

# Commissioner for Mine Safety and Health

Queensland Mines Inspectorate

Annual Performance Report 2013-14



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Cover image: Anthony Bennett, Senior Project Officer Research and Design, Communications for gas explosion testing in propagation tube at Simtars

This publication has been compiled by Paul Harrison, Acting Commissioner for Mine Safety and Health, Department of Natural Resources and Mines.

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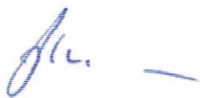
September 2014

The Honourable Andrew Cripps MP  
Minister for Natural Resources and Mines  
61 Mary Street  
Brisbane Qld 4000

Dear Minister

In accordance with section 73E(1) of the *Coal Mining Safety and Health Act 1999* I am pleased to submit to you the Commissioner for Mine Safety and Health's annual performance report for the year ending 30 June 2014.

Yours sincerely



**Acting Commissioner for Mine Safety and Health**



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# Abbreviations and definitions

## Abbreviations

<b>CFMEU</b>	Construction, Forestry, Mining and Energy Union
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>DNRM</b>	Department of Natural Resources and Mines
<b>DPM</b>	diesel particulate matter
<b>HIAC</b>	Health Improvement and Awareness Committee
<b>HPI</b>	high potential incident
<b>IQA</b>	Institute of Quarrying Australia
<b>NMSF</b>	National Mine Safety Framework
<b>NORM</b>	naturally occurring radioactive material
<b>NSW</b>	New South Wales
<b>OEM</b>	Original Equipment Manufacturer
<b>QGL</b>	Queensland guideline
<b>QGN</b>	Queensland guidance note
<b>SHMS</b>	Safety and health management system
<b>Simtars</b>	Safety in Mines Testing and Research Station
<b>SSE</b>	Site Senior Executive
<b>WA</b>	Western Australia

## Definitions

**Coal mines:** mines subject to the *Coal Mining Safety and Health Act 1999* and associated regulation.

**High potential incident:** an event, or series of events, that causes or has the potential to cause a significant adverse effect on the safety or health of a person.

**Inertisation:** injection of inert gases such as nitrogen or carbon dioxide into an area of an underground mine to extinguish a fire or to prevent a potential fire or gas explosion occurring by reducing the oxygen concentration.

**Lost time injury/disease:** an incident or disease resulting in a fatality, permanent disability or time lost from work of one shift or more. The shift on which the incident occurred is not counted as a shift lost.

**Lost time injury frequency rate:** the number of lost time injuries or disease per million hours worked; abbreviated as LTIFR

**Metalliferous mines:** mines subject to the *Mining and Quarrying Safety and Health Act 1999* and associated regulation.

**Quarries:** excavations of hard rock for use in construction (operations covered by the *Mining and Quarrying Safety and Health Act 1999* and associated regulation).

**Queensland Mines Inspectorate:** a regulatory unit within Mine Safety and Health, Department of Natural Resources and Mines.



## Background

The office of the Commissioner for Mine Safety and Health was established under the *Coal Mining Safety and Health Act 1999* and the relevant provisions commenced under this Act and the *Mining and Quarrying Safety and Health Act 1999* on 1 July 2009.

The Commissioner for Mine Safety and Health's functions is to:

- advise the Minister for Natural Resources and Mines on mine safety and health matters generally
- fulfil the roles of chairperson of the Coal Mining Safety and Health Advisory Committee under the *Coal Mining Safety and Health Act 1999* and chairperson of the Mining Safety and Health Advisory Committee under the *Mining and Quarrying Safety and Health Act 1999*
- monitor and report to the Minister and to Parliament on the administration of provisions about safety and health under the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*
- perform the functions given to the Commissioner under the provisions of the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*.

In addition, the Commissioner is required under section 73E(1) of the *Coal Mining Safety and Health Act 1999*, to provide a report to the Minister on the performance of the department in regulating mine safety. The Queensland Mines Inspectorate administers the provisions of the *Coal Mining Safety and Health Act 1999*, the *Coal Mining Safety and Health Regulation 2001*, the *Mining and Quarrying Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Regulation 2001*, and advises, mentors and educates the mining industry about safety and health.

The Mines Inspectorate is well resourced, competent and dedicated to the regulation of the mining and quarrying industries. Remuneration provides attraction, retention and qualification incentives approved by the Office of the Public Service Commissioner.

A stable operating environment with low staff turnover has been maintained. The Mines Inspectorate has continued to successfully recruit staff to key roles over the past 12 months as vacancies have arisen commensurate with industry activities.

The Mines Inspectorate's activities for 2013-14 are summarised in the body of this report. In addition, information on the operations of the Board of Examiners, the advisory committees and more comprehensive mining industry safety and health information can be obtained in the following reports:

- Board of Examiners Annual Report
- Coal Mining Safety and Health Advisory Committee Annual Report
- Department of Natural Resources and Mines Annual Report
- Mining Safety and Health Advisory Committee Annual Report
- Queensland Mines and Quarries Safety Performance and Health Report

Copies of these reports can be obtained from the DNRM website [www.dnrm.qld.gov.au/mining](http://www.dnrm.qld.gov.au/mining)



## From the Acting Commissioner for Mine Safety and Health



The Queensland mining industry is still experiencing contraction in employee numbers in 2013-14. On preliminary figures it appears that many safety and health data have improved over the same period, giving me confidence that the Mines Inspectorate is working effectively with mine operators and mining unions to ensure that mine workers get home safe and healthy to their families each day.

Queensland continues to attract widespread recognition for its enviable safety standards, capability in developing new and innovative technologies and our strong commitment and vision for 'zero harm'. There are, unfortunately, still some areas of concern that continue to challenge the mines inspectorate in our efforts to focus the attention of industry and mine workers on preventing harm by continually improving risk management at mine sites. These issues are highlighted in this report.

I would like to take this opportunity to thank Mr Stewart Bell PSM, for fulfilling the role of Deputy Director-General and Commissioner for Mine Safety and Health very ably for the past seven years. Stewart retired in April 2014 after 34 years of public service to mine safety and health. He has left an indelible mark on safety and health in the mining industry, not only in Queensland but also beyond the shores of Australia. Stewart was part of the small team that established Simtars in 1986, later becoming its Executive Director; he was Queensland's inaugural Commissioner for Mine Safety and Health; and served as a Royal Commissioner on the Royal Commission of Inquiry into the Pike River Mine disaster. He leaves behind him a legacy of major improvements in safety and health practices and technology which have made a very tangible contribution to the high safety and health standards experienced by workers in the mining industry today.

### Queensland Mine Safety Framework

In September 2013, the Mines Inspectorate released a Consultation Regulatory Impact Statement detailing the most significant reforms to the Queensland mine safety and health regulatory framework since the current legislation was introduced in 1999. Public comment on the Regulatory Impact Statement closed on 11 November 2013. Two hundred and forty-six submissions were received, many of which were very detailed responses. The public comment on the proposals in the Regulatory Impact Statement is currently being analysed and considered before recommendations are put to government for deliberation.

### Mine safety and health statistics

The year 2013-14 was a bad one for fatalities in the Australian mining industry with a total of 16 workplace deaths in mining during the year. This is the worst result experienced for a number of years. It has raised significant concern among regulators and mine operators alike.

Queensland has not been immune, suffering two fatalities during 2013-14. Both of these happened at underground mines; one at a coal mine and the other at a metalliferous mine. In the underground coal mine incident, a worker entered an irrespirable atmosphere in a sealed area of the mine; in the underground metalliferous mine incident, a worker fell into an ore pass. I offer my sincere condolences to the families and friends of these workers.



The investigations into these 16 incidents are not yet concluded so I am unable to offer further comment on specific details. However, improved training, competency and support of line supervisors has been identified as a key area requiring attention. This was also one of the chief proposals put forward in the Consultation Regulatory Impact Statement for Queensland's Mine Safety Framework. Poor knowledge and competency are the precursors to disasters and fatal accidents. They were key contributors to the Moura No. 2 disaster, and there is a strong link between these factors and the last six mine disasters in Australia as well as the Pike River Mine disaster in New Zealand.

