NSW MAKING IT HAPPEN

NSW GOVERNMENT Department of Industry Resources & Energy

Mine Safety

MINE SAFETY REGULATORY REFORM

Implementing the *Incident prevention strategy* - update

May 2016

Published by NSW Department of Industry, Skills and Regional Development, Division of Resources and Energy

Title: Mine Safety Regulatory Reform: Implementing the Incident Prevention Strategy - Update

First published: May 2016

Authorised by: Executive Director Compliance and Enforcement Lee Shearer

RM8 Reference: PUB 16/280

Amendment schedule		
Date	*Version #*	*Amendment*

Contents

Mine Safety

Improving the safety and health performance of the NSW mining industry is a priority for the NSW Government.

The role of the NSW Department of Industry, Division of Resources and Energy, Mine Safety is to provide the framework and direction to industry to manage risks through consultation and safe systems. Mine Safety works closely with employers, employees, other government agencies and the community to promote best practice in the area of mine safety.

Our mission

The mission of Mine Safety is to be a leader by enabling, supporting and focusing the mining and petroleum industries on preventing workplace death, injury, illness and disease.

Our legislative authority

The *NSW Work Health and Safety (Mines and Petroleum Sites) Act 2013* and *NSW Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* align specific mine safety laws with general work health and safety laws. They also provide a single legislative framework for the regulation of safety at petroleum sites and mines in all sectors (e.g. coal, metalliferous, extractive and onshore petroleum). Mine Safety also regulates under explosives, radiation safety and petroleum legislation.

The legislative framework requires the regulator to identify risks, and apply compliance and enforcement powers and functions. This includes:

- providing information and advice
- promoting education and training
- fostering cooperative consultative relationships between duty holders, workers and others and
- assisting in solving problems created by hazards arising from work in the NSW mining industry.

Our role and function as the regulator

Mine Safety is a health and safety regulator for a high-hazard work environment.

Poor health and safety outcomes in a high-hazard environment can arise from complex and multi-dimensional problems that often result from a range of contributing factors. Incident causation in a high-hazard environment can also involve complex systems.

Applying legislation that is targeted towards the high-hazard nature of mining requires a well-defined and targeted regulatory approach that has specific elements, in addition to the general WHS regulatory models.

The legislative framework under which Mine Safety operates provides the basis for a well-defined and targeted regulatory approach. The challenge is in providing the operational organisation to ensure compliance with these legislative requirements and to support industry in meeting its obligations. This is particularly important in high-hazard work environments where the risks, and potential for catastrophic outcomes[1], are elevated.

[1] See footnote 2 catastrophic failures page 2

The responsibility for managing risk rests with the duty holder and not with the regulator.

The regulator is not responsible for ensuring health and safety at individual workplaces. It is the responsibility of duty holders to ensure health and safety at their workplaces, and for identifying and managing the hazard risks they create in a systematic way in accordance with the legislated framework.

How Mine Safety looks to the regulated community

Mine Safety regulates across a wide range of hazards, industry practices and risk profiles. It is expected that all mining operators and other duty holders will be subject to some level of inspection or other oversight.

We also regulate across the full breadth of WHS duties and laws, not just engineering and technical safety matters. This regulatory approach ensures duty holders take the systematic approach that evidence confirms will result in the best health and safety outcomes.

We are moving to greater promotion and testing of effective risk management - hazard identification, risk assessment and risk control - and effective safety system approaches that address the human and organisational factors that assist in shaping an operation's health and safety performance. We will also promote the appropriate investigation of system and risk control failures, and high potential incidents.

Our work will be built around two key programs - the targeted assessment program (TAP - a proactive program of work) and the targeted intervention program (TIP - a reactive program of work). TAP and TIP activities and processes will be clearly structured, with a strong focus on controls for risks associated with the principal hazards. They will consider the effectiveness of planned controls and verify control implementation. The assessment programs will look more sharply and with a narrower focus, digging deeper than many of the previous audits and inspections.

Focus areas will be determined in many ways such as after significant incidents, through emerging trends, investigation outcomes and from the experience of other national and international regulators.

For each TAP and TIP, a report will be prepared and provided to the mine operator, any other relevant PCBUs and the Mine Safety and Health Representative (coal mines). The TAP and TIP processes will usually be undertaken by a multidisciplinary team rather than a single inspector.

Other inspector activities - planned inspections, investigations and audits - will continue, but the emphasis and resources allocated to these are likely to be reduced to support the TAP and TIP activities.

