (MPS) Act SMS training schemes, and (in section 10 of the *Coal Industry Act 2001*) refer matters relating to coal worker safety to the Resources Regulator. Inspectors under the *Coal Industry Act 2001* can stop mine work, inspect and search premises, require information and, with the approval of the Minister, Orders can be gazetted. Under section 36 of the *Coal Industry Act 2001* determinations can be made for each underground coal mine with respect to mine rescue personnel, equipment and storage facilities.

[93] https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2001-107

Both Coal Services and Mines Rescue (Coal Mines Insurance is far less relevant) made helpful submissions to the Review and issues raised are dealt with at relevant points in this report. Some other submissions suggested interface concerns between the WHS (MPS) laws and the *Coal Industry Act 2001*. For example, BIS Industries submitted that there was duplication between the two sets of laws with regard to dust sampling and that some health monitoring regulation was better placed in the WHS (MPS) Regulation than under a *Coal Industry Act 2001* Order.

There appears to be actual or perceived overlap and uncertainty in the exercise of some of the functions and regulatory powers under the *Coal Industry Act 2001* and the WHS (MPS) laws. Some of the submissions made by Mines Rescue for legislative action under the WHS (MPS) laws may be able to be achieved using powers under the *Coal Industry Act 2001* or contractually through their provision of equipment and services to underground coal mines. But there is a question of what is the most efficient, effective and appropriate. A limited review of the *Coal Industry Act 2001* was undertaken by WorkCover in 2007. Section 58 of the *Coal Industry Act 2001* only requires a review five years after the date of assent. No further statutory review has occurred and, as was submitted by BIS Industries, a review would appear timely and indeed well overdue.

Notwithstanding the overlapping functions, the Reviewer was advised that there are no Memoranda of Understanding between Coal Services or Mines Rescue with the Resources Regulator or jointly agreed guidance material in relation to these matters.

***15. It is recommended that*** *because the NSW Coal Industry Act 2001 contains various provisions that overlap or are perceived to overlap with the WHS (MPS) Act and WHS (MPS) Regulation and has not been reviewed since 2007, the Coal Industry Act 2001 should be reviewed to ensure that it reflects best practice and there is clarity of regulation between the two Acts and regulatory staff. Memoranda of Understanding and/or guidance material in relation to overlapping functions between the Resources Regulator and relevant approved Coal Industry Act 2001 companies is also desirable.*

# 10. WHS (MPS) Regulation

## 10.1. Nomination and appointment of operators

### Stakeholder response

In submissions, the provisions for nomination and appointment of an operator were considered both valid and appropriate. No significant issues were raised in connection with the requirements.

In the online survey, 11 of the 18 respondents agreed or strongly agreed that the provisions for nomination and appointment of operators are still valid, appropriate and working as intended. Five respondents neither agreed nor disagreed. Two respondents disagreed or strongly disagreed, possibly as some form of protest.

From a small mine perspective, the LRMA noted that nominating a mine operator for an opal mine remains simple and easy to complete.

AMEC considered that the appointment of a mine operator and notifications to the regulator (clauses 6 and 7 of the Regulation) should include digital and/or online provisions for notification to align with contemporary work practices. Notifications are discussed at 10.11 below. With regard to notification of appointment of a mine (or petroleum) site operator, there is an online form that can be filled in by typing text[94]. However, the form is required to be signed by both the mine site holder and the mine site operator (or authorised persons) and emailed to the regulator. Given the importance of the mine site operator role and the duties that flow from it, the Reviewer considers that the nomination and appointment process should require declarations and signatures. The precise manner and form in which this occurs is already flexible under clause 6(2)(b) of the WHS (MPS) Regulation, so no amendment is necessary. The Resources Regulator advised that the option of a form was important for a number of opal and other smaller mine operators but it is examining the possibility of a completely online process with digital signatures from authorised persons representing the mine holder and mine operator.

Some stakeholders submitted that because many mine operators were corporate entities this enabled health and safety requirements of the WHS (MPS) laws to be less carefully applied. This concern led to calls for adding a Site Senior Executive type role (see the discussion at 10.12 below) and enhancing or requiring mine manager training for other senior statutory roles. The Reviewer considers that concerns of a lack of personal understanding and accountability by senior officers should be met by enforcement of the WHS Act section 27 due diligence provisions for officers. A regulator can test senior officer -

[94] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/notifications/mine-operator

including board members – compliance with section 27 of the WHS Act ahead of any particular incident or failure of controls. This is discussed further at 10.14 with an associated recommendation.

# 10.2. Management of risks

## Stakeholder responses

Respondents in submissions indicated that the management of risk provisions were generally valid, appropriate and working as intended. Sixteen of 18 respondents to the online survey agreed or strongly agreed that the provisions in Part 1, Division 1, Subdivision 1 of the WHS (MPS) Regulation for managing risk in addition to the WHS Regulation are still valid, appropriate and working as intended. Two respondents strongly disagreed.

The LRMA submission stated that clause 184 of the WHS (MPS) Regulation was valued by opal miners as was the simple logbook documentation, SMS templates and safety and risk assessment training provided by the Resources Regulator. But they noted the difficulty that some opal miners still have in keeping records of the risk assessments they undertake. The Reviewer considered that ongoing access to guidance and training through the Resources Regulator rather than a legislative solution was appropriate.

The CFMMEU suggested that it may be useful to expand the requirement to conduct risk assessments to include specific reference to ensuring members of a team or group conducting risk assessment are appropriate for the nature of the hazard. They argued that team competency was an important concept. The Reviewer agrees that team competency is important but notes that the WHS (MPS) Regulation clause 9 reference to 'competent person' can include the plural, i.e. competent persons such as those comprising a team.

The CFMMEU also suggested that the Regulatory note that appears below clause 9(4) of the WHS (MPS) Regulation could be expanded to include reference to section 48 or 49 of the WHS Act that deals with worker consultation. The existing note deals with risk control duties and the extra reference is not regarded as necessary by the Reviewer because worker consultation is expected to occur whenever controls are being varied.

The NSWMC considered that these duties, like all duties and obligations applicable to operators, should be qualified by a test of reasonableness or reasonable practicability. They submitted that the concept of 'reasonable practicability' should be applied universally in relation to all duties and obligations applicable to mine and petroleum site operators under the WHS (MPS) laws. Further, a suitable standard based on 'reasonableness' (whether positioned as a qualification or defence) should universally apply to all duties applicable to individual duty holders. The Reviewer does not agree with the submissions by the NSWMC and AMEC that all duties and obligations should be qualified by

'reasonably practicable'. This was considered at length during the NMSF consultation process and the outcome was that a number of duties and obligation were deliberately made absolute. Examples include reporting of deaths and other notifiable serious incidents, methane gas monitoring and ensuring that underground coal workers have breathable air and health monitoring. Some duties already include timing flexibility to assist with practicability.

Ampcontrol provided a detailed submission in relation to clauses 3, 78 and 79 of the WHS (MPS) Regulation and the operation of the AS/NZS 60079.10.1:2009 Standard that they argue is best practice in assigning zones based on the frequency of occurrence and duration of hazardous atmosphere. Ampcontrol sought to have the Standard series adopted verbatim as mandatory. They noted concerns with methane concentrations above 1.25% in clause 78 of the WHS (MPS) Regulation but they did not cite the 0.25% level in clause 76(2) of the WHS (MPS) Regulation. Ampcontrol also stated that hazardous areas should not just be based on methane explosion risk and noted issues in clause 78 of the WHS (MPS) Regulation with coal dust and other 'combustible flyings' but did not cite other parts of the WHS (MPS) laws that deal with these risks.

The extract that Ampcontrol cites from the AS/NZS 60079.10.1:2009 Standard in relation to Explosive Gas Atmospheres at paragraphs 3.6 to 3.8 defines: *"Zone 0: an area in which an explosive gas atmosphere is present continuously or for long periods or frequently. 3.7 Zone 1: an area in which an explosive gas atmosphere is likely to occur in normal operation occasionally. 3.8 Zone 2: an area in which an explosive gas atmosphere is not likely to occur in normal operation, but if it does occur, it will exist for a short time only".* The AS/NZS 60079 Standard series deals with electrical protection and ignition risk issues in a range of high-risk environments such as surface mining, petroleum, and gas and chemical plants and not just underground coal. The Reviewer was advised that there would be complexities in adopting the Standard verbatim to underground coal mines, such as with longwall mining, and that it could lead to issues of interpretation and implementation across various coal mines that could increase the risk of an explosion.

The Reviewer generally supports a risk-based approach. However, major accidents such as the 31 fatalities in 1965 at the Cambrian Colliery mentioned at 9.1 above arguably occurred in a mine that would have been classified as Zone 2. The WHS and WHS (MPS) laws apply a test of what is reasonably practicable. Reducing risk to as low as is reasonably practicable is a fundamental requirement of the existing laws.

Ampcontrol also submitted that verbatim adoption of standards in legislation (most of them are not risk based) can lead to them becoming out-of-date (and gives the example of AS/NZS 1972) and hinder the use of new technology. They noted that Australian Standards are generally prescriptive in nature and relevant at the time of publication. Ampcontrol recommended that the WHS (MPS) Regulation either defines the outcome that must be achieved or the level of performance that must be met, or allow the

existing Standards references to remain, but provide a formal mechanism like Queensland that requires an independent engineering assessment completed by competent professional engineers to demonstrate that an alternate method results in a level of risk equivalent or better than following the prescribed Standard. The latter option aligns with the exemption published in NSW Government Gazette No 27 on 29 March 2019 for WHS (MPS) Regulation clause 80(3)(b)&(c) and is recommended below.

Ampcontrol advocated NSW legislation that supports engineering services delivered by professional engineers similar to Queensland's *Professional Engineers Act 2002*. There are already substantial Certificate of Competency, Practicing Certificate and Continuing Professional Development schemes in place for engineering functions under the NSW mining legislation. However, in June 2020, the NSW Government enacted the *Design and Building Practitioners Act 2020*, section 31 of which states that *"(1) For the purposes of this Act, professional engineering work means engineering work that requires, or is based on, the application of engineering principles and data to - (a) a design, or (b) a construction, production, operation or maintenance activity, relating to engineering."* Section 32 initially prescribes its application to civil, structural, mechanical, electrical and fire safety engineering with additional areas of engineering practice able to be added via regulation[95]. This could provide a model to be considered for engineering in other high-risk activities such as underground coal mining.

AMEC argued that various codes and Australian Standards provide useful guidance but are not always drafted so that they are applicable for the specific circumstances related to the minerals industry and therefore they should not be mandatory. One example given related to the Australian Standard for explosives and signage required during road transport that has also been transferred to underground mine roads. Submissions in relation to standards varied significantly and standards deal with highly complex and important matters, so a further expert review is therefore recommended.

***16. It is recommended that*** *references to all standards in the WHS (MPS) Regulation should be reviewed. Some such as AS/NZS 1972 in clause 80(3)(b) should be updated with Resources Regulator consideration given to automatically updating to the latest version or whether enduring mining and petroleum related elements in some standards are better specified in the Regulation or in a code of practice. The Resources Regulator, in consultation with the MPCB should consider a formal provision to enable a professional engineering demonstration of an alternate means of compliance that entails a level of risk equivalent to, or better than, following a standard.*

[95] See https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2020-007#sec.32

***17. It is recommended that*** *the Resources Regulator, in consultation with the MPCB, consider and recommend to the Minister whether, given the extensive arrangements already in place in NSW, engineering roles in mining and petroleum should be specified in legislation similarly to professional engineering roles in construction under the Design and Building Practitioners Act 2020.*

As mentioned at 9.1 above, several submissions suggested that the levels of regulation applying to lower risk mining, such as gravel pits used periodically by local councils for road works, and extraction operations, were excessive. While the Resources Regulator has developed a tier 3 classification that can assist and it is also possible to seek exemptions, a legislative solution and better guidance could be simpler and more appropriate.

On 18 December 2019 the WHS (MPS) Regulation (clause 130) was amended to enable a reduction in requirements for quarterly work health and safety reporting. This is discussed further at 10.11 below. To enable further risk-based simplification, two recommendations are made below. At 10.11 there are also recommendations in relation to consolidating and simplifying incident notifications.

***18. It is recommended that*** *the Resources Regulator consider broadening the exemptions in clause 184 of the WHS (MPS) Regulation for small gemstone, opal and tourist mines to include low risk 'tier 3' mine sites such as small surface gravel pits used by regional and remote councils for roadworks, and small exploration sites.*

***19. It is recommended that*** *the Resources Regulator provide additional guidance to assist with the utilisation of existing provisions in the WHS (MPS) Act and WHS (MPS) Regulation that provide flexibility and how they will be interpreted to reduce the regulatory burden for smaller and lower risk mining and extraction such as gravel pits for roadworks and in exploration.*

# 10.3. Systems, Principal Hazards & Principal Control Plans

## Stakeholder responses

The online survey sought responses to the question in relation to relevant aspects of Part 2, Division 1, 2 and 3 of the WHS (MPS) Regulation 'Do you agree that the provisions for safety management systems (SMSs), including principal hazard management plans (PHMPs) and principal control plans (PCPs) are still valid, appropriate and working as intended?' Eleven of 18 respondents agreed or strongly agreed, two were neutral, four disagreed and one respondent strongly disagreed.

Requirements for the SMS and for individual PHMPs and PCPs were generally considered valid by industry associations (the NSWMC and CCAA) and large coal operations (Glencore and Ulan West) but AMEC emphasised that these "must align with the risks and be fit for purpose for the different minerals industry operations around NSW".

In its application to specific types of mining operations, the LRMA supported retention of the exemption from these provisions for opal mines. Smaller quarry operations were discussed in the previous section.

Worker groups recommended that two issues be specifically addressed as a principal hazard or PCP or more comprehensively addressed in existing plans by including specific considerations (as proposed) in Schedule 1 or 2 respectively. The CFMMEU highlighted rock/coal bursts and APESMA highlighted fatigue.

Rock and coal bursts are a serious hazard in underground coal mining that have caused fatalities in Australia and around the world[96]. The Resources Regulator included them among dangerous incidents at clause 179(j) of the 2018 regulatory amendments and has no issue with the need to address this hazard as a principal hazard in mines where it may occur. It is already indirectly covered in WHS (MPS) Regulation clause 23(1) and Schedule 1, so the only issue is whether it needs to be separately identified. Given its potential seriousness, the Reviewer considers that there is benefit in separately listing rock/coal bursts as a principal mining hazard.

[96] See for example: https://ro.uow.edu.au/cgi/viewcontent.cgi?article=2362&context=coal and https://www.intechopen.com/online-first/coal-burst-a-state-of-the-art-on-mechanism-and-prevention-from-energy-aspect

***20. It is recommended that*** *notwithstanding the provisions of WHS (MPS) Regulation clauses 179(j) 23(1), and Schedule 1, consideration should be given by the Resources Regulator to clarifying that rock and coal bursts and related pressure bursts are a principal mining hazard (or an important element of an existing principal mining hazard).*

For the purposes of section 14(c) of the WHS (MPS) Act, "spontaneous combustion at a coal mine" is prescribed as a dangerous incident in clause 179(a)(xix) of the WHS (MPS) Regulation. In Schedule 1 Part 1 Mines, 3B of the WHS (MPS) Regulation covering PHMPs:
*"The following matters must be considered in developing the control measures to manage the risks of spontaneous combustion - (a) the potential for spontaneous combustion to occur in the material being mined, including by - (i) evaluating the history of the mine in relation to spontaneous combustion, and (ii) evaluating any adjacent or previous mining operations in the same seam, and (iii) conducting scientific testing, (b) mine ventilation practices, (c) the design of the mine, (d) the impact of gas generated by spontaneous combustion on mine environmental conditions".*

In its Fact sheet explaining regulatory changes effective on 1 February 2020[97] the Resources Regulator stated regarding amendment of the WHS (MPS) Regulation: *"References to spontaneous combustion under clause 179 Dangerous Incidents have changed to align with the new classification of some spontaneous combustion incidents as 'high potential incidents' under clause 128(5)(v). Clause 179(h), which classified all spontaneous combustion at a coal mine as a dangerous incident, has been removed. A new clause 179(a)(xix) has been inserted which makes spontaneous combustion incidents at a coal mine a dangerous incident where it exposes a worker or any other person to a serious risk to a person's health or safety. Clause 179(d) continues to require any initial indication that any underground part of a coal mine is subject to spontaneous combustion to be reported as a dangerous incident."*

This was intended to reduce the burden on surface coal mine operators having to report spontaneous combustion immediately as a dangerous incident that then linked it to incident scene preservation requirements, unless it exposes a worker to a serious health or safety risk. However, it appears to have led to some confusion among employers as shown in submissions including by the NSWMC. Further information, guidance, education and awareness raising based on the Fact sheet is recommended.

[97] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/whs-mines/whs-mines-and-petroleum-sites-regulation-2018-amendments

***21. It is recommended that*** *the Resources Regulator provide additional information and guidance to industry on the rationale for the amendments to the WHS (MPS) Regulation effective on 1 February 2020, especially the change to make a less serious instance of spontaneous combustion at a surface coal mine a high potential incident rather than a dangerous incident.*

APESMA recommended that specific control measures be mandated in relation to fatigue to satisfy the existing clause 43 of the WHS (MPS) Regulation (for example, in relation to shift lengths, meal breaks, availability of relief staff, rostering and consultation). It was suggested that fatigue was particularly an issue for those employed in control rooms as control room operators. Fatigue was also highlighted by the CCAA as a re-emerging issue. The Reviewer accepts the overwhelming evidence on the potential risks associated with fatigue in high-risk work settings. Improved work design, new technology and engineering controls that reduce fatigue are always desirable. Absent these, there is a helpful guidance material cited on the Resources Regulator website[98] but the issue can be more one of compliance. The existing WHS (MPS) laws appear adequate but further education and enforcement by the Resources Regulator is desirable. This is discussed further at 10.5 below.

Ampcontrol submitted that electrical protection settings should be part of the mine record, and engineering justification for those settings to demonstrate control of touch potential (and other risks associated with electricity) needs to be continuously maintained and up to date as the mine electrical system is altered as mining progresses. Ampcontrol proposed that this should be added to the requirements of the Electrical Engineering Control Plan. The CCAA also submitted that electrical control systems involve emerging issues that are not clearly dealt with in the WHS (MPS) Regulation and guidance material. The NSWMC submitted that there should be less prescription in relation to the WHS (MPS) Regulation clause 32 controls on electrical safety. The Reviewer considered that not enough detail was provided to make a recommendation to amend the Regulation either way at this stage but that additional guidance was warranted.

Important processes and records are required to be part of the Electrical Engineering Control Plan and mine record under the existing WHS and WHS (MPS) laws and it was not clear that there is a problem in practice. However, to avoid any doubt, the Resources Regulator should make this clear in guidance material and consider updating EES-005 'Electrical protection and earthing guideline' and EES-011 'Technical principles for design of electrical systems'[99].

[98] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/fatigue
[99] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/publications/historical-catalogue

Mr John Ainsworth emphasised the importance of appropriate expertise in relation to electrical protection systems and cited the recent publication of the Standards Australia Handbook HB 119 -2009 Mines and Quarries Electrical Protection.

***22. It is recommended that*** *the Resources Regulator provide guidance to ensure that all significant electricity risks in mining such as electrical protection settings and electrical control systems are addressed in the Electrical Engineering Control Plan and included in the mine record. Consideration should also be given to updating EES-005 'Electrical protection and earthing guideline' and EES-011 'Technical principles for design of electrical systems' and providing guidance in relation to electrical control systems.*

***Tailings dams and mining waste storage***

Having been overlooked for decades, tailings dam and spoil tip failures are well known hazards particularly since a Welsh coal mining disaster at Aberfan on 21 Oct 1966 killing 144, including 116 children. A 2019 journal article[100] considers 46 more recent failures over the past 20 years involving a doubling of the frequency rate worldwide. These include the two disasters in Brazil in 2015 and 2018 in which more than 300 were killed and there was extremely serious pollution and environmental damage.

As mentioned above, a submission by Mr Bruce Fulton highlights the importance of the issue, notes revised Australian ANCOLD guidance in July 2019[101] and argues for better training on the technical issues with a new collaborative postgraduate course as one suggested priority.

In the WHS (MPS) Regulation 'emplacement areas' are defined to include tailings dams. Clause 122(6) requires survey plans to show tailings dams. PHMPs in Schedule 1 Part 2 clause 2 include inundation or inrush of any substance such as from tailings dams and emplacement areas. High Risk Activities in Schedule 3 Part 7 include engineering and monitoring during the life cycle of tailings storage facilities.

The Resources Regulator has been proactive in this area and provides helpful guidance on its website under the topics 'tailings storage facilities management' and 'other guidelines and standards'[102] the

[100] See M. Armstrong, R. Petter & C. Petter, 'Why have so many tailings dams failed?' *Resources Policy*, Vol.63, 2019.
[101] See: https://www.ancold.org.au/?product=guidelines-on-tailings-dams-planning-design-construction-operation-and-closure-may-2012
[102] See: https://www.resourcesregulator.nsw.gov.au/environment/tailings-storage-facility-management and https://www.resourcesregulator.nsw.gov.au/environment/tailings-storage-facility-management/Other-guidlines-and-standards

latter including a link to excellent material by the Australian Government[103]. As mentioned in this report at part 3, introducing a high-risk activity notification for the establishment, operation, alteration or decommissioning of a tailings storage facility at a metalliferous mine was included in the amendment to the WHS (MPS) Regulation on 18 December 2019 with effect from 1 February 2020[104]. There is a strong legislative basis for the regulation of tailings dams and other waste storage facilities.

However, a 'Global Industry Standard on Tailings Management'[105] has recently been developed by an international tri-party expert group chaired by Dr Bruno Oberle, with two of the seven expert panelists Australians: Emeritus Professor Andrew Hopkins from the Australian National University and University of Queensland Professor Deanna Kemp[106]. The three sponsoring parties for the work on the standard are the International Council on Mining and Metals, the United Nations Environment Programme, and PRI (Principles for Responsible Investment).

Given the release in August 2020 of the Global Industry Standard on Tailings Management, it is recommended that the Resources Regulator reference it in its online guidance and consider whether any further legislative changes are warranted. This may be a useful matter to be considered by the MSAC for potential advice to the Minister.

***23. It is recommended that*** *the Resources Regulator reference the August 2020 Global Industry Standard on Tailings Management in its guidance material and consider potential legislative amendments to incorporate aspects of the standard.*

[103] See: https://www.industry.gov.au/sites/default/files/2019-04/lpsdp-tailings-management-handbook-english.pdf
[104] See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0010/1193374/Fact-sheet-Tailings-Storage-Facilities-Regulation-amendment-High-risk-activity-notification-for-mines.pdf
[105] See: https://globaltailingsreview.org/global-industry-standard/
[106] See: https://globaltailingsreview.org/about/timeline/ and https://globaltailingsreview.org/about/governance/expert-panellists/

# 10.5. Contractor management

## Stakeholder responses

Contractors are an important part of high-risk mining and petroleum activities. They fill specialist roles on an as-needed basis and also ongoing roles akin to employees[107]. Contractors are often not members of industry unions and this can add an ideological overlay to their engagement from the perspective of both some employers (PCBUs) and some employees (especially if union members or representatives). However, no submissions were made by the CFMMEU or the AWU with regard to contractors.

In a number of major mining and petroleum industry accidents worldwide, the role of contractors has been a contributing factor, usually because of communication issues with other contractors and the primary employer. The Deepwater Horizon offshore disaster in the Gulf of Mexico is a case in point[108]. In smaller scale accidents, including those with fatalities, there is no unambiguous evidence one way or the other that contractors are more likely to be involved than employees. This was noted in the Brady Review where in Queensland's mining industry the number of contractor hours has exceeded employee hours since 2017-18[109]. Integrating contractors within or alongside mine SMSs in accordance with existing WHS (MPS) laws is essential. For both employees and contractors, it is important that there be systems in place to encourage incident and hazard reporting and address any reports that are made. This is discussed at 9.2 and 10.11 in this Review report.

AMEC and a related submission by Mr John Miller included reference to the provisions for contractors at clauses 19 to 22 of the WHS (MPS) Regulation. AMEC stated that miscommunication between mine operators and other PCBUs especially contractors has been an important factor in recent incidents in the minerals industry. AMEC submitted that Part 2, Division 1, Subdivision 4 of the WHS (MPS) Regulation could be improved by providing exemptions for contractors undertaking lower risk activities and/or on lower risk sites. An example given in clause 19(b) was a mine waste collector that did not have the same exemption as a delivery contractor. AMEC noted that the work of many individual contactors appointed through labour hire firms is basically the same as employees.

AMEC recommended that an exemption should apply when a "business or service not specifically associated with the extraction of mine or petroleum products, is delivered remote from the winning of ore or petroleum" and for "a labour hire business or service where the operational control and supervision of employees is assumed solely by the operator of the mine or petroleum site".

---

[107] Current Resource Regulator guidance on contractors is available here: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0009/537291/contractors-guide.pdf

[108] For example, between BP and Transocean: https://www.csb.gov/the-us-chemical-safety-boards-investigation-into-the-macondo-disaster-finds-offshore-risk-management-and-regulatory-oversight-still-inadequate-in-gulf-of-mexico/

[109] See pp13-14 in https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2020/5620T197.pdf

An associated submission by Mr John Miller proposed the same amendments. Such exemptions may well be appropriate depending on the circumstances and risk and an exemption can be sought under the current WHS (MPS) laws. However, because the risks associated with particular contractors is not always clear, a blanket exemption is not supported by the Reviewer.

# 10.6. Specific control measures

## Stakeholder responses – General approach to control measures

The NSWMC and most submissions supported the risk-based approach required by the duty to identify hazards and manage risks and to develop a SMS to discharge the obligation on a PCBU to manage risks to health and safety. The CFMMEU and CCAA submitted that the specific control measure provisions were valid, appropriate and generally working as intended. However, the NSWMC submitted that the level of prescription set out in the specific control measures should be reduced.

Several other submissions from business groups and employers considered that there was unnecessary prescription that reduced flexibility and the potential for innovative approaches to control risks, such as with the future use of electronic control systems cited earlier at 10.2. Other examples suggested of where the level of prescription could be reduced are addressed in relevant sections below.

The NSWMC, the CCAA and Ampcontrol submitted that this Review provided an opportunity to encourage use of technology to improve hazard control, risk management and health and safety outcomes. This is supported by the Reviewer and is consistent with the Resources Regulator's innovation policy[110].

## Specific control measures – all mines and petroleum sites

The online survey sought responses to the question in relation to Part 2, Divisions 4 & 5 of the WHS (MPS) Regulation 'Do you agree that the provisions for specific control measures are still valid, appropriate and working as intended?' Eleven of 18 respondents agreed or strongly agreed, three were neutral and four disagreed or strongly disagreed. This section provides a summary of stakeholder responses on specific provisions and issues which are not covered elsewhere in the Review report.

Stakeholder views on operational control provisions applying to **all mines** are as follows:

- **Communication between shifts** (clause 27 of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller stated that they understood the intention but argued that it was not practical to implement. They recommended deleting clause 27(d) as

[110]See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0006/850461/Innovation-Policy.pdf

unnecessary because clause 27(c) legally obliges the incoming supervisor to pass on the information from the outgoing supervisor to incoming workers. It was also submitted that requiring the outgoing supervisor to sign off that the incoming supervisor had advised that incoming workers had been briefed would unduly delay the outgoing supervisor. The Reviewer accepts the Chief Inspector's advice that this is unlikely to be a problem in practice given the workloads faced by outgoing supervisors and that in any case, the current provision allows for an electronic signature which could be provided after leaving the mine site.

- **Explosives** (clause 31(2)(b) of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller consider that flexibility should be provided to allow alternative controls where demonstrated to provide an equivalent or greater level of safety through a formal risk assessment process in addition to AS 2187, which they stated is written around transport on public roads and does not recognise the controls associated with mining sites. The Review scope did not include examination of the NSW *Explosives Act 2003*. However, in relation to standards, the Reviewer has made a recommendation at 10.2.

- **Electricity safety** (clause 32 of the WHS (MPS) Regulation) – The NSWMC believed that the prescription in clause 32 (Electrical safety) could be simplified "to reduce the number of specific requirements and cross referencing to the Wiring Rules"[111]. No detailed data was supplied to support this suggestion and the NSWMC has separately suggested that changes to the WHS (MPS) laws should not be made unless they are necessary and backed by evidence. The CCAA submitted that electrical control systems are an emerging issue on which greater guidance is desired (see 10.3 above and the associated recommendation).

- **Notification of high risk activities** (clause 33 of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller submitted that the development of a new mine entry as specified in Part 2, clause 4 of Schedule 3 of the WHS (MPS) Regulation should not be a high-risk activity subject to notification and the provision should be deleted and managed instead through the general risk management provisions. The Resources Regulator advised that it requires this notification in order to be alerted to and consider the risks, and what regulatory action may be required. However, an exemption to the three month waiting period before work can commence can be sought.

- **Prohibited items and substances** (clause 34 of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller submitted that the prohibition on ignition sources in clause 3(1)(d) of Schedule 4 of the WHS (MPS) Regulation should not include safety devices

[111] A regulatory amendment to update to the 'Wiring rules' became effective on 1 February 2020 to reference the latest standard *AS/NZS 3000: 2018 Electrical installations to mines and petroleum sites*.

such as oxygen candles or the like in a refuge chamber if these are specifically included in the equipment schedule of the refuge chamber by the manufacturer or following an appropriate risk assessment. The Reviewer considers that while there is no evidence that the current imperfectly drafted provisions are not working as intended, the drafting should be corrected at the same time as other amendments are made.

- **Prohibited items and substances** (clause 34 of the WHS (MPS) Regulation) – Glencore and Ulan West submitted that clauses 5(2) and 5(3) of Schedule 4 of the WHS (MPS) Regulation relating to the storage of explosives testing equipment or exploders, charged batteries and the changing of batteries, at an underground coal mine are not working as intended. They believe that the drafting intention was that these prohibitions should apply to storage "underground at an underground coal mine" and a correction or change to the language should be considered. While there is no evidence that these provisions are not working as intended, the Reviewer considers that the language should be corrected at the same time as other amendments are made.

- **Fatigue** (clause 43 of the WHS (MPS) Regulation) – as noted above, several stakeholders made comments about the importance of fatigue and how it is regulated. The CCAA voiced a concern that fatigue will re-emerge as a monitoring issue. APESMA submitted that there are fatigue issues with workers undertaking 12 hour shifts as well as travel time and that control room operators were not receiving sufficient meal breaks. The current provisions in relation to fatigue sit within fitness for work and are required to be managed in the Health Control Plan. Fatigue is not a simple matter and involves a shared responsibility between PCBUs and workers because work, travel time, recreation, eating and drinking, domestic issues, stress and sleep factors are involved. A number of reputable tools can assist in measuring fatigue and suggesting options to reduce it. There is also guidance on the Resource Regulator's website[112].

- **Operation of belt conveyors** (clause 44A of the WHS (MPS) Regulation) – The NSWMC submitted that a risk-based approach to the inspection of conveyors should be allowed. Clause 44A(2)(d) requires that each belt conveyor in an underground coal mine be inspected at least once each shift by a competent person and as soon as reasonably practicable after shutdown to detect any overheating, smouldering or other condition likely to start a fire. The Resources Regulator advised that this is risk-based given the number of fires on coal mine

[112] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/fatigue

conveyors and the attendant risks fires pose to safety in a mine. However, if the NSWMC had additional data to provide on this issue, it could be considered.

***24. It is recommended that*** *the Resources Regulator seek amendments linked to clause 34 of the WHS (MPS) Regulation that clarify: that safety devices like oxygen candles can be used in refuge chambers during an emergency under clause 3(1)(d) of Schedule 4 to the WHS (MPS) Regulation; and that the prohibitions in relation to explosives testing and exploders storage and battery changing at clause 5(2) and 5(3) of Schedule 4 should refer to while 'underground at an underground coal mine' rather than anywhere on site.*

Stakeholder views on **air quality and monitoring** (clauses applying to all mines) were relatively few. The NSWMC considered that flexibility should be allowed in the way information is communicated, and an individual commenting that air quality/dust management has potential implications for the maintenance of the unsealed road network locally and nationally. More detailed comments on this topic, such as by the AWU, are addressed in relation to clause 86 of the WHS (MPS) Regulation below.