One of the fatalities that occurred in New South Wales may have been prevented by collision avoidance technology. Pursuing industry adoption of proximity detection/collision avoidance technology has long been, and will remain, a key focus of the Queensland Mines Inspectorate.

Encouragingly, performance on other key safety and health indicators has shown significant improvement in all mining and quarrying sectors with significant reduction in lost time injuries and disabling injuries across the board. The severity rate for these injuries was also significantly reduced across all sectors, and the Lost Time Injury Frequency Rate is also reduced over the 2013-14 period. (Refer to *Queensland Mines and Quarries Safety Performance and Health Report 1 July 2013 – 30 June 2014* for figures).

The trend over recent years of improved high potential incident reporting continues. This quality reporting of HPIs is a positive sign as it enables the mines inspectorate and the industry to learn from these incidents and make improvements to prevent injuries and fatalities. In 2014-15, the Mines Inspectorate will be implementing measures for better sharing of the lessons from HPIs across industry.

One of the key messages from our work with industry, unions and mine workers is the need to remain vigilant about safety and health despite further improvements in the industry's performance over the past 12 months in some areas. It is essential that there be on-going engagement between the regulator and industry on ensuring the regulatory framework supports the effective management of risk at mine sites.

## Explosion protected equipment

A review of the incident data relating to electrical hazards has highlighted a disturbing trend in our underground coal mines. Explosion protected equipment damage incidents are increasing: 16 per cent of all electrically categorised incidents involved failure of an explosion protection technique. This is third behind cable damage and issues with the electrical installations on mobile vehicles. What is particularly concerning is the number of incidents, which have increased by 205 per cent in the last five years to 74 incidents in 2013-14.

After investigation of the electrical events it was identified that 48 per cent of the events can be attributed to the equipment operator with a further 29 per cent attributed to electrical installation failures. Issues being reported include:

- damage to machine headlights with the machines still in service in the underground environment
- lighting cables being damaged and exposing the live wires
- people losing non-certified equipment underground
- substandard maintenance practices by competent people.

Explosion protected equipment plays a critical role in the prevention of methane and coal dust explosions in underground coal mines. The prevalence of these substandard conditions and practices is very concerning.

The Mines Inspectorate raised its concerns with industry at the regular six monthly meetings of electrical engineering managers and at the 2014 Mine Electrical Safety Conference. It will be a major focus of the mines inspectorate in 2014-15.

## Stone dust application

The Mines Inspectorate undertook an audit of the efficacy of coal dust explosion prevention and suppression systems in Queensland underground coal mines. This audit highlighted poor practices and a gross lack of understanding among various levels of management and supervision about the requirements for sampling, analysis and application of stone dust.

Findings of the audit were published in *Safety Bulletin 134 Review of Queensland underground coal mines' stone dust application and sampling and analysis of roadway dust*.

A coal dust explosion is one of the principal hazards in a coal mine and one of the primary controls in managing this hazard is the properly executed application of stone dust on the mine roadways to reduce the potential for propagation of an explosion.

To tackle the issues about competency highlighted by the audit, Simtars has developed an accredited stone dusting training package. To tackle the poor practices highlighted by the audit, the Mines Inspectorate will be giving stone dusting an increased focus in 2014-15.



**Neil Randolph, Inspection Officer, providing accredited stone dusting training at Simtars**

## Pike River implementation

The Mines Inspectorate examined the report of the Royal Commission of Inquiry into the Pike River Mine disaster and found three areas of relevance to the Queensland underground coal mining industry where there might be shortfalls in our approach. These areas included adequate blast relief panels on main fans, variable voltage variable frequency speed drives on electrical equipment and next of kin notification processes. The inspectorate has asked industry to incorporate design considerations for blast relief panels on any new fan installations. Controls associated with the introduction of variable voltage variable frequency drives are currently the subject of a number of Australian Standards review committees. Requirements, regarding notification of next of kin as a result of an emergency, are currently being reviewed by the Coal Mining Safety and Health Advisory Committee.

Dissemination of the Pike River learnings at seminars and conferences across Australia is still occurring to ensure that the valuable lessons gained from this mine disaster are passed on to Australian miners.

Post-incident management and emergency response systems will continue to be a major focus of the mines inspectorate's compliance and inspection audits to ensure we make the most of the lessons learned from the Pike River disaster.



## Emergency response

Two spontaneous combustion (spon com) events occurred at underground coal mines during the reporting period. Left unchecked, spon com can trigger a methane explosion and has been the cause of many mining disasters and major loss of life throughout centuries of coal mining.

Although these two events were well managed and brought under control quickly and efficiently, they highlight the continuing need for an effective and well-resourced emergency response capability at both a mine site and industry level.

The Pike River disaster highlighted the problems with using overland robots to gather critical information about underground mine conditions post explosion. To address these problems, the Mines Inspectorate has been working with Simtars and the CSIRO to develop an aerial mine exploration platform which can be deployed safely in an explosive underground atmosphere, capable of relaying visual information and gas data back to the incident management team on the surface. Trials of an early prototype conducted at Aquila Coal Mine early in 2014 provided promising results.

## Occupational health

Issues relating to occupational health and their more long term chronic impact are often subsumed by the immediacy of safety issues. However, occupational health problems frequently have a lasting impact on industry workers extending beyond their working life into retirement and adversely affecting quality of life long-term.


The Mines Inspectorate remains committed to addressing occupational health, as well as safety, issues in the mining industry. Full details of the inspectorate's occupational health activities are provided later in this report. They include work with various committees; work on the development of guidance material for diesel particulate matter; noise induced hearing loss and naturally occurring radioactive material; various meetings, seminars and presentations about mental health, fatigue and health effects of shiftwork; and monitoring programs for airborne dust exposure.

## Importance of tripartite role in mine safety and health in Queensland

Part two, division two of the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999* describe cooperation as a key strategy in achieving the objectives of the legislation to protect the safety and health of persons at mines and persons who may be affected by mining operations.

Commissioner Bell wrote in last year's report, and I would like to reiterate here:

*"To achieve the objectives of the coal mining safety legislation we need to work together in true tripartite fashion to enable all mine workers to return home safely to their families each and every day. Industrial matters that have no legitimate bearing on, or role in, mine safety should be put aside for other arenas. I encourage all sides of the industry to focus on mine safety and health and not allow industrial dispute matters to detract from our primary focus of safety and health in mining operations. Mine safety and health must not become a casualty of deteriorating relationships in the Queensland mining industry."*



Respected Australian safety expert, Professor Neil Gunningham, when discussing Queensland's mine safety risk framework recently, stated publicly,

*"Also important is education, training and awareness at mine site level. And above [all] else, building trust between stakeholders who have long been adversaries".*

- Neil Gunningham: 'Mining safety model far from rock solid', *The New Zealand Herald*, 10 April 2014

Where safety and health are concerned, adversarial differences need to be set aside for without the collaboration envisioned by the safety and health legislation we won't achieve even close to zero harm.

## The Commissioner for Mine Safety and Health's significant achievements for 2013-14

During the year, the Commissioner for Mine Safety and Health:

- attended and presented at a broad range of mining industry conferences, meetings and seminars on mine safety and health issues currently facing the industry, including:
  - Australian Mine Ventilation Conference, Adelaide
  - 11th National Conference on Safety in Mines, Delhi
  - Queensland Mining Industry Health and Safety Conference 2013, Townsville
  - 35th International Conference of Safety in Mines Research Institutes, London
  - 51st Australian Mines Rescue Competition, Cook Colliery, Blackwater
  - Queensland Mines Rescue 42nd E K Healy Cup Competition, North Goonyella Mine, Moranbah
  - Queensland Mines Rescue Service Memorial Cup Competition, Gregory Crinum Mine, Emerald
  - 2014 Coal Operators Conference, University of Wollongong
  - Resources RTO Association 2nd Annual Conference, Coolool
  - Regulatory Impact Statement roadshow, Brisbane, Mackay, Townsville, Rockhampton, Simtars–Redbank, Toowoomba, Mount Isa, Mareeba
  - Mine Fires and Explosion Seminar 2013, Brisbane
  - Health Improvement and Awareness (HIAC) Mental Health Working Party Meeting, Brisbane
  - 2013 Mines Inspectorate Annual Briefing to the Mining Industry, Parliament House, Brisbane
  - 2013 Annual Briefing to the Petroleum and Gas Industry – CSG Safety, Parliament House, Brisbane
  - Mines Visioning Workshop, Brisbane
  - 14th Australian Coal Preparation Society presentation, Dalby
  - CSIRO Workshops and Solar Fuels Roadmap, Sydney.