This approach will enable us to better predict emerging issues or problems that lead to poor safety outcomes or limit safety improvement.

Further information on the TIP and TAP processes can be found in **Program summaries.**

Our greatest focus will be on effective risk control for the principal hazards. We understand what is required to ensure risks are being managed by operators.

Risk-based regulation requires that the most effort be applied to the greatest risk. It also requires lower-risk operations and activities to be appropriately sampled and monitored to test that the risk assumptions being applied are appropriate.

The operations that have many of the principal hazards present and with the potential to lead to a catastrophic failure[2] will be subject to a level of regulatory scrutiny that is proportionate to the risks they control and their performance.

[2] A catastrophic failure is a sudden and total failure from which recovery is impossible. Catastrophic failures often lead to cascading systems failure. The term is most commonly used for structural failures, but has often been extended to many other disciplines in which total and irrecoverable loss occurs

We will use appropriate sampling and testing through the TAP and TIP, as well as planned inspections and other assessments, to confirm that duty holders have properly focused their risk management efforts on the principal hazards identified within their operations.

Appropriate sampling and testing will be based on evidence, data and risk profiling to address the different sectors and different problems and compliance expectations across all of the mining and petroleum industries.

There are a larger number of smaller or simpler operations with fewer hazards and lower risk profiles than there are larger, more complex operations. It is not practical, or a risk-based allocation of resources, to assess these lower risk operations individually on a regular basis due to our limited regulatory resources and the relatively low risk they pose.

The less-complex operations will still be subject to some level of planned inspection in order to continue the validation of the risk profile for the sector. However, in the future there will be a greater emphasis on alternative strategies such as education and guidance to improve safety outcomes at these operations.

To promote consistency and transparency, and provide inspector resources for TAP and TIP work, a single point of contact will be established in the form of a centralised assessment team, which will receive and assess all reported incidents, reportable events and high risk activity notifications, as well as requests for services and complaints.

The centralised assessment team will have appropriate technical competence to ensure all reports and notifications are appropriately addressed and followed up.

We will also implement a system of primary contact inspectors to continue effective communication and engagement with operators of complex and high-risk sites.

More information on the centralised reporting and primary contact inspectors can be found in **Program summaries.**

What underpins our approach

Our risk-based, outcomes-focused approach will help to ensure we meet the expectations of government, the community and industry. The following will shape our regulatory activities going forward:

- Continuing to build on the good work practices already occurring.
- Not changing who we are, but changing the way we regulate.
- Providing greater transparency through a planned approach to ensure all stakeholders are aware of the work of the regulator.
- Adopting a decision-making model that delivers greater consistency.
- Co-ordinating the various resources of the department to deliver broader regulatory outcomes through the deployment of multi-skilled teams.
- Sourcing and using information and data to identify where our resources should be focused to achieve the best regulatory outcomes.
- Deploying limited resources in a proactive manner to address the greatest risks.
- Standardising the work processes and procedures across the state.
- Regularly reporting on compliance outcomes and early learnings.

Planning, designing programs and interventions, and allocating resources

We will ensure there is a technical and regulatory evidence base for the regulatory strategy decisions we make.

We will take the knowledge and experience of the inspectorate, coupled with that gained from other high-hazard industries, and the general WHS regulators in Australia and overseas. This knowledge and experience will be applied, as appropriate, to mining and petroleum operations in a risk-based expert model of regulation.

The risk-based model will include risk ranking to validate the assignment of resources and to ensure there is greater emphasis on higher risk activities. The risk ranking process will include consideration of an operator's past compliance history.

We will use a range of tools and approaches to ensure the best fit with the problems or risks being targeted.

We will effectively use our full range of compliance tools including information, education, investigation, inspection and audit - as well as enforcement tools.

These tools will be applied by sector or sub-sector through focused programs and targeted projects - on operations or groups of operations.

We use a wide range of information sources and operational intelligence from investigations, assessments, culture assessments, compliance history, inspections and investigations as well as multiple other sources (such as investigations and safety alerts from other jurisdictions, academic work, industry bodies, information from original equipment manufacturers [OEMs]) in work program planning and development.

We will also work with other regulators, stakeholder bodies, the regulated community and the wider community as part of our approach.

What tools, techniques and strategies we use and apply

We are working to identify clear organisational objectives for Mine Safety, strategies and operational plans that are targeted at different sectors and specific problems.

The work performed from July 2016 will be tied to a clear, regulatory strategy for each sector, operational risk profile or hazard. We are most effective when we prioritise, target, plan and then implement.