The CCAA submitted that measures to monitor airborne dust and exposure standards, referred to in Part 2, Division 4, Subdivision 2 of the WHS (MPS) Regulation (Air quality and monitoring), measure ambient air and not specifically what a worker is breathing in. These provisions build on the requirements of clauses 49 and 50 of the WHS Regulation to ensure exposure standards are not exceeded with reference to the monitoring of airborne contaminant levels. As defined in clause 5 of the WHS Regulation, exposure standards are contained in the *Workplace Exposure Standard for Airborne Contaminants* (WESFAC) published by Safe Work Australia[113].

WESFAC states at section 2.5 that *"Where monitoring of airborne contaminants is done to estimate a person's exposure, the monitoring must be carried out in the breathing zone of the person"*. Further information on monitoring strategies and personal monitoring in the breathing zone of the person, can be found in the Safe Work Australia *Guidance on the Interpretation of Workplace Exposure Standards for Airborne Contaminants* (April 2013). The 'breathing zone' is defined at page 29 of that publication as *"a hemisphere of 300mm radius extending in front of a person's face measured from the midpoint of an imaginary line joining the ears"*[114]. What a worker will actually be breathing in will be determined by contaminant levels in the air in this breathing zone and the type of PPE that they may be wearing. In accordance with the normal principles of the hierarchy of control, exposure to levels of contaminants

[113] See https://www.safeworkaustralia.gov.au/doc/workplace-exposure-standards-airborne-contaminants
[114] See https://www.safeworkaustralia.gov.au/doc/guidance-interpretation-workplace-exposure-standards-airborne-contaminants

such as silica should be reduced in the ambient air in which work takes place to levels as low as is reasonably practicable and PPE should be used to further minimise risk to workers required to be in that zone where it is not reasonably practicable through more direct controls to minimise contaminant levels to below the exposure standard.

Because Safe Work Australia had not yet recommended an exposure standard, on 20 December 2019 the NSW WHS (MPS) Regulation was amended to impose a workplace exposure standard of 0.1 of a milligram per cubic metre of air for diesel particulate matter on mine and petroleum sites after a 12 month transition period[115]. Other requirements and recent amendments for respirable coal and silica dust are discussed below and there are two relevant recommendations made at the end of 10.5.

Stakeholder views on operational controls applying to all **underground mines** are as follows:

- **Ground and strata support** (clause 52 of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller submitted that under clause 52(c) it was not practical to display plans in locations readily accessible to workers and that they should only be provided to workers responsible for the support installation and to other workers as required or requested. The Reviewer agrees with the NSW Chief Inspector that these plans should be current and on display.

- **Exhaust emissions and fuel standards** (clause 53 of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller submitted that it is unnecessary to prescribe sampling and analysis and maintenance of engine because the concentration limits for diesel particulates and other exhaust products are now mandated. They proposed the deletion of clause 53(1)(b) and (c). The Reviewer agrees with the Resources Regulator that consistent with the hierarchy of control, it is important that clean fuel and appropriately serviced diesel vehicles and plant engines are used to reduce emissions at their source to as low as is reasonably practicable. Monitoring to ensure the exposure standard is being met requires sampling and analysis and PPE provides an additional control.

- **Ventilations systems – Further requirements** (clause 59 of the WHS (MPS) Regulation) – AMEC and the associated submission by Mr John Miller submitted that the provision of ventilation of one cubic metre of air per second under clause 59(3) is an example of a prescriptive requirement that is not linked to the legislated exposure limits. They note that this does provide a level of protection for anomalous conditions that may not be shown by 'spot' monitoring, and that this should be reflected in the provision. The Resources Regulator advised that it is important to maintain the prescribed ventilation and not seek to reduce it

[115] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/whs-mines/whs-mines-and-petroleum-sites-regulation-2018-amendments

by managing to exposure limits, because doing so could entail a diminution of health and safety. The Reviewer does not consider there to be sufficient evidence to recommend a change to clause 59.

Stakeholder views on specific control measures applying only to **underground coal mines** in relation to the application of provisions based on a hazardous zone classification, are as follows:

- **Hazardous Zone definition** (clauses 3, 65, 78, 80 and 82 of the WHS (MPS) Regulation) – Glencore and Ulan West recommended a specific exclusion for longwall homotropal conveyor roadways or further detail in the definition of a return roadway which reflects the use of alternative controls for risks associated with airborne contaminants in these areas. They stated that currently these types of roadways (captured by definition of 'return roadway') are considered a hazardous zone and therefore restrict the type of plant that can operate in the roadway and, without such plant, prevents the roadway being made homotropal so that the safety benefits of the roadway, particularly the removal of heat, are then not able to be realised. It was also submitted that consideration be given to excluding 'standing faces' and 'standing development panels' from the definition of hazardous zones so that provisions in relation to plant, cables and circuits seeking to prevent explosions in hazardous zones do not need to apply. The Reviewer considers these to be important issues on which further technical and the MSAC's advice is necessary.

- **Use of plant in hazardous zone – explosion-protection required in a hazardous zone** (clauses 3, 78 and 79 of the WHS (MPS) Regulation) – as discussed at 10.2, Ampcontrol considered that the WHS (MPS) Regulation should support the concept of zoning fully in line with the AS/NZS 60079 Series Australian and International Standards in relation explosion risk in an underground coal mine.

***25. It is recommended that*** *the Resources Regulator undertake or sponsor a technical study to consider the hazardous zone classification, including under clauses 3, 65, 78, 80 and 82 of the WHS (MPS) Regulation of longwall homotropal conveyor roadways and standing faces and development panels.*

- **Emergency sealing** (clause 68 of the WHS (MPS) Regulation) – Mines Rescue submitted that under clause 68 of the WHS (MPS) Regulation emergency sealing should make provision for

re-entry and require an airlock. This is another matter requiring technical expertise and a review of this by the MSAC is recommended. The current revision of historical guidance documents Mining Design Guideline 1020 and Mining Design Guideline 1022 for Compressed Air Breathing Apparatus (CABA events)[116] may obviate the need for legislative amendment. Mines Rescue also submitted that if Microshield nitrogen inertisation is used, the WHS (MPS) Regulation should be amended to require 12 monthly inspection by NSW Mines Rescue Pty Ltd. However, it may be possible for Mines Rescue to specify inspection periods as a condition of use of its proprietary product if this is required. If another commercial product is utilised specific inspection would also not be expected to be in regulation. A general recommendation has been made in relation to a review of the *Coal Industry Act 2001* and the relationship between functions conducted under it and under the WHS (MPS) laws.

***26. It is recommended that** the Resources Regulator review whether emergency sealing in clause 68 of the WHS (MPS) Regulation should make provision for re-entry and if so, include an airlock.*

Stakeholder views on specific control measures applying to **all coal mines** in relation to the **sampling and analysis of the airborne dust** (clause 86 and Schedule 6 of the WHS (MPS) Regulation), are as follows.

Coal Services submitted that the minimum standard required for sampling of airborne dust, as specified in Schedule 6 of the WHS (MPS) Regulation, should be revised to reflect changes in working arrangements in NSW coal operations, the differences between surface operations and underground operations, and identified gaps in what is required to be sampled and analysed affecting the ability to fully appreciate the control strategies required.

Coal Services submitted that: amendment is required because of changes in shift lengths and roster arrangements that are now common across all NSW coal operations; analysis of the level of respirable quartz should be required for samples taken for each worker for completeness; samples of respirable dust where cement products are applied in an underground coal mine should be required to determine effective control strategies to exposure to respirable dust and quartz if required; and sampling at other (surface) coal mines should reflect the differences compared with underground operations and include additional areas and tasks for monitoring which are not currently covered.

[116] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/publications/mdg

The AWU suggested that the requirements in clause 86 of Schedule 6 of the WHS (MPS) Regulation should apply to all mines and submitted that although all mining operators (including quarry operators) are required to regularly monitor and test for the presence of such hazards and undertake actions to reduce exposure to relevant workers, broad non-compliance with these requirements has been reported.

***27. It is recommended that*** *the Resources Regulator consider whether: sampling of airborne dust at coal mines in Schedule 6 Part 1 clause 2 should be amended to change the minimum sampling period from at least five hours to a minimum of 80% of a shift; Part 1 clause 2(8) should be strengthened to require analysis of the level of respirable silica for each respirable dust sample; and for surface coal mines, Part 3 clause 7 should include more detail on sampling of the drill and blast area, and areas involving mobile equipment and maintenance, coal handling preparation and mobile crushing plant.*

***28. It is recommended that*** *guidance material in other major Australian mining and petroleum jurisdictions should be reviewed by the Resources Regulator to consider whether NSW guidance material should be supplemented or revised. This review should include Queensland's QGL02 dated April 2020 covering the management of respirable dust in mineral mines and quarries.*

# 10.7. Emergency management

## Stakeholder responses

In relation to Part 2, Division 6 of the WHS (MPS) Regulation the online survey sought responses to the question 'Do you agree that the provisions for emergency management are still valid, appropriate and working as intended?' Eleven of 18 respondents agreed or strongly agreed, three were neutral and four disagreed or strongly disagreed. In submissions, most stakeholders indicated that the provisions are valid and appropriate but some suggested that certain components do not operate as intended. For example, the provisions were not seen as relevant for small quarries and it was stated that Emergency Services had little interest in the details of intermittently operating mines.

The NMSF non-core major mining states developed an Emergency Planning for Mines Code of Practice effective 1 February 2015[117] which addresses emergency plan contents in section 5. Consideration of codes of practice in mining[118] was outside the scope of the current review.

Stakeholders raised various matters to consider in reviewing requirements for **emergency plans applying to all mines**:

- Consultant to the Wagga Wagga Council, Mr John Owens submitted that no emergency plan was needed for small council road maintenance quarry pits and calling 000 was sufficient. The Resources Regulator advised that an emergency plan can be very simple and potentially on a page if there are few hazards, mining risks are low and the mine site is not remote (clause 88(4) of the WHS (MPS) Regulation refers), although the Reviewer notes that the mine emergency plan summary template is nine pages[119].
- Under clause 88(2)(a)(i)& (ii) of the WHS (MPS) Regulation AMEC sought clarification of matters to be included in the emergency plan. AMEC and Mr John Miller raised the issue of how recording of all persons underground at a mine is to be carried out. There are number of ways of doing this[120] that the Resources Regulator could discuss with AMEC. Mr Miller had an associated concern about the cost of real time tracking. While radio-frequency identification (RFID) technology prices continue to fall, its usage depends on what is reasonably practicable in a particular mine site environment. AMEC submitted that emergency plans should provide for different types of mine sites. This is already addressed in clause 88(4) of the WHS (MPS) Regulation.
- The NSWMC and Glencore noted practical difficulties under clause 89 of the WHS (MPS) Regulation associated with the requirement to consult with emergency services in the preparation of emergency plans, especially in regional areas, which added to the 'regulatory burden'. The Reviewer is sympathetic in relation to the difficulty but considers that engagement with emergency services is important, even if it may require trying some innovative ways at a local or regional level, perhaps with a number of adjoining mines consulting the primary emergency services body and local authority together and if needed, seeking assistance from the Resources Regulator. The case for legislative change was not

[117] See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0007/543913/NSW-code-of-practice-Emergency-planning-for-mines.pdf
[118] Available here: https://www.resourcesregulator.nsw.gov.au/safety-and-health/publications/codes-of-practice
[119] See within this link https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/emergency-planning
[120] From paper and pen recording, to swiping tags on entry, to RFID tags worn by all that continuously show positions of workers underground as well as numbers underground.

made. However, if the non-regulatory mechanism is not successful, it may be necessary to consider some type of amendment analogous to section 46 of the WHS Act in which duty holders have an obligation to consult with other duty holders about WHS matters.

In relation to additional **emergency management provisions for underground mines**, stakeholders expressed the following views:

- Mines Rescue submitted that additional prescription should be included in clause 93 of the WHS (MPS) Regulation on the manner that testing of the emergency plan is carried out, such as detail on the type of training, the level of exercise and the percentage of the workforce to be involved in the testing of the emergency plan. Mines Rescue also submitted that the minimum number of persons to be trained in mine rescue should be at least five per cent in underground coal mines and suggested additional requirements in Schedule 7 clause 4(3) of the WHS (MPS) Regulation. The CFMMEU stated that emergency plans lacked detail and minimum resourcing, including of trained people. These are issues upon which a review and advice from the MSAC should be sought incorporating technical, employer and workforce perspectives.
- Mines Rescue and APESMA submitted that clause 95 of the WHS (MPS) Regulation training of workers in relation to the emergency plan should occur periodically regardless of any significant revision made to the plan. Mines Rescue suggested at least 12 monthly in a real or simulated environment. APESMA suggested a need for more guidance on what the emergency plan training of workers may entail to ensure it is thorough and targeted, particularly for control room operators. These matters can be addressed by the MSAC in a review of clause 93 and Schedule 7 of the WHS (MPS) Regulation.

***29. It is recommended that*** *the Resources Regulator, with input from the MSAC, review whether in clauses 93 and 95 and Schedule 7 clause 4(3) of the WHS (MPS) Regulation there should be additional prescription in relation to testing of, and training in relation to, the emergency plan with a minimum workforce to be trained in mine rescue for underground coal mines and possibly other underground mines.*

- The CFMMEU submitted that Subdivision 1 of Division 6, Part 2 of the WHS (MPS) Regulation should be amended to require the display of the escape and rescue plan at all times. There is

a requirement in clause 91 of the WHS (MPS) Regulation to keep a copy of the emergency plan on the site which should be available to be viewed in request but the Reviewer agrees that specific details of the escape and rescue plan should be displayed at all times with key features such as exits, refuges, firefighting equipment, communications and oxygen stations clearly indicated.

- In relation to clause 96 of the WHS (MPS) Regulation the CFMMEU submitted that the requirement for workers to be provided with sufficient training and instruction to be familiar with the exits should specifically extend to a worker having 'no limit' on the opportunity to walk through those exits. While sympathetic, the Reviewer considers that 'no limit' is unrealistic but that coal miners should have a reasonable opportunity to utilise the exits during periodic training.

***30. It is recommended that*** *the emergency plan and associated provisions in the WHS (MPS) Regulation require specific details of the underground coal mine escape and rescue plan to be displayed at all times with key features such as exits, refuges, firefighting equipment, communications and oxygen stations clearly indicated. Miner workers should have a reasonable opportunity to utilise the exits during periodic training.*

- Glencore and Ulan West submitted that the WHS (MPS) Regulation clause 96 requirement for an underground mine to have at least two exits to the surface is problematic in some circumstances, particularly with longwall operations, and establishing a high risk activity notification for these particular circumstance (via Schedule 3 of the WHS (MPS) Regulation) would eliminate the need for an exemption. The Resources Regulator has advised that appropriate exemptions are in place now to deal with the mine operator issue providing alternative controls for localised areas of the mine. This seems an appropriate way to deal with operational circumstances during particular high-risk activities.
- AMEC and an associated submission from Mr John Miller argued that the reference to 'refuge chambers' in clause 97(7) of the WHS (MPS) Regulation is too specific and not required in underground metalliferous mines as fresh air bases located in intake air also provide safe places to take refuge in an emergency. While there is some merit, the case for making this change was not supported by strong evidence and to do so could involve a diminution of

existing safety standards. Clause 97(7) of the WHS (MPS) Regulation allows for the distance to reach the surface safely to be taken into account which would address concerns at most smaller mines and exploration sites.

- Mines Rescue submitted that the WHS (MPS) Regulation clause 100 reference to providing an 'appropriate' self-rescuer is imprecise and should be replaced with reference to an 'oxygen generating' self-rescuer. In the online survey, one response in relation to training with 'any oxygen-generating self-contained self rescuers that the worker may be required to use' stated that "clause 100(4) of the MPS Regulation is proving difficult due to the availability of appropriate unit". The Resources Regulator advised that the issue of phasing out older technology self-rescuer units is currently under review. Because this is likely to lead to newer oxygen generating units progressively being required, no additional recommendation is made at this time.

- AMEC and Tomingley Gold submitted that clause 100 of the WHS (MPS) Regulation training in the use of a self-rescuer in a 'simulated work environment' every six months is time consuming, costly and takes valuable resources without a demonstrated benefit. Based on advice from the Resources Regulator, the Reviewer considers that such regular training is important to develop and maintain 'muscle memory' in order to be able to rapidly utilise self-rescuers in an emergency situation.

- AMEC and Mr John Miller made submissions regarding the WHS (MPS) clause 102(d) requirement for a competent person at the surface to switch off power to the underground parts of a mine in an emergency and suggested that it was not practical for metalliferous mines. While in this instance, the two submissions vary somewhat, the regulatory requirement is qualified by 'as necessary'. The Reviewer considers it reasonable for underground metalliferous mines to have a surface contact who can activate the emergency plan, answer alarms and switch underground power off and on in an emergency and therefore recommends no change.

- For opal mines LRMA submitted that many miners work alone and clause 102 of the WHS (MPS) Regulation power issues should be covered by the emergency plan. The Resources Regulator considers that this can be addressed through additional guidance perhaps linked to the remote worker provisions in clause 48 of the WHS Regulation. On the basis that this will be done, the Reviewer does not make a formal recommendation.

# 10.9. Information, training and instruction

## Stakeholder responses

The online survey sought responses to the question in relation to Part 2, Division 7 of the WHS (MPS) Regulation 'Do you agree that the provisions for information, instruction and training are still valid, appropriate and working as intended?' Fourteen of the 18 respondents agreed or strongly agreed, three were neutral and one respondent strongly disagreed.

No specific issues were raised in submissions on these requirements in relation to workers generally.

Stakeholder views by the NSWMC and AWU on information, training and instruction for worker representatives such as SHRs are included elsewhere in this Review report.

# 10.10. Health monitoring

The provisions for health monitoring are in Part 3 (clauses 109 and 110) of the WHS (MPS) Regulation and apply in addition to health monitoring under the WHS Regulation for hazardous chemicals, lead and asbestos. After an amendment to Part 3 of the WHS (MPS) Regulation in March 2018, the Resources Regulator can direct health monitoring after worker exposure to a hazard. Previously, in line with health surveillance at part 26 of the NMSF drafting instructions[121], clause 109(1) included an obligation for the Mine Operator to ensure health monitoring if there was there is a significant risk of an adverse effect on the worker's health because of the worker's exposure to a hazard associated with mining, and valid techniques are available to detect that effect on the worker's health[122]. There were other subclauses about managing that risk that were repealed in March 2018. The Resources Regulator advised that the change was made because of employer confusion and concern with perceived duplication with health monitoring requirements under the WHS laws. The current provisions for health monitoring enable a regulatory direction (which may be Gazetted to cover a class of workers) after workers are exposed, as could occur with respirable silica and other hazardous substances.

## Stakeholder responses

The online survey responses in relation to Part 3 of the WHS (MPS) Regulation were that 11 of 18 agreed or strongly agreed that the provisions for health monitoring are still valid, appropriate and working as intended, three were neutral, three disagreed and one strongly disagreed. Provisions for health monitoring were considered valid and appropriate in most stakeholder submissions, noting that specific

[121] See https://www.commerce.wa.gov.au/sites/default/files/atoms/files/nmsf_non-core_drafting_instructions.docx
[122] See https://www.legislation.nsw.gov.au/view/html/2017-06-08/sl-2014-0799#pt.3

requirements relating to health monitoring are also addressed in the WHS Regulation and the *Coal Industry Act 2001*.

The NSWMC noted its concern that health monitoring will be expanded from coal miners to non-coal workers. Its submission argued that industry adherence to exposure standards and reducing risk to as low as reasonably practicable adequately addressed the hazards and risks involved.

The AWU submitted that the health monitoring provisions should be amended to ensure regular and consistent health assessments are conducted for all mining industry workers and records kept and analysed, consistent with the *Coal Industry Act 2001*. This is a policy suggestion separate from the current health monitoring clauses and is understandable given the recent incidence of silicosis.

The Resources Regulator advised the Reviewer that an amendment to make silicosis a notifiable disease has been progressed (it is already notifiable under the *Public Health Act 2010*). It noted that adverse workplace health records go to the Resources Regulator and are stored in its database and that in the WHS (MPS) laws, dust disease monitoring sits best as part of the Health Control Plan. The Reviewer noted that the January 2018 Resources Regulator Fact sheet on health monitoring pre-dated the March 2018 amendments and this and other allied Fact sheets[123] could be reviewed and updated.

AMEC noted the importance of mental health, and also proposed a policy change that "Part 3 of the Regulation supports industry to invest, support and monitor worker mental health". Mental health (or psychological health) is very important in all workplaces and beyond. The Resources Regulator has developed guidance as part of its suite of Health Control Plan resources[124]. The proposed amendment does not fit well in Part 3 of the WHS (MPS) Regulation and is more a matter of government policy and potentially (depending on any co-funding sought) one with budget implications.

***31. It is recommended that*** *given recent issues with silicosis, the Resources Regulator review the drafting of Part 3 of the WHS (MPS) Regulation and consider whether elements of the former wording prior to the April 2018 amendment or other elements at part 26 of the NMSF consolidated non-core drafting instructions, or the provisions used in other jurisdictions would better ensure ongoing worker health and safety.*

[123] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/health-management/health-control-plan-fact-sheets

[124] See https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0006/796902/Mental-health-control-plan.pdf

# 10.11. Consultation and workers' safety role

## Stakeholder responses

There was an online survey question about the importance of representation of workers in coal mines through MSHRs and ISHRs to which 12 of 18 respondents agreed or strongly agreed, and six were neutral. None disagreed or strongly disagreed with the importance of MSHRs and ISHRs. A further online question was about agreement that the WHS (MPS) Regulation provisions for consultation and worker safety role were valid, appropriate and working as intended. Nine respondents agreed or strongly agreed, four neither agreed nor disagreed, and five disagreed or strongly disagreed. There was also an online question about agreement on whether it is important for the WHS (MPS) laws to provide for the protection of workers and other persons from harm of WHS risks. Eight respondents strongly agreed, nine agreed and one was neutral.

Discussion of worker representation and the role of ISHRs and MSHRs under the WHS (MPS) Act, as well as HSRs linked to the WHS Act, is at 9.4 above. The CFMMEU submitted that the provisions for consultation and workers' safety roles are still valid and appropriate, however they also submitted that they were not working as intended. The union noted that the coal mining industry is dominated by a number of major mining corporations and suggested that an evolution was occurring towards the development of global corporate procedures and plans that may be implemented at a particular mining operation without the appropriate consultation envisaged under Part 4 of the WHS (MPS) Regulation. In particular, they wished to ensure that consultation included HSRs and MSHRs. The Reviewer is fully supportive of workforce consultation and the role of representatives as an important component of ensuring the health and safety objectives of the WHS (MPS) Act are met. The Resources Regulator advised that it has noted the concern raised by the CFMMEU.

# 10.12. Survey plans

## Stakeholder responses

Of the respondents to the online Review survey question about whether the Part 5 WHS (MPS) Regulation provisions for survey and mine plans are still valid, appropriate and working as intended, half (nine of 18) agreed or strongly agreed, seven were neutral, and two disagreed or strongly disagreed.

An individual submission by Mr John Owens considered that these provisions had limited relevance to small open-cut operations as there is no risk from encountering former operations.

AIMS and Consulting Surveyors noted that the definition of 'Geocentric Datum of Australia' in clause 122(10) of the WHS (MPS) Regulation needed to be updated from GDA94 to GDA2020 to reflect the new

standard referenced in the NSW *Surveying and Spatial Information Act 2002*. The Resources Regulator advised that this is in progress and a class exemption had been issued in the meantime. On 28 July 2020 the Chief Inspector issued a Notice[125] that among other things requires preparation of annual underground mine survey plans that meet the requirements of clause 122 of the WHS (MPS) Regulation, the *Survey and Spatial Information Regulation 2017*, and the *Survey and Drafting Directions for Mining Surveyors 2020 (NSW Mines)*.

APESMA submitted that clause 122 of the WHS (MPS) Regulation should be strengthened to ensure sufficient time and resources are made available to mine surveyors carrying out their statutory functions and they are not placed under undue pressure to endorse the accuracy of plans. The Reviewer considers that this is not a simple matter to legislate and that guidance material is a better option. Confidential reporting of any undue pressure could be made to the Resources Regulator.

Mr Paul Wilkinson submitted that in clause 122(2) of the WHS (MPS) Regulation, additional criteria for larger surface metalliferous mines should be included to determine when a survey plan would be required rather than relying solely on the operator assessing the risk, which may be too subjective. He suggested that this could be linked to criteria used for Environmental Protection Licence approvals 'up to and exceeding' two million tonnes and continuously capture safety critical data and themes, such as in-pit traffic and bench formation in these larger pits. The Resources Regulator advised that there had been detailed consideration of these matters and a risk based approach continued to be favoured as a large surface mine may entail less risk than a smaller one which may be adjacent to or above an abandoned or operating underground mine. Coal mines and all other working underground mines other than those with 10,000 or less hours in the prior 12 months must report mine survey plans to the regulator annually (see footnoted Notice below).

Mr Wilkinson also submitted that in clause 123 of the WHS (MPS) Regulation plans of mines that he suggested be termed 'Plan of Mine Workings' (other than mine survey plans required under clause 122 of the WHS (MPS) Regulation) should be prepared by a 'qualified geospatial professional' rather than a 'competent person'. Evidence supporting this was not compelling but with further data, it is an issue that could be addressed in Resources Regulator guidance material and in due course potentially reviewed by the MSAC and MPCB.

Surveyor groups AIMS and Consulting Surveyors expressed concern that in some cases, a mine survey plan is not seen or submitted to the regulator prior to mine closure at which point any inadequacy or inaccuracy may not be able to be addressed. They stated that this is particularly the case with metalliferous open cut mines and smaller metalliferous underground mines. To address this possibility, it was recommended that an audit function for the regulator be added to the WHS (MPS) laws which

[125] See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0017/1221254/Mine-Survey-Plan-Order-2020-No.3.pdf

could also ensure that qualification requirements are complied with. The Resources Regulator advised the Reviewer that it already had sufficient powers to enable it to audit mine survey plans, including prior to mine closure.

# 10.13. Notifications and information to the regulator

## Stakeholder responses

A Review online survey question sought responses as to whether the provisions in Part 6 and Part 7 of the WHS (MPS) Regulation for notifications and information be provided to the regulator and information to be kept by the operator are still valid, appropriate and working as intended. Ten of 18 respondents agreed or strongly agreed, four were neutral and the remaining four either disagreed or strongly disagreed.

As outlined in part 3 of this report, on 20 December 2019 the WHS (MPS) Regulation was amended with effect from 1 February 2020[126]. The amendments included:

- introducing a high-risk activity notification for the establishment, operation, alteration or decommissioning of a tailings storage facility at a metalliferous mine;
- updating the 'Wiring rules' to reference the latest standard *AS/NZS 3000: 2018 Electrical installations to mines and petroleum sites*;
- imposing a workplace exposure standard of 0.1 milligram per cubic metre of air for diesel particulate matter after a 12 month transition period;
- including uncontrolled fires on mobile plant and spontaneous combustion occurring at the surface of a coal mine as high potential incidents required to be notified to the regulator;
- expanding the offences for which penalty notices can be issued;
- extending the period of plant item registrations from one to five years; and
- changing the requirements for quarterly work health and safety reporting to annual.

The Resources Regulator provides guidance on reporting an incident or injury[127] and a Portal allows those who have registered to log in and report incidents and notify the regulator of statutory role

[126] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/whs-mines/whs-mines-and-petroleum-sites-regulation-2018-amendments
[127] See: https://www.resourcesregulator.nsw.gov.au/safety-and-health/notifications/incident-or-injury

changes and 'other matters'[128]. The Reviewer considers that further simplification and streamlining of this Portal is desirable.

In addition to stakeholder responses regarding incident notification under Part 3 of the WHS (MPS) Act (see 9.2 above), the following issues were raised regarding specific incidents required to be notified:

- Clause 128(5)(q) and (r) of the WHS (MPS) Regulation – the CCAA submitted that the seven-day reporting requirement for exceedances of respirable dust and respirable crystalline silica is too short and more time is required to verify the accuracy of testing results, conduct preliminary investigations and gain understanding to address safety issues and awareness. The CCAA stated that comparable Queensland legislation allows 28 days to report exceedances to the regulator. The current NSW reporting requirement is as soon as reasonably practicable after becoming aware of the incident but no later than seven days (for known illness or injury no later than 48 hours). The Reviewer considers that if subsequent investigation and review leads to a change in a report, this can be advised to the regulator. Up to 28 days could lead to an unreasonable period of worker exposure without the regulator able to verify that remedial action had been taken.

- Clause 128(5)(e) of the WHS (MPS) Regulation – AMEC, Mr John Miller and Tomingley Gold submitted that there appeared to be no justification to notify the regulator of the burial of unmanned equipment. They considered this an operational risk, not a safety risk because unmanned 'remote' loaders are mandated to ensure that workers are not exposed to risks such as falls of material. The Resources Regulator advised that it wished to monitor trends in these incidents and that recovery of autonomous and semi-autonomous unmanned equipment can involve significant risk[129].

- Clause 130 of the WHS (MPS) Regulation – through an amendment with effect from 1 February 2020 the title no longer refers to quarterly reporting requirements for the items in Schedule 9 and for notifiable incidents and incidents under clause 128. Clause 130 allows for an annual WHS report, which some submissions to this Review have sought. The Resources Regulator advised that a further amendment to make this clear had been developed for government approval. In the interim, there is an exemption that commenced on 5 June 2020

[128] See: https://nswresourcesregulator.service-now.com/regulator
[129] See further: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0005/1197554/Fact-sheet-Amendments-to-notification-requirements-WHS-MPS-Regulation.pdf

for small mines that are not coal mines to provide a report annually with data formatted quarterly[130].

The discussion at 9.2 included a recommendation that the WHS (MPS) Act focus on heads of power for notifications with the detail included in the WHS (MPS) Regulation. To the extent possible, the WHS (MPS) Regulation should also include notes to reference mining and petroleum site notifications required under the WHS laws so that all requirements are consolidated. There is precedent with notes of this kind at clause 178(e) of the WHS (MPS) Regulation which cross-references clause 699 of the WHS Regulation (note minor typographical error stating 'Regulations'), at the end of clauses 6 and 8A, in clauses 10, 22(1), 27, 28 and 33 and in others. There are also cross-references to the WHS Act in notes under sections 21(1), 25, and 43(2) of the WHS (MPS) Act. At the end of the definitions of the WHS (MPS) Regulation there is a note referencing bracketed notes in headings. Similarly, it should be possible to simplify and make all notification requirements clear in Part 6 of the WHS (MPS) Regulation.

Such consolidation and cross-referencing notes should be supported by guidance material that covers what has to be reported (e.g. further explaining 'dangerous', 'high potential incident', 'loss of control', 'uncontrolled', 'damage' to plant) and in what time frame (e.g., further explaining 'immediate'). Existing regulatory guidance and the NSWMC-supported Glencore example provide a solid starting point.

***32. It is recommended that*** *all incident notification requirements be consolidated in the WHS (MPS) Regulation including with clear specification of notification timing and a reference to any notifications that are required under the WHS Act and WHS Regulation and the WHS (MPS) Act.*

***33. It is recommended that*** *the proposed consolidated provisions in the WHS (MPS) Regulation in relation to incident notification to the regulator should be supported by further guidance from the Resources Regulator.*

[130] See https://www.resourcesregulator.nsw.gov.au/safety-and-health/work-health-and-safety-reports and https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0019/1227502/NSWGazette5JuneWHSclassexemption.pdf

# 10.15. Statutory functions

## Stakeholder responses

In general, both employer and worker groups considered that the statutory functions framework provisions were valid and appropriate. The results of the online survey question about whether the provisions for statutory functions are still valid, appropriate and working as intended were mixed with nine of 18 respondents agreeing or strongly agreeing, four neutral, and five disagreeing or strongly disagreeing. It was unclear whether those disagreeing wanted fewer or more statutory function personnel or changes to their required competencies.

The NSWMC and AMEC submitted that they were of the view that, in the absence of a compelling reason, the addition of further statutory functions is unnecessary as the management of risks is appropriately managed by the existing framework. This included a geotechnical engineer, or a site senior executive such as is required by Queensland legislation. Other submissions such as by the CFMMEU argued that a geotechnical engineer statutory position should be added and gave the example of complex strata management issues. The Reviewer agrees that a geotechnical engineer serves an important role in a number of complex high-risk situations in underground mining. But considering that such a new statutory role for underground coal has recently been the subject of broad industry consultation and was not implemented, there is insufficient new evidence to recommend a change. Nonetheless, a geotechnical engineer should be utilised whenever the situation in a particular mine warrants and it is reasonably practicable to do so in order to control hazards and reduce significant risk.