Refer to Appendix 1 for a full list of the Commissioner's presentations.

The Commissioner also:

- visited mines and quarries including Mount Morgan, Mount Moss, Moura, North Goonyella, Capella, Middlemount, Grasstree, Oakey Creek and Kestrel
- consulted with stakeholders throughout the year on a wide range of issues and Mines Inspectorate activities
- conducted six level 4 compliance meetings with mining and petroleum companies
- issued *Safety Alert 5 2013-14 Shaping up to be a dangerous year for mining contractors. It doesn't have to be*
- conducted radio interviews and provided media statements to raise awareness in the community about the safety and health issues facing the mining industry
- shared information and discussed knowledge exchange opportunities regarding Queensland's mine safety laws, safety performance and regulatory activities with delegations from India and New Zealand
- visited the United States National Institute for Occupational Safety and Health (NIOSH) to discuss new research and developments in mine safety and health.



Commissioners Bell and Harrison chaired and participated in advisory meetings, including:

- four Coal Mining Safety and Health Advisory Committee meetings (Chief Inspector of Coal Mines chaired in the Commissioner's absence)
- three Mining Safety and Health Advisory Committee meetings (the fourth meeting was cancelled due to the number of industry representatives able to attend falling below the legislated minimum requirements)
- two Queensland Mines Rescue Service Technical Advisory Committee meetings
- the 2013 Queensland Mining Industry Health and Safety Conference organising committee
- the planning and execution of the Miners Memorial Day Service held on 19 September 2013 in Townsville (planning for the 2014 Miners' Memorial Day Service in Moura commenced)
- site negotiations and detailed planning for the construction of the Miners' Memorial.



**51<sup>st</sup> Australian Mines Rescue Competition at Cook Colliery, Blackwater. The winners were Oaky North (pictured)**

## Mines Inspectorate and staff achievements 2013-14

The significant achievements for the Mines Inspectorate and its inspectors during 2013-14 are listed below.

### Conducting audits, inspections and compliance meetings

- conducted 67 audits and 1633 inspections of mine sites throughout Queensland totalling 2032 staff days
- conducted 145 investigations of mine accidents and incidents throughout Queensland totalling 1204 inspectorate days
- issued 307 directives and 1142 substandard condition or practice notices to mines
- conducted four Level 4 and four Level 3 compliance meetings with mining industry
- published six safety alerts, eight safety bulletins, one guidance note.

### Participation in committees and workshops

- The Health Improvement and Awareness Committee (HIAC) met on 24 October 2013, 11 December 2013, 13 February 2014 and 12 June 2014.
- Acted as chair and secretariat for the Diesel Particulate Matter Steering Committee which met on 24 July 2013 and 24 January 2014.
- National Mine Safety Framework meetings for the Non-Core Regulators Group
- Regulatory Impact Statement presentations were conducted during 2013 – 2014 to enable stakeholder input into proposed changes to both the *Queensland Coal Mining Safety and Health Act 1999* and the *Queensland Mining and Quarrying Safety and Health Act 1999*.
- Co-hosted a Mechanical Engineering Managers workshop in Moranbah 30 October – 3 November 2013.
- Participated in workshops associated with Australian Coal Association Research Program projects including the wet application of stonedust and the inertisation of Kestrel Mine.
- Convened and chaired a mine ventilation workshop with ventilation professionals from the underground coal industry.
- Ongoing consultation with petroleum and gas operators and coal mine operators continues through various workshops as part of the development of overlapping tenure legislation provisions.
- The Mine Managers' Association Continuous Professional Development program was established in Queensland and meetings were held November 2013 and June 2014.
- Surface and underground biannual electrical engineering managers' meetings.
- Immediate past President of Institute of Quarrying Australia, and Board members for Education Foundation Board
- Facilitated small mines refresher workshops in Southern Region
- The Mines Inspectorate is a member of The Australasian Radiation Protection Accreditation Board. The purpose of ARPAB is to provide a nationally recognised accreditation system in radiation safety.
- Chair of and attendance at the Queensland Mine Electrical Safety Association Inc. (MESA) committee meetings.
- Convened and chaired the State Emergency Exercise Management Committee comprising the Mines Inspectorate, Simtars, CFMEU, Minerals Industry Safety and Health Centre and mining company personnel. Mines Inspectorate involvement included participation in the planning and execution of the Queensland Level 1 mine emergency exercise at Ensham Coal Mine on 5 November 2013.

Refer to Appendix 1 and 2 for a full list of Mines Inspectorate participation.



## Conference participation and professional development forums

- Co-host of Queensland Mining Industry Health and Safety Conference 'The one constant: Health and Safety – Valuing our people', with the Queensland Resources Council and mining unions, 18-21 August 2013
- Attended and presented at the CFMEU Site Safety and Health Representative conference at Mackay for both underground coal mines and open cut coal mines.
- Paper presented at Queensland Mining Industry Health and Safety Conference: *Diesel Particulate Matter exposure trends and at-risk SEGs - Analysis of a large DPM data-set.*
- Paper presented at RISK 2014 Conference: *Too close for comfort: the case for proximity detection and vehicle collision avoidance systems*
- 55th Conference of Chief Inspectors of Mines in Western Australia 8–13 September 2013, Chief Inspector of Mines (Metalliferous) and Chief Inspector of Coal Mines in attendance
- Ninth Annual Quarrying and Small Mines Safety and Health Seminar, 'Facing Reality', Townsville 23 April 2014
- 12th Annual Quarrying Safety and Health Seminar at the Brisbane Convention and Exhibition Centre, 11 June 2014, assisted with organisation and presented papers
- Presented at The AusIMM International Uranium Conference 2014 and at Australian National Radiation Dose Register Workshop: *The New Queensland Code and Guidance Documents on NORM Safety and Health Standards – A Simplified, Risk-based Approach to Control at Mine Sites*
- Inspectors also attended professional and/or vocational training sessions to update skills, knowledge and understanding of current technical, regulatory and administrative practices.

Refer to Appendix 1 for a full list of presentations.

## Contribution to reviews and development of Australian Standards

### Committees

The Mines Inspectorate chaired and/or participated in these standards committees:

- Standards Australia Committee ME 018 - Underground Mining Mechanical
- Standards Australia Committee ME 063 - Surface Mining Mechanical
- Standards Australia Committee EL 023 - Electrical equipment in mines and quarries
- Standards Australia Committee EL 023-01 - Technical committee
- Standards Australia Committee EL 023-02 - Cable coupling devices
- Standards Australia Committee EL 023-07 - Maintenance
- Standards Australia Committee ET 006-1 - Australian IEC Ex Conformity Assessment
- Standards Australia Committee MS 067 - Ex Mark.