While we will be planning activities and operations well in advance, we are aware of the need to remain agile and adaptable to ensure we predict or spot emerging problems and intervene early. The recording of consistent, timely and transparent data through centralised reporting, and the application of resources to properly analyse that data, will ensure we can intervene at the earliest opportunity.

We will use all tools available to us as regulators - we will segment and sharply focus those tools to get the best outcomes. We will also be working broadly across the mining industry and with mining stakeholders as well as with specific duty holders.

Our principles as a regulator

All stakeholders and groups of WHS duty holders will be treated consistently, transparently and in accordance with the stated policy and procedures.

We will promote open and constructive discussion with all of the regulated community and all stakeholders. At the same time we must remain clear about our role as the regulator, and particularly the need to take positive steps to promote confidence in the broader community that we are discharging our functions and duties objectively.

We will strive to achieve cooperative compliance and reach agreement, but will rigorously maintain the integrity of strong, evidence-based technical and regulatory approaches and will take enforcement action where necessary and appropriate.

Our operational framework must ensure that we can demonstrate accountability for every regulatory decision made, and every regulatory action taken.

Regardless of their performance, all mine operators will be subject to a degree of periodic inspection and assessment. It is essential the regulator is able to provide public reassurance that major health and safety risks continue to be managed appropriately.

What the duty holders at mines will see

We will be open and transparent about the reasons for an operation's risk profile and why certain activities or interventions are being undertaken.

While our operating philosophy will include planned and unplanned programs of work, generally mine operators and duty holders will know what we are doing and why we are doing it. Operators will also be given information on what we find. We understand the need to maintain an open dialogue, in appropriate circumstances, with mine operators and other duty holders about the purpose, content and timing of inspections, and other proactive interventions and activities.

We will promote the open and transparent sharing of information - to encourage and support innovation and the development of solutions, and to improve hazard identification and risk management. We will also provide key points of contact, be accessible, and provide information and assistance.

We will address all harms and provide a broad range of support.

The focus will be on effective risk controls, especially on the critical risk controls for hazards that may result in catastrophic outcomes. However, we must also address other harms, which while not catastrophic, may result in adverse physical and psychological outcomes for workers and others.

Duty holders will see a range of strategies and programs and will receive assistance from technical and systems professionals, including organisational and human factors.

We will hold duty holders to account for their risk management.

We will assist duty holders in understanding and applying processes for systematic risk management and in building effective, resilient safety management systems.

However, this does not mean that we will provide specific instruction to duty holders on what to do to prevent adverse safety outcomes or mitigate the consequences of a failure or incident. Put simply, duty holders have a responsibility to identify these themselves, and we will hold them to account for what they are doing.

In this respect, we will be very clear about non-compliance (including anticipated future non-compliance) and ineffective risk control, emerging issues, modes of failure, and areas for improvement. A program of follow-up will be implemented to verify actions that have been taken.

We will take a systems-wide approach.

When conducting any form of intervention or assessment we will take a systems-wide approach and talk to all levels in an operation - workers, supervisors, statutory position holders, general managers and other leaders - as well as senior management, boards and senior company personnel in the parent company.

We will escalate to, and engage with, duty holder senior staff and officers if progress is not demonstrated to be sufficient in a designated timeframe. The effectiveness of senior leadership is an important determinant of duty holder success in managing major hazard risks.

We will look broadly and systematically at incident causation and systems failures - reflecting the full breadth of the interplay between human, technical, and organisational factors, which are critical to effective risk control.

We will treat duty holders consistently.

All duty holders will be treated consistently, however, consistent treatment does not mean all operations will be treated exactly the same – this will depend on risk profiles, past performance, and willingness and capacity to comply.

Program summaries

The following provides summaries of the key programs that have been developed to implement the Mine Safety Incident Prevention Strategy, and facilitate Mine Safety to fulfil its role as an effective regulator.

Quality information

The situation as of May 2016

We collect information from many different sources, including incident notifications, audits, inspection reports, high risk activity, authorisations and enforcement notices. Further analysis into trends and clusters of occurrences needs to be undertaken to gain a greater understanding of the influences on incidents and to identify the gaps in the existing data collection process.

The future direction

We are reviewing the way we collect and use information. The main changes will include:

- implementing new processes to ensure the consistent and thorough collection and recording of information
- integrating data sources to enable easy access and analysis of information
- internal and external education on the importance of quality information and on how to gather and share information in a meaningful way
- incorporating human and organisational factors, and how these influence the collection and sharing of information and the importance given to certain information, or not.