There are some variations between the NSW framework for statutory functions and positions and the NMSF drafting instructions. The most obvious is that the NMSF consolidated non-core drafting instructions at section 7 include the role of a Site Senior Executive (SSE) as *"the most senior natural person employed or otherwise engaged on an ongoing basis by the mine operator on or near the mine appointed as the site senior executive at the mine".* In Queensland this is an important role, particularly in the absence of adopting the WHS Act in mining with its important due diligence requirements in section 27 (although a recent amendment mentioned at 6.3 does include due diligence).

NSW differs from the NMSF drafting instructions by including a statutory role of Mining Engineering Manager but not including a SSE, or either an underground mine manager or surface mine manager depending on the mine type. For consistency with the NMSF nomenclature used in Queensland and Western Australia, a statutory position termed Site Senior Executive could be reconsidered in NSW with the position holder also the Operator (if the Operator is a natural person and not a corporation) or the Mining Engineering Manager (or Quarry Manager in the case of quarries). If so, the SSE role description would need to be carefully written so as not to blur or detract from the Mine Operator's responsibilities

under the WHS (MPS) Act. However, on balance, there is insufficient rationale and evidence to recommend a change to add a SSE to the existing NSW statutory positions.

Mine Managers submitted that the role of Mining Engineering Manager in Schedule 10 (clauses 3 and 17) should be expanded beyond monitoring and advisory which does not constitute control of operations and currently includes a limited portion of the safety and health functions at a mine. This suggestion has merit. However, the Resources Regulator expressed a concern that similar to a SSE, providing a positive duty to a Mining Engineering Manager statutory role such as alerting the Mine Operator to any serious deficiency in mine engineering standards and procedures and their application that may impact safety such as may result from inadequate resourcing, could blur the officer due diligence responsibilities under the section 27 of the WHS Act. Reporting broader safety and health concerns is already an expectation in such management roles. The proposed amendment would also raise the question of amending the corresponding duties for the Electrical and Mechanical Engineering Manager positions. A review by the MPCB recommended at the end of this section can consider this further in the full context of the WHS (MPS) Regulation Schedule 10 provisions.

Mine Managers also raised some issues about coal mine supervisors exercising statutory functions of the level below them without relevant certificates including for Deputy and Undermanager. This is considered an operational matter for the MPCB and not part of this Review's terms of reference.

Some concern was expressed regarding application of the statutory officer framework to small and remote mines. AMEC submitted that qualified persons to undertake statutory roles under clause 136(2) of the WHS (MPS) Regulation were difficult to retain remotely and sought a limited period exemption at the regulator's discretion. The Resources Regulator confirmed that this is available now. Mr John Miller sought limited exemptions in relation to clause 136(3) requiring Schedule 10 practising certificates and submitted that an exemption process should be included to allow short term appointment of people with appropriate skills but without the required qualifications. He stated that this may be required for a number of reasons including waiting for ratification of qualifications, unexpected short-term absences, and lack of depth in small operations. While the regulator can provide an exemption if a case is made, the Resources Regulator advised that an emphasis on skills without the qualification and experience elements emphasised by the MPCB is likely to raise questions about how the skills have been assessed and the alternative arrangements considered. Mr Miller also considered that the former mine manager/production manager role was a better fit with staff duties and delegations than the current quarry manager but did not present persuasive evidence to vary the current WHS (MPS) laws.

The CCAA raised concerns about not transferring easily between states to carry out roles and functions as quarry managers as there are inconsistencies in competence requirements. If further evidence and examples of the inconsistencies and how they are having a deleterious impact is provided, this is a matter that could usefully be discussed with interstate colleagues from Queensland and Western

Australia through the Australasian Mining Competence Advisory Committee. Alternatively, it could be an agenda item for discussions among Chief Inspectors of Mines.

AIMS, Consulting Surveyors and APESMA submitted that under clause 135 of the WHS (MPS) Regulation mining surveyors should be a key statutory function to enhance clarity and certainty of responsibility and accountability. While the arguments made have merit, the evidence of a problem with the existing arrangements was not compelling, particularly for smaller and more remote mine sites.

The CFMMEU submitted that there are many larger surface coal mines with insufficient statutory position holders and, in particular, open cut examiners. They argued that Schedule 10 clause 18, could be improved by the specification of both the size of the relevant geographical location for their supervisory functions and/or coal movements, and the amount of equipment they are to supervise to ensure an appropriate number of open cut examiners are nominated. The Reviewer considers that while additional open cut examiners or deputies may have merit on particular mine sites, it should be addressed through existing provisions that refer to management structure[131] and operator consultation with the workforce[132]. Should consultation fail and the management structure be inadequate for the size and risks of a mine site, a review by the Resources Regulator could be sought.

The Bengalla Mining Company submitted that in the case of 'electrical engineer statutory function' (coal mines other than underground coal mines) Schedule 10 clause 20 of the WHS (MPS) Regulation should be updated to include 'supervise and monitor' for consistency with the Mining Engineering Manager and the Electrical Engineering Manager statutory functions and wording in the Electrical Engineering Control Plan Code of Practice. They also referred to certificate of competence issues which are outside the Review's terms of reference and can be considered by the MPCB as part of its normal ongoing role.

Ampcontrol and Mr John Ainsworth submitted that using and maintaining critical electrical systems (the responsibility for which currently falls to the electrical engineer) requires a power system protection specialist who is suitably educated, experienced, and qualified in this specialised field and which could be demonstrated by formal examination through the MPCB.

Glencore and Ulan West submitted that a qualified mechanical tradesperson (underground coal mines) Schedule 10, clause 15 of the WHS (MPS) Regulation should allow for alternative trades with

[131] An open cut examiner is one of a several statutory functions defined in clause 3 as a 'mining supervisor' and referred to clause 14(1)(d)) (content of safety management system of the WHS(MPS) Regulation). While clause 84 is more specific in relation to mining supervisors at production areas at underground coal mines, the safety management system also refers to the arrangements in place for the supervision needed to protect workers and other persons at the mine or petroleum site from risks to their health and safety from work carried out at the mine or petroleum site (see clause 14(1)(k) of the WHS(MPS) Regulation): https://www.legislation.nsw.gov.au/view/html/inforce/current/sl-2014-0799#sec.14

[132] In particular, see Part 5, Division 2 Sections 47, 48 and 49 of the WHS Act. The duty to consult with workers under section 49 of the WHS Act includes the development, implementation and review of the safety management system for the mine or petroleum site (see clause 121(a) of the WHS(MPS) Regulation). The discussion at 9.4 and 10.9 of this report is also relevant.

qualifications more suited to the mining industry and for clause 15(2)(a) a 'AUR31116 Certificate III in Heavy Commercial Vehicle Mechanical Technology' would provide greater flexibility. The broad issue is worthy of review by the MPCB to seek to increase flexibility. The specific example of the Certificate III may be appropriate in some circumstances but any change should be considered by those with relevant technical expertise.

A number of the points raised in submissions warrant review by the MPCB.

> ***34. It is recommended that*** *the scope of the functions in Schedule 10 be reviewed by the MPCB to ensure that there are no significant omissions or inflexibilities. For example, the significance of an electrical engineer in clauses 20, 28 and 33 of Schedule 10 not having a monitoring role in the absence of a position of electrical engineering manager, the scope of a mining engineering manager's duties, any need for a power system protection specialist, and if requirements for a qualified mechanical tradesperson in clause 15(2) of Schedule 10 unduly lack flexibility and an alternative such as a Certificate III in Heavy Commercial Vehicle Mechanical Technology may be appropriate in some circumstances.*

# 10.16. Authorisations

## Stakeholder responses

There was limited stakeholder response to these provisions in the submissions. The responses to an online survey question about whether the provisions for licenced activities and registration of plant are still valid, appropriate and working as intended had eight of 18 respondents agree and eight neither agree nor disagree, with one respondent strongly agreeing and one strongly disagreeing.

**Licensed activities**

Glencore proposed that the requirement for separate licensing of explosion-protected plant workshops be replaced with a requirement that explosion-protected plant may only be overhauled, repaired or modified by a facility that has a current Service Facility Number issued under an accredited certifying scheme. It was stated that the prohibition in clause 153A of the WHS (MPS) Regulation regarding unlicensed workshops (the clause requires taking all reasonable steps to ensure explosion-protected plant is repaired by a licenced body) applies in addition to the obligation for mine operators to meet the requirements of the accrediting body for the certifying scheme of which they are a member. Glencore submitted that the requirement for workshops to be licensed (clause 152(2)(b) of the WHS (MPS) Regulation includes any overhauling, repairing or modifying activities that may affect the explosion-

protection properties of explosion-protected plant) adds an additional administrative burden to these workshops with no perceived benefit and noted that this licensing requirement does not align with the corresponding provisions in Queensland. The Resources Regulator advised that Queensland often specifies that any workshops that overhaul or repair explosion-protected plant should have a NSW licence. The Resources Regulator also indicated that when the NSW industry demonstrates sufficient maturity, the Resources Regulator would consider moving from a licensing regime to reliance on an accreditation scheme.

**Registration of plant**

Consistent with the national position under section 272 of the model WHS Regulation, a recent amendment to the WHS (MPS) Regulation with effect from 1 February 2020 has reduced the requirement to register specified items of plant from one to five years[133].

The NSWMC contended that there is another opportunity to simplify the requirements in relation to the registration of plant, and in particular, registration of an altered design of plant under clause 244 of the WHS Regulation if the alteration to components continue to meet the same fit, form or function as the parts they are replacing. It argued that greater clarity could be given by including in clause 177 of the WHS (MPS) Regulation the guidance already obtained from the Resources Regulator that a component replaced with a new component that functions equivalently to the original does not constitute a change to the design that requires re-registration. The NSWMC also submitted that high-risk activity provisions could be used to notify the Resources Regulator instead of plant registration in some cases. The Resources Regulator advised the Review that this was already being considered. It has been supported in the recommendation below.

Glencore proposed changes to clause 177 of the WHS (MPS) Regulation to ensure registration operates as they believe is intended. They submitted that clause 177(1)(e) should be amended to exclude the requirement for design registration of gas detection monitors where they are used for pipeline monitoring/process control applications (e.g. measuring composition of gas ranges in the underground environment) and are not installed for atmospheric testing installed to protect personnel. The Resources Regulator advised that gas sensors and detection monitors of pipelines and process control are important to avoid potential fires if oxygen mixes with methane. It was suggested that an alternative option is to work with suppliers to get more sensors registered and obtain a class exemption.

Glencore further submitted that clause 177(3)(a) of the WHS (MPS) Regulation should be amended to incorporate a 'materiality' threshold to the registration of powered winding systems so that minor changes to components do not trigger a review and update of the design registration. They stated that

[133] See: https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0009/1193373/Fact-sheet-Summary-of-amendments-to-the-WHS-Mines-and-Petroleum-Sites-Regulation-2014.pdf

clause 177(3)(a) of the WHS (MPS) Regulation is an onerous requirement because minor changes to non-critical system components in a winder can require a significant amount of effort in getting the design registration reviewed and updated.

Powered winding systems, conveyor belting, booster fans and diesel engine systems at underground mines were examples suggested by the NSWMC and Glencore for simplification of registration. There appear to be further possibilities to do so but the Reviewer is aware that these systems have been responsible for many deaths, injuries and health impacts in the past and any change needs to be made carefully so as not to increase risk or diminish mine workers' safety and health.

***35. It is recommended that*** *the Resources Regulator further consider the scope to simplify plant registration requirements under clause 177 of the WHS (MPS) Regulation and in doing so seeks the advice of the MSAC.*

## 10.17. Other matters

While not addressed in stakeholder comments and submissions, there are some minor updates that can be made in the WHS (MPS) Regulation when more substantive matters are being addressed. These include updated names for interstate regulators and their corresponding laws. Transitional clause 185(4) of the WHS (MPS) Regulation is no longer current and can be removed. Minor Machinery of Government type updates to the WHS (MPS) Act were flagged at 9.8 above.

***36. It is recommended that*** *minor amendments be made to update section 5(1) of the WHS (MPS) Act to change the Department name from the Department of Planning and Environment to the Department of Regional NSW. Minor updates should be made in the WHS (MPS) Regulation such as the titles of the interstate regulators with which the NSW Resources Regulator cooperates, including in clause 145(5) to cite the Western Australian Department of Mines, Industry Regulation and Safety (DMIRS) and Resources Safety and Health Queensland (RSHQ). Clause 181 of the WHS (MPS) Regulation in relation to corresponding laws should also be updated where necessary. Transitional clause 185 of the WHS (MPS) Regulation should be removed.*

***Duties and reasonable practicability***

Based on some of the comments made during the Review process, key areas of the WHS (MPS) laws may require further stakeholder education such as the interpretation of what is reasonably practicable.

The AWU and CFMMEU submitted that the WHS (MPS) laws should lead to the highest possible standard of workplace health and safety without qualification. While such a union view is understandable, the WHS and WHS (MPS) laws are qualified by what is 'reasonably practicable' (not the highest possible). At some point improving safety standards may be possible but constrained by costs that are grossly disproportionate. To require more would ultimately cost jobs or close down a mine site.

Glencore submitted that it supports new technology but stated that the regulator should not be able to mandate its use where it may be too expensive to introduce. The Resources Regulator only rarely mandates new technology and change to legislation occurs after industry consultation and a regulatory impact statement. However, in normal (non-legislative) circumstances, if new technology will improve health and safety, its reasonable practicability should be carefully considered by a mine operator and implemented unless its cost is 'grossly disproportionate' at a particular mine (or petroleum) site. Just being considered 'too expensive' is not sufficient.

The CCAA was concerned that resources to comply with legislative requirements reduce a PCBU focus on worker safety. At one level this is reasonable if there is too much red tape associated with poorly conceived and drafted laws (red tape is discussed at 9.2 of this report). But at another level it may suggest a misunderstanding that a fixed quantum of resources for worker safety can be apportioned between legislative compliance and other measures to improve worker safety. The NSW WHS laws require both legislative compliance (which should support the objectives of the Acts to improve worker safety) and any other practical action to ensure worker safety based on the hierarchy of control[134] and reasonable practicability. The latter is also a legislative requirement: section 17 of the WHS Act requires risks to be minimised so far as is reasonably practicable. If resources are expended on what is seen as compliance at the expense of worker safety this could constitute a breach of the NSW WHS laws.

AMEC has sought regulator confirmation that a site and business is acceptably managing risk. To do so would entail a risk transfer from a mine operator where the primary duties reside, to the regulator. The Resources Regulator can provide or point to some guidance and information on a particular safety matter and will assess particular aspects of a SMS and its controls during an inspection, but is not in a position to, (and should not), provide a site-wide confirmation. Instead it is required under section 23 of the WHS (MPS) Act to provide written advice of any concerns found.

There may be some confusion as to how reasonable practicability sits with elimination and the hierarchy of control and that what is reasonably practicable can change over time if new hazards or combinations

[134] See clause 36 of the WHS Regulation

of hazards emerge or new ways of controlling them are invented and available. The Safe Work Australia guide remains an excellent starting point[135]. Concerns have been noted in union and other submissions that the mine operator or other PCBUs and officers may have insufficient knowledge of hazards and other health and safety issues on mine sites and this may flow through to negatively impact health and safety through their operational and resourcing decisions[136]. The submission by Mr John Owens highlighted the need for care with due diligence to focus on risks and guard against trivialisation and complacency. WHS Act section 27 officer due diligence requirements[137] play a key role in ensuring boards and other officers take health and safety seriously.

Section 27(1) of the WHS Act states that if a business or undertaking has a duty or obligation under the WHS Act, an officer of the PCBU must exercise due diligence to ensure that the PCBU complies with that duty or obligation. Due diligence is defined in section 27(5) of the WHS Act:
*"In this section, **due diligence** includes taking reasonable steps -*

*(a) to acquire and keep up-to-date knowledge of work health and safety matters, and*

*(b) to gain an understanding of the nature of the operations of the business or undertaking of the person conducting the business or undertaking and generally of the hazards and risks associated with those operations, and*

*(c) to ensure that the person conducting the business or undertaking has available for use, and uses, appropriate resources and processes to eliminate or minimise risks to health and safety from work carried out as part of the conduct of the business or undertaking, and*

*(d) to ensure that the person conducting the business or undertaking has appropriate processes for receiving and considering information regarding incidents, hazards and risks and responding in a timely way to that information, and*

*(e) to ensure that the person conducting the business or undertaking has, and implements, processes for complying with any duty or obligation of the person conducting the business or undertaking under this Act, and*

***Example.***

[135] See https://www.safeworkaustralia.gov.au/system/files/documents/2002/guide_reasonably_practicable.pdf
[136] Such compromised decision making is evident in the series of books by ANU Professor Andrew Hopkins on major mine and petroleum industry accidents: Managing Major Hazards: The Lessons of the Moura Mine Disaster, Allen & Unwin, 1999; Lessons from Longford: The Esso Gas Plant Explosion, 2000; Lessons from Gretley: Mindful leadership and the law, 2007; Failure to Learn: The BP Texas City Refinery Disaster, 2008; and Disastrous Decisions: The Human and Organisational Causes of the Gulf of Mexico Blowout, 2012.
[137] See Safe Work Australia: https://www.safeworkaustralia.gov.au/system/files/documents/1901/what-does-an-officer-need-to-do-information-sheet.pdf

*For the purposes of paragraph (e), the duties or obligations under this Act of a person conducting a business or undertaking may include—*

- *reporting notifiable incidents,*
- *consulting with workers,*
- *ensuring compliance with notices issued under this Act,*
- *ensuring the provision of training and instruction to workers about work health and safety,*
- *ensuring that health and safety representatives receive their entitlements to training.*

*(f) to verify the provision and use of the resources and processes referred to in paragraphs (c)–(e).”*

A series of books by Mr Michael Tooma provides helpful insight and guidance on these provisions[138].

This Review report has already discussed and disagreed with employer submissions at 10.2 that all duties in the WHS (MPS) laws should be qualified by ‘reasonable practicability’. This is because some are so important and fundamental as to be absolute and prescriptive, while others such as notifications already allow time and flexibility for the duty to be discharged.

***37. It is recommended that** the Resources Regulator consider additional stakeholder education on the meaning and application of ‘reasonably practicable’ in relation to the elimination and reduction of risk, especially as new technology and control options become available, and also further education and compliance activity with regard to officer ‘due diligence’.*

There may be issues mentioned in stakeholder comments and submissions that assume greater importance after this report is submitted. These should be checked by the Resources Regulator when it seeks formal stakeholder views on proposed changes to the WHS (MPS) laws. Specific issues in relation to onshore gas and CCS are discussed in 11 below.

***38. It is recommended that** after the Minister and Parliament have considered this Review report and when the Resources Regulator is preparing to consult with industry on amendments to the WHS (MPS) Act and WHS (MPS) Regulation, it should check to ensure that no issues in submissions have been overlooked or developed subsequently that should be discussed with industry and drawn to the Minister’s attention.*

[138] See: Michael Tooma, *Due Diligence: Six-in-One Collection*, Wolters Kluwer, July 2018

# 11. Petroleum & allied industries

## Petroleum

The oil and gas (petroleum) industry in NSW is currently very small but may be poised to grow rapidly. In June 2020 a large (reportedly $3.6 billion and up to 850 wells) Santos onshore coal seam gas project near Narrabri was referred to the NSW Independent Planning Commission (IPC) for potential final approval[139]. At the time of writing an IPC decision was expected by 30 September 2020.

With effect from 2016, NSW amended its legislation to encompass petroleum. The terms of reference for this Review include the regulation of petroleum within the WHS (MPS) laws.

The relevant industry association, the Australian Petroleum Production and Exploration Association (APPEA) and Santos Limited were invited to make submissions to the Review after it was announced and again after the closing date, including when the referral to the IPC was reported. However, neither chose to make a submission. No other party - union, employer or other person - made a submission with respect to petroleum.

The NSW petroleum legislation is integrated with, and in many respects mirrors, the mine health and safety provisions, including the appointment of a petroleum site operator by a petroleum site holder in section 7C of the WHS (MPS) Act and a requirement to establish and implement a SMS and other measures in the WHS (MPS) Regulation.

These laws were not developed under particular time pressure and are quite extensive. However, without the benefit of industry operational experience, it is difficult to assess whether aspects could be improved. Should Santos's Narrabri project (or other significant onshore petroleum project) proceed, it would be prudent for NSW to consult with jurisdictions that have had substantial operational experience with coal seam gas, such as Queensland, to consider whether any particular provisions in the WHS (MPS) laws should be amended. At the time of writing, the Western Australia model WHS laws were before the Parliament of Western Australia and separate accompanying sets of regulations had been drafted for general WHS, mining health and safety, and petroleum health and safety (see 6.3 below). While the focus of the Western Australia petroleum industry is not coal seam gas, the draft Western Australia petroleum regulations are contemporary and may provide assistance for any additional review by NSW. The substantial operational experience of coal seam gas in Queensland could certainly be of assistance in NSW.

[139] See: https://www.ipcn.nsw.gov.au/projects/2020/03/narrabri-gas-project

***39. It is recommended that*** *if a major onshore petroleum project such as Santos's proposed Narrabri project gains approval to proceed, the provisions in the WHS (MPS) Act and WHS (MPS) Regulation for petroleum should be further reviewed having regard to relevant experience in Queensland.*

## Geothermal Energy

The NSW laws also apply to geothermal energy. Section 8 of the WHS (MPS) Act states that *"This Act applies to and in respect of geothermal energy as if geothermal energy were petroleum"*. However, this industry is small-scale in NSW and no submissions on geothermal energy were made to the Review. Geothermal energy is not a particularly high-hazard energy source. Should a major geothermal project be approved, the existing provisions should nonetheless be further considered.

## Carbon Capture and Storage

Another related area, carbon capture and storage (CCS) is also embryonic in NSW but has potential to expand within the State as well as nationally as part of strategies to reduce greenhouse gases, including from fossil fuel burning power stations and other stationary emitter sources such as cement production. CCS of compressed carbon dioxide in deep long-term geological formations is indirectly regulated under the WHS (MPS) laws. This is through the definitions of 'mining operations' and 'mining activities' in section 7 (1)(a)(ii) of the WHS (MPS) Act covering injection of a mineral into the ground where the primary purpose is to inject the mineral or return the mineral to the ground. The Reviewer was advised that carbon dioxide meets the definition of a mineral rather than fitting within the provisions covering petroleum at section 7B. However, regulation of CCS is normally seen as having a close affinity with petroleum (gas) because of the potential pressures involved and associated infrastructure and pipelines. The major constituent of natural gas, methane, is also an important greenhouse gas.

Under Commonwealth offshore legislation – the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* under which the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is the regulator – CCS is separately identified and regulated as a greenhouse gas.

NSW refers to three CCS related projects on its Resources and Geoscience website: the Delta CCS demonstration project; the NSW CO2 Storage Assessment Project; and the Darling Basin drilling

program[140]. A link is provided to a seven-page NSW Department of Planning and Environment publication dated February 2018 titled 'Carbon Capture and Storage: Frequently Asked Questions' which includes contact details for the Coal Innovation NSW team. As with the WHS (MPS) Act, the responsible Minister for the *Coal Innovation Administration Act 2008* is the Deputy Premier and Minister for Regional New South Wales, Industry and Trade.

As regards regulation, the February 2018 publication refers to a 2005 publication by the then Ministerial Council on Mineral and Petroleum Resources titled 'Carbon Capture and Geological Storage: Australian Regulatory Guiding Principles' and CCS Standards being developed through the International Standards Organisation. These include ISO 27914:2107 'Carbon dioxide capture, transportation and geological storage – Geological storage' and a range of current and ongoing publications[141].

NSW does not currently have specialist health and safety legislation in place beyond what is included in the general WHS Act (which does include major hazard facilities). There may be merit in considering the nature and placement of such laws under the WHS Act or WHS (MPS) Act ahead of any substantial CCS projects. The Global CCS Institute is headquartered in Australia (in Melbourne) and has substantial resources on better practice CCS legislation and regulation[142] that could assist. While Victoria has the longest experience with CCS research facilities, the Australian jurisdiction with a substantial CCS industrial scale project is Western Australia through Chevron's massive Gorgon project on Barrow Island. NSW would be well advised to seek Western Australia's input in further developing CCS laws should a major project be forthcoming.

***40. It is recommended that** if a major CCS project is approved in NSW, the provisions in the WHS (MPS) Act and WHS (MPS) Regulation should be reviewed in light of Australian and international best practice.*

[140] 'Geological storage and facts about CCS' https://www.resourcesandgeoscience.nsw.gov.au/investors/coal-innovation-nsw/geological-storage#:~:text=CCS%20is%20the%20process%20whereby,from%20going%20into%20the%20atmosphere. accessed 3 July 2020.
[141] See Technical Committees ISO/TC265 'Carbon dioxide capture, transportation and geological storage' https://www.iso.org/committee/648607.html accessed 2 July 2020
[142] See https://www.iso.org/committee/648607.html

# 12. Conclusion

The WHS (MPS) laws have widespread support among all mining industry stakeholders in NSW and the Resources Regulator is well regarded for the balanced and helpful but firm manner in which it regulates based on the terms of the WHS (MPS) laws. Inevitably, there are particular cases in which individual inspectors or regulatory provisions have been perceived to fall short, or particular issues that have arisen involving individual union and employer representatives, but overall the tripartite regulatory system is seen to be working effectively and with a collaborative spirit. Because of its terms of reference, the Review did not examine the operation of the system except insofar as it flowed from, and there were issues with, the objectives and terms of the WHS (MPS) laws and its construction and interpretation in securing the objectives of the WHS Act.

Laws can be constructed in a number of ways. A few stakeholders preferred the previous structure of separating coal from other mining and by implication treating petroleum separately. This is a model that Queensland continues to use with its legislation. Western Australia is proposing to adopt one integrated WHS Act with three separate sets of regulation for general WHS, mining, and petroleum but unlike NSW and Queensland, does not have a large underground coal mining industry.

There was no evidence that the NSW WHS (MPS) laws are inappropriate and unlike the other two major resource extraction states, NSW is the only jurisdiction that fulfilled its 2011 commitment and legislated expeditiously to incorporate the NMSF drafting instructions within the framework of the model WHS Act. Queensland ultimately chose not to do so, and only now is the relevant legislation progressing through the Western Australia Parliament.

The Review found that the NSW WHS (MPS) Act provides valid and appropriate heads of power for the Regulation necessary for high-risk activities associated with coal mining, metalliferous and other mining, and petroleum extraction. No evidence was presented to the Review that made a compelling case to replace major terms of the WHS (MPS) Act. However, recommendations are made for amendments with respect to incident notifications, data and investigation and some other matters.

The WHS (MPS) Regulation is lengthy, and by incorporating all types of mining and onshore petroleum, can be complex and confusing for some stakeholders. However, while evidence was presented that would justify some amendments, there was no basis to recommend that the Regulation be split up or otherwise amended as a whole, although this would be a perfectly reasonable future option to consider.

Based on the current form of the WHS (MPS) Regulation, additional guidance for smaller and lower risk types of mining and for some more complex areas of regulation is a priority (although guidance available now is very good). Opal mining already has specific legislative provisions, guidance and regulatory assistance. Provisions currently exist that could reduce the regulatory burden for smaller and lower risk mining and extraction such as gravel pits for roadworks and exploration but how they will be interpreted

by the Resources Regulator can be made clearer in guidance. Another priority area for guidance is in the various types of incident notifications and their timescales. The tripartite operation of the MSAC and MPCB is sound but some non-member stakeholders wish to be better consulted. Interstate regulatory cooperation on health and safety has serious potential to improve among the three major mining states and recommendations have been made that can facilitate that. This may be a matter that could be helpfully supported by the Commonwealth.

# Appendix A - Key Terms/Abbreviations

| Abbreviation | Description |
|---|---|
| AIMS | Australian Institute of Mine Surveyors |
| AMEC | Association of Mining and Exploration Companies |
| APESMA | Association of Professional Engineers, Scientists and Managers Australia |
| AWU | Australian Workers Union |
| CCAA | Cement Concrete and Aggregates Australia |
| CABA | Compressed Air Breathing Apparatus |
| CFMMEU | Construction, Forestry, Maritime, Mining and Energy Union Northern Mining and NSW Energy District and South Western District |
| COAG | Council of Australian Governments |
| CCS | carbon capture and storage |
| ISHR | an industry safety and health representative provided for under Part 5 of the WHS (MPS) Act |
| Homotropal | Ventilation by a current of air traveling in the same direction as the flow of mineral out of a mine. |
| HSR | a health and safety representative provided for under Part 5 of the WHS Act |
| Longwall mining | a form of underground coal mining where a long wall of coal is mined by coal being cut from the coalface by a machine called a shearer |
| LRMA | Lightning Ridge Miners' Association Ltd. |
| MPCB | Mining and Petroleum Competence Board |
| MSAC | Mine Safety Advisory Council |

| | |
|---|---|
| MSHR | mine safety and health representative provided for under Part 5 of the WHS (MPS) Act |
| NSWMC | NSW Minerals Council |
| NMSF | National Mine Safety Framework |
| NSW WHS laws | when used in relation to mines and petroleum sites in NSW, is a collective reference to the WHS Act and the WHS Regulation plus the WHS (MPS) Act and the WHS (MPS) Regulation<br>**Note**: This is defined in the WHS (MPS) Act. This definition contrasts with references to the model WHS laws that may be referred to in relation to NSW workplaces other than mines and petroleum sites, which is a reference to the WHS Act, WHS Regulation and Codes of Practice. |
| Operator | a general term used to mean both a mine operator and a petroleum operator that may be the mine or petroleum site holder or another person conducting a business or undertaking appointed by the mine or petroleum site holder to operate the mine or petroleum site |
| Outbye | nearer to the mine entrances, and hence further from the working face. The opposite of 'inbye', often referred to as 'on the outbye side of something' |
| PCBU | person conducting a business or undertaking (a corporate or natural person with primary duties under the WHS Act) |
| PCP | principal control plan |
| PHMP | principal hazard management plan |
| PPE | personal protective equipment |
| RFID | Radio-frequency identification |
| SHR | safety and health representative for a coal mine provided for under Part 5 of the WHS (MPS) Act (including ISHRs and MSHRs) |
| SMS | safety management system |
| WHS | Work Health and Safety (Occupational Health and Safety in some jurisdictions) |
| WHS Act | *Work Health and Safety Act 2011* |

| | |
|---|---|
| WHS laws | WHS Act and WHS Regulation |
| WHS Regulation | Work Health and Safety Regulation 2017 |
| WHS (MPS) Act | *Work Health and Safety (Mines and Petroleum Sites) Act 2013* |
| WHS (MPS) laws | WHS (MPS) Act and WHS (MPS) Regulation |
| WHS (MPS) Regulation | Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 |

# Appendix B – Discussion Paper

NSW GOVERNMENT

NSW Resources Regulator

DISCUSSION PAPER

# STATUTORY REVIEW OF THE WORK HEALTH AND SAFETY (MINES AND PETROLEUM SITES) ACT 2013 AND REGULATION

INDEPENDENT REVIEWER: KYM BILLS

Call for submissions extended to Friday 1 May 2020

NSW Resources Regulator

**Document control**

Published by NSW Resources Regulator

Title: Statutory review of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Regulation

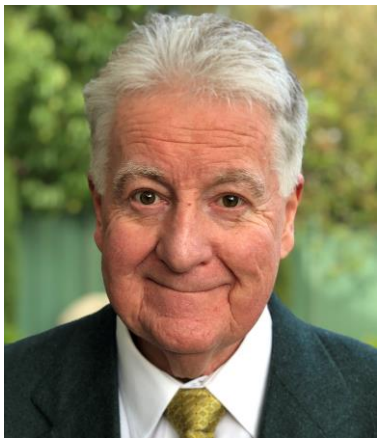
First published: March 2020

Authorised by: Executive Director Resources Regulator

CM9 reference: DOC19/1113317

| AMENDMENT SCHEDULE | | |
|---|---|---|
| Date | Version | Amendment |
| March 2020 | V1 | Public consultation version |
| March 2020 | V2 | Amended Lead Reviewer title |
| April 2020 | V3 | Extended submission closing date from 17 April 2020 to 1 May 2020 |

# Foreword



I am honoured to have been chosen as the independent reviewer for the statutory review into the NSW *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* (the WHS (MPS) laws). I would like to encourage all stakeholders and interested parties to be involved in this review by reading this discussion paper, attending forums across the State, completing an online survey and/or making a formal submission.