### Review and development of standards

The Mines Inspectorate participated in the review and/or development of these standards:

- AS1755 - Conveyors - Safety requirements
- AS/NZS1802 - Electric cables - reeling and trailing - For underground coal mining purposes
- AS 2290.3 - Electrical equipment for coal mines - Maintenance and overhaul - maintenance of gas detecting and monitoring equipment
- AS/NZS 3007 - Electrical equipment in mines and quarries - Surface installations and associated processing plant
- AS/NZS 3584.1 - Diesel engine systems for Underground coal mines - Fire Protected - Heavy duty
- AS/NZS 3584.2 - Diesel engine systems for Underground coal mines - Explosion Protected
- AS/NZS 3785.6 - Fixed Guides, Rope Guides and Rubbing Ropes
- AS/NZS 3785.8 - Underground mining - Shaft equipment - Personnel conveyances in other than vertical shafts
- AS/NZS 4024.1 - Safety of Machinery – Guarding of conveyors

- AS/NZS 4240.4 - Remote control equipment for surface mines
- AS/NZS 4871.6 - Electrical equipment for mines and quarries - Diesel powered machinery and ancillary equipment
- Australian Standard Handbooks - Cable Management and Electrical Protection Systems.

### **Working together with inspectors from other jurisdictions**

- Assisted the Victorian Inspectorate with advice in relation to the fires at Hazelwood and Yallourn Coal Mines, February 2014.
- The Chief Inspector of Coal Mines and the Chief Inspector of Mines (Metalliferous) attended the 55th Conference of Chief Inspectors of Mines, Perth 9–13 September 2013.
- Attended Legislative Working Group meetings with inspectors from NSW and WA, state mineral councils and union representatives to develop various codes of practice that could be shared amongst the states.
- Working with NSW inspectors on the development of a recognised standard for the use of polymeric chemicals in underground coal mines.
- Working with NSW and WA mechanical inspectors on the development of Australian Standards.
- Working with NSW electrical inspectors and OEMs about variable voltage variable frequency equipment management.
- Participated in an industry forum for high voltage electric drive trucks in conjunction with the NSW Mines Inspectorate, OEMs and electrical engineering managers.
- Participated with NSW inspectors in the mobile equipment personnel interaction advisory group. This group developed and published *MDG2007 Guideline for the selection and implementation of collision management systems for mining*.
- Working with NSW and WA inspectors in a technical advisory group on the development of a code of practice for winders and winding equipment as part of the National Mine Safety Framework.
- Liaised with the Queensland Explosive Inspectorate to develop an in house blasting course for inspectors.
- Participated in meetings with the Australian Coal Association Research Program and Electrical Engineering Managers Group on lightning in mines.
- Worked with the Queensland Workplace Health and Safety Inspectorate regarding jurisdiction for the Weipa South of Embley Project.
- Developed the Legislation and Risk modules for the IQA's Practising Quarry Managers Certificate in conjunction with the NSW Mines Inspectorate.
- Provided assistance to the DNRM Abandoned Mines Unit regarding installation of an electrical substation at Mount Morgan Mine.
- Worked with the Queensland Petroleum and Gas Inspectorate (South Region) on electrical issues.
- Working with the Queensland Explosives Inspectorate on blast fume and on mechanical equipment used in explosives production and delivery.
- Working with the NSW Mines Inspectorate on recognised service facility audits. Observed audits carried out in Queensland to ensure compliance of equipment serviced in Queensland under NSW legislation.
- Participated in a joint visit to heritage mining areas with Field and Land Access officers of DNRM Mining and Petroleum Operations and the Abandoned Mines Unit to Miclere in February. Joint visits to these locations are continuing to facilitate ongoing coordination and consistent communication on abandoned mines projects.
- Conducted audit of tyre management practices for the Queensland Coroner for investigations into an incident at Foxleigh Mine Site, Middlemount; case management system 2010/4299, findings reserved.
- Providing assistance to the Queensland Explosives Inspectorate with electrical clearances and standards at Bajool.



### **Working together with other agencies and partners**

- Assisted the Department of Environment and Heritage Protection with environmental issues at mines in South region and Swanbank.
- Conducted a joint investigation with the Department of Environment and Heritage Protection on breaches of environmental legislation at Mount Chalmers Mine.
- Assisted Safework Australia as part of the Expert Advisory Committee on Vibration
- Developed a memorandum of understanding with Queensland Health on naturally occurring radioactive materials. This formalised a collaborative approach to efficient inspection and monitoring of radiation at mines in Queensland, especially where operations may involve purposeful or accidental mining of uranium-containing ore bodies.
- Attended Queensland Resource Council Operators Forums at Toowoomba and Emerald to ensure two-way communication between the mines inspectorate and mine operators continues.
- Attended and assisted at Queensland Mines Rescue Competitions at North Goonyella Mine, Cook Colliery and Gregory Crinum Mine.
- Ran a series of seminars throughout key mining communities in collaboration with the Queensland Police Service State Drug Investigation Unit. The theme for the seminar series 'Don't undermine your workmates' safety' focused on contemporary drug-related issues relevant to the safety and health of mine workers. The seminars were conducted in each of the regional mining centres and consisted of a number of presentations by officers of the State Drug Investigation Unit with a panel discussion at the end of each seminar involving the presenters, mines inspectors and a relevant union representative. The seminars were designed to provide stakeholders with an awareness of traditional, as well as new and emerging drugs that are currently available and distributed through the illicit drug industry in mining communities and to mineworkers. Discussion also focused on the drugs' effects on individuals and the indicative signs and symptoms of an individual who is affected by drugs. The seminars commenced in 2012 - 2013 and ran into 2013 - 2014.
- Facilitated Electrical Awareness Seminars on behalf of the IQA.
- Appeared as an Expert Witness - Coronial hearing - Foxleigh fatality - May 2014.

Refer to Appendix 2 for a full list of training undertaken in 2013-14.



## Looking ahead: the Queensland Mines Inspectorate's strategic priorities

### Safety and health management systems

The management of safety and health management systems (SHMS) continues to be an issue and needs to improve so that they are site specific, effectively implemented, actively used and referenced by all employees to encourage leadership and vigilance at all levels.

The Mines Inspectorate is also concerned that SHMSs are developed but not get implemented. The Mines Inspectorate considers that one of the reasons for this situation arising in metalliferous mines and quarries is because operators do not comply, either at all or on a regular basis, with their obligation to audit the effectiveness and implementation of the SHMS at their sites.

The Mines Inspectorate intends to survey metalliferous mines and quarry operators to find out who is conducting SHMS effectiveness audits and how frequently they are being done. The information gained from the survey will be submitted to the Mining and Quarrying Safety and Health Advisory Committee for consideration as to the effectiveness of the current legislation. The survey information will also be used to provide the basis for an auditing program of operator's audits and to identify where corrective action is required to encourage operators to comply with this particular obligation.

### Management of contractors

As mentioned earlier in this report, the 2013-14 period was a disturbing year in terms of fatalities across Australia with 16 fatalities recorded. Contractors were over-represented in this grim statistic. The auditing and inspecting of contractor management systems commenced during 2013-14 in response to these fatalities will continue during 2014-15.

### Management of noxious and flammable gasses in underground coal mines

In addition to the fatality in underground coal in May 2014 where an electrician was overcome by an irrespirable atmosphere, a number of other incidents also occurred at other mines demonstrating that the hazards associated with flammable and noxious gasses are not being effectively managed. The Mines Inspectorate is running ventilation workshops with mine ventilation officers and reviewing the level of competency of statutory officials and others who have responsibility for managing these hazards. A joint ventilation code of practice is being written in conjunction with the NSW Mines inspectorate.

### Statutory officials and their obligations

The level of understanding and application of the legislation by some statutory officials has been a concern to the Mines Inspectorate. In 2013-14, an explosion risk zone controller was prosecuted. This is not the preferred option to achieve compliance with the legislation; however, the safety responsibilities and expectations placed on statutory officials warranted this approach.



## Competency of appointed persons

The Mines Inspectorate has recognised that some persons are being appointed to senior supervisory roles within management structures without the competencies necessary for the function they are performing. A guideline is being developed that outlines how organisations can identify, through a risk management process, the competencies that each person in the management structure should hold. The inspectorate will continue to work with industry to raise the competency standards of individuals whose decision making impacts on safety and health.

## Principal hazard management

The management of principal hazards at mine sites remains a major focus for the Mines Inspectorate. These are hazards that have the potential to cause multiple fatalities, including incidents relating to the management of methane underground and the management of geotechnical risks.