How it will affect industry

Most of the impacts of a new approach to quality information will be associated with the internal operation of Mine Safety, however it may impact on operators and title holders through:

- the implementation of a centralised framework for the reporting of all verbal and written notifications of incidents
- streamlined processes for the lodgement of written notification of incidents through standardised online forms.

Human and organisational factors program

The situation as of May 2016

The *MSAC Fatality Review 2013-2014* identified there was a need to identify the impact that human and organisational factors have on the successful and reliable implementation of risk controls.

The future direction

Mine Safety aims to gain a better understanding of the factors shaping human behaviour at all levels within an organisation and will develop skills to help determine whether an action was intentional (violation) or unintentional (error). The main changes will include:

- developing a human factors and organisational tool kit that will provide information, guidance and consistency for Mine Safety and industry
- developing the skills of Mine Safety and the industry in distinguishing between intentional and unintentional behaviour and conducting appropriate assessments of human factors
- promoting a fair culture within industry through a greater understanding of incident causes.

How it will affect industry

This new approach will be associated with the internal operation of Mine Safety as well as industry. It will include information provided on the Mine Safety website outlining the 10 key human and organisational factors and other guidance, and the inspector toolkit developed by the HSE in the United Kingdom.

It will also include the development of a human and organisational factors tool kit to be used by Mine Safety for use in regulatory inspections and investigations, and by industry in reviewing incidents.

Comprehensive human and organisational factor training and education packages will also be developed to support industry.

Results of the human and organisational factors project will be compiled and analysed by Mine Safety, with key findings and recommendations communicated to industry to inform areas of improvement and good practice.

Targeted assessment program (TAP)

The situation as of May 2016

The *MSAC Fatality Review* recommended that a more planned approach to safety assessments should be considered. This would apply a more systematic and structured, evidence-based decision making approach when deciding which mines to visit and which critical risk issues to target.

The future direction

The targeted assessment program (TAP) will be a planned, proactive approach to assessing how effective an operation is overall when it comes to controlling critical risk. TAP will apply the following principles:

- focus on managing prescribed 'principal hazards' from the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*
- evaluate the effectiveness of control measures implemented through an organisation's safety management system
- consider the operation's risk profile, and target operations deemed to be highest risk.

Each TAP will involve a team of inspectors (two to three inspectors) from various disciplines. Depending on the level of compliance found during the TAP there could be some follow-up inspections generated by the various inspector disciplines to gather further information or close out issues.

How it will affect industry

The implementation of the TAP will largely impact on the internal operation of Mine Safety. However, some of the impacts on industry will include:

- a more transparent process of assessment through communication to industry of the areas of focus - sites will be notified before the TAP begins so that they can plan and prepare
- delivering the findings of the TAP to both on-site operators and to more senior levels of the operation
- sharing lessons from the TAP with industry as a means of promoting industry good practice and identifying common failings. This information will not be site specific but generalised as part of the sharing process across the sector
- consulting with industry to inform the ongoing monitoring of the effectiveness of the program.

Targeted intervention program (TIP)

The situation as of May 2016

While we have implemented various one-off initiatives and programs developed in response to incidents and events, we can be more structured with the regulatory methods we have in place in order to focus on, and assess, critical controls for significant risks faced by a particular operation and by broader sectors of the mining industry.

The future direction

The targeted intervention process will formalise a systematic way to intervene that can be consistently applied to all sectors of the mining industry. TIP will be a responsive approach to assessing how effectively critical risks are being controlled, based on information identified through:

- a series of events or a single significant event, such as a 'catastrophic failure' or fatality within a particular sector
- a change in operational risk profile
- emerging issues
- other data presenting a case for intervention.

Each TIP will usually involve a team of inspectors from various disciplines. It will include documented assessments, engagement with mine operators, site visits and the monitoring of follow-up activities.

How it will affect industry

The TIP will focus on the effectiveness of measures for controlling critical risks. These risks may be isolated to a single operation or may be shared across a sector.

Results of each TIP will be compiled and analysed by the department. Key findings and recommendations will be communicated to the industry to inform areas of improvement and good practice, enabling more effective sharing of risk management information.

Regular reviews of the TIP approach will consider its effectiveness in terms of improved risk control and expected health and safety outcomes.

Centralised reporting

The situation as of May 2016

Individual inspectors are responsible for responding to all notifications, complaints and requests for assistance from their allocated mines. Mine operators contact inspectors directly when reporting an incident, which puts a great deal of pressure on inspectors to respond to incidents when they occur, hindering the development and implementation of proactive work programs.