NSW led the nation in implementing the outcomes of a lengthy tripartite National Mine Safety Framework (NMSF) process under the Council of Australian Government Work Health and Safety umbrella and is reviewing its laws that have now been operative for five years.

I am passionate about work health and safety in mining and petroleum and minimising the risk of harm to workers and others who may be impacted by daily operations or a major incident. While not a technical specialist, since 1994, I have managed and worked with many specialists and delivered independent investigation and analysis reports, including as foundation head of the Australian Transport Safety Bureau (ATSB) and lead investigator for the Varanus Island Western Australia gas pipelines explosions. I am currently Chair of the College of Fellows for the Australian Institute of Health & Safety.

The focus of this review is on the WHS (MPS) laws, not the general *Work Health and Safety Act 2011*, or on the operations of the NSW Resources Regulator, or on the merits of mining and petroleum production. Regardless of whether you are a mine worker, WHS professional, engineer, manager, union representative or other stakeholder, your input is welcome. Please be assured that all input that addresses the WHS (MPS) Laws and how they might potentially be improved to reduce risk and minimise harm, will be considered seriously. Submissions close on 1 May 2020.

For further information visit the NSW Government's "Have your say" web page:
https://www.resourcesregulator.nsw.gov.au/about-us/have-your-say/work-health-safety-mines-and-petroleum-sites-act-and-regulation-review/

Kym Bills
Independent Reviewer

# Contents

# ABBREVIATIONS

| Abbreviation | Description |
|---|---|
| COAG | Council of Australian Governments |
| HSR | a health and safety representative provided for under Part 5 of the WHS Act |
| Model Act | model WHS Act as developed and published by Safe Work Australia |
| Model Regulations | model WHS Regulations as developed and published by Safe Work Australia |
| NCDI | non-core drafting instructions |
| NMSF | National Mine Safety Framework |
| NSW WHS laws | when used in relation to mines and petroleum sites in NSW, is a reference to the WHS (MPS) Act, the WHS (MPS) Regulation, the WHS Act and the WHS Regulation.<br>**Note**: This is defined in the WHS (MPS) Act. This definition contrasts with references to the model WHS laws that may be referred to in relation to NSW workplaces other than mines and petroleum sites, which is a reference to the WHS Act, WHS Regulation and Codes of Practice. |
| Operator | a general term used to mean both a mine operator and a petroleum operator who may be the mine or petroleum site holder themselves or another person conducting a business or undertaking appointed by the mine or petroleum site holder to operate the mine or petroleum site. |
| PCBU | a person conducting a business or undertaking with primary duties under the WHS Act. |
| SHR | safety and health representative for a coal mine |
| WHS | work health and safety |

| | |
|---|---|
| WHS Act | *Work Health and Safety Act 2011* |
| WHS Regulation | *Work Health and Safety Regulation 2017* |
| WHS (MPS) Act | *Work Health and Safety (Mines and Petroleum Sites) Act 2013* |
| WHS (MPS) laws | WHS (MPS) Act and WHS (MPS) Regulation |
| WHS (MPS) Regulation | *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* |

# 1. Introduction

## 1.1. Purpose of this discussion paper

The purpose of this discussion paper is to provide important background information about the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* (the WHS (MPS) Act) and the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* (the WHS (MPS) Regulation) – collectively referred to as the WHS (MPS) laws.

The paper explains and discusses the objectives of the WHS (MPS) Act, provisions and associated issues to ensure that everybody in New South Wales, and the mining and petroleum industries in particular, has the opportunity to contribute to the review of the WHS (MPS) laws.

The independent reviewer is seeking public submissions and comment to assist and inform his review process. Public submission and comment are an important part of the review process. The discussion paper provides information about how members of the public can be involved by the preparation of a submission or comment. The paper is intended to stimulate discussion, rather than a compilation of an exhaustive list of issues. Submissions are welcome on any matter within the terms of reference.

## 1.2. Scope of review

The NSW Resources Regulator has responsibility for administering the *Work Health and Safety Act 2011* (WHS Act) and the WHS (MPS) Act for ensuring compliance with work health and safety legislation in relation to mines and petroleum sites. The Regulator's role is complemented by SafeWork NSW which administers the WHS Act in all workplaces other than health and safety at mining and petroleum operations. The Deputy Premier and Minister for Regional New South Wales, Industry and Trade, the Hon. John Barilaro, MP is the Minister responsible for mine and petroleum safety.

Legislation can be in the form of an Act or a regulation made under an Act. An Act is a law made by the Parliament and known as an Act of Parliament. A regulation is subordinate legislation that is made by a person or body other than the Parliament by virtue of powers conferred on that person or body and contained in an Act.

The WHS (MPS) Act and WHS (MPS) Regulation form only a part of the WHS legislative scheme applying to mines and petroleum sites and must be read together with more general provisions in:

- the WHS Act
- the WHS Regulation.

### Why do the WHS (MPS) laws exist?

In July 2008, the Council of Australian Governments (COAG) committed to the harmonisation of work health and safety (WHS) laws to apply to all workplaces. This led to the development of a national Model Act and Model Regulations supported by Codes of Practice, for adoption by the States and Territories. Jurisdictional variations were allowed in limited circumstances.

In NSW, the WHS Act and the *Work Health and Safety Regulation 2011* (WHS Regulation) commenced on 1 January 2012. This applied to all workplaces, including those where mining and petroleum activities were carried out.

Historically, NSW has maintained mine safety legislation separate to general occupational health and safety legislation applying to other industries due to the significant risks associated with mining operations. To some extent this has also been the case with petroleum operations, as additional safety-related requirements were applied through non-safety legislation. Following the Gretley incident (1996) and subsequent to a 2005 Mine Safety Review (and as a means to implement NSW's commitment to adoption of International Labour Organization conventions), the legislation has become more integrated with other WHS legislation within NSW as many hazards are common across industries and the approaches to management of occupational health and safety has evolved and merged.

The COAG agreement provided the next step to enable better integration of WHS-related legislation within NSW as well as nationally, but with sufficient flexibility to not reduce the high standards that specific mine safety legislation has established, particularly for major mining states like NSW.

# 2. Terms of reference

The terms of reference of the review are to:

1. Examine and report on the operation of the WHS (MPS) laws by considering whether the objectives of the WHS (MPS) laws (Section3 of the WHS (MPS) Act 2013) are valid and whether the terms of the Act remain appropriate for securing those objectives and consider whether:

   (a) the WHS (MPS) laws assist in securing the objectives of the WHS Act 2011 for the protection from harm of workers and other persons on mine and petroleum sites from health and safety risks

   (b) there are any areas of the WHS (MPS) laws that have had unintended outcomes

   (c) the WHS (MPS) laws remain consistent with the National Mine Safety Framework principles.

2. Consider whether the following provisions are appropriate:

(a) the framework of duties to protect workers including safety management systems, principal hazard management plans, control and other plans and specific controls

(b) specific emergency management provisions

(c) worker representation provisions in coal mines

(d) the additional compliance and enforcement measures for a high-hazard industry

(e) licensing, authorisations and statutory functions provisions

(f) Mining and Petroleum Competence Board as an oversight mechanism

(g) Mine Safety Advisory Council in providing advice to the Minister

(h) Board of Inquiry provisions

(i) notifications required to be provided to the regulator

(j) the framework has facilitated effective interstate regulatory cooperation.

3. As required by section 77 of the WHS (MPS) Act, undertake a review as soon as possible after the period of five years from the commencement of the Act to enable the Minister to report on the outcomes of the review tabled in each House of Parliament within 12 months after the period of five years.

# 3. Statutory review process

In accordance with section 77 of the WHS (MPS) Act, the Minister is to review the Act to determine whether:

- the policy objectives of the WHS (MPS) Act remain valid
- the terms of the WHS (MPS) Act remain appropriate for securing those objectives.

Upon completion of the review, a report on the outcome of the review is to be tabled in both houses of Parliament.

The WHS (MPS) Regulation is also due for staged repeal under the *Subordinate Legislation Act 1989*. This means the WHS (MPS) Regulation will need to be either remade or allow to lapse.

## Role of independent reviewer

With the guidance of a departmental steering committee and assistance of a departmental secretariat, the independent reviewer will lead the public consultation process. He will identify, through analysis of the information and data received, the major themes and issues arising from that consultation and seek clarification of issues where required. Following full consideration of the issues and discussions, the independent reviewer will prepare a report for the Deputy Premier to table in Parliament.

## Have your say

On behalf of the independent reviewer, the Resources Regulator is seeking written submissions in relation to this discussion paper from stakeholders and other interested parties. You can make an individual submission or contribute to a joint submission through your employer, union, professional association, work health and safety group or committee or another forum.

You are invited to respond to some or all the questions asked in this paper. Please outline the reasons supporting your view, particularly where you identify issues and problems. You can use the downloadable fillable form, or the online submission form provided, make your own submission, participate in face to face forums or complete the online survey.

Please provide your submission to **rr.feedback@planning.nsw.gov.au** by close of business 1 May 2020.

Submissions on this discussion paper will be considered by the independent reviewer before making final recommendations in his report to the Deputy Premier. Submissions or summaries will be published on the Resources Regulator's website. Please advise us if you believe there is a reason why your name should not be published with your submission.

For further information visit the NSW Government "Have your say"[1] web page.

A summary of all questions in this paper are below:

**National Context**

1. Do the WHS (MPS) laws remain consistent with the National Mine Safety Framework principles?
2. Is the objective of seeking national consistency relating to WHS in relation to mines and petroleum sites still valid?
3. Has the WHS (MPS) framework facilitated effective interstate regulatory cooperation?
4. Are there any developments in mine and petroleum safety laws in the major mining states that could improve safety regulation and outcomes in NSW?

[1] https://www.nsw.gov.au/improving-nsw/have-your-say/

WHS (MPS) Act

5. Are the objects of the WHS (MPS) Act still valid, appropriate and working as intended? **(Part 1 of Act)**
6. Are there any areas **arising from application** of the WHS (MPS) laws that have had unintended outcomes? **(Part 1 of Act)**
7. Are the provisions under the WHS (MPS) laws **for incident notification** still valid, appropriate and working as intended? **(Part 3 of the Act)**
8. Are the provisions **functions of government officials** still valid, appropriate and working as intended? **(Part 4 of the Act)**
9. Are the provisions **for worker representation** in coal mines still valid, appropriate and working as intended? **(Part 5 of the Act)**
10. Are the provisions **for enforcement measures** still valid, appropriate and working as intended? **(Part 6 of the Act)**
11. Are the provisions **for a Board of Inquiry** still valid, appropriate and working as intended? **(Part 7 of the Act)**
12. Are the provisions **for statutory bodies** still valid, appropriate and working as intended? **(Part 8 of the Act)**
13. Do the provisions **for statutory bodies** ensure adequate representation in the provision of advice in relation to health and safety and competence? **(Part 8 of the Act)**

WHS (MPS) Regulation

14. Are the provisions **for nomination and appointment of operators** still valid, appropriate and working as intended? **(Part 1A of the Regulation)**
15. Are the provisions **for managing risk** in addition to the WHS Regulation still valid, appropriate and working as intended? **(Part 2, Div 1, Subdivision 1 of the Regulation)**
16. Are the provisions **for SMS, including PHMP & PCP**, still valid, appropriate and working as intended? **(Part 2, Div 1, Subdiv 2-4 and Div 2 and 3 of the Regulation)**
17. Are the provisions **specific control measures** still valid, appropriate and working as intended? **(Part 2, Div 4-5 of the Regulation)**
18. Are the provisions **for emergency management** still valid, appropriate and working as intended? **(Part 2, Div 6 of the Regulation)**

19. Are the provisions **for information, instruction and training** still valid, appropriate and working as intended? **(Part 2, Div 7 of the Regulation)**
20. Are the provisions for **health monitoring** still valid, appropriate and working as intended? **(Part 3 of the Regulation)**
21. Are the provisions **for consultation and worker safety role** still valid, appropriate and working as intended? **(Part 4 of the Regulation)**
22. Are the provisions **for survey plans and mine plans** still valid, appropriate and working as intended? **(Part 5 of the Regulation)**
23. Are the provisions **for notifications and information to be provided to the regulator and information to be kept by the operator** still valid, appropriate and working as intended **(Part 6 and Part 7 of the Regulation)**
24. Are provisions for **statutory functions** still valid, appropriate and working as intended? **(Part 8 of the Regulation)**
25. Are provisions **for licensed activities and registration of plant** still valid, appropriate and working as intended? **(Part 9 and cl 177 of the Regulation)**

# 4. National context

## 4.1. Harmonisation of WHS laws

In July 2008, the Council of Australia Governments formally committed to the harmonisation of work health and safety (WHS) laws by signing an Intergovernmental Agreement for Regulatory and Operational Reform in Occupational Health and Safety (the IGA).

The intention of the WHS harmonisation process was to make the WHS laws of the Commonwealth and all the states and territories consistent, so that workers could have the same degree of protection in the conduct of their work, regardless of which part of Australia they were working in. Under the IGA, all Australian jurisdictions committed to adopting the model work health and safety legislation, with minor variations as necessary, to ensure it is consistent with relevant drafting protocols and to achieve consistency with other laws and processes operating within the jurisdiction. The model WHS laws were finalised during 2011 and consisted of an integrated package of a model Work Health and Safety Act, model Work Health and Safety Regulations, model codes of practice and a National Compliance and Enforcement Policy. On 1 January 2012, the Work Health and Safety Act 2011 (WHS Act) and Work Health and Safety Regulation 2011 (WHS Regulation) and supporting approved codes of practice

commenced in NSW. The WHS Act, WHS Regulation and approved codes of practice apply to all workplaces, including mines and petroleum sites.

## 4.2. National Mine Safety Framework

Finalised in 2011, the package of model WHS laws did not contain provisions for mines, as the national WHS laws harmonisation process for mines progressed under the National Mine Safety Framework (NMSF). The NMSF was made up of seven strategies, focused on key areas where consistency across jurisdictions would be most beneficial to the industry, namely:

- nationally consistent legislation
- competency support
- compliance support
- a nationally coordinated protocol on enforcement
- consistent and reliable data collection and analysis
- effective consultation mechanisms
- a collaborative approach to research.

The NMSF was an initiative of the Standing Council on Energy and Resources (SCER), formerly referred to as the Ministerial Council on Mineral and Petroleum Resources. The development of nationally consistent mine safety legislation was the primary focus of the NMSF Steering Group work, including its integration with the development of national model (WHS) laws by Safe Work Australia, to ensure a consistent and collaborative approach to WHS reform. The NMSF Steering Group had tripartite representation from regulators, business groups and employee groups. The group had the role of guiding the development and drafting the model WHS (MPS) Regulation to be made as chapter 10 under the model WHS Regulation. A number of supporting mining codes of practice to the model have also been developed through these processes.

## 4.3. Additional tri-state WHS (MPS) provisions

The SCER also agreed that additional tri-state provisions were required to address high-risk mining activities, such as underground coal mining. In parallel to the development of the model WHS (MPS) Regulation by the NMSF Steering Group, NSW, Queensland and Western Australia formed a tri-state Legislative Working Group (LWG) and have met in a tripartite capacity in order to create a set of drafting

instructions as the basis for the additional tri-state legislation, known as the Non-Core Drafting Instructions (NCDIs). These NCDIs were agreed to by the mining Ministers of each of the three states in July 2011. To reconcile the agreed NCDIs with the model WHS (MPS) Regulation, the tri-state Legislative Working Group developed an annotation to the model WHS (MPS) Regulation, wherein the 'non-core' enhancements from the NCDIs were built onto the model provisions. It was this outcome that gave rise to the form and content of the NSW draft WHS (MPS) Regulation.

As part of this process some issues with the NCDIs were identified, such as apparent overlap and duplication between instructions, as well as questions as to whether a matter could be best addressed in a code of practice rather than in regulation. For example, if a hazard in mining can be controlled in several different ways, it is generally preferable to develop a code of practice addressing the matter. This is because a code of practice can include the different options available and a court may:

- have regard to the code as evidence of what is known about a hazard or risk, risk assessment or risk control to which the code relates
- rely on the code in determining what is reasonably practicable in the circumstances to which the code relates.

1. Do the WHS (MPS) laws remain consistent with the National Mine Safety Framework principles?
2. Is the objective of seeking national consistency relating to WHS in relation to mines and petroleum sites still valid?
3. Has the WHS (MPS) framework facilitated effective interstate regulatory cooperation?
4. Are there any developments in mine and petroleum safety laws in the major mining states that could improve safety regulation and outcomes in NSW?

## 4.4. Scope extended to onshore petroleum

In October 2015, the NSW Government introduced a suite of reforms for harmonisation of resources legislation involving amendment of the *Mining Act 1992*, *Petroleum (Onshore) Act 1991* and the then *Work Health and Safety (Mines) Act 2013*. All provisions relating to WHS in the petroleum onshore legislation were removed and the WHS regulatory provisions applying to mines were applied to petroleum sites. These are NSW-specific provisions, as the national process did not explicitly address provisions specific to petroleum sites under the model WHS Act and model WHS Regulation or the NCDIs.

# 5. Overview of WHS Act

The WHS (MPS) Act and WHS (MPS) Regulations form only a part of the WHS legislative scheme applying to mines and petroleum sites. The WHS (MPS) laws must be read together with:

- the WHS Act
- the WHS Regulation.

Collectively, we refer to these two Acts and two Regulations as the WHS laws. To fully understand the scope and operation of the WHS (MPS) Regulation it is necessary to consider the WHS (MPS) laws in the broader context of the WHS laws.

Section 4 of the WHS (MPS) Act provides that the WHS (MPS) Act and the WHS (MPS) Regulation are to be construed with, and as if they formed part of, the WHS Act and the WHS Regulation. A reference to 'this Act' in the WHS Act includes a reference to the WHS (MPS) Act and the draft WHS (MPS) Regulation.

Words and expressions used in the WHS (MPS) laws have the same meaning as in the WHS Act and WHS Regulation unless they are specifically defined in WHS (MPS) Act or WHS (MPS) Regulation.

The WHS legislative framework applying to mines and petroleum sites improves clarity around the health and safety provisions that apply for those who provide services to, or contract to, the mining industry and other sectors.

The WHS Act includes the following key elements[2]:

- a primary duty of care requiring persons conducting a business or undertaking (PCBUs) to, so far as is reasonably practicable, ensure the health and safety of workers and others who may be affected by the carrying out of work
- duties of care for persons who influence the way work is carried out, as well as the integrity of products used for work
- a requirement that 'officers' exercise 'due diligence' to ensure compliance
- reporting requirements for 'notifiable incidents' such as the serious illness, injury or death of persons and dangerous incidents arising out of the conduct of a business or undertaking

[2] These are as listed in the *Explanatory Memorandum – Model Work Health and Safety Bill*, as published by Safe Work Australia and can be found at https://www.safeworkaustralia.gov.au/law-and-regulation/model-whs-laws

- a framework to establish a general scheme for authorisations such as licences, permits and registrations (e.g. for persons engaged in high risk work or users of certain plant or substances)
- provision for consultation on work health and safety matters, participation and representation provisions
- provision for the resolution of work health and safety issues
- protection against discrimination for those who exercise or perform, or seek to exercise or perform powers, functions or rights under the Bill
- an entry permit scheme that allows authorised permit holders to:
  - inquire into suspected contraventions of work health and safety laws affecting workers who are members, or eligible to be members of the relevant union, and whose interests the union is entitled to represent
  - consult and advise such workers about work health and safety matters.
- provision for enforcement and compliance including a compliance role for work health and safety inspectors
- regulation-making powers and administrative processes, including mechanisms for improving cross-jurisdictional cooperation.

The regulations are made under clause 276 of Schedule 3 to the WHS Act and cover a wide range of matters relating to work health and safety, including[3]:

- representation and participation (Chapter 2)
- general risk and workplace management (Chapter 3)
- hazardous work involving noise, hazardous manual tasks, confined spaces, falls, work requiring a high risk work licence, demolition work, electrical safety and energised electrical work and diving work (Chapter 4)
- plant and structures (Chapter 5)

[3] These are as listed in the Explanatory Memorandum for the Model Work Health and Safety Regulations, as published by Safe Work Australia and can be found at https://www.safeworkaustralia.gov.au/law-and-regulation/model-whs-laws

- construction work (Chapter 6)
- hazardous chemicals (Chapter 7)
- asbestos (Chapter 8)
- major hazard facilities (Chapter 9)
- mines (Chapter 10) [optional]
- general (Chapter 11).

# 6. Work Health and Safety (Mines and Petroleum Sites) Act 2013

## 6.1. Application of the WHS (MPS) laws in NSW

The WHS (MPS) Act assists in meeting the objectives of the WHS Act and how the WHS (MPS) Act applies to mine and petroleum sites to protect from health and safety risks and establish other mine and petroleum site specific requirements.

The WHS (MPS) Act gets its application through key definitions and includes in its scope:

- mine and petroleum operations and activities
- mine or petroleum site operator as the primary duty holder
- geothermal power
- where the Act applies and does not apply
- jurisdictional decisions
- exercise of functions by the regulator and other officials.

The WHS (MPS) Act establishes a primary duty holder through the definition of mine or petroleum site holder behind the operator, unless an entity is appointed under the regulation to be the operator.

The WHS Act 2011 includes the primary duties of PCBUs and covers all workplaces and all hazards. The WHS (MPS) Act 2013 prescribes additional duties on an operator as the main coordinating PCBU in relation to a mine or petroleum site. The mine operator or petroleum site operator is the primary duty holder.

The Secretary of the Department of Planning, Industry and Environment is the regulator of the WHS Act and WHS (MPS) Act in relation to mines and petroleum sites.

5. Are the objects of the WHS (MPS) Act still valid, appropriate and working as intended? **(Part 1 of Act)**

6. Are there any areas **arising from application** of the WHS (MPS) laws that have had unintended outcomes? **(Part 1 of Act)**

## 6.2. Incident notification

All workplace deaths, serious injuries, illnesses and dangerous incidents that happen as a result of work activities at a mine or petroleum site need to be notified to the Regulator. The serious injuries, illnesses and dangerous incidents are prescribed in the WHS (MPS) Regulation.

The operator of the mine or petroleum site must ensure notification is made immediately after becoming aware of the incident.

Businesses must keep a record of each notifiable incident for at least five years. The person in charge of a workplace where a notifiable incident has occurred, must make the site of the incident secure, so it is not disturbed until an inspector arrives, or advises the scene can be disturbed.

The requirement to preserve the scene does not stop a person taking action to prevent further injuries, or to help a person who is injured.

Incident notification provisions mirror those in the WHS Act, with the incidents to be notified expanded to cover events relevant to mining and petroleum extraction and production.

7. Are the provisions under the WHS (MPS) laws **for incident notification** still valid, appropriate and working as intended? **(Part 3 of the Act)**

## 6.3. Functions of government officials

A person who is appointed a government official under the WHS (MPS) Act is deemed to be an inspector for the purposes of the WHS Act. Government officials are categorised as inspectors, mine safety officers and investigators to reflect particular skills, knowledge and experience required to exercise compliance and enforcement functions at mines and petroleum sites. The functions and appointment of government officials include:

- who can be appointed a government official

- qualifications of inspectors
- accountability of government officials.

8. Are the provisions **functions of government officials** still valid, appropriate and working as intended? **(Part 4 of the Act)**

## 6.4. Worker representation in coal mines

Under the WHS (MPS) Act, safety and health representatives (SHRs) are representatives of workers' health and safety interests in the coal industry. They were traditionally known as check inspectors. SHR arrangements only apply to coal mines, but do not apply where the only mining operation is exploring for coal.

There are two types of SHRs:

- mine SHRs – elected by workers for a particular coal mine
- industry SHRs – appointed by the Minister in respect of all coal mines in NSW.

A mine SHR fulfils all the functions of a health and safety representative (HSR) under the WHS Act for all workers at the mine. In addition, they may observe any formal investigation conducted by or on behalf of the mine operator of an event or other occurrence at the coal mine that must be notified to the Regulator. In addition, more than one individual may be elected as a mine SHR, if the mine operator of the mine agrees or the Regulator directs.

Despite this, the provisions for HSRs in the WHS Act still apply in relation to coal mines. The fact that there may be one or more health and safety representatives under the WHS Act for workers at a coal mine does not limit the functions of a mine safety and health representative for the coal mine. However, a HSR, under the WHS Act for a work group that comprises workers at a coal mine, cannot issue a provisional improvement notice in relation to the coal mine under certain circumstances (e.g. when there is a site SHR elected at the coal mine).

Industry SHRs are appointed by the Minister and must be nominated by the Construction Forestry, Maritime, Mining and Energy Union (Mining and Energy Division). To be eligible for appointment as an industry SHR, the person must be a WHS entry permit holder under the WHS Act and have the qualifications (if any) prescribed by the regulations[4].

[4] Clause 168 of the WHS (MPS) Regulation requires a person nominated to be an industry SHR to hold the qualifications required to be nominated to exercise the statutory function of deputy or open cut examiner, and to have completed a course of training that is accredited by the regulator for the purposes of section 45 of the WHS (MPS) Act.

In effect, the industry SHRs must complete the same training as mine SHRs before they can be appointed.

Industry SHRs have all the functions of health and safety representatives under the WHS Act for all workers of coal mines in NSW, as well as the following additional powers and functions[5]:

- to review the content and implementation of the safety management systems at coal mines
- to participate in the investigation of events, occurrences and notifiable incidents at coal mines
- to assist in the training of site SHRs and electrical SHRs.

In exercising a power or performing a function, industry SHRs may:

- enter and inspect any part of a workplace at a coal mine
- accompany an inspector during an inspection of any part of the coal mine where people work
- suspend operations in certain circumstances
- direct a worker to cease unsafe work or issue a provisional improvement notice (PIN) but only after completing the required training.

A provisional improvement notice (PIN) is a notice provided for under the Part 5 of the WHS Act that can be issued by an HSR, if there is a reasonable belief that a person is contravening a provision of the WHS (MPS) laws or has contravened a provision of this Act in circumstances that make it likely that the contravention will continue or be repeated.

A PIN can be issued if the SHR reasonably believes that a person is breaching or has breached the WHS legislation, in circumstances that make it likely the breach with continue or be repeated. A PIN may require the person to:

- remedy the breach
- prevent a likely breach from occurring
- remedy the things or operations causing the breach or likely breach.

A PIN can be issued to any person, including a PCBU (either organisation or individual), or any other duty holder such as workers, officers, or other persons at the workplace.

[5] Section 29 of the WHS (MPS) Act

9. Are the provisions **for worker representation** in coal mines still valid, appropriate and working as intended? **(Part 5 of the Act)**

## 6.5. Enforcement measures

Additional circumstances are provided for a government official issuing an improvement notice under section 191 of the WHS Act, where the official reasonably believes there has been a contravention of the WHS Act or there is likely to be a contravention.

There is also provision for additional circumstances for a government official issuing prohibition notices under section 195 of the WHS Act, for example an activity:

- is occurring, or may occur, at a workplace that involves a serious risk to the health or safety of a person
- has caused, or is causing, a contravention of a provision of the WHS laws prescribed by the regulations.

There is also a provision for the Regulator to issues a stop work order requiring a PCBU to stop any activity to prevent a serious risk to health and safety. The Regulator may also require a PCBU to carry out any activity the Regulator reasonably believes will make the workplace safe.

10. Are the provisions **for enforcement measures** still valid, appropriate and working as intended? **(Part 6 of the Act)**

## 6.6. Boards of Inquiry

The establishment of a Board of Inquiry allows for an assessment of industry performance and compliance via formal inquiries.

Boards of Inquiry were introduced into NSW mine safety legislation[6] in 1998 in response to the Mine Safety Review and Gretley Inquiry to provide a middle tier of government response following an investigation by an inspector as an alternative to a Judicial Inquiry or a Royal Commission.

The NCDIs allowed for mine safety regulations to provide for the establishment of a board of inquiry in the event that a serious incident or notifiable incident occurs, or when the Minister reaches the conclusion that an investigation of a safety matter is necessary.

[6] The *Coal Mines Regulation Act 1982* and *Mines Inspection Act 1901* were amended to introduce Boards of Inquiry via the *Mines Legislation Amendment (Mines Safety) Act 1998 No 122*.

Under the WHS (MPS) Act, the Minister has the power to establish a Board of Inquiry. A Board of Inquiry may be set up to inquire into a notifiable incident, any event, occurrence, practice or matter that may affect the health and safety of workers or other people at a mine or petroleum site and its causes and circumstances.

A Board of Inquiry is not bound to act in a formal manner, or by the rules of evidence, and may inform itself on any matter, in any way that it considers appropriate. A Board of Inquiry has the right to consult, either collectively or individually and either in public or in private, with assessors sitting with it.

A person must answer a question even if it might incriminate him/her or make him/her liable to a penalty. However, any answer, or further information obtained on the basis of an answer, given by a natural person in compliance with this requirement is not admissible in evidence against the individual in other criminal proceedings under prescribed circumstances.

Given this, a court (including coronial proceedings) may by order suspend an inquiry, if the court is of the opinion that the inquiry may prejudice a matter before the court.

Therefore, these types of investigations are confined to the more major end of the incident and issue spectrum and start at the level of Boards of Inquiry. No Board of Inquiry has been established in relation to mines or petroleum sites since the WHS (MPS) laws came into effect in 2015.

11. Are the provisions **for a Board of Inquiry** still valid, appropriate and working as intended? **(Part 7 of the Act)**

## 6.7. Statutory bodies

There are two statutory bodies established by the WHS (MPS) laws. These bodies are the Mine Safety Advisory Council and Mining and Petroleum Competence Board.

**NSW Mine Safety Advisory Council**

The NSW Mines Safety Council provides strategic advice to the Minister on ways to improve health and safety in the mining industry that it considers relevant or is referred to by the Minister. It is a single, peak advisory body covering the entire mining industry. Its membership includes representatives from the peak mine operator and mine worker organisations prescribed in the WHS (MPS) Regulation.

Specifically, the key industry stakeholders directly represented are the NSW Minerals Council, the Cement Concrete & Aggregates Australia, the Construction Forestry Marine Mining and Energy Union (CFMMEU) and the Australian Workers Union. These are joined by at least one or more individuals who, in the Minister's opinion, are independent of these bodies but have expertise that would be of assistance to the Council, and a representative of the Department of Planning, Industry and Environment.

**Mining and Petroleum Competence Board**

The Mining and Petroleum Competence Board determines competence standards for safety-critical roles and undertakes the assessment of people to perform those roles, which will be identified in the regulation. It also provides advice to the Minister and the Regulator on competence issues.

The Board's membership includes representatives from the peak mine operator and mine worker organisations prescribed in the WHS (MPS) Regulation, as well as people with expertise in the development of competence standards and assessment of competence. It covers a wide range of issues relating to statutory functions and maintenance of competence.

12. Are the provisions **for statutory bodies** still valid, appropriate and working as intended? **(**Part 8 of the Act**)**

13. Do the provisions **for statutory bodies** ensure adequate representation in the provision of advice in relation to health and safety and competence? **(**Part 8 of the Act**)**

# 7. Work Health and Safety (Mines and Petroleum Sites) Regulation 2014

The power to make the WHS (MPS) Regulation is provided under section 76 of the WHS (MPS) Act. Regulations may make provision for, or in relation to, any matter for, or in relation to, which regulations may be made under the WHS Act. The regulations may also be made in respect of an activity in relation to mining operations or petroleum operations that takes place at a workplace other than a mine or petroleum site.

## 7.1. Mine operator and petroleum site operator

The WHS (MPS) Regulation places the majority of duties on a mine or petroleum site operator. An operator is the PCBU with management or control of the mine or petroleum site.

An operator under the WHS (MPS) Act is the mine holder or the petroleum site holder unless they have appointed another person as the operator. A mine holder or petroleum site holder is a PCBU in control of a right or entitlement permitting mining operations or petroleum operations to be carried out.

The Regulator does not approve the appointment of a mine operator or petroleum operator. However, the Regulator (and an industry safety and health representative, when dealing with coal mines) must be notified by the operator of any change to the operator's contact details as soon as practicable after the change and the commencement of mining operations or petroleum operations at a site.