The Mines Inspectorate is developing internal systems to ensure that its resources are efficiently allocated to monitor the management of principal hazards across the mining industry.

The Mines Inspectorate is also bench marking against NSW with regard to the competencies that open cut statutory officials should hold to effectively manage geotechnical hazards.

## Emergency response and post-incident management

The investigation into the Pike River mine disaster in New Zealand provided an opportunity for the Mines Inspectorate to review the emergency response systems and post-incident management capability of Queensland mines. This has been ongoing throughout 2013-2014.

The Mines Inspectorate has audited the ability of coal mines to be sealed after an incident and found issues in relation to some mines being compliant with the legislation. Corrective actions have been carried out by these mines which has resulted in an improvement in industry's ability to deal with emergencies

The annual level 1 emergency exercise continues to be used as a test of current practices at Queensland underground coal mines. The improvement opportunities identified in each level 1 emergency exercise are made available to industry and agencies that work with DNRM to respond in an emergency situation. The Mines Inspectorate will be auditing mines to determine how widely improvement opportunities identified in the level 1 emergency exercises have been adopted.

## Management of polymeric strata support materials

The Mines Inspectorate has identified issues associated with the safe storage, transport and use of polymeric products used for ground consolidation purposes. There are currently no consistent standards within Queensland to govern the use of these hazardous materials.

The Mines Inspectorate is working with industry and the NSW Mines Inspectorate to develop a recognised standard to ensure the safe application of polymeric compounds in the mining industry.



## Proximity detection

The uptake of collision-avoidance equipment, incorporating proximity-detection and warning systems on mobile equipment as an engineering control within the sector is progressing. The Mines Inspectorate will continue to monitor emerging technology and where suitable encourage its use in mining operations.

## Interaction of pedestrians and light vehicles with front end loaders in surface mines and quarries

Due to their speed, manoeuvrability and limited operator visibility front end loaders continue to be hazardous to pedestrians or light vehicles that are in their vicinity.

Consequently, during 2013-14 the Mines Inspectorate issued *Safety Bulletin 135 Pedestrian and light vehicle interaction with loaders at surface mines and quarries* which made recommendations to reduce the risk. These included designation and delineation of front end loader operating areas, with a mandatory requirement for the loader to cease operations whenever a pedestrian or light vehicle enters and remains within these areas. The use of proximity-detection and collision avoidance technology was also recommended.



Light vehicles in surface mines and quarries

During 2014-15, the Mines Inspectorate will continue to monitor the response to the recommendations while inspecting surface metalliferous mines and quarries.

## Fitness for work

The effectiveness of the QGN16 *Fatigue Risk Management Guidance Note* was reviewed and assessed in consultation with industry in 2013-14. There will be ongoing consultation with key stakeholders to ensure effective fatigue management practices are developed and implemented. The Mines Inspectorate worked with the Queensland police to facilitate drug awareness workshops across the mining industry in 2013-2014. The focus of the workshops was to highlight emerging trends in synthetic drugs abuse and to develop strategies to deal with these issues.

## Small mines initiative

The Small Mines Initiative continues to be a priority for the Mines Inspectorate. Inspections and audits of small operations indicate that SSEs continue to need support and training to implement effective SHMSs in their operations. In 2014-15 the Mines Inspectorate will continue to run workshops to meet this need.

For the gem and opal sector, the Mines Inspectorate will continue to run workshops on an as-needs basis on developing basic safety and health management systems and the fundamentals of risk management. The Mines Inspectorate is continuing development work on the gem and opal mining guidance note.



## Electrical safety at surface metalliferous mines and quarries

There was a low level of awareness and understanding of electrical hazards in small mines and quarries so since the beginning of 2012, the Mines Inspectorate developed and delivered electrical safety awareness workshops for SSEs and supervisors. These will continue on an as needs basis along with delivery of a modified version of these workshops as toolbox talks to workers at mines and quarries during 2014-15. The Mines Inspectorate also intends to further disseminate to industry the practical guide *Working safely with electricity field book*, developed in conjunction with the IQA.

Many electricians employed as contractors at small mines and quarries have a domestic electrical background, rather than an industrial electrical background. The Mines Inspectorate intends, again with assistance from the IQA and industry representatives, to develop a more comprehensive handbook for electricians and electrical supervisors during 2014-15.

## Conveyor safety at surface metalliferous mines and quarries

Despite issuing *Safety Alert 291 Fatality on a mine site* following a fatality in June 2012 where a young worker was killed when he became entangled in a conveyor, the Mines Inspectorate continues to identify ineffective or inadequate guarding of conveyors.

To assist in raising awareness about conveyor safety, the Mines Inspectorate in conjunction with the IQA and industry representatives have developed and published a conveyor safety field guide for SSEs, supervisors and workers which will be disseminated to metalliferous mines and quarries during 2014-15.

## Exploration safety guidance

The *Minerals Exploration Safety Guidance Note*, last updated in 2004 is being reviewed and revised by a small team of Mines Inspectorate officers and experienced exploration industry representatives. After publication in the first quarter of 2015, the review team will present the new document to the industry in a series of workshops.

## Mining face risk reduction in underground metalliferous mines

Rock falls at development mining faces, where mining crews interact closely with the exposed unsupported rock is an ongoing issue. Following on from the industry workshops held in 2012-13 the information gathered has been collated and converted into a guidance note which will be published towards the end of 2014.

## Understanding drill and blast practices at surface metalliferous mines and quarries

With more and more surface metalliferous mines and quarries outsourcing their drill and blast activities to contractors, there is a need to ensure that SSEs and supervisors are aware of the hazards and risk controls required for safe drilling and blasting activities. To support SSEs and supervisors, the Mines Inspectorate and the Queensland Explosives Inspectorate are developing a one day blast awareness training course. A pilot training course will be run for mines inspectors in 2014 which will then be used as the basis for the industry course to be rolled out in 2015.



## Managing exposure to diesel engine exhaust in underground metalliferous mines

During 2014-15, the Mines Inspectorate intends to conduct an audit of each underground metalliferous mines to assess how exposure to diesel engine exhaust is being managed using *QGN21 Management of diesel engine exhaust in metalliferous mines* as a reference.



DPM filters being prepared for analysis at Simtars

## Managing naturally occurring radioactive material during exploration, mining and processing activities

The Mines Inspectorate is continuing to develop guidance material to ensure that the radiation hazards from naturally occurring radioactive material, including uranium, is consistent across the mining life cycle (exploration, mining and processing operations) associated with metalliferous mining. To achieve this QGL 1 *Management of naturally occurring radioactive material (NORM) in metalliferous mine* was published in August 2014.

This will be followed by auditing of uranium exploration sites and other mines where NORM is a hazard using QGL 1 as a reference.

## Next of kin notification and ongoing briefings

Based on the 2012 coronial recommendations on next of kin notification, a draft guidance note was circulated to the Mining Safety and Health Advisory Committee and the Coal Mining Safety and Health Advisory Committee.

The committees determined that a guidance note was not warranted and that the desired outcome could be achieved by alternative means. This will be achieved in the short term via a directive to industry, and in the longer term, by inclusion of a provision in the respective regulations to address next of kin notification within the SHMS.



## Managing the risk of operating on-highway trucks on metalliferous mines and quarries

A high potential incident occurred in January 2014 on the ramp of a large surface mine involving the loss of braking and subsequent roll over of an on-highway agitator truck. The incident has again highlighted the hazards involved in operating on-highway trucks in an off-highway environment involving sustained travel down ramps.

During the last half of 2014, the Mines Inspectorate will audit metalliferous mines and quarries where on-highway trucks are being operated on ramps to assess whether their systems are managing the risks to an acceptable level.

During the first quarter of 2015, the Mines Inspectorate will also run workshops with on-highway truck OEMs and appropriate metalliferous mines and quarry representatives to discuss the limitations of the various on-highway trucks in off-highway situations. They will also explore potential controls that can be introduced to assist mine workers to better manage the risks. It is intended that representatives from the Department of Transport and Main Roads will also be invited to participate.