The future direction

We already have a version of centralised reporting in place. For example, all written notifications of incidents, reportable events and high risk activity notifications are received through specific-purpose email addresses. This process will be expanded to all contact with Mine Safety with the establishment of a dedicated team to receive all notifications, including all initial phone notifications.

From 4 July 2016 the inspectorate will be using a centralised assessment team to:

- receive information from industry or the community that would previously have gone to individual inspectors
- receive all reported incidents, reportable events, high risk activity notifications, as well as requests for service and complaints, and general inquiries
- triage the information and allocate to the relevant areas within the inspectorate according to clearly defined processes.

The centralised assessment team will be staffed with an appropriate level of technical expertise and support staff and will operate during business hours. Out-of-hours calls will be diverted to an appropriately qualified inspector for either coal or metalliferous sectors. On-call inspectors will triage the calls received and ensure the appropriate response to a notification occurs including, if necessary, the deployment of inspectors, the Emergency Management Coordination Team and the Investigation Unit.

How it will affect industry

Industry will be able to contact NSW Mine Safety through a single contact number for all enquiries and notifications, and will no longer be reliant on maintaining contact details for individual inspectors. This will provide a more streamlined, consistent and transparent approach to incident notifications.

Inspector resources will be deployed in a more consistent manner and will have stronger regard to the level of response and expertise required. As a result, different inspectors will respond to incidents, rather than a single inspector being solely responsible for a site.

Primary contact inspector

The situation as of May 2016

An inspector has been allocated to most sites. The inspector has responsibility for receiving all enquiries and notifications from that site, and has primary responsibility for responding to incidents and conducting investigations.

The future direction

The implementation of the centralised reporting system will remove the onus on a single inspector for these sites. The objective of the primary contact inspector model of deployment is to retain the positive elements and outcomes of the existing allocated inspector model of deployment. This includes good site knowledge of individual mine sites, for example, the safety management systems, the people and equipment, and the management team and statutory position holders.

The primary contact inspector will take a coordinating role so that site knowledge and open lines of communication can be maintained, while still allowing for the centralised assessment of notifications and deployment of resources

This will take the workload off individual inspectors as a single point of contact and response for the mines they regulate.

The primary contact inspector model of deployment is supported by centralised reporting and it supports the more time intensive, team based TAP and TIP processes, as well as more planned inspections.

How it will affect industry

The primary contact inspector model of deployment will continue to provide mine operators, workers and other PCBUs of complex and high risk sites with a clear path into the department for assistance and advice on technical or regulatory matters.

Mine Safety inspection tool matrix

The following matrix summarises the different "inspection" tools available to Mine Safety.

Tool	Activity	Trigger	Initiation	Actioned by	Timeframe	Focus	Method	Example
Targeted Assessment	Proactive	Risk profiling of site/sector	Chief Inspector in consultation with Senior Leadership Team	Multi-disciplined team	Schedule developed over multiple years	Based on legislative compliance & referencing Principal Hazard Management Plans and Principal Control Plans	**Sample** of SMS focusing on effectiveness of risk control measures	Coal – All UG coal mines similar risk profile Metex – All UG extractives using draw point
Targeted Intervention	Responsive	Data/Event driven			Short timeframe based on response to event			Series of notifications at a site for vehicle collisions resulting in a focus on vehicle interaction or Fatality at site A results in TI at sites B, C & D with similar risk profile
Planned Inspection	Proactive	Risk Profiling of site	Area Manager & Area Inspectors	Inspector(s)	Schedule developed in advance for a number of months (100 day plan)			Inspection of mines in area based on routine assessment of risk. This will include the lower risk sites.
Campaign	Proactive	Risk Profile of Sector or Event driven	Senior Leadership Team	Inspector(s) and / or Specialist(s)	Schedule developed based on size of campaign may be multiple years	Specific to campaign	Information / education process	Sector focus on use of appropriate dust control techniques and appropriate PPE or Electrical safety at small mines
Compliance Audit	Proactive	Risk Profile of site or sector		Inspector(s)	May be scheduled over a period of time for multiple sites or focused on a single site.	Based on legislative compliance	Traditional audit methodology as per AS/NZ1408 & other approved audit tools	New operation prior to commencing extraction or Old operation about to transition from care and maintenance to production.
Incident Investigation	Reactive	Event driven	Triage Protocol	Inspector(s)	At the time of incident	Specific to incident detail	Focus on root cause analysis to determine failed risk control measure(s)	Incident where a person has been placed at significant risk at a mine.