However, to ensure that a mine operator has the requisite capacity to control and manage mining operations or petroleum operations, the Regulator may require a mine holder to appoint more than one mine operator, or only one mine operator, to conduct mining operations on their behalf in relation to a mine.

Mine operators and other PCBUs at mines and petroleum sites may also have duties under the WHS Act and WHS Regulation. Further, a duty on a PCBU under the WHS (MPS) Act or WHS (MPS) Regulation at a mine or petroleum sites also applies to the mine operator or mine holder of the mine, or to the petroleum site operator or petroleum site holder of the petroleum site respectively.

14. Are the provisions **for nomination and appointment of operators** still valid, appropriate and working as intended? **(Part 1A of the Regulation)**

## 7.2. Duty to manage risk

Under the WHS Act, a PCBU has a primary duty of care to ensure the health and safety of workers, so far as reasonably practicable, by managing risk. This requires that risks to health and safety be eliminated, and where this is not reasonably practicable, that they be minimised so far as is reasonably practicable.

Some risks must be managed in accordance with the requirements of Part 3.1 of the WHS Regulation. It requires duty holders to identify hazards and apply a hierarchy of risk control measures to eliminate or minimise risks. It also requires a review of those risk control measures in specified circumstances.

The WHS (MPS) Regulation applies Part 3.1 to the management of risks to health and safety associated with mining operations. It also provides a general requirement for the conduct of risk assessments when managing risks and to keep records of compliance with Part 3.1. The WHS (MPS) Regulation also specifies some additional circumstances that trigger a requirement to review control measures.

15. Are the provisions **for managing risk** in addition to the WHS Regulation still valid, appropriate and working as intended? **(Part 2, Div 1, Subdivision 1 of the Regulation)**

## 7.3. Safety management system, principal hazard management plans and principal control plans

### Safety management system

The WHS (MPS) Regulation establishes the requirements for a safety management system (SMS) for mines and petroleum sites. Together, these SMS provisions place a general requirement on operators to document and follow their plans for implementing measures to control risks associated with operations at their mine or petroleum site. The SMS must provide a comprehensive and integrated system for the

management of all aspects of risk control in relation to the operation of the mine or petroleum and describe the systems and procedures and other risk control measures that will be used to control risks to health and safety associated with mining or petroleum operations at the mine or petroleum site. Also, the SMS must form part of any overall management system that is in place at the mine or petroleum site. The SMS is to contain an appropriate level of detail having regard to all relevant matters including the nature and complexity of the mining operations and the risks associated with those operations.

The WHS (MPS) Regulation lists the kinds of things that are captured as part of the SMS (i.e. principal hazard management plans (PHMPs) and principal control plans (PCPs)). The SMS is not required to be set out in a particular way as long as the required content is included. For example, PHMPs and PCPs, or part thereof, may be integrated with one another and/or include other matters required by the SMS, such as the required information training and instruction for the matter dealt with under the PHMP or PCP. The Regulator and an industry safety and health representative (in respect of coal mines) must be notified of any changes to an established SMS.

## Principal mining hazard management plans

A PHMP is required for each principal hazard at the mine or petroleum site. If the principal hazard does not exist, then the PHMP is not required. Principal mining hazards are hazards that present a reasonable potential to result in multiple deaths in a single incident or a series of recurring incidents, in relation to any of the following:

- ground or strata instability
- inundation and inrush
- mine shafts and winding operations
- roads and other vehicle operating areas
- air quality, dust and other airborne contaminants
- fire or explosion
- gas outbursts
- spontaneous combustion
- subsidence

- any other hazard identified by the mine operator that meets the definition of a principal mining hazard.

The WHS (MPS) Regulation sets out the content requirements for the PHMPs and the considerations to be taken into account in developing the control measures to manage the risks of the principal hazard. A PHMP must address all aspects of risks associated with the principal mining hazard.

### Principal control plans

The WHS (MPS) Regulation includes requirements for PCPs. It also sets out content requirements for PCPs and the considerations to be taken into account when developing control measures to manage risks associated with PCPs. The prescribed PCPs are for:

- electrical engineering
- mechanical engineering
- explosives
- health
- ventilation (underground)
- emergency response
- well integrity.

The emergency response and health control plans are mandatory for all mines and petroleum sites. The electrical and mechanical engineering control plans are required where there are risks associated with electricity or the mechanical aspects of plant and structures. The ventilation control plan is required for all underground mines and the explosives control plan is required where there are risks associated with the use of explosives and explosive precursors at the mine. Each PCP should provide for the management of the risks associated with the relevant hazard. A range of matters are specified that must be addressed in the PCP or taken into account when developing it.

16. Are the provisions **for SMS, including PHMP & PCP**, still valid, appropriate and working as intended? **(Part 2, Div 1, Subdiv 2-4 and Div 2 and 3 of the Regulation)**

## 7.4. Contractor management

The WHS (MPS) Regulation sets out a process for consultation between operators and other PCBUs carrying out operations at mines and petroleum sites that are defined as contractors.

The process builds on the consultation, co-operation and co-ordination duty between PCBUs under the WHS Act and requires contractors to prepare a management plan (the contractor health and safety management plan) for the work to be undertaken by them, including how it will be incorporated into the operator's SMS. A contractor cannot commence operations until the mine or petroleum site operator has given the contractor written notice that the contractor health and safety management plan is consistent with the SMS for the mine or petroleum site.

## 7.5. Specific control measures

The WHS (MPS) Regulation outlines specific control measure where some apply to all mines, some solely to all underground mines, and some solely to underground coal mines, while opal mines are exempt.

### Specific control measures – all mines and petroleum sites

The WHS (MPS) Regulation requires certain risks to be managed by using specific control measures. There are duties on operators to use specific control measures in relation to aspects of operational controls, air quality and air monitoring, as well as fitness for work. The operational controls for all mines and petroleum sites are in relation to:

- communication between outgoing and incoming shifts
- movement of mobile plant
- operation of belt conveyors
- ground or strata failure
- seismic activity
- explosives and explosive precursors
- electrical safety
- notification of high risk activities
- prohibited uses
- closure suspension or abandonment of a mine
- minimum age to work in a mine
- inspections

- fitness for work.

There are also air quality and monitoring provisions in the WHS (MPS) Regulation in relation to temperature and moisture content of air, exposure to dust, air monitoring, signage relating to air monitoring and warnings and records of air monitoring. As well, fitness for work requirements are in relation to fatigue, alcohol and drugs.

**Air quality – exposure to dust**

NSW has a rigorous regulatory regime backed by frequent testing and tripartite analysis of issues relating to dust.

The WHS (MPS) Regulation requires a mine operator to at least meet the Workplace Exposure Standard for Airborne Contaminants (WESFAC) standard, which mandates a maximum level of 3mg of respirable dust per cubic metre of air. In coal mines the exposure standard is 2.5 milligram per cubic metre of air. Schedule 6 of the WHS (MPS) Regulation sets minimum requirements for worker exposure monitoring in coal mines.

An exposure standard for diesel particulate matter of 0.1 milligram of elemental carbon per cubic metre of air has also been included in the WHS (MPS) Regulation and commenced on 1 February 2021.

## Specific control measures – underground mines

The WHS (MPS) Regulation imposes an additional set of duties on mine operators of underground mines. The specific control measures for underground mines are in relation to operational controls, air quality and ventilation. The mine operators of underground mines must control the risks addressed by these specific control measure set out by the regulation. The operational controls for underground mines relate to:

- inrush hazards
- connecting workings
- winding systems
- ropes
- operation of shaft conveyances
- communication systems
- ground and strata support
- exhaust emissions and fuel standards.

For underground coal mines there are specific requirements, including:

- coal dust explosions
- spontaneous combustion
- subsidence
- sealing
- light metal alloys
- goaf areas and abandoned or sealed workings
- ventilation
- control of methane levels and gas monitoring
- sampling and analysis of exhaust emissions
- post incident monitoring
- use of plant in the hazardous zone
- use of cables in the hazardous zone
- electrical safety
- persons required to be on duty.

All coal mines are also required to:

- have an inspection plan
- sampling and analysis of airborne dust carried out by an independent person
- have ventilation and belt conveyor components to be fire resistant anti-static (FRAS).

The air quality and ventilation provisions in the WHS (MPS) Regulation relate to:

- air quality – general and minimum standards and airborne contaminants (including Schedule 6 of the WHS (MPS) Regulation that applies to coal mines)
- requirements if air quality and air safety standards are not met
- ventilation requirements – outcomes and controls

- monitoring and testing of ventilation
- duty to prepare and review a ventilation control plan
- modelling to take place before making changes to the system
- ventilation control plan
- review of ventilation control plan.

17. Are the provisions **specific control measures** still valid, appropriate and working as intended? **(Part 2, Div 4-5 of the Regulation)**

## 7.6. Emergency management

The WHS (MPS) Regulation imposes duties on all mine and petroleum site operators in relation to emergency management. Operators are required to prepare emergency plans. This requirement builds on the duty in the WHS Regulation to prepare an emergency plan. Operators are to address all aspects of emergency response in control plans including:

- arrangements for locating, communicating with and evacuating people in an emergency
- the provision of adequate resources and equipment
- the provision of information, training and instruction to workers in order to implement the plan
- triggers for activation of the plan
- the testing of the plan
- site and hazard detail of the mine
- the command structure and site personnel
- consultation with emergency service organisations
- test and review the emergency plan
- provide resources
- training workers in the plan.

Additional duties are imposed for emergency management in relation to underground mines. Those duties include:

- emergency exits
- safe escape and refuge
- signage for emergency refuge, caches, refill stations and changeover stations
- self-rescuers
- personal protective equipment in emergencies
- competent people at the surface of the mine.

The detail to be included in emergency plans will vary but must be appropriate in regard to the nature and complexity of the mining operation and the associated risks.

18. Are the provisions **for emergency management** still valid, appropriate and working as intended? **(Part 2, Div 6 of the Regulation)**

## 7.7. Information training and instruction

The WHS (MPS) Regulation imposes duties on operators in relation to the provision of information, training and instruction to workers. There are specific requirements, both before and after a worker commence work at the mine, and include duties to give informational training and instruction to workers in relation to:

- the content and implementation of the SMS
- the hazards and controls associated with the work carried out by the worker
- Induction
- the emergency plan
- the safety role of workers.
- information to visitors
- training records.

19. Are the provisions **for information, instruction and training** still valid, appropriate and working as intended? **(Part 2, Div 7 of the Regulation)**

## 7.8. Health monitoring

The WHS (MPS) Regulation provides for the Regulator to direct a mine or petroleum site operator in relation to the provision of health monitoring to workers engaged to carry out work at mines where there is a significant risk of an adverse effect [from] an exposure to a hazard associated with mining or petroleum operations and valid techniques are available to detect the effect on the worker's health. Supplements requirements under the WHS Regulation (e.g. Hazardous chemicals)

Note the WHS Regulations contain provisions requiring health monitoring of workers working with hazardous chemicals, lead and asbestos. Those provisions continue to apply to mines and petroleum sites, in addition to any health monitoring required under this part.

20. Are the provisions for **health monitoring** still valid, appropriate and working as intended? **(Part 3 of the Regulation)**

## 7.9. Consultation and workers safety role

The WHS (MPS) Regulation imposes duties on mine and petroleum site operators in relation to consultation with workers and enabling them to have a safety role. Operators have a duty to consult with workers in relation to SMSs, risk assessments for PHMPs and PCPs, emergency response control plans, the implementation of the safety role for workers and fitness for work. This duty to consult is in addition to the duty under the WHS Act and WHS Regulation to consult.

The safety role for workers, that the operator has a duty to implement, must enable workers to contribute to the:

- identification of principal hazards and the need for PCPs
- consideration of the controls for principal hazards and PCPs
- the conduct of reviews of PHMPs and PCPs.

21. Are the provisions **for consultation and worker safety role** still valid, appropriate and working as intended? **(Part 4 of the Regulation)**

## 7.10. Survey plans

The WHS (MPS) Regulation imposes a duty on mine operators of all coal mines, underground mines or a mine where a risk assessment has been conducted (and it is determined a plan is required) is to prepare mine survey plans. The survey plans must be prepared and certified by competent people, who will be registered mining surveyors. There are requirements in relation to:

- the details to be included on the survey plan
- verification of the survey plan
- variations between the mine workings and the survey plans
- review of the survey plan
- the availability of the survey plan
- the security of survey data
- the provision of the survey plan to the Regulator.

Note: Opal mines and tourist mines are exempted from this requirement.

The operator of a petroleum site must ensure that a detailed plan of the petroleum site is prepared and that the plan is certified by a registered surveyor.

22. Are the provisions **for survey plans and mine plans** still valid, appropriate and working as intended? **(Part 5 of the Regulation)**

## 7.11. Notifications and information provided to the regulator

In addition to the duty in the WHS (MPS) Act to notify the Regulator of notifiable incidents, the WHS (MPS) Regulation imposes additional duties on mine operators in relation to the provision of information to the Regulator about:

- safety critical activities covered by the HRA notifications
- incident notified to the Regulator including dangerous incidents and high potential incidents
- other matters to be reported
- work health and safety reports
- ancillary reports.

Operators have a duty to notify the Regulator as soon as possible about certain incidents, including high potential incidents and where incidents results in illness or injury. Details about incidents must be provided to the Regulator no more than 48 hours after the incident. Operators must also provide quarterly reports to the Regulator in relation to incidents occurring at mines, containing information as specified in the WHS (MPS) Regulation.

Dangerous incidents are defined as those that will expose a worker or any other person to a serious risk to their health and safety from immediate or imminent exposure to incidents such as:

- an uncontrolled escape, spillage or leakage of a substance
- an uncontrolled implosion, explosion or fire
- an uncontrolled escape of gas or steam
- an uncontrolled escape of a pressurised substance
- the fall or release from a height of any plant, substance or thing
- the collapse, overturning, failure or malfunction of, or damage to, any plant that is required to be authorised.
- the collapse or partial collapse of a structure
- the collapse or failure of an excavation or of any shoring supporting an excavation
- the inrush of water, mud or gas in workings at an underground excavation or tunnel
- the unintended interruption of the main system of ventilation at an underground excavation or tunnel
- the loss of control of heavy earthmoving machinery (including any failure of braking or steering)
- the unintended activation, movement, or failure to stop vehicles or machinery
- a collision involving a vehicle or mobile plant
- damage to, or failure of, any part of a powered winding system or a shaft or shaft equipment
- damage to any plant or structure
- a failure of ground, or of slope stability control measures

- rock falls, instability of cliffs, steep slopes or natural dams, occurrence of sinkholes, development of surface cracking or deformations or release of gas at the surface, due to subsidence
- a vehicle or plant making contact with an energised source having a voltage greater than 1,200 volts (other than testing equipment applied to energised equipment in accordance with the WHS Regulations)
- spontaneous combustion at a coal mine.

The following events are to be treated as dangerous incidents regardless of the existence of an exposure of a worker or any other person to a serious risk to their health and safety because of the incident occurring:

- a fire in the underground parts of a mine, including where the fire is in the form of an oxidation that releases heat and light
- an electric shock to a person (other than a shock from an extra low voltage source)
- any initial indication that any underground part of a coal mine is subject to windblast, outbursts or spontaneous combustion
- the unintended overturning of any vehicle or of plant weighing more than 1,000 kilograms
- ejection of rock from blasting that falls outside the blast exclusion zone (being the area from which persons are excluded during the blasting)
- any initial indication that there may be a fault in the cementing of a casing string forming part of the cement casing of a well
- a gas outburst at an underground coal mine
- a coal burst or rock burst at an underground mine.

The WHS (MPS) Regulation also details 23 other specific matters that are to be notified as high potential incidents.

Further to this, other matters are required to be reported by the operator to the Regulator relating to the commencement or cessation of operations, the management structure of the persons exercising key statutory functions at the operation and a summary of the SMS.

23. Are the provisions **for notifications and information to be provided to the regulator and information to be kept by the operator** still valid, appropriate and working as intended? **(Part 6 and Part 7 of the Regulation**)

## 7.12. Statutory functions

The operator of a mine or petroleum site must ensure that a statutory function is exercised by a person who meets the requirements for nomination. These are specified in Part 8 and Schedule 10 and 10A.

The operator must nominate a person who meets the requirements to exercise a key statutory function. Only one person can exercise a key statutory function and mining activity cannot take place if a qualified person is not nominated for more than seven days. Key statutory functions are:

- Mining engineering manager
- Electrical engineering manager
- Mechanical engineering manager
- Electrical engineer
- Mechanical engineer
- Quarry manager
- Ventilation officer.

Competence to exercise statutory functions may be through an individual:

- holding a practising certificate granted based on an individual meeting the qualifications (either a certificate of competence or other qualifications determined by the Regulator). A practising certificate lasts five years
- meeting other criteria or qualifications specified in the regulation.

A practising certificate holder must comply with the conditions placed on that practising certificate. Conditions may include participating in a maintenance of competence scheme or restrict the holder to exercising the statutory function to a specific site.

The Regulator may suspend or cancel a certificate of competence or a practising certificate under certain circumstances provided in the WHS (MPS) Regulation.

24. Are provisions for **statutory functions** still valid, appropriate and working as intended? **(Part 8 of the Regulation)**

# 7.13. Authorisations

Licences for certain high-risk work in coal mining in the previous *Coal Mine Health and Safety Act 2002* and regulation have been retained in the WHS (MPS) Regulation and are in addition to authorisations required under the WHS Act (e.g. high risk work licences).

## Activities requiring a licence

The WHS (MPS) Regulation sets out a scheme for the licensing of PCBUs to conduct certain activities at coal mines. The following activities will require a licence when undertaken in relation to the respective mine type:

- the overhaul, repair or modification of explosion protected plant (underground coal)
- the repair of flexible reeling, feeder and trailing cables for use in hazardous zones (underground coal)
- the undertaking of polymeric processes (underground coal)
- the sampling and analysis of airborne dust (coal Schedule 6 WHSMPS Regulation)
- the sampling and analysis of diesel engine exhaust (underground coal mines).

Eligibility for a licence is determined on the basis of the applicant having staff with the relevant qualifications, skills, knowledge and experience, as well as having arrangements to ensure adequate supervision and training of workers performing the work for which licences are required. Provision is made for the suspension or cancellation of licences (i.e. if the licence holder is no longer eligible, they breach a licence condition).

## Registration of plant designs and items of plant

The WHS (MPS) Regulation has requirements for the registration of certain plant designs and items of plant for use in mines. Unless otherwise specified, the registration requirement only applies to their use in underground coal mines. The following plant designs require design registration:

- diesel engine systems
- powered winding systems (all underground mines)

- booster fans
- braking systems on plant used in underground transport
- canopies on continuous miners
- plant or items used to determine or monitor the presence of gases
- breathing apparatus to assist escape, including self-rescuers
- shot-firing apparatus
- detonators
- explosive-powered tools
- conveyor belts.

The design of plant requiring design registration must comply with the design and performance standards determined and published by the Regulator and verified by a competent person.

The following items of plant require item registration every five years:

- diesel engine systems
- powered winding systems (all underground mines)
- booster fans.

25. Are provisions **for licensed activities and registration of plant** still valid, appropriate and working as intended? **(Part 9 and cl 177 of the Regulation)**

# Appendix C – List of consultation sessions

## Public consultation forums

The Independent Reviewer held eight public consultation forums, as follows:

- Penrith – 10 March 2020
- Wagga Wagga – 11 March 2020
- Wollongong – 12 March 2020
- Dubbo – 18 March 2020
- Broken Hill – 19 March 2020
- *Muswellbrook – 23 March 2020
- *Newcastle – 24 March 2020
- *Sydney – 7 April 2020

*The public consultation forums for Muswellbrook, Newcastle and Sydney were changed to online forums due to COVID-19 restrictions.

## Targeted consultation forums

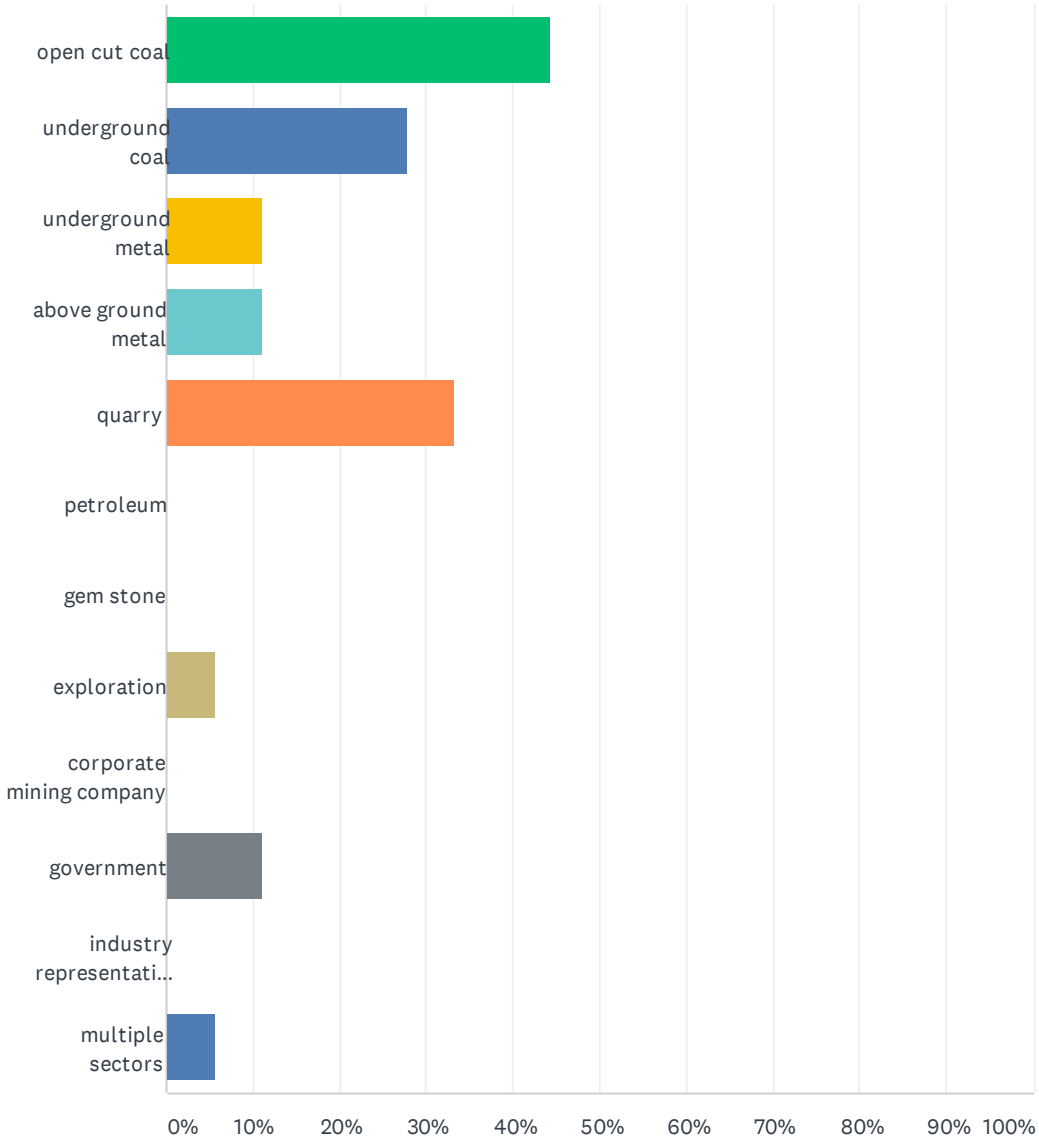
The Independent Reviewer held meetings with representatives from the following targeted stakeholders:

- Lightning Ridge Miners' Association – 17 March 2020
- Resources Regulator (Mine Safety Inspectorate) – 24 March 2020
- Coal Services Pty Limited – 6 April 2020
- Australian Workers' Union – 6 April 2020
- Construction, Forestry, Maritime, Mining and Energy Union – 6 April 2020
- Cement Concretes and Aggregates Australia – 7 April 2020
- Resources Regulator (Senior Executive) – 21 April 2020
- NSW Minerals Council – 22 April 2020

# Appendix D – Online survey outcomes

# Q1 What sector do you work in? (You can choose more than one sector)

Answered: 18 Skipped: 0

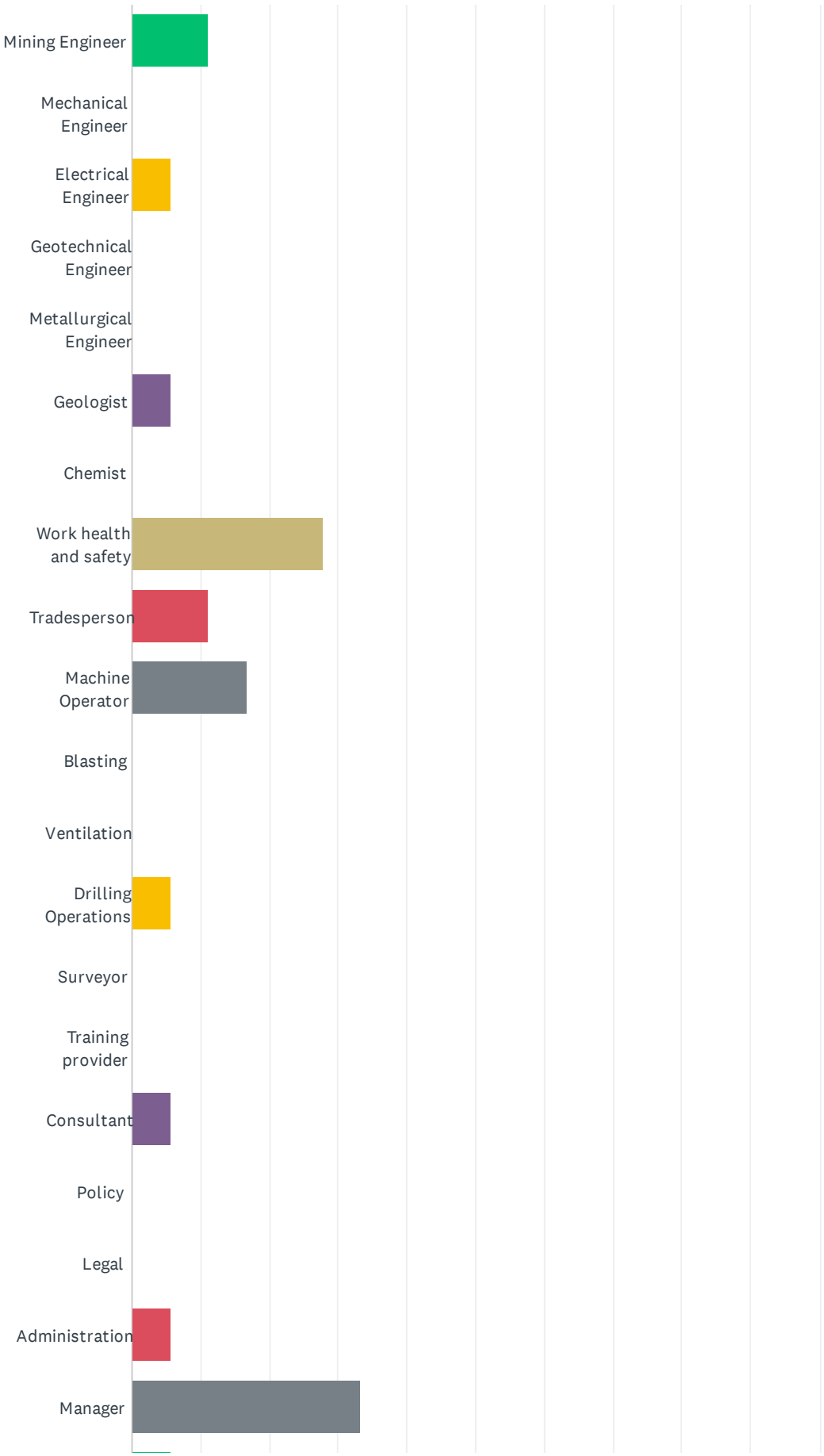


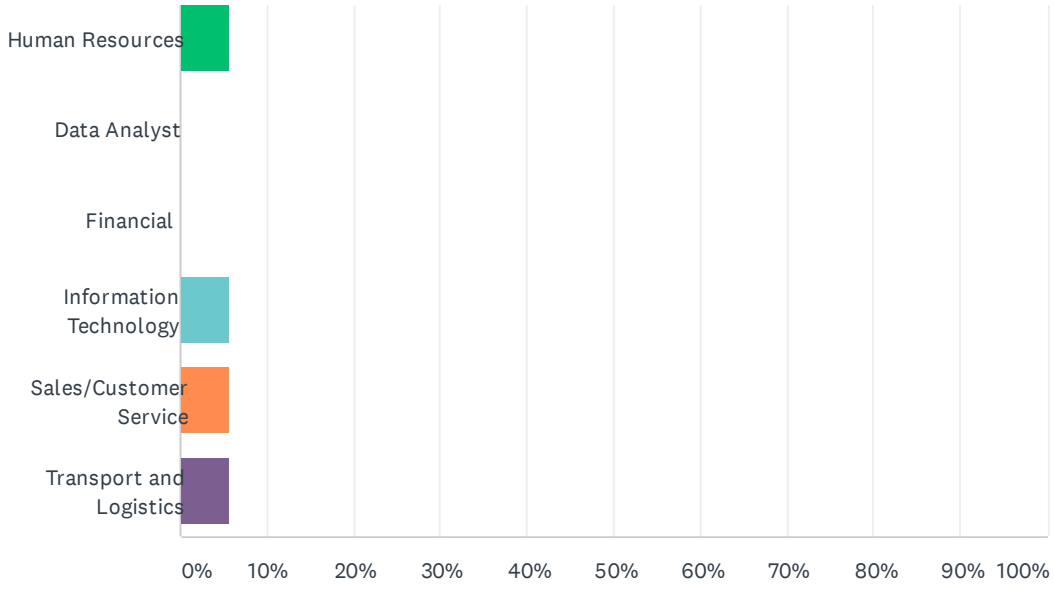
| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| open cut coal | 44.44% | 8 |
| underground coal | 27.78% | 5 |
| underground metal | 11.11% | 2 |
| above ground metal | 11.11% | 2 |
| quarry | 33.33% | 6 |
| petroleum | 0.00% | 0 |
| gem stone | 0.00% | 0 |
| exploration | 5.56% | 1 |
| corporate mining company | 0.00% | 0 |
| government | 11.11% | 2 |
| industry representative body | 0.00% | 0 |
| multiple sectors | 5.56% | 1 |
| Total Respondents: 18 | | |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|---|---|
| | There are no responses. | |

# Q2 What type/discipline of role are you in?

Answered: 18 Skipped: 0



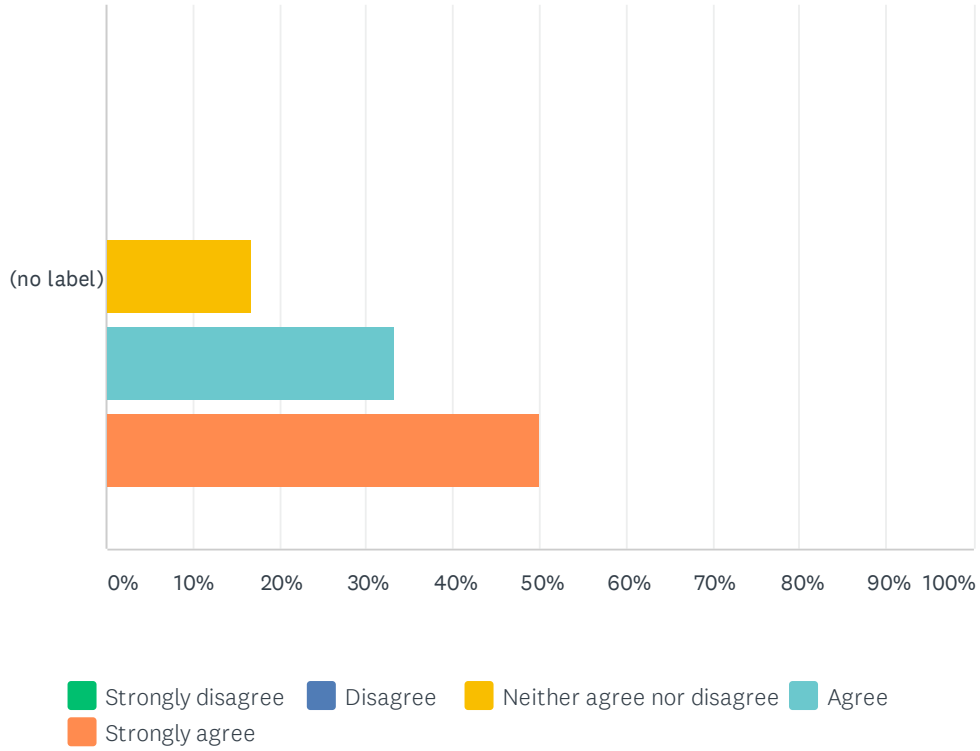

Human Resources
Data Analyst
Financial
Information Technology
Sales/Customer Service
Transport and Logistics
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%

| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| Mining Engineer | 11.11% | 2 |
| Mechanical Engineer | 0.00% | 0 |
| Electrical Engineer | 5.56% | 1 |
| Geotechnical Engineer | 0.00% | 0 |
| Metallurgical Engineer | 0.00% | 0 |
| Geologist | 5.56% | 1 |
| Chemist | 0.00% | 0 |
| Work health and safety | 27.78% | 5 |
| Tradesperson | 11.11% | 2 |
| Machine Operator | 16.67% | 3 |
| Blasting | 0.00% | 0 |
| Ventilation | 0.00% | 0 |
| Drilling Operations | 5.56% | 1 |
| Surveyor | 0.00% | 0 |
| Training provider | 0.00% | 0 |
| Consultant | 5.56% | 1 |
| Policy | 0.00% | 0 |
| Legal | 0.00% | 0 |
| Administration | 5.56% | 1 |
| Manager | 33.33% | 6 |
| Human Resources | 5.56% | 1 |
| Data Analyst | 0.00% | 0 |
| Financial | 0.00% | 0 |
| Information Technology | 5.56% | 1 |
| Sales/Customer Service | 5.56% | 1 |
| Transport and Logistics | 5.56% | 1 |
| Total Respondents: 18 | | |

| # | OTHER (PLEASE SPECIFY) | DATE |
|---|---|---|
| 1 | Local Government Quarry Manager | 4/15/2020 9:46 AM |
| 2 | Training Coordinator | 3/3/2020 10:43 AM |
| 3 | Relief supervisor | 2/29/2020 10:58 AM |
| 4 | Site Safety and Health Representative | 2/28/2020 3:02 PM |

# Q3 Do you agree that the objective of seeking national consistency relating to WHS in relation to mines and petroleum sites is still valid?