The output from these workshops will form the basis of a guideline on the operation of on-highway trucks in off-highway situations and assist the Mining Safety and Health Advisory Committee to assess the adequacy of Section 10 of the Mining and Quarrying Safety and Health Regulation in addressing operation of on-highway trucks at metalliferous mines and quarries.

## Managing the risk of shaft construction hazards

Shaft construction at metalliferous mines is a high risk activity. There is no guidance material for contractors and clients to inform them about the hazards of shaft construction and how to manage the associated risks. There is a strong reliance on the Mines Inspectorate for advice and guidance.

The Mines Inspectorate intends to produce a guideline for industry on shaft construction during 2014-15 with input from relevant industry stakeholders.

## Fatal hazard focused structured inspection guides

Since the introduction of the current mining and quarrying legislation in 1999, there have been 21 fatalities at metalliferous mines and quarries. These fatalities have broadly resulted from the following hazards categories which also predominate in HPIs:

- Falls (workers from height, fall of equipment or fall of equipment/material onto workers) - 11
- Collisions (of equipment and/or of equipment with workers) - 5
- Uncontrolled pressure release (tyre failures) - 2
- Entanglement (of workers in equipment) - 2
- Fire – 1

The Mines Inspectorate intends to develop structured inspection guides for use at metalliferous mines and quarries focusing specifically on these individual hazards which will be incorporated into the mines inspection planning system.

## Providing advice to the Minister on mine health and safety matters

As required by the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*, the Commissioner provides advice to the Minister on mine health and safety matters.

In undertaking this role, the Commissioner met regularly with the Honourable Andrew Cripps MP, Minister for Natural Resources and Mines, and/or his ministerial staff.

The Commissioner kept the Minister fully apprised of all important safety and health matters and provided independent advice on legislative reviews and policy issues relevant to the administration of Queensland's mining legislation.



**Aquila Colliery: Mine exploration trials using a prototype intrinsically safe Unmanned Aerial Vehicle (UAV)**  
L-R: Damian Cavanagh (Anglo American employee), Tilman Rasche (Senior Inspector), Stewart Bell (Commissioner for Mine Safety and Health) and Lance Munday (CSIRO)

## Mining and coal mining safety and health advisory committee meetings

The Coal Mining Safety and Health Advisory Committee and the Mining Safety and Health Advisory Committee were established to give advice and make recommendations to the Minister about promoting and protecting the safety and health of people at coal mines and metalliferous mines and quarries.

Union, industry and the Mines Inspectorate are represented on both committees. The Coal Mining Safety and Health Advisory Committee include members from the CFMEU, Electrical Trades Union, the QRC and the Mines Inspectorate. The Mining Safety and Health Advisory Committee are comprised of members from the Australian Workers' Union, Australian Manufacturing Workers' Union, the Queensland quarrying industry, the QRC and the Mines Inspectorate. In 2013-14, both committees made significant contributions to improving the safety standard at all mines and quarries detailed in Tables 1 and 2.

**Table 1: Coal Mining Safety and Health Advisory Committee meetings and key achievements for 2013-14**

Meeting number	Date
60	25 September 2013
61	11 December 2013
62	19 March 2014
63	11 June 2014

### Achievements

**Consultation Regulatory Impact Statement:** The committee debated the Regulatory Impact Statement, including proposals on statutory positions, election of site safety and health representatives, changes to numbers and powers of Industry Safety and Health Representatives, and refocussing the Coal Mine Workers Health Scheme. The committee heard that a total of 246 submissions were received by the end of 2013 as part of the Regulatory Impact Statement process facilitated by the Queensland Competition Authority Office of Best Practice Regulation. The committee was addressed by the Minister regarding his expectations of their advisory role in the consultation process.

**Guidance Note QGN 16 Fatigue Risk Management:** Six months after publishing QGN16 in February 2013, the chair wrote to industry seeking feedback on its effectiveness, whether changes are needed, and how it is being used. The committee has commenced evaluating what changes need to be incorporated.

**Polymeric chemicals:** The Mines Inspectorate continued examining mechanisms to control the use of polymeric chemicals and commenced consultation with industry.

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**Innovation and legislation:** Coroner Hennessy, in her inquest into the death of Mr Jason Blee, recommended that manufacturers of coal mining machinery and stakeholder groups investigate whether the regulations and regulatory bodies governing modification to design of machinery are unnecessarily prohibiting or delaying the implementation of innovation within the reasonable time frames. In response to this, the committee chair wrote to mining manufacturers asking if they believed that innovation was being prohibited or delayed by mining safety and health legislation. From the detailed comments and replies received, the committee concluded that manufacturers do not believe that the legislation restricts innovation.

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**Updated recognised competencies:** The committee recognised updates to the brake testing competencies for all coal mines, which became mandatory on 1 January 2014.

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**Codes of Practice subcommittee:** The committee convened a tripartite Codes Of Practice subcommittee, whose role included the work of reviewing and making recommendations on national codes of practice.

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**Code of Practice on Emergency Response:** The committee began drafting a *Code of Practice on Emergency Response for coal mines*.

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**Table 2: Mining Safety and Health Advisory Committee meetings and achievements for 2013-14**

Meeting number	Date
39	26 September 2013
40	12 December 2013
42	20 March 2014

### Achievements

**National Mine Safety Framework:** Regular and comprehensive updates were provided to the committee at each meeting on the progress of the National Mine Safety Framework. The committee heard that a total of 246 submissions were received by the end of 2013 as part of the Regulatory Impact Statement process facilitated by Queensland Competition Authority Office of Best Practice Regulation. Work around the National Mine Safety Framework continues. A number of suggestions were made about the submission of mine plans. While already embedded in existing legislation, a separate cross-agency working group has been formed to facilitate strengthening the existing processes.

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**Diesel Engine Exhaust Management Guideline:** The committee held a workshop and joint advisory committee meeting on diesel particulate matter in November 2013 then published *QGN21 Management of diesel engine exhaust in metalliferous mines* in January 2014.

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**Noise and hearing loss:** A draft guidance note on noise management was tabled for comment by the committee. The final document is expected to be published in early September 2014 following feedback on the final draft.

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**Supervisor qualifications and competencies:** Discussion around supervisors training and competencies continued during the year. The conversation was supported by team members presenting their organisations 'best practice' processes towards training, educating and supporting supervisors in their activities. Supervisor qualification and competency requirements formed part of the earlier mentioned Regulatory Impact Statement and are yet to be resolved.

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**Naturally occurring radioactive materials:** A draft guidance note on naturally occurring radioactive materials was produced during the period and provided to the committee for feedback. The final regulatory approach and the review and approval of guidance materials will be the subject of upcoming committee meetings.

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**Synthetic drugs:** Following six synthetic drug seminars being conducted by the Queensland Police Service in regional mining centres, the committee is keen to maintain a degree of vigilance over the issue, specifically over the possibility of using Field Sobriety Testing as a tool for assessing fitness of mine workers.

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**Next of kin notification:** A draft guidance note – *Next of Kin Notification* has been prepared following a workshop conducted in November 2012 by the Deputy Chief Inspector of Coal Mines. This guidance note was thought to be adaptable to the metalliferous sector; however, subsequent discussions at both committees favoured this issue being dealt with through a Directive, issued by the respective Chief inspectors.

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**Site safety and health representative information:** Site Safety and Health Representatives in combination with a site safety and health committee, supported by management, mine workers and contractors are an important element in maintaining an effective safety and health management structure at a mine site. To facilitate a better understanding of the role, a draft guidance note summarising key aspects of the role, was prepared during the year. The final document is expected to be published in late 2014.

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**Safe work at face:** A guidance note covering safety when working near a mines' face was drafted during the year, it is expected to be published in the first half of 2014-15.

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**Committee strategy and direction:** A number of discussions occurred during the period concerning strategy and direction of the committee. One meeting included a forum with Professor Sidney Dekker from Griffith University. While no specific direction was taken, there was support to be more aware of industry trends and the effectiveness of controls.

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## Health Improvement and Awareness Committee

The Queensland Mining Health Improvement and Awareness Committee (HIAC) was established in 2008 to assist industry anticipate, identify, evaluate and control health hazards in the mining environment.

Union, industry and the Mines Inspectorate are represented on the committee. HIAC met four times during the year: on 24 October 2013, 11 December 2013, 13 February 2014 and 12 June 2014. At the December meeting the committee reviewed membership of the committee and priorities for 2014

After consultation with the Commissioner for Mine Safety and Health, HIAC appointed a representative for Mining Contractors (Ms Bronwen Otto) as a full member. HIAC also changed the membership to ensure balanced representation of the core occupational health technical skills of occupational medicine/nursing, occupational ergonomics, and occupational hygiene as well as ensure coverage of metalliferous, quarrying and coal sectors.

### *HIAC seminar*

The Commissioner also endorsed the DNRM sponsorship of the HIAC seminar on Fatigue and Mental Health 7 May 2014. This seminar was attended by close to 60 people, representing quarrying, exploration, coal and metal sectors in Queensland. The seminar was opened by Paul Harrison, Acting Commissioner for Mine Safety and Health. Dr Lesley van Schoubroeck, the Queensland Mental Health Commissioner gave an overview. Other keynote speakers included:

- Dr Jennifer Bowers, Australasian Centre for Rural and Remote Mental Health
- Robyn Considine, University of Newcastle
- Dr Naomi Rogers, University of Sydney
- Professor Lee Di Milia, University of Central Queensland
- Liam Wilson, Rio Tinto Coal Australia.

The HIAC priorities for Queensland mining until mid-2015 are listed below.

### *Airborne dust*

Significant work by the Mines Inspectorate has included a number of dust monitoring surveys being undertaken for respirable crystalline silica exposure in a number of Queensland quarries and mines. The results of this assessment work will help mine management utilise new technology and better work practices to reduce respirable dust exposure.

### *Noise*

Noise is a physical hazard that affects mineworkers in all mining sectors in Queensland (underground coal and metalliferous, surface coal and metalliferous, quarries and exploration). The Mines Inspectorate continues to receive a very high number of notifications of permanent disability each year due to noise-induced hearing loss.

### *Mental health*

The mental health working party organised the Fatigue and Mental Health Seminar (see above). The members sought input from attendees at the seminar and began progressing towards a mental health toolkit for mining and quarrying.





### ***Health effects of shiftwork***

Updates on the health effects of shift work, and the role of health issues on shift worker health was the focus of a Mines Inspectorate presentation at the February 2014 HIAC meeting.

### ***Musculoskeletal disorders***

A number of initiatives between the Mines Inspectorate and the mining sector have been undertaken, and HIAC has recently formed relationships with QComp and Workcover Queensland to promote good practice. HIAC will address musculoskeletal disorders during 2014-2015.

### ***Ultraviolet /solar radiation***

The Mines Inspectorate continued to monitor the research and effective risk management of ultraviolet/solar radiation.

### ***Diesel particulate matter***

HIAC held a meeting on DPM, which included presentations from Professor Zoran Ristovski (Queensland University of Technology) and Phil Berriman (Safemine Engineering).

Significant work in underground coal includes a DPM working group of the Coal Mining Safety and Health Advisory Committee that meets regularly. The Mines Inspectorate presented a review of all coal underground exposures for the period of 2012 at the DPM Steering Committee meeting in July 2013, and at the HIAC meeting in October.

DNRM published *QGN21 Management of diesel engine exhaust in metalliferous mines* in January 2014 (see Published material).

### ***Heat***

The Mines Inspectorate presented its research findings on comparing the current heat indices used in mining workplaces at the HIAC meeting in June 2014.

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## **Reviews of the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999***

The national mine safety reforms started as an initiative of the Conference of Chief Inspectors of Mines from all jurisdictions. The reforms then became one of 27 Council of Australian Governments reforms under the National Partnership Agreement to Deliver a Seamless National Economy.

A strategy under the mine safety reforms is to develop a nationally consistent legislative framework. Public comment on the Consultation Regulatory Impact Statement closed on 11 November 2013. A total of 246 submissions were received, many of which were very detailed.

Queensland is retaining most of its current mine safety legislation unchanged. The changes that are proposed are intended to achieve greater consistency with New South Wales and Western Australia with respect to:

- practising certificates for statutory safety positions;
- explosion suppression for underground coal mines;
- improved contractor management;
- streamlining the elections of site safety representatives; and
- industry concerns about drugs, alcohol and fatigue in the workplace.

The Regulatory Impact Statement contains discussion about a confidential complaints system for reporting safety issues as recommended by the Queensland Ombudsman.

Many of the proposed amendments would still be progressed irrespective of the national process, because they address some of the strategic priorities of the Mines Inspectorate, based upon current concerns, and add further rigour to the existing safety framework.

The public comment on the proposals in the Regulatory Impact Statement is currently being analysed and considered before recommendations are put to government for deliberation.

Part 7 of the *Statutory Instruments Act 1992* prescribes the automatic expiry of subordinate legislation after 10 years. The *Coal Mining Safety and Health Regulation 2001* and the *Mining and Quarrying Safety and Health Regulation 2001* are to be reviewed and remade through a review project commencing in early 2015 with proposed completion by mid-2015.



## Safety and health regulation

The Mines Inspectorate collects accident and incident data from Queensland mines and quarries that are subject to the provisions of the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*. This information allows the Mines Inspectorate and industry to assess and benchmark safety and health performance. The data also informs the Mines Inspectorate of:

- legislative changes needed to reduce accident and incident rates; and
- areas of concern that need to be targeted, highlighted and assessed.

A measure of an open and efficient safety and health management system and an empowered workforce is the number of high potential incidents reported. The Mines Inspectorate encourages reporting of high potential incidents because this allows the industry and the Mines Inspectorate to learn from these incidents and work to prevent injuries and fatalities.

Due to differences in reporting requirements and data entry dates between the *Commissioner for Mine Safety and Health Annual Performance Report* and the *Queensland Mines and Quarries Safety Performance and Health Report*, all statistical data on safety performances will now only be published in the annual *Queensland Mines and Quarries Safety Performance and Health Report*, which can be accessed on DNRM's website.

## Published material

### Guidance notes

QGN 21 Management of Diesel Engine Exhaust in Metalliferous Mines. January 2014.  
<http://mines.industry.qld.gov.au/safety-and-health/guidance-notes.htm>

### Recognised standards

Available at  
<http://mines.industry.qld.gov.au/safety-and-health/standards-policies-directives-letters.htm>

### Safety alerts

Safety Alert 300 Failure of Normet Charmec carrier basket tilt cylinder. 8 October 2013  
Safety Alert 301 Access between primary and secondary escapeways. 31 January 2014  
Safety Alert 302 Report raises concerns about false mine training qualifications. 6 February 2014  
Safety Alert 303 Imported electrical equipment standards. 15 April 2014  
Safety Alert 304 Fatal accident in an irrespirable atmosphere. 12 May 2014  
<http://mines.industry.qld.gov.au/safety-and-health/mines-safety-alerts.htm>

### Office of the Commissioner for Mine Safety and Health

Safety Alert 5 2013-14 Shaping up to be a dangerous year for mining contractors. It doesn't have to be. 26 February 2014  
<http://mines.industry.qld.gov.au/safety-and-health/mines-safety-alerts.htm>

### Safety bulletins

Safety Bulletin 134 Review of Queensland underground coal mines' stone dust application and sampling and analysis of roadway dust  
Safety Bulletin 135 Pedestrian and light vehicle interaction with loaders at surface mines and quarries  
Safety Bulletin 136 Mine and quarry electrical installation design expectations  
Safety Bulletin 137 Storm season is coming – Get Ready!  
Safety Bulletin 138 Employee injured while working in remote location  
Safety Bulletin 139 Risk management of high pressure fluids and gases  
Safety Bulletin 140 Drowning hazards in open excavations  
Safety Bulletin 141 Deep vein thrombosis (DVT) and operating mobile equipment  
<http://mines.industry.qld.gov.au/safety-and-health/mines-safety-bulletins.htm>

## Serious accidents and high potential incidents

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for January 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for February 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for March 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for April 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for May 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for June 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for July 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for August 2013

Serious accidents and high potential incidents – Mining and Quarrying Compilation of reports for September 2013

<http://mines.industry.qld.gov.au/safety-and-health/accident-incident-reports.htm>



**Commodore Mine: Mineworker isolating his machine for an inspection**

## Our staff

### Recruitment and retention activities

All coal mine inspectors (mining) are required to hold statutory certificates of competency. As such, the department has continued to recruit people, with relevant experience that will be able to obtain Queensland statutory certification in a short period of time. In this way, we will ensure the correct level of competence and numeric strength to continue regulatory inspection at an effective level, particularly with respect to underground coal mines.