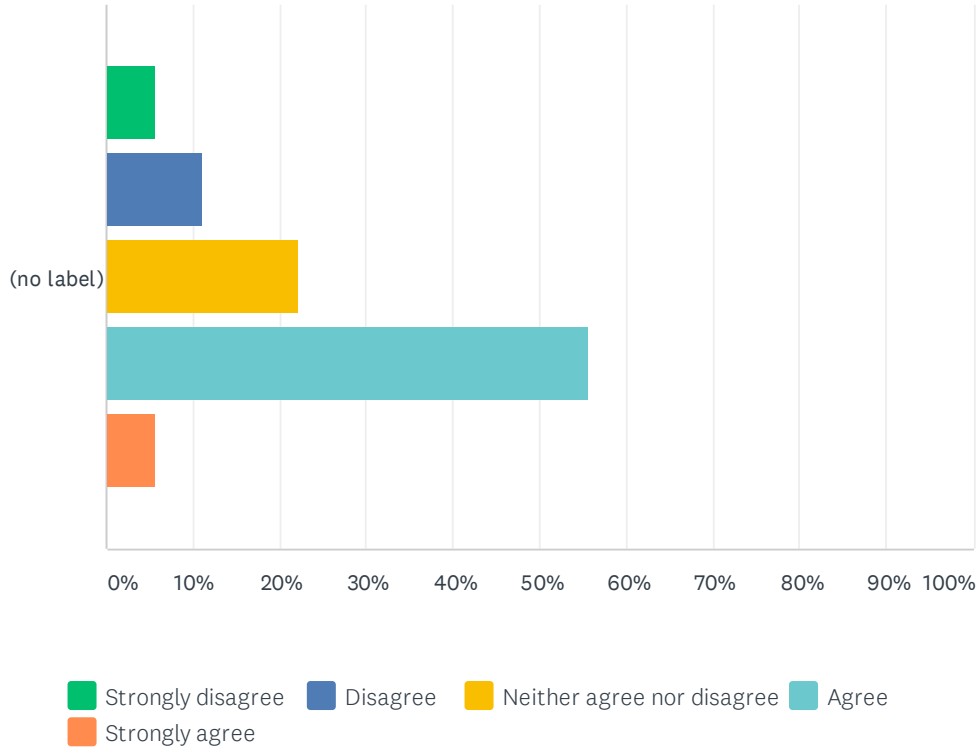
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 0.00%<br>0 | 0.00%<br>0 | 16.67%<br>3 | 33.33%<br>6 | 50.00%<br>9 | 18 | 4.33 |

# Q4 Do you agree that the objects of the WHS (MPS) Act are still valid and appropriate and working as intended? (Part 1 of Act)

Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 11.11%<br>2 | 22.22%<br>4 | 55.56%<br>10 | 5.56%<br>1 | 18 | 3.44 |

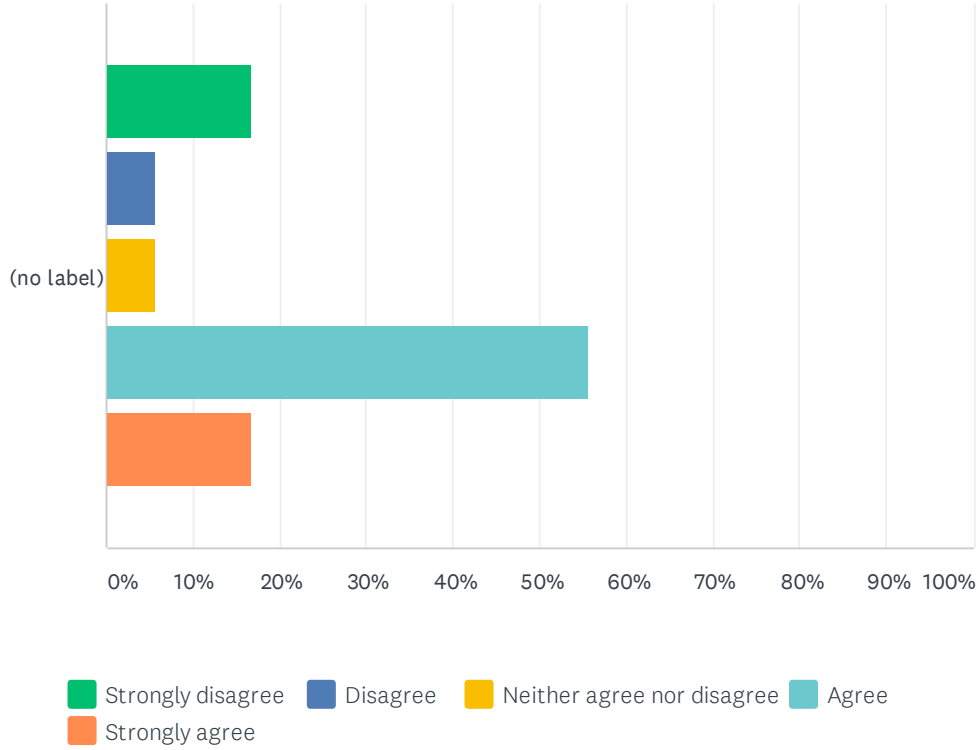
# Q5 Are there any areas arising from application of the WHS (MPS) laws that have had unintended outcomes and if yes what are they? (Part 1 of Act)

Answered: 9 Skipped: 9

| # | RESPONSES | DATE |
|---|---|---|
| 1 | Petroleum Sites should have separate legislation to Mine Sites. Also it would be much better if there were separate regulations for coal, metalliferous and quarrying. | 4/30/2020 11:56 AM |
| 2 | No | 4/22/2020 9:13 AM |
| 3 | The application of the new Regulations has not been consistent with the approach of the regulator. Similarly , the regulator is inconsistent in its approach which is inefficient for the industry. | 3/16/2020 10:48 AM |
| 4 | Yes, 6 Meaning of “mine” 7 Meaning of “mining operations” and “mining activities” These two definitions have significant (and unintended I think?), outcomes on the exploration sector, where no 'Operating mine' exists | 3/3/2020 4:05 PM |
| 5 | None | 3/3/2020 10:43 AM |
| 6 | Many requirements are open to interpretation in both application and enforcement. Industry is required to make risk based decisions yet the RR does not appears to base legislation on this principle, demanding onerous and expensive requirements without justification. Legislation is defended and enforced despite clear failings - i.e. the case of oxygen candles in refuge chambers. | 3/2/2020 1:38 PM |
| 7 | For smaller operations PCP and PMHCP can be overbearing given the limited resources available to the operators, especially in the quarrying industry, material extracted has limited product value, and operations are limited in their resourcing to reflect this, where operations are able to employ a safety specialist, that person is usually spread thinly, the quality of persons attracted to this part of the mine industry is usually limited, resulting in poor application of these systems, usually driven by persons off site. | 3/2/2020 9:21 AM |
| 8 | When the company drives safety yet individuals are pushed to meet KPIs by the company to " get the job done " by any means corners will get cut and people will get hurt | 2/29/2020 10:58 AM |
| 9 | Not that I am aware of | 2/28/2020 3:02 PM |

# Q6 Do you agree that the provisions under the WHS (MPS) laws for incident notification are still valid, appropriate and working as intended? (Part 3 of the Act)

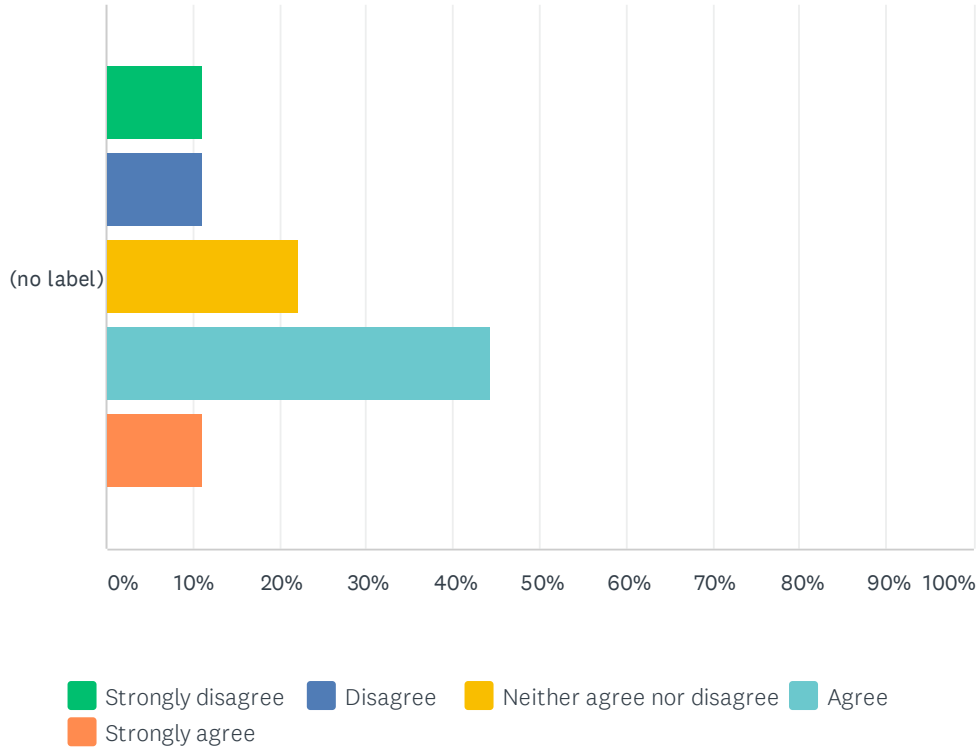
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 16.67%<br>3 | 5.56%<br>1 | 5.56%<br>1 | 55.56%<br>10 | 16.67%<br>3 | 18 | 3.50 |

# Q7 Do you agree that the provisions functions of government officials are still valid, appropriate and working as intended? (Part 4 of the Act)

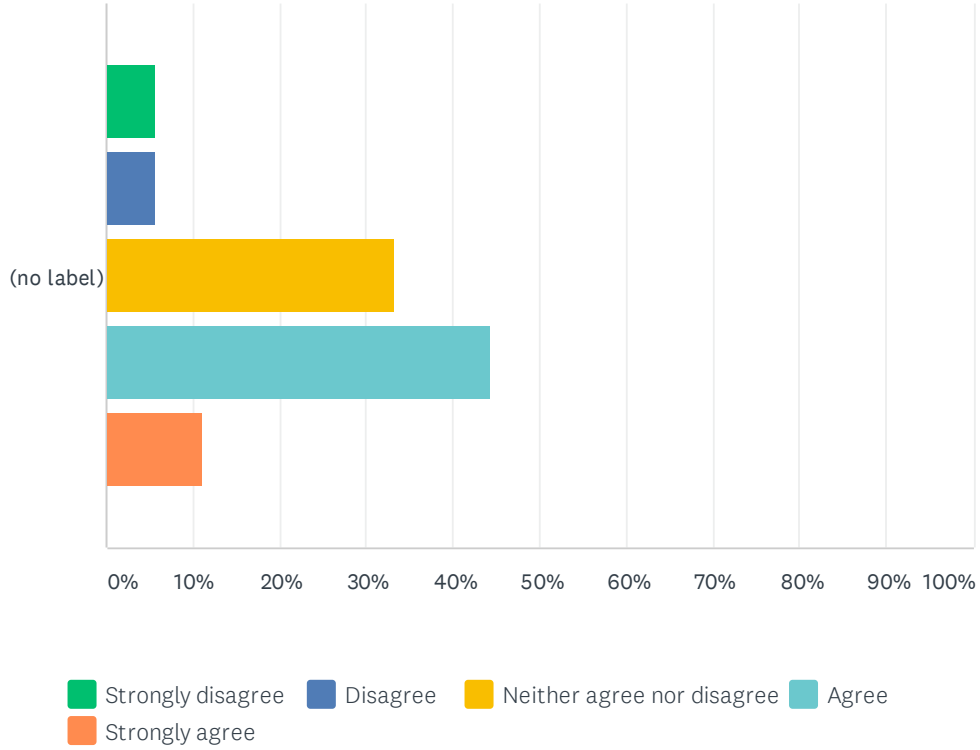
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 11.11% 2 | 11.11% 2 | 22.22% 4 | 44.44% 8 | 11.11% 2 | 18 | 3.33 |

# Q8 Do you agree that the provisions for worker representation in coal mines are still valid, appropriate and working as intended? (Part 5 of the Act)

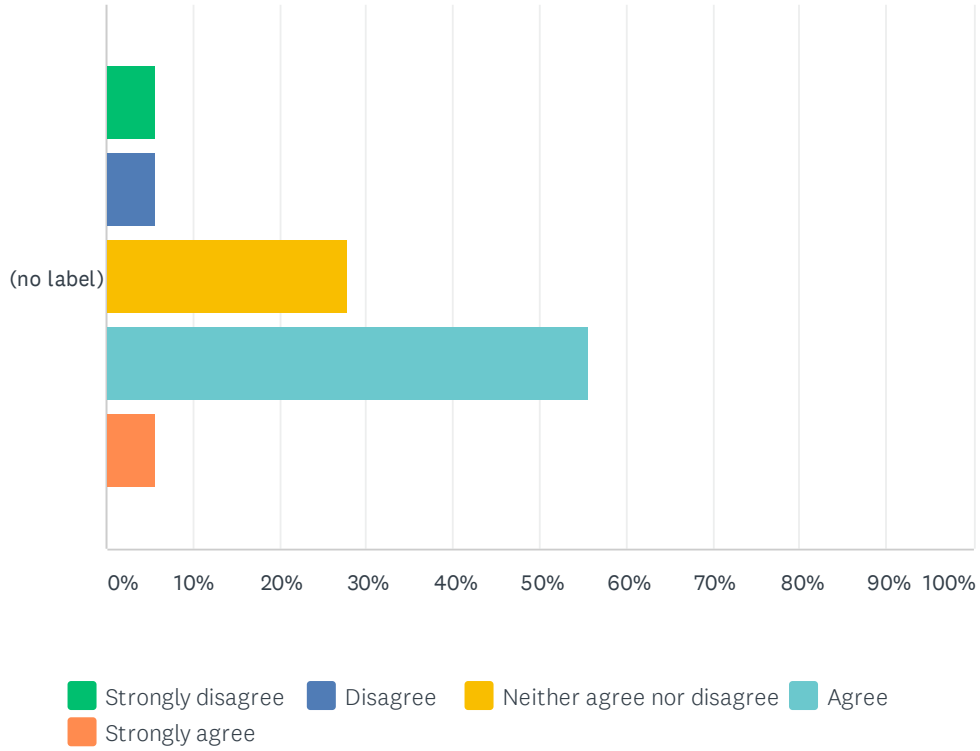
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 5.56%<br>1 | 33.33%<br>6 | 44.44%<br>8 | 11.11%<br>2 | 18 | 3.50 |

# Q9 Do you agree that the provisions for enforcement measures are still valid, appropriate and working as intended? (Part 6 of the Act)

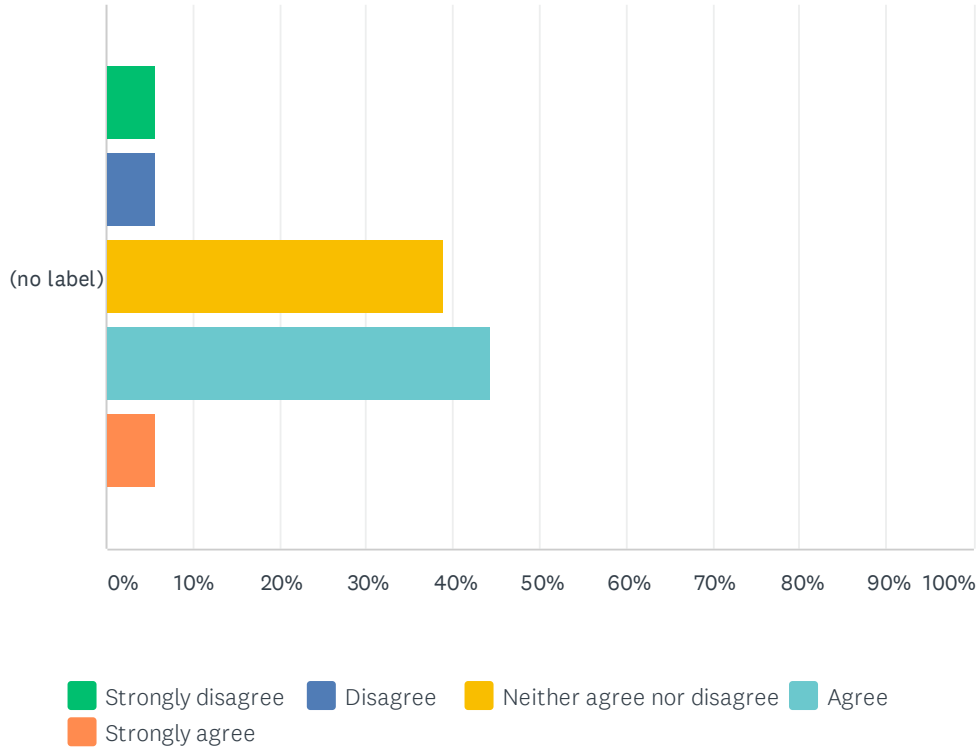
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 5.56%<br>1 | 27.78%<br>5 | 55.56%<br>10 | 5.56%<br>1 | 18 | 3.50 |

# Q10 Do you agree that the provisions for a Board of Inquiry are still valid, appropriate and working as intended? (Part 7 of the Act)

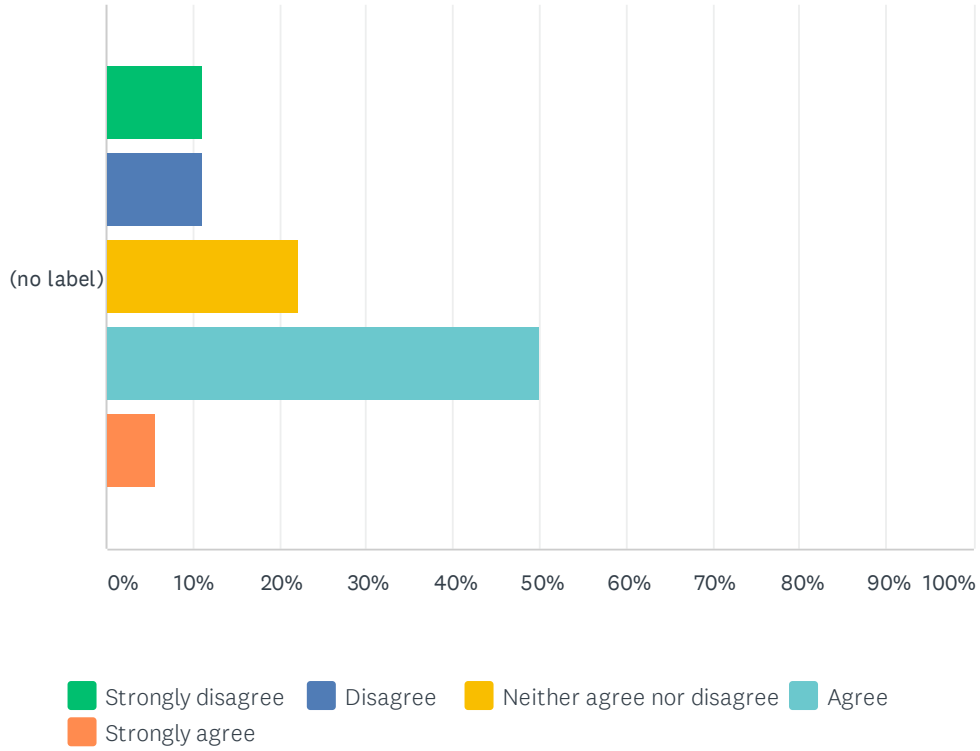
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56% 1 | 5.56% 1 | 38.89% 7 | 44.44% 8 | 5.56% 1 | 18 | 3.39 |

# Q11 Do you agree that the provisions for statutory bodies are still valid, appropriate and working as intended? (Part 8 of the Act)

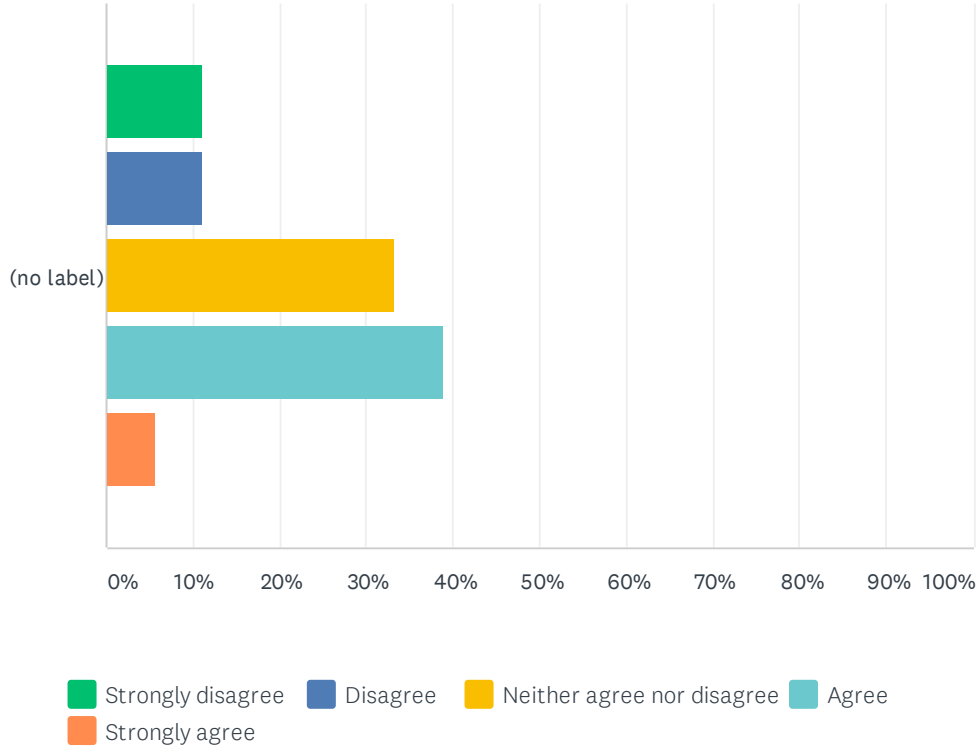
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 11.11% 2 | 11.11% 2 | 22.22% 4 | 50.00% 9 | 5.56% 1 | 18 | 3.28 |

# Q12 Do you agree that the provisions for statutory bodies ensure adequate representation in the provision of advice in relation to health and safety and competence? (Part 8 of the Act)

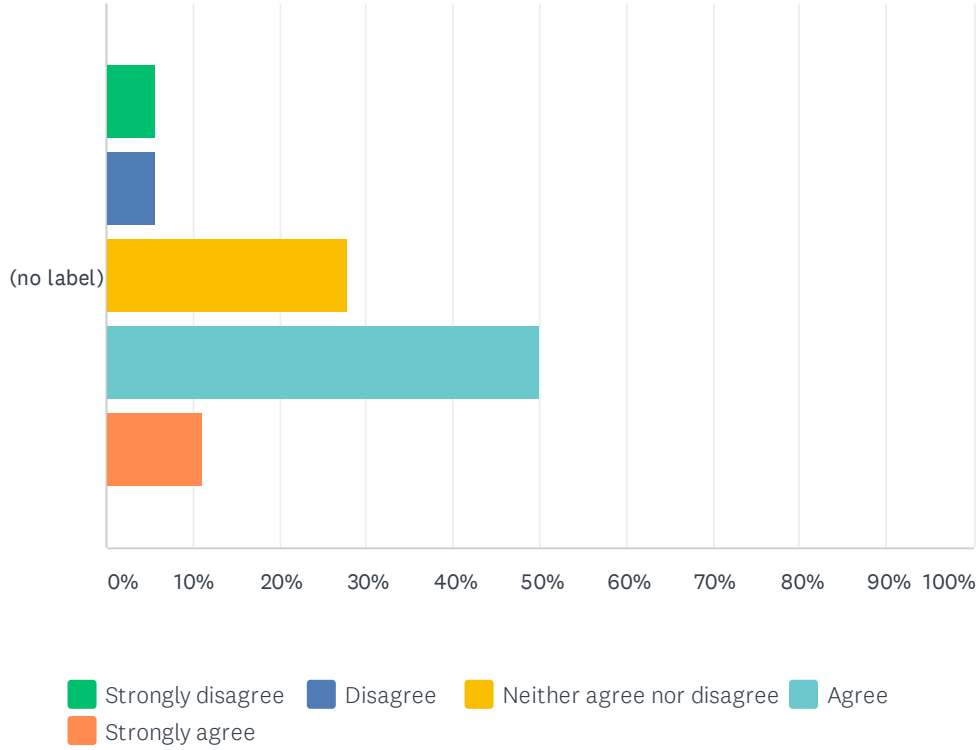
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 11.11% 2 | 11.11% 2 | 33.33% 6 | 38.89% 7 | 5.56% 1 | 18 | 3.17 |

# Q13 Do you agree that the provisions for nomination and appointment of operators are still valid, appropriate and working as intended? (Part 1A of the Regulation)

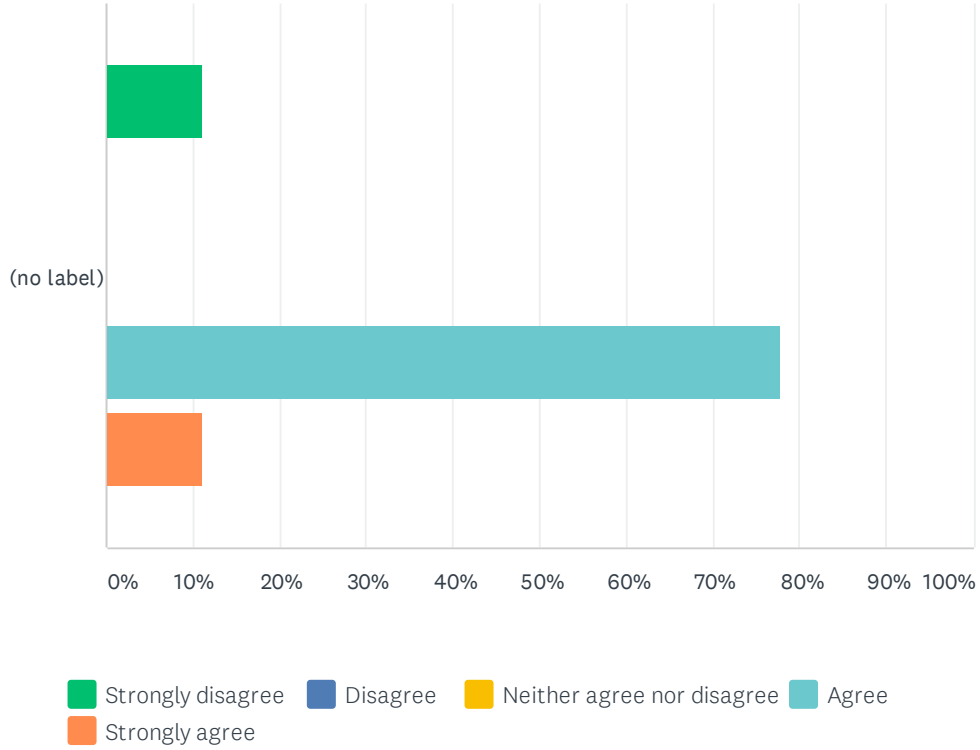
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 5.56%<br>1 | 27.78%<br>5 | 50.00%<br>9 | 11.11%<br>2 | 18 | 3.56 |

# Q14 Do you agree that the provisions for managing risk in addition to the WHS Regulation are still valid, appropriate and working as intended? (Part 2, Div 1, Subdivision 1 of the Regulation)

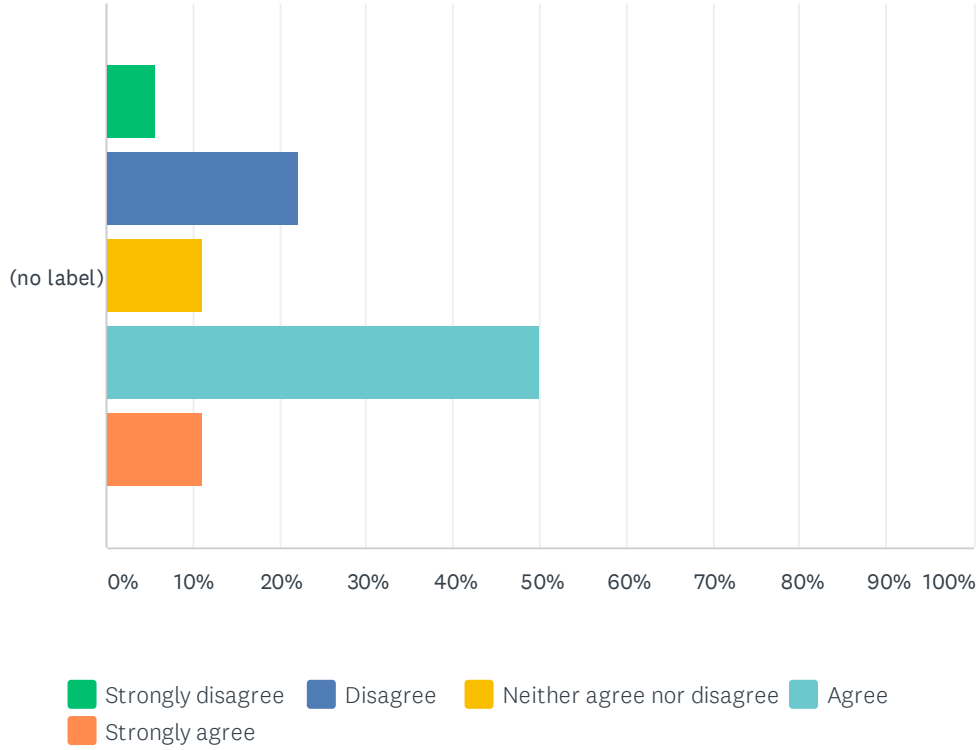
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 11.11%<br>2 | 0.00%<br>0 | 0.00%<br>0 | 77.78%<br>14 | 11.11%<br>2 | 18 | 3.78 |

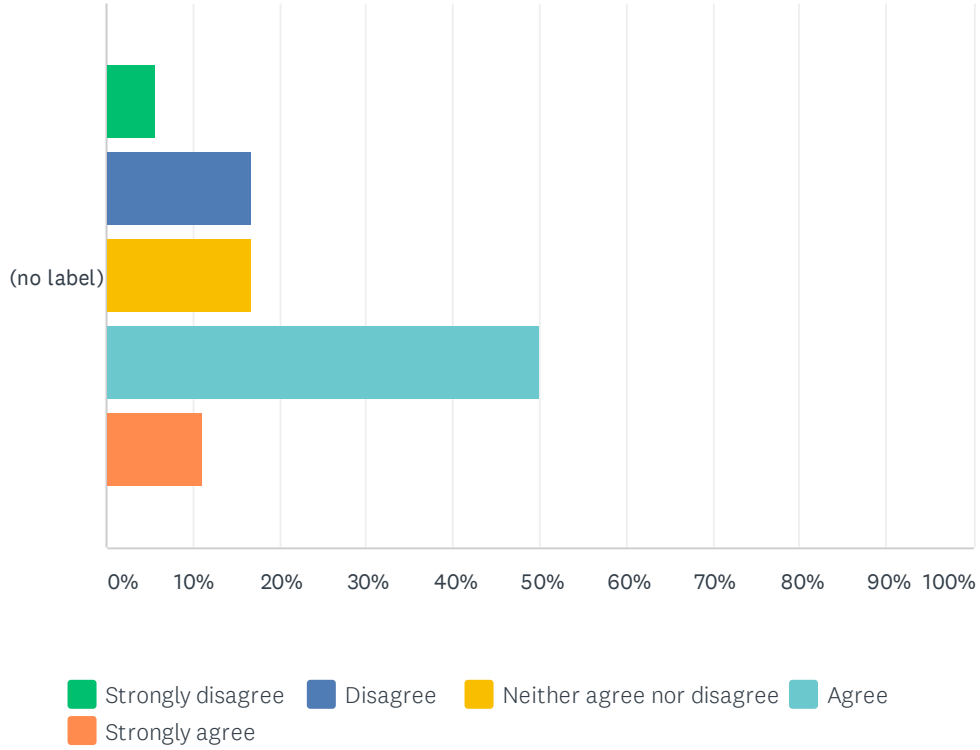
# Q15 Do you agree that the provisions for SMS, including PHMP & PCP, are still valid, appropriate and working as intended? (Part 2, Div 1, Subdiv 2-4 and Div 2 and 3 of the Regulation)

Answered: 18 Skipped: 0



# Q16 Do you agree that the provisions specific control measures are still valid, appropriate and working as intended? (Part 2, Div 4-5 of the Regulation)

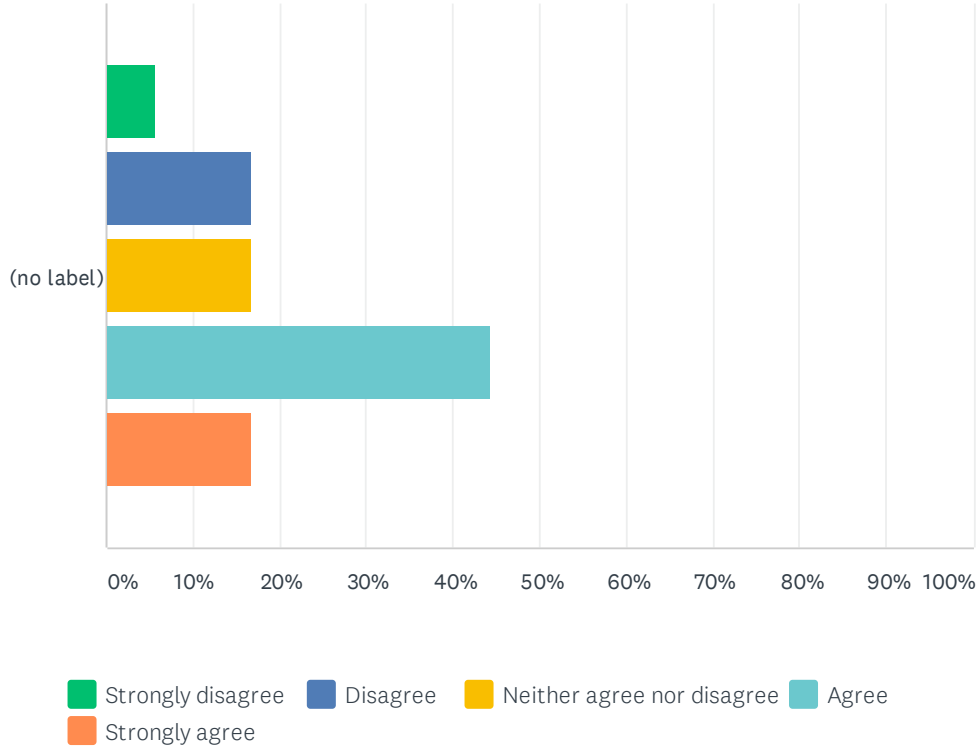
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 16.67%<br>3 | 16.67%<br>3 | 50.00%<br>9 | 11.11%<br>2 | 18 | 3.44 |

# Q17 Do you agree that the provisions for emergency management are still valid, appropriate and working as intended? (Part 2, Div 6 of the Regulation)

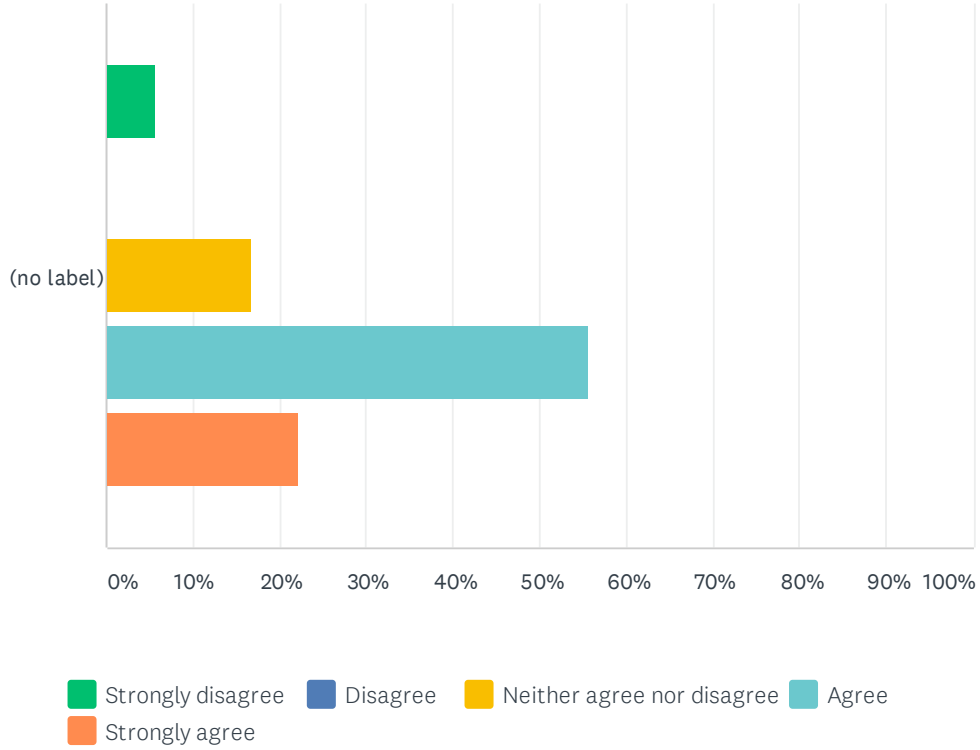
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 16.67%<br>3 | 16.67%<br>3 | 44.44%<br>8 | 16.67%<br>3 | 18 | 3.50 |

# Q18 Do you agree that the provisions for information, instruction and training are still valid, appropriate and working as intended? (Part 2, Div 7 of the Regulation)

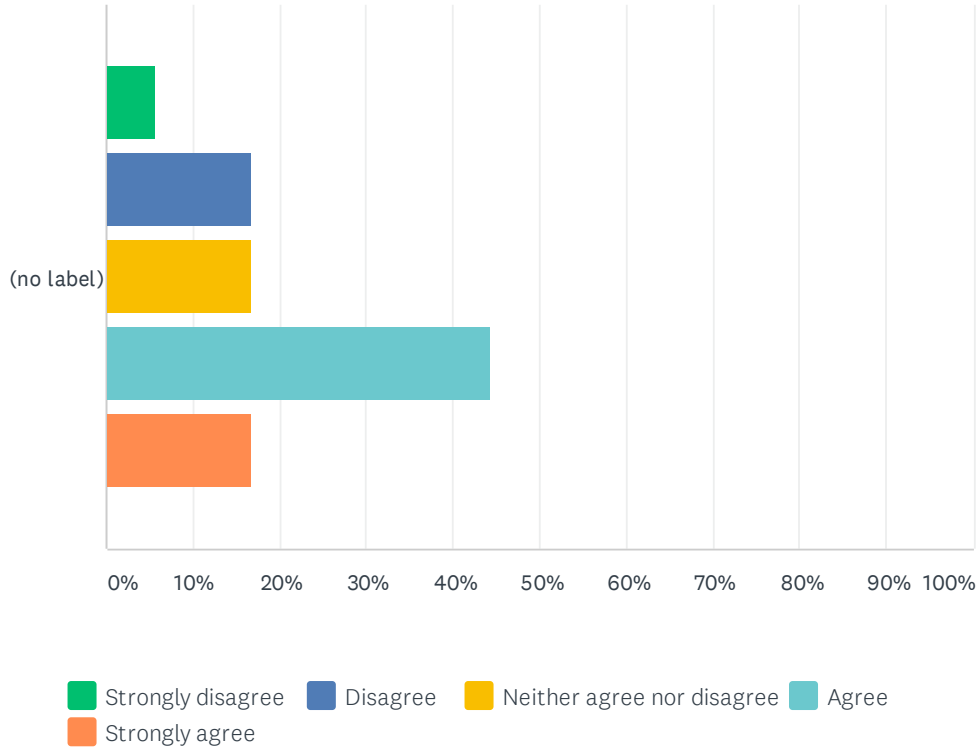
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 0.00%<br>0 | 16.67%<br>3 | 55.56%<br>10 | 22.22%<br>4 | 18 | 3.89 |

# Q19 Do you agree that the provisions for health monitoring are still valid, appropriate and working as intended? (Part 3 of the Regulation)

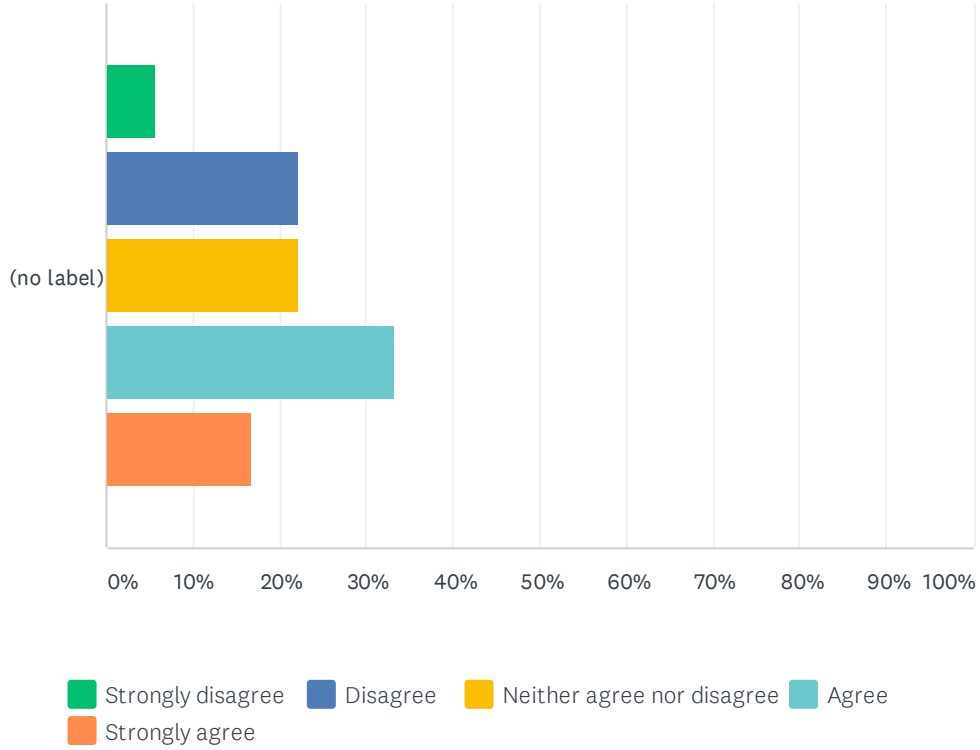
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 16.67%<br>3 | 16.67%<br>3 | 44.44%<br>8 | 16.67%<br>3 | 18 | 3.50 |

# Q20 Do you agree that the provisions for consultation and worker safety role are still valid, appropriate and working as intended? (Part 4 of the Regulation)

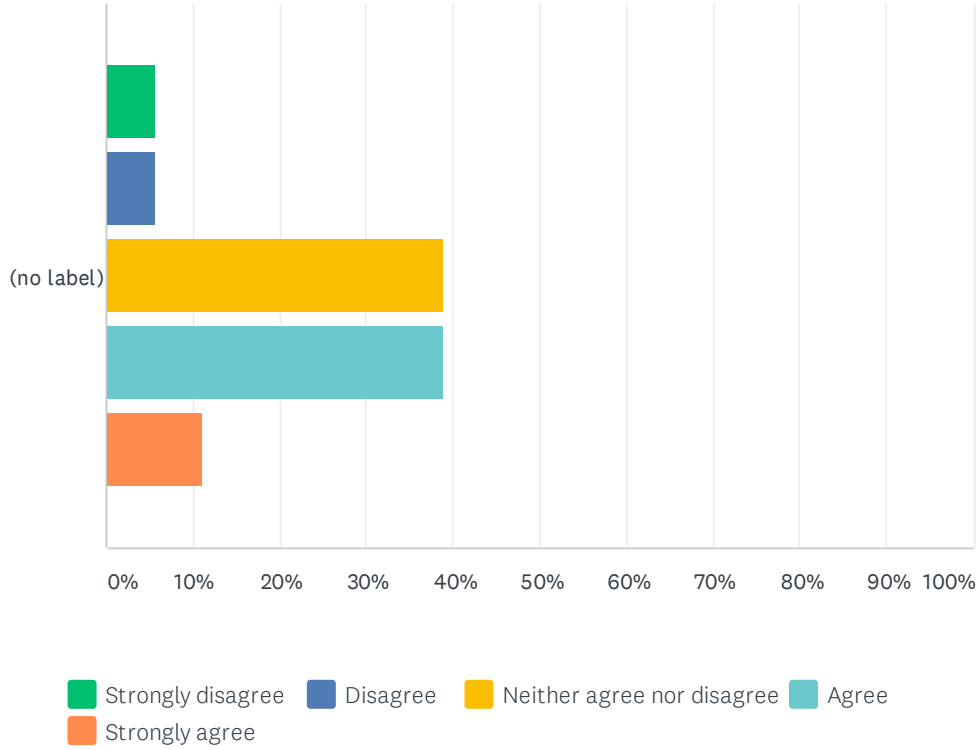
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 22.22%<br>4 | 22.22%<br>4 | 33.33%<br>6 | 16.67%<br>3 | 18 | 3.33 |

# Q21 Do you agree that the provisions for survey plans and mine plans are still valid, appropriate and working as intended? (Part 5 of the Regulation)

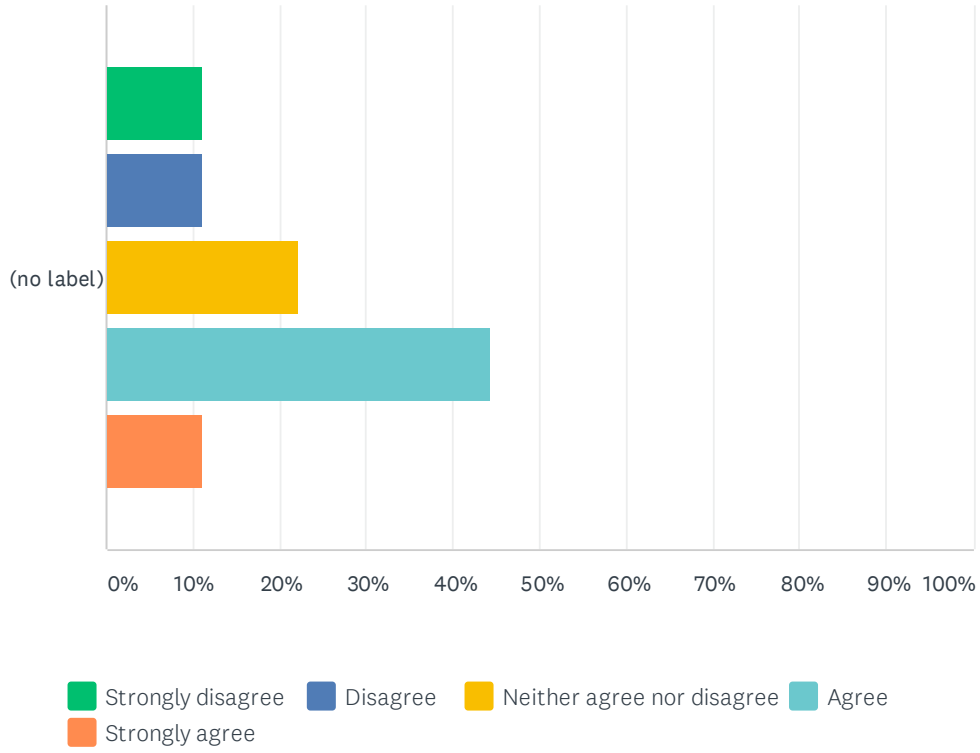
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 5.56%<br>1 | 38.89%<br>7 | 38.89%<br>7 | 11.11%<br>2 | 18 | 3.44 |

# Q22 Do you agree that the provisions for notifications and information to be provided to the regulator and information to be kept by the operator are still valid, appropriate and working as intended (Part 6 and Part 7 of the Regulation)

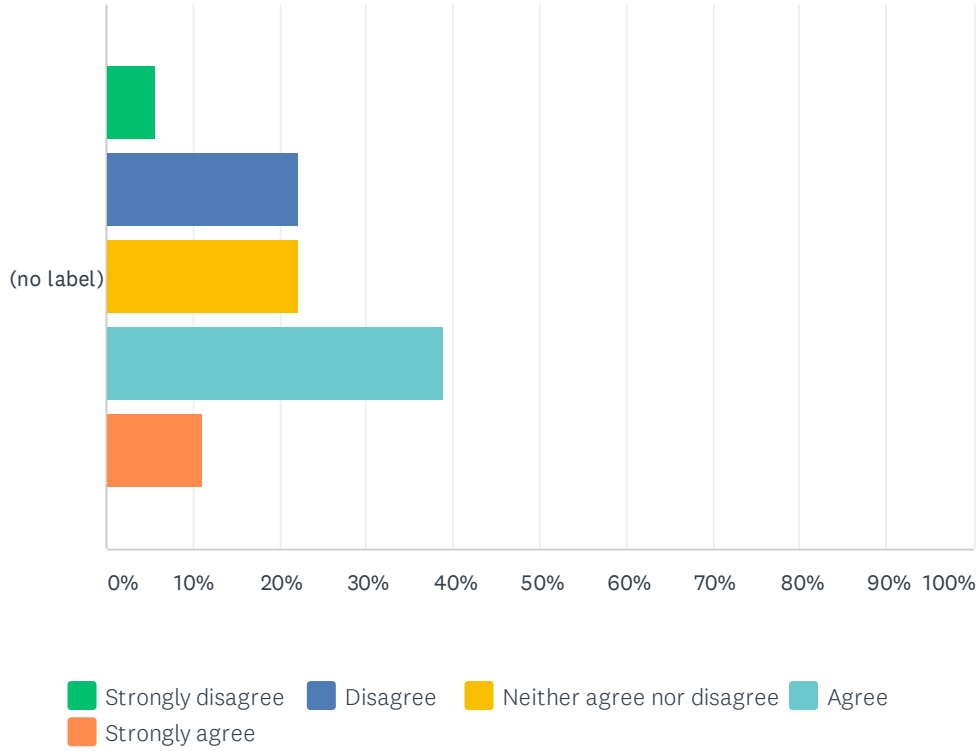
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 11.11% 2 | 11.11% 2 | 22.22% 4 | 44.44% 8 | 11.11% 2 | 18 | 3.33 |

# Q23 Do you agree that the provisions for statutory functions are still valid, appropriate and working as intended? (Part 8 of the Regulation)

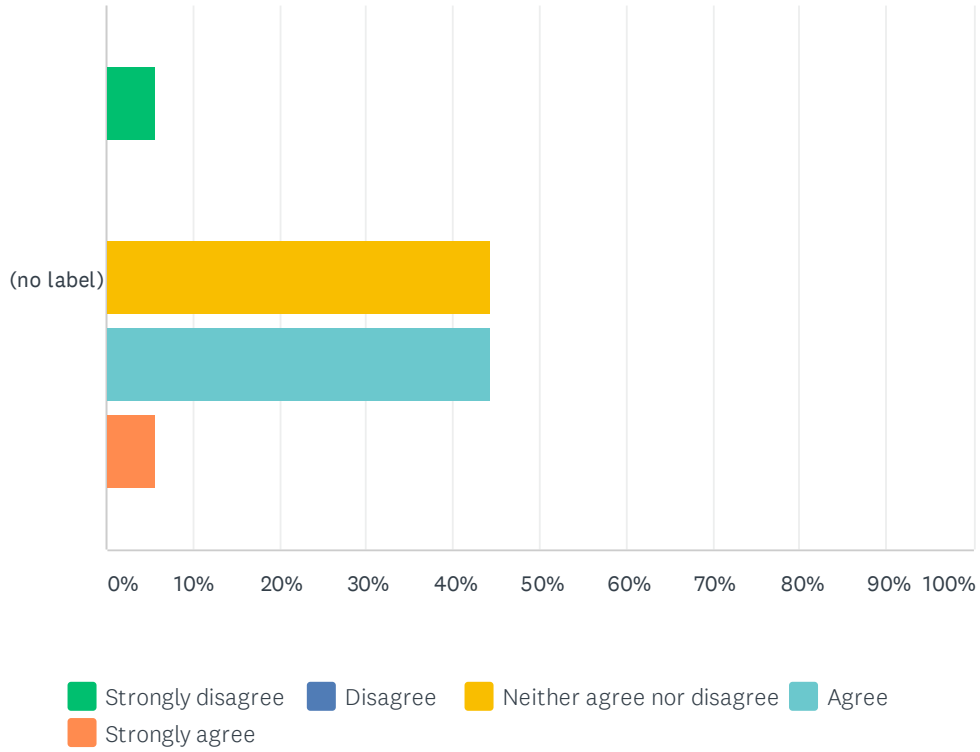
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 22.22%<br>4 | 22.22%<br>4 | 38.89%<br>7 | 11.11%<br>2 | 18 | 3.28 |

# Q24 Do you agree that the provisions for licensed activities and registration of plant are still valid, appropriate and working as intended? (Part 9 and cl 177 of the Regulation)

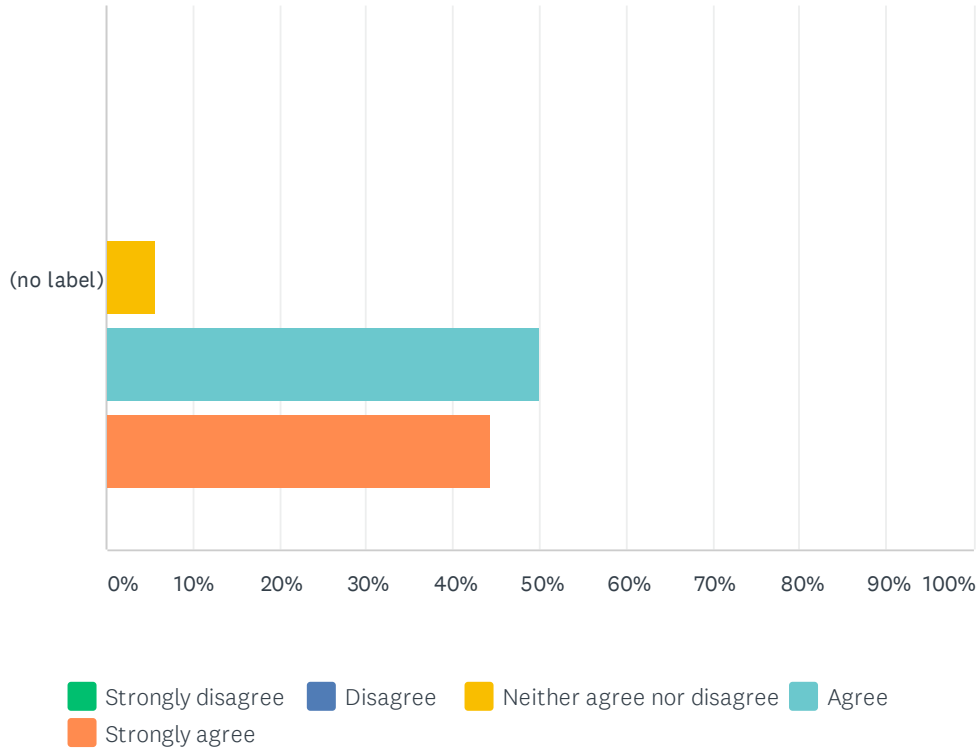
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 5.56%<br>1 | 0.00%<br>0 | 44.44%<br>8 | 44.44%<br>8 | 5.56%<br>1 | 18 | 3.44 |

# Q25 Do you agree that it is important for the WHS (MPS) laws to provide for the protection of workers and other persons from harm of WHS risks?

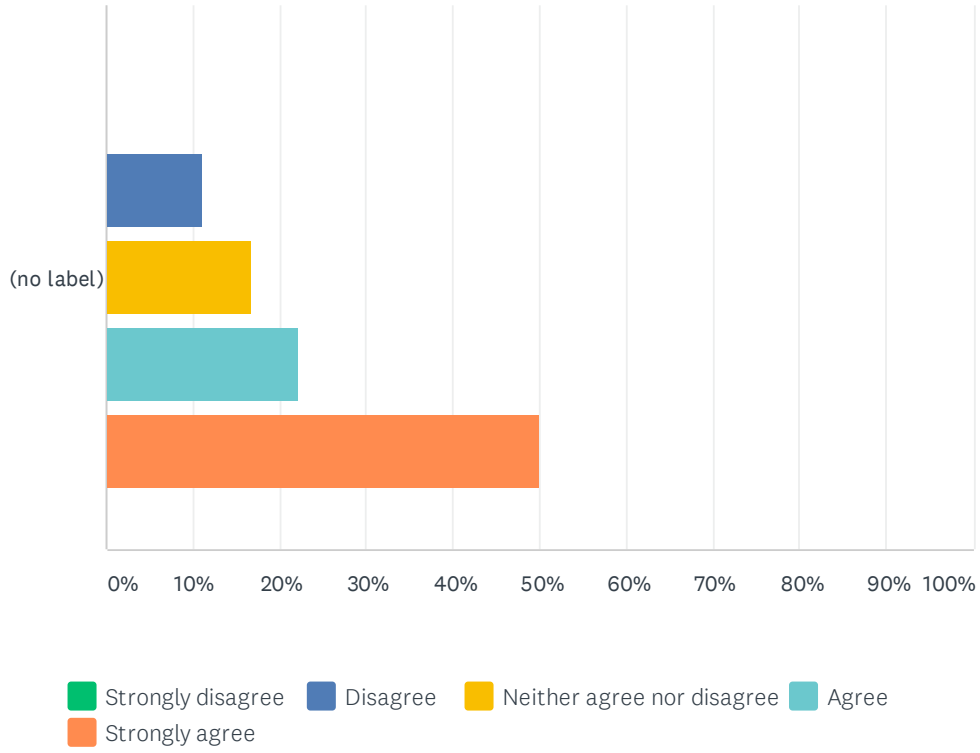
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 0.00%<br>0 | 0.00%<br>0 | 5.56%<br>1 | 50.00%<br>9 | 44.44%<br>8 | 18 | 4.39 |

# Q26 Do you agree that it is important for the WHS (MPS) laws to be consistent with other Australian major mining jurisdictions (e.g. WA and Qld)? be consistent with other Australian major mining jurisdictions (e.g. WA and Qld)?

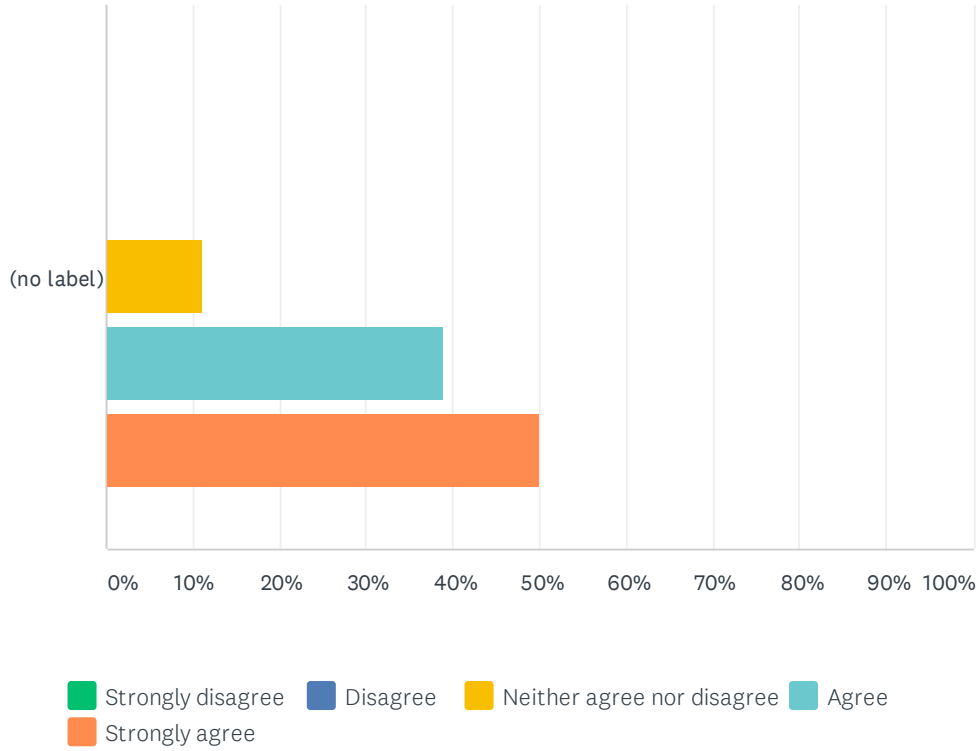
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 0.00%<br>0 | 11.11%<br>2 | 16.67%<br>3 | 22.22%<br>4 | 50.00%<br>9 | 18 | 4.11 |

# Q27 Do you agree that it is important for the WHS (MPS) laws to facilitate effective interstate regulatory cooperation?

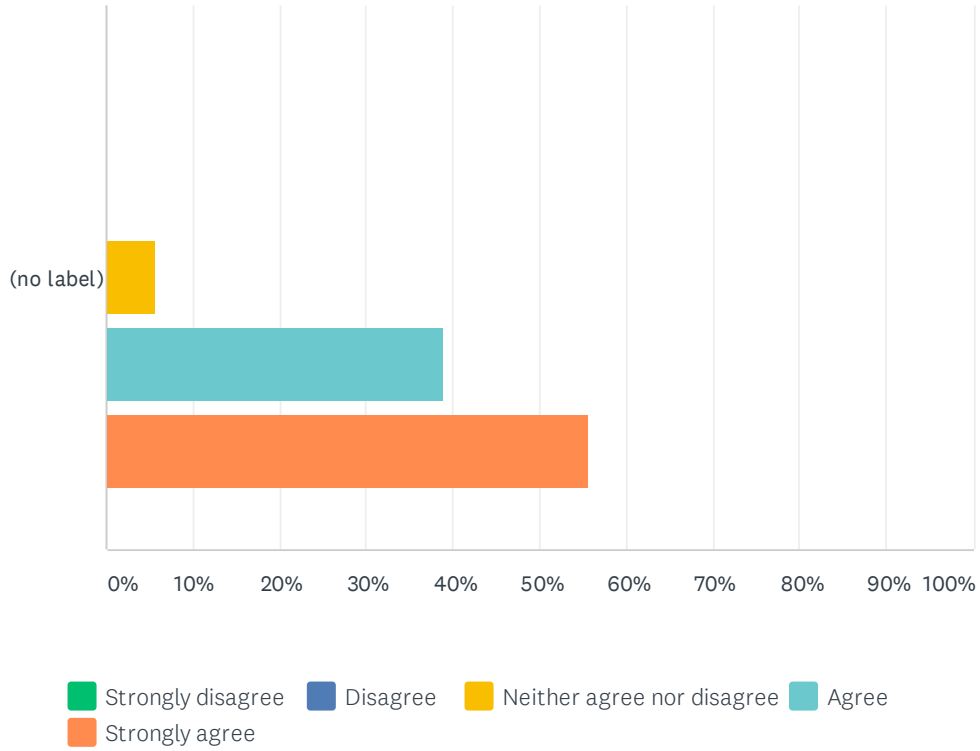
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 0.00% 0 | 0.00% 0 | 11.11% 2 | 38.89% 7 | 50.00% 9 | 18 | 4.39 |

# Q28 Do you agree that it is important for the WHS (MPS) laws to provide the Regulator with the power to stop work to prevent a serious risk to the health or safety of any person? (Section 51 of the Act)

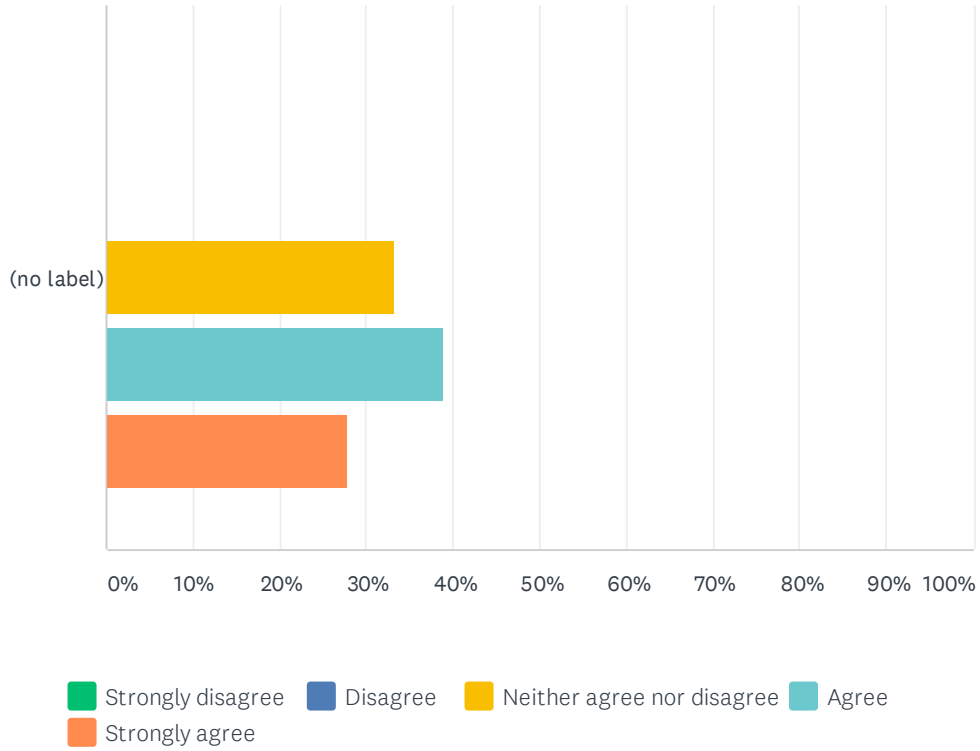
Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 0.00%<br>0 | 0.00%<br>0 | 5.56%<br>1 | 38.89%<br>7 | 55.56%<br>10 | 18 | 4.50 |

# Q29 Do you agree that it is important for the WHS (MPS) laws to have representation of workers in coal mines through the Mine Safety and Health Representatives and Industry Safety and Health Representatives? (Part 5 of the Act)

Answered: 18 Skipped: 0




| | STRONGLY DISAGREE | DISAGREE | NEITHER AGREE NOR DISAGREE | AGREE | STRONGLY AGREE | TOTAL | WEIGHTED AVERAGE |
|---|---|---|---|---|---|---|---|
| (no label) | 0.00%<br>0 | 0.00%<br>0 | 33.33%<br>6 | 38.89%<br>7 | 27.78%<br>5 | 18 | 3.94 |

# Q30 Do you have any other comments?

Answered: 12 Skipped: 6

| # | RESPONSES | DATE |
|---|---|---|
| 1 | Additional submission will be emailed | 5/1/2020 1:41 PM |
| 2 | 1) It is an absolute disgrace that the biggest export dollar earning industry for NSW (coal) is relegated to a minor part of the Department of Planning. Where is the Department of Mines? What an insult and a joke! Can you imagine the farming fraternity putting up with agriculture being relegated to another Department? Years ago the owners, management and unions would come together as a united voice when the industry was attacked by interlopers. Unfortunately over the last decade or so mine management has been surreptitiously gelded [redacted]. It is about time that we took back control of our industry. It has become fashionable to denigrate the coal industry, however, it is mining (coal & iron ore) that is pulling the Australian economy through the current coronavirus dilemma. Without them the country would be bankrupt. The silence from the green movement is deafening! 2) In Tasmania there is a requirement to have a SSO (Sight Senior Officer) to be in charge of a mine site. Minimum qualifications for this position are to have a Mining Engineering degree (or equivalent) and a Mine Manager's Certificate of Competency. NSW should follow suit. 3) [redacted] Who came up with the idea to include Petroleum Sites? Make the Act and Regulation more specific – just coal mining because we are a unique industry. 4) In relation to Government Officials. This has changed dramatically over the last 5 years. The idea of not having a specific inspector located to each mine has, in my opinion, ruined the trust and camaraderie built up between mine management and the Inspectorate over the past few decades. [redacted]. The Resource Regulator can virtually appoint anyone to be an Inspector, Mine Safety Officer or Investigator. This Section is totally devoid of prescription. 5) In relation to mining education etc: The Part A exam was originally eliminated in the mid-1980s when TAFE introduced the Associate Diploma. This qualification/course was tailor made to fulfil the requirements for the candidate to sit Part B of the Mine Manager's examination if they didn't hold a mining engineering degree. This was abandoned in favour of the Advanced Diploma of Coal Mining Operations to be delivered by RTOs supposedly under the auspices of the AQF. A retrograde step in my opinion. The education system for mining (this includes coal, metalliferous and quarries) should be administered by a tertiary institution, namely a university. In NSW this could be the University of Wollongong and in Queensland the University of Queensland. They could use the Coal Services (MRSNSW) and Simtars (QMRS) as a conduit for the delivery of the courses under the imprimatur of each university. Perhaps the Deputy' Course could be a Certificate of Mining, the Undermanager Course a Diploma of Mining and the Mine Manager Course a Degree of Mining. The student could specialise in coal, metalliferous or quarrying. This would give the mineworker a career path, a tertiary qualification and excellent preparatory work for their statutory exams. 6) The MOC Scheme is a shambles. The successful and relevant CPD system the MMAA had in place was replaced by a totally inferior and irrelevant system from New Zealand without any regard to MMAA members' suggestions or wishes. [redacted]. 7) When are we going to get rid of these inept titles that have been foisted upon us [redacted]. Having 3 managers of engineering is confusing, difficult and an impediment to the management of a coal mine. Go back to the Mine Manager, Electrical Engineer In-Charge and Mechanical Engineer In-Charge. 8) As I stated earlier: In Tasmania there is a requirement to have a SSO (Sight Senior Officer) to be in charge of a mine site. Minimum qualifications for this position are to have a Mining Engineering degree (or equivalent) and a Mine Manager's Certificate of Competency. NSW should follow suit. No need for an SSE exam as in Queensland because the Mine Manager statutory qualification (plus associated tertiary qualifications) and CPD process negates the need for this | 4/30/2020 11:56 AM |
| 3 | We have small quarries about 71 pits which extracted Gravel we have to fill in Quarterly Reports for each Pit even if we have no activity in pits for 12 months or more. We think we should only fill in the ones that are active. | 4/22/2020 9:13 AM |
| 4 | Peabody are NOT complying with the covid-19 laws of bad for starters, nor pretty much any whs laws, except when a representative comes to assess the workplace. People are going to die! | 3/25/2020 9:27 PM |
| 5 | The legislative framework remains quite functional, however the nsw resources regulator needs to ensure it approaches compliance in a consistent fashion so that it educates, not hinders the industry | 3/16/2020 10:48 AM |
| 6 | More consideration must be given to pure exploration sites and activities. these are currently | 3/3/2020 4:05 PM |

| | | |
|---|---|---|
| | caught up in the system as a "mine" and often do not have the inherent risks, and support that comes with a 'mine site'. Currently developing a system that complies with the WHS (MPS) laws for a pure exploration site is very difficult if not impossible due to the limited scope under the current definitions. | |
| 7 | Clause 100(4) of the MPS Regulation is proving difficult due to availability of appropriate unit. | 3/3/2020 10:43 AM |
| 8 | The 'old' Mines Department used to exist to provide a safe and productive industry for the benefit of Australia whereas the Resource Regulator appears to have adopted an adversarial and litigious approach with little regard for the viability of the industry. | 3/2/2020 1:38 PM |
| 9 | No | 3/2/2020 9:21 AM |
| 10 | I would like to have more access to a history of safety related incidents from which we can all learn. | 3/2/2020 7:57 AM |
| 11 | I was injured in a workplace accident in an open coal mine, the operations I received did not repair my injuries and I am in need of more operations. I was a relief supervisor and had been in my position for approximately 5 years as well as crew trainer and an operator. I have been terminated due to my injuries. I was injured because someone took a shortcut and I am paying the cost. My accident was covered up, the safety committee, check inspector and the department were not notified of my accident. You speak of individuals and the company who are accountable in legislation however I am yet to see anyone held accountable for my accident. My only avenue left is to take the company to court so how is this fair? | 2/29/2020 10:58 AM |
| 12 | Legislation can be difficult to understand. A plain english guide could prove useful. More ISHR's may assist in helping Mine Operators achieve compliance. | 2/28/2020 3:02 PM |

# Appendix E – List of submissions

There were 24 submissions made to the review, as follows:

1. Bengalla Mining Company
2. John Owens (Individual)
3. Ampcontrol
4. Lightning Ridge Miners' Association Ltd (LRMA)
5. Brewarrina Shire Council
6. Tomingley Gold Operations
7. John Ainsworth (Individual)
8. Paul Wilkinson (Individual)
9. Ulan West Operations
10. Association of Mining and Exploration Companies (AMEC)
11. Australian Institute of Mine Surveyors (AIMS)
12. NSW Mines Rescue Pty Ltd (NSWMC)
13. Mine Managers Association of Australia Incorporated (Mine Managers)
14. NSW Minerals Council (NSWMC)
15. BIS Industries
16. Coal Services Pty Ltd - Occupational Hygiene
17. Glencore Coal Assets Australia
18. CFMMEU combined Northern District & South Western District
19. John Miller (Individual)
20. Association of Professional Engineers, Scientists and Managers Australia (APESMA)
21. Consulting Surveyors NSW
22. Cement Concrete and Aggregates Australia (CCAA)
23. Australian Workers' Union (AWU)
24. Bruce Fulton (Individual)

# Appendix F – References and Sources

Aerossurance. (2016) *ValuJet Flight 592: 11 May 1996*. Retrieved from http://aerossurance.com/safety-management/valujet-flight-592-accident/

Armstrong, M., Petter, C. & Petter, R. (2019). Why have so many tailings dams failed? *Resources Policy, 63*. DOI:10.1016/j.resourpol.2019.101412

Australian Government. (2016). *Tailings management – Leading practice sustainable development program for the mining industry, September 2016*. Retrieved from https://www.industry.gov.au/sites/default/files/2019-04/lpsdp-tailings-management-handbook-english.pdf

Australian National Committee on Large Dams Incorporated. (2019). *Guidelines on tailings dams – planning, design, construction, operation and closure – Revision 1 (July 2019).* Retrieved from https://www.ancold.org.au/?product=guidelines-on-tailings-dams-planning-design-construction-operation-and-closure-may-2012

Bills, K. & Agostini, D. (2009). *Offshore petroleum safety regulation, Varanus Island incident investigation.* Retrieved from https://www.slp.wa.gov.au/salesinfo/varanusinquiry.pdf

Boland, M. (2018). *Review of the model work health and safety laws: final report December 2018.* Retrieved from https://www.safeworkaustralia.gov.au/doc/review-model-whs-laws-final-report

Brady, S. (2019). *Review of all fatal accidents in Queensland mines and quarries from 2000 to 2019.* Retrieved from https://www.parliament.qld.gov.au/documents/tableOffice/TabledPapers/2020/5620T197.pdf

Cambrian Colliery, Explosion, 1965. (n.d.). Retrieved from http://www.welshcoalmines.co.uk/deathrolls/Cambrian.htm

Chemical Safety Board (United States). (2016). *The U.S. Chemical Safety Board's Investigation into the Macondo Disaster Finds Offshore Risk Management and Regulatory Oversight still Inadequate in Gulf of Mexico* [Press release of 13 April 2016]. Retrieved from https://www.csb.gov/the-us-chemical-safety-boards-investigation-into-the-macondo-disaster-finds-offshore-risk-management-and-regulatory-oversight-still-inadequate-in-gulf-of-mexico/

*Coal Industry Act 2001* (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2001-107

*Coal Mining Safety and Health Act 1999* (Qld). Retrieved from https://www.legislation.qld.gov.au/view/html/inforce/current/act-1999-039

Committee on safety and health at work, House of Commons – UK Parliament. (1972). *Safety and health at work, Report of the Committee 1970-72*. Retrieved from http://www.mineaccidents.com.au/uploads/robens-report-original.pdf

Council of Australian Governments. (2008). *Inter-governmental agreement for regulatory and operational reform in occupational health and safety.* Retrieved from https://www.coag.gov.au/sites/default/files/agreements/OHS_IGA.pdf

Dekker, S. (2014). *The Field Guide to Understanding 'Human Error'*, 3rd edition, Boca Raton, Florida: CRC Press

Deloitte. (2014). *Get out of your own way – Unleashing productivity.* Retrieved from https://www2.deloitte.com/content/dam/Deloitte/au/Documents/Building%20Lucky%20Country/deloitte-au-btlc-get-out-your-own-way-230217.pdf

Department of Industry, Science, Energy and Resources (Cth). (n.d.). National Mine Safety Framework Implementation Report. Retrieved from https://www.industry.gov.au/data-and-publications/national-mine-safety-framework-implementation-report

Department of Industry, Skills and Regional Development (NSW). (2016). *Contractors and other businesses at mines and petroleum sites, June 2016*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0009/537291/contractors-guide.pdf

Department of Industry, Skills and Regional Development (NSW) (2016). *Implementing the incident prevention strategy – update October 2016.* Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0003/683625/Implementing-the-Incident-Prevention-Strategy-October-2016-update.pdf

Department of Mines and Petroleum (WA). (2014). *Report: Fatal accidents in the Western Australian mining industry 2000-2012, What lessons can we learn?* Retrieved from https://www.dmp.wa.gov.au/Documents/Safety/MSH_R_FatalAccidents200012.pdf

Department of Mines, Industry Regulation and Safety (WA). (2020). About the department. Retrieved from https://www.dmirs.wa.gov.au/content/about-department

Department of Mines, Industry Regulation and Safety (WA). (2020.). Development of a modernised Work Health and Safety Bill. Retrieved from https://www.commerce.wa.gov.au/worksafe/development-modernised-work-health-and-safety-bill

Department of Mines, Industry Regulation and Safety (WA). (n.d.). *Proposal for Work Health and Safety (Mines) Regulations for Western Australia – Based on National Mines Safety Framework drafting instructions and Mines Safety and Inspection Regulations 1995.* Retrieved from https://msc.ul.com/wp-content/uploads/2019/09/002096.safety.comms__0.pdf

Department of Mines, Industry Regulation and Safety (WA). (n.d.) *Proposal for Work Health and Safety (Petroleum and Geothermal Energy Operations) Regulations for Western Australia – for public consultation.* Retrieved from https://msc.ul.com/wp-content/uploads/2019/09/002237.safety.comms__0.pdf

Department of Planning, Industry and Environment (NSW). (2019, November 26). *Review of mining and petroleum health and safety laws* [Media release]. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0011/1218386/Review-of-mining-and-petroleum-health-and-safety-laws.pdf

Department of Premier and Cabinet (NSW). (2015). *NSW Government boards and committees guidelines, September 2015.* Retrieved from https://arp.nsw.gov.au/assets/ars/99f08809f0/NSW_Government_Boards_and_Committee_Guidelines_-_Updated_September_2015.pdf

Department of Regional NSW. (n.d.). Geological storage and facts about CCS. Retrieved from https://www.resourcesandgeoscience.nsw.gov.au/investors/coal-innovation-nsw/geological-storage#:~:text=CCS%20is%20the%20process%20whereby,from%20going%20into%20the%20atmosphere

Department of Regional NSW. (n.d.). Mineral Resources. Retrieved from https://www.resourcesandgeoscience.nsw.gov.au/miners-and-explorers/geoscience-information/nsw-geology-overview/mineral-resources

Department of Regional NSW (2019). *NSW mining industry overview FY2018-2019*. Retrieved from https://www.resourcesandgeoscience.nsw.gov.au/__data/assets/pdf_file/0020/1220447/NSW-Mining-Industry-Overview-FY-2018-2019.pdf

Department of Trade and Investment (NSW). (2015). *NSW Code of Practice – Emergency planning for mines*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0007/543913/NSW-code-of-practice-Emergency-planning-for-mines.pdf

*Design and Building Practitioners Act 2020* (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2020-007#sec.32

Exemption under the Work Health and Safety Regulation 2017. (2020). *Work Health and Safety (Mines and Petroleum Sites) Exemption (Work Health and Safety Reports) 2020*. Published in the NSW Government Gazette No 116 of 5 June 2020. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0019/1227502/NSWGazette5JuneWHSclassexemption.pdf

Global Tailings Review. (n.d.). About us. Retrieved from https://globaltailingsreview.org/about/

Global Tailings Review. (n.d.). Expert panellists. Retrieved from https://globaltailingsreview.org/about/expert-panellists/

Global Tailings Review. (2020). *Global Industry Standard on Tailings Management*. Retrieved from https://globaltailingsreview.org/global-industry-standard/

Hopkins, A. (n.d.). *The limits of lost time injury frequency rates.* Retrieved from National Occupational Health and Safety Commission website: http://158.132.155.107/posh97/private/performance-indicators/PPI-NOHSC-06.pdf

Hopkins, A. (1999). *Managing major hazards: The lessons of the Moura Mine disaster.* St. Leonards, NSW: Allen & Unwin.

Hopkins, A. (2000). *Lessons from Longford: The Esso Gas Plant Explosion*. CCH Australia.

Hopkins, A. (2007). *Lessons from Gretley: Mindful leadership and the law*. CCH Australia.

Hopkins, A. (2008). *Failure to learn: The BP Texas City Refinery Disaster*. CCH Australia.

Hopkins, A. (2012). *Disastrous decisions: The Human and Organisational causes of the Gulf of Mexico Blowout*. CCH Australia.

Hopkins, A. (2016). *Quiet outrage*: *The way of a sociologist.* Sydney, NSW: Wolters Kluwer.

Independent Planning Commission (NSW Government). (2020). Narrabri Gas Project. Retrieved from https://www.ipcn.nsw.gov.au/projects/2020/03/narrabri-gas-project

International Labour Organization. (1995). *Safety and Health in Mines Convention, 1995 (No. 176).* Retrieved from https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C176#A10

International Organization for Standardization (ISO). (n.d.). Technical committees ISO/TC 265 Carbon dioxide capture, transportation, and geological storage. Retrieved from Massachusetts Institute of Technology: https://www.iso.org/committee/648607.html

*Interpretation Act 1987* (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/act-1987-015

Leveson, N. (2020.) *Safety III: A systems approach to safety and resilience.* Retrieved from http://sunnyday.mit.edu/safety-3.pdf

*Mining and Quarrying Safety and Health Act 1999* (Qld). Retrieved from https://www.legislation.qld.gov.au/view/html/inforce/current/act-1999-040

National Mine Safety Framework Steering Group. (2011). *Non-core drafting instructions for mine safety legislation and regulations.* Retrieved from https://www.commerce.wa.gov.au/sites/default/files/atoms/files/nmsf_non-core_drafting_instructions.docx

Noetic Solutions Pty Limited. (2014). *MSAC Fatality Review 2013-14, Report for NSW Mine Safety Advisory Council.* Retrieved from https://noeticgroup.com/wilkinson-fatality-review-mine-safety/

Notice under the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014. (2020). *Provision of mine survey plans to the regulator 2020 (no. 3).* Published in NSW Government Gazette No 166 of 31 July 2020. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0017/1221254/Mine-Survey-Plan-Order-2020-No.3.pdf

NSW Resources Regulator. (n.d.) Board publications. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/about-us/competence-board/board-publication

NSW Resources Regulator. (2019). Causal investigation policy. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0005/713597/Causal-investigation-policy.pdf

NSW Resources Regulator. (2020, August 7). Changes to the issuing of quarry manager practising certificates. https://www.resourcesregulator.nsw.gov.au/news/2020/changes-to-the-issuing-of-quarry-manager-practising-certificates

NSW Resources Regulator. (n.d.). Codes of practice. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/publications/codes-of-practice

NSW Resources Regulator. (n.d.). Emergency planning. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/emergency-planning

NSW Resources Regulator. (2018). *Exercising work health and safety regulator functions outside mines or petroleum sites.* Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0004/834790/Exercising-powers-outside-mining-or-petroleum-sites.pdf

NSW Resources Regulator. (n.d.). Exploration under the WHS (Mines) laws. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/exploration

NSW Resources Regulator. (2020). *Fact Sheet: Changes to Work Health and Safety (Mines and Petroleum Sites) notifications to the Regulator.* Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0005/1197554/Fact-sheet-Amendments-to-notification-requirements-WHS-MPS-Regulation.pdf

NSW Resources Regulator. (2018). *Fact sheet: Exercising work health and safety regulator functions outside mines or petroleum sites*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0004/834790/Exercising-powers-outside-mining-or-petroleum-sites.pdf

NSW Resources Regulator. (n.d.). Fatigue management overview. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/fatigue

NSW Resources Regulator. (2020). Guide: Notification of incident and injury. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0004/541534/GUIDE-Notification-of-incident-and-injury.pdf

NSW Resources Regulator. (n.d.). Have your say. Retrieved from https://www.resourcesregulator.nsw.gov.au/about-us/have-your-say

NSW Resources Regulator. (n.d.). Health control plan fact sheets. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/topics/health-management/health-control-plan-fact-sheets

NSW Resources Regulator. (n.d.). Historical catalogue. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/publications/historical-catalogue

NSW Resources Regulator. (2020). *Innovation policy*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0006/850461/Innovation-Policy.pdf

NSW Resources Regulator. (n.d.). Investigation reports. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/incidents/investigation-reports

NSW Resources Regulator. (n.d.). Learning from disasters. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/events/learning-from-disasters

NSW Resources Regulator. (n.d.). Meeting minutes. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/about-us/advisory-council/msac-meeting-minutes

NSW Resources Regulator. (2018). *Mental Health, January 2018*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0006/796902/Mental-health-control-plan.pdf

NSW Resources Regulator. (n.d.). Mining design guidelines. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/publications/mdg

NSW Resources Regulator. (n.d.). Mine or petroleum site operator notification. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/notifications/mine-operator

NSW Resources Regulator. (2019). *Mine safety performance report 2018-2019*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0005/1254038/Mine-Safety-Performance-Report-2018-2019.pdf

NSW Resources Regulator. (n.d.). Other guidelines and standards. Retrieved from https://www.resourcesregulator.nsw.gov.au/environment/tailings-storage-facility-management/Other-guidlines-and-standards

NSW Resources Regulator. (2019). *Practice note – Probity screening for Ministerial appointments to boards and committees*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0020/1156601/Practice-Note-Probity-Screening-for-Ministerial-Appointments.pdf

NSW Resources Regulator. (2020). *Quarterly safety report, April to June 2020.* Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0009/1253889/Quarterly-safety-report-April-June-2020.PDF

NSW Resources Regulator. (n.d.). Report an incident or injury. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/notifications/incident-or-injury

NSW Resources Regulator. (n.d.). Resources Regulator Inspectors. Retrieved from https://www.resourcesregulator.nsw.gov.au/compliance-and-enforcement/inspectors

NSW Resources Regulator. (n.d.). Resources Regulator Portal. Retrieved from https://nswresourcesregulator.service-now.com/regulator

NSW Resources Regulator. (n.d.). Review of regulator or inspector decisions. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/review-of-regulator-or-inspector-decisions

NSW Resources Regulator. (n.d.). Safety and health representatives training package. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/events/safety-and-health-representatives-training-package

NSW Resources Regulator. (2019). *Summary of amendments: Amendments to the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0009/1193373/Fact-sheet-Summary-of-amendments-to-the-WHS-Mines-and-Petroleum-Sites-Regulation-2014.pdf

NSW Resources Regulator. (n.d.). Tailings storage facility management. Retrieved from https://www.resourcesregulator.nsw.gov.au/environment/tailings-storage-facility-management

NSW Resources Regulator. (2019). *Tailings storage facilities – Regulation amendment: High risk activity notification for mines*. Retrieved from https://www.resourcesregulator.nsw.gov.au/__data/assets/pdf_file/0010/1193374/Fact-sheet-Tailings-Storage-Facilities-Regulation-amendment-High-risk-activity-notification-for-mines.pdf

NSW Resources Regulator. (n.d.). WHS (Mines and Petroleum Sites) Amendment Regulation 2019. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/legislation/whs-mines/whs-mines-and-petroleum-sites-regulation-2018-amendments

NSW Resources Regulator. (n.d.). Work health and safety reports. Retrieved from https://www.resourcesregulator.nsw.gov.au/safety-and-health/work-health-and-safety-reports

NSW Treasury. (2019). *Policy and Guidelines paper – NSW Government guide to better regulation, January 2019.* Retrieved from https://www.treasury.nsw.gov.au/sites/default/files/2019-01/TPP19-01%20-%20Guide%20to%20Better%20Regulation.pdf

*Petroleum and Gas (Production and Safety) Act 2004* (Qld). Retrieved from https://www.legislation.qld.gov.au/view/html/inforce/current/act-2004-025

Reason, J. (1990). *Human Error*. Cambridge University Press.

Reason, J. (2016). *Organizational Accidents Revisited*. Farnham: Ashgate Publishing Limited.

Reason, J. (1997). *Managing the risks of organizational accidents*. Burlington, Vermont (USA): Ashgate Publishing Company.

Queensland coal mining board of inquiry. (2020). Retrieved from https://coalminesinquiry.qld.gov.au/

Queensland Government. (2020). Recognised standards, guidelines and guidance notes. Retrieved from https://www.business.qld.gov.au/industries/mining-energy-water/resources/safety-health/mining/legislation-standards/recognised-standards

Quinlan, M. (2014). *Ten pathways to death and disaster, Learning from fatal incidents in mines and other high hazard workplaces*. Sydney, NSW: The Federation Press.

Safe Work Australia. (2020). Guidance on the interpretation of workplace exposure standards for airborne contaminants. Retrieved from https://www.safeworkaustralia.gov.au/doc/guidance-interpretation-workplace-exposure-standards-airborne-contaminants

Safe Work Australia. (2013). *How to determine what is reasonably practicable to meet a health and safety duty, May 2013.* Retrieved from https://www.safeworkaustralia.gov.au/system/files/documents/2002/guide_reasonably_practicable.pdf

Safe Work Australia. (2020). Model WHS Laws. Retrieved from https://www.safeworkaustralia.gov.au/law-and-regulation/model-whs-laws

Safe Work Australia. (n.d.). *What does an officer need to do?* https://www.safeworkaustralia.gov.au/system/files/documents/1901/what-does-an-officer-need-to-do-information-sheet.pdf

Safe Work Australia. (2020). Workplace exposure standards for airborne contaminants. Retrieved from https://www.safeworkaustralia.gov.au/doc/workplace-exposure-standards-airborne-contaminants

SafeWork NSW. (n.d.). *Amendments to the NSW Work Health Safety Act 2011 - fact sheet.* Retrieved from https://www.safework.nsw.gov.au/resource-library/whs-act-statutory-review-2017/amendments-to-the-nsw-work-health-safety-act-2011

SafeWork NSW. (n.d.). Our approach to work health and safety regulation. Retrieved from https://www.safework.nsw.gov.au/resource-library/our-approach-to-work-health-and-safety-regulation

SafeWork NSW. (2017). *Work Health and Safety Act 2011 Statutory Review Report - June 2017.* Retrieved from https://www.safework.nsw.gov.au/resource-library/whs-act-statutory-review-2017/work-health-and-safety-act-2011-statutory-review-report-june-2017

Seedsman, R. (2018). Coal and rock bursts – similarities and differences when considering the sudden collapse of the sides of excavations. In N. Aziz, & B. Kininmonth (Eds.), *Proceedings of the 2018 Coal Operators' Conference, Mining Engineering, University of Wollongong, 18-20 February 2019.* https://ro.uow.edu.au/coal/700/

Smith, G. (2018). *Paper Safe: the triumph of bureaucracy in safety management*. Perth, WA: Wayland Legal.

Standing Committee on Legislation, Legislative Council Western Australia. (2020.) *Report 43 Standing Committee on Legislation, Work Health and Safety Bill 2019.* Retrieved from https://www.parliament.wa.gov.au/publications/tabledpapers.nsf/displaypaper/4014071c5b3bbd4dd0a4f30a482585c2000478f5/$file/tp-4071.pdf

Tooma, M. (2018). *Due Diligence: Six-in-One Collection*. Wolters Kluwer.

Turner, B. (1978). *Man-made Disasters*. London, UK: Wykeham Publications.

Walker, M. & Bills, K. (2008) *Analysis, Causality and Proof in Safety Investigations.* Australian Transport Safety Bureau (Cth). Retrieved from https://www.atsb.gov.au/publications/2008/ar2007053/

Walters, D., Quinlan, M., Johnstone, R., & Wadsworth, E. (2016). Cooperation or resistance? Representing workers' health and safety in a hazardous industry. *Industrial Relations Journal, 47(4),* 379-395. https://onlinelibrary.wiley.com/doi/abs/10.1111/irj.12147

*Work Health and Safety Act 2011* (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2011-010

*Work Health and Safety Amendment (Review) Act 2020* (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/whole/html/inforce/current/act-2020-010

Work Health and Safety Bill 2019 (WA). Retrieved from https://www.parliament.wa.gov.au/parliament/bills.nsf/BillProgressPopup?openForm&ParentUNID=8F320741B83643A8482584BF000CF89B

*Work Health and Safety (Mines and Petroleum Sites) Act 2013* (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2013-054

Work Health and Safety (Mines and Petroleum Sites) Amendment Regulation 2018 (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/pdf/asmade/sl-2018-96

Work Health and Safety (Mines and Petroleum Sites) Amendment Regulation 2019 (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/pdf/asmade/sl-2019-648

Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/sl-2014-0799#

Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 (NSW) (Historical version for 8 June 2017 to 12 April 2018). Retrieved from https://www.legislation.nsw.gov.au/view/html/2017-06-08/sl-2014-0799#sec.109

Work Health and Safety (Mines) Bill 2013 (NSW). Retrieved from http://classic.austlii.edu.au/au/legis/nsw/bill_en/whasb2013283/whasb2013283.html

Work Health and Safety (Mines) Regulation 2014 (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/2014-12-12/sl-2014-0799

Work Health and Safety Regulation 2017 (NSW). Retrieved from https://www.legislation.nsw.gov.au/view/html/inforce/current/sl-2017-0404

Yang, X. (2020). Coal Burst: *A state of the art on mechanism and prevention from energy aspect* [Online First]. IntechOpen, DOI: 10.5772/intechopen.91988. Retrieved from https://www.intechopen.com/online-first/coal-burst-a-state-of-the-art-on-mechanism-and-prevention-from-energy-aspect