We, as the mine safety and health regulator, are working diligently to ensure sufficient suitably qualified individuals will continue to be available, so that the mining industry can maintain sustainable growth within the regulatory requirements to maintain world's best practice in safety and health.

**Table 3: Positions supporting the activities and functions of the Queensland Mines Inspectorate**

Unit	Location	Positions	
		Title	Number
Queensland Mines Inspectorate	Central Region: Rockhampton District	Manager, Safety and Health	1
		District Inspector of Mines	1
		Inspector of Mines (Electrical)	2
		Inspector of Mines	5
		Principal Investigation Officer	1
		Inspection Officer (Mechanical)	1
		Administration Officer	1
		Administration Officer (part time)	2
	Central Region: Mackay District	District Inspector of Mines	1
		Senior Inspector of Mines (Electrical)	1
		Inspector of Mines (Coal)	2
		Inspector of Mines	1
		Inspector of Mines (Mechanical)	1
		Inspector of Mines (Mining)	1
		Senior Inspector of Mines	1
		Inspector of Mine (Occupational Hygiene)	1
		Inspector of Mines, Occupational Health (Senior Principal Ergonomist/Principal Human Factors Adviser)	1
		Principal Investigation Officer	1
	North Region: Townsville District	Administration Officer	2
		Manager Safety and Health	1
		Senior Inspector of Mines	1
		District Inspector of Mines	1
		Inspector of Mines (Mechanical)	2
		Inspector of Mines (Small Mines)	1
		Inspector of Mines (Metalliferous)	1
		Senior Principal Occupational Hygienist	1
		Principal Investigation Officer	1
District Workers' Representative	1		
Administration Officer	1		



Unit	Location	Positions	
		Title	Number
	North Region: Mount Isa District	District Inspector of Mines	1
		Inspector of Mines (Electrical)	1
		Inspector of Mines (Chem/Metallurgical)	1
		Inspector of Mines (Geotechnical)	1
		Inspector of Mines (Metalliferous)	1
		Inspector of Mines	1
		Inspection Officer (Mechanical)	1
		District Workers' Representative	1
		Administration Officer	1
	South Region	Regional Inspector of Mines	1
		Inspector of Mines (Electrical)	1
		Inspector of Mines (Mechanical)	1
		Inspector of Mines (Small Mines)	1
		Inspector of Mines	1
		Inspection Officer	2
		Principal Investigation Officer	2
		District Workers' Representative	1
		Administration Officer	1
	Head Office Inspectorate	Chief Inspector of Mines	1
		Chief Inspector of Coal Mines	1
		Deputy Chief Inspector of Coal Mines	1
		Deputy Chief Inspector of Coal Mines (Technical)	1
		Executive Assistant	1
		Senior Inspector of Mines (Chemical/Metallurgical)	1
		Senior Inspector of Mines (Electrical)	1
		Senior Inspector of Mines (Occupational Hygiene)	1
		Senior Inspector of Mines	1
		Senior Inspector of Mines (Coal)	1
Health Surveillance Unit	Head Office	Director Health Surveillance	1
		Senior Statistician	1
		Senior Project Officer	1
		Occupational Physician (part-time)	1
		Senior Occupational Health Advisor	1
		Administration Officer	1
		Administration Officer (Medical Records Officer)	3
Board of Examiners	Head Office	Secretary, Board of Examiners	1
		Administration Officer	1



Unit	Location	Positions	
		Title	Number
Directorate	Head Office	Commissioner for Mine Safety and Health	1
		Deputy Director-General Safety and Health	
		Executive Director Statewide Operations	1
		Director Statewide services	1
		Executive Assistant	1
		Director Policy and Coordination	1
		Principal Finance Officer	1
		Principal Project Manager	1
		Principal Advisor	1
		Project Officer	1
		Senior Project Officer	1
		Principal Project Officer (part-time)	1
		Training Officer	1
		Executive Officer	1
		Levy Manager	1
		Levy Administration Officers	2
		Senior Administration Officer	1
Finance Officer (part-time)	1		
Lotus Notes Developer	1		

**Note:** The positions listed in this table are restricted to those directly aligned with or who support the functions and activities of the Mines Inspectorate. However, the Directorate positions also provide the same support for the Explosives Inspectorate and the Petroleum and Gas Inspectorate.

## Appendix 1: Workshops, seminars, conferences, presentations 2013-14

Inspectors from the Mines Inspectorate travelled across the Queensland and interstate to deliver presentations, workshops and seminars to share information about the Mines Inspectorate's work with industry, interstate regulators and others interested in improving safety and health in the mining industry. These are detailed in Table 4 below.

**Table 4: Presentations given by Mines Inspectorate staff 2013-14**

Date	Audience	Topic	Presenter/s	Location
9-12 July 2013	IQA Presidents	Institute of Quarrying International Presidents Meeting	Wayne Scott	New Zealand
23 July 2013	SSEs, Mine Supervisors and Safety Personnel	Small Mines Refresher	Wayne Scott & Deon Esterhuizen	Chinchilla
24 July 2013	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Darra
26 July 2013	Site Personnel Dundowran Quarry	Electrical Awareness	Lionel Smith	Dundowran
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference Pike River Mine Disaster – What went wrong	Stewart Bell	Townsville
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference Guidance Note for Diesel Engine Exhaust Management	Jack Farry	Townsville
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference - DPM and At-Risk SEGs - What the Monitoring Data Can Tell Us	Fritz Djukic / Greg Manthey	Townsville
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference - Evidence based health risk assessment	Trudy Tilbury	Townsville
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference Porgera Mine Explosion 2 <sup>nd</sup> August 1994	Andrew Clough	Townsville
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference - Health and Safety Regulation of Naturally Occurring Radioactive Materials (NORM)	Ian Ellison	Townsville
18-21 August 2013	Mining Industry	Queensland Mining Industry Health and Safety Conference - Fit for purpose tyre maintenance equipment and management practices for non-earthmover vehicles	Tilman Rasche	Townsville

Date	Audience	Topic	Presenter/s	Location
28 August 2013	SSEs, Mine Supervisors and Safety Personnel	Small Mines Refresher	Wayne Scott & Deon Esterhuizen	Roma
September 2013	Mining Industry	14th Australian Coal Preparation Society	Stewart Bell	Dalby
03, 09 September 2013	Production Crews – Sibelco North Stradbroke Island	Electrical Awareness for Managers and Supervisors	Lionel Smith	North Stradbroke Island
11 September 2013	Mining Industry	Diesel Particulate Matter – Queensland current status for DPM management	Bruce McKinnon	NSW
01 October 2013	Mt Isa Inspectors	Electrical Awareness	Lionel Smith	Mt Isa
13 October 2013	Mining Industry	Australian National Radiation Dose Register Workshop - The New Queensland Code and Guidance Documents on NORM Safety and Health Standards – A Simplified, Risk-based Approach to Control at Mine Sites	Ian Ellison	Cairns
21 October 2013	Site Personnel Barro Group	Electrical Awareness	Lionel Smith	Wyndham Vale
23-25 October 2013	Mining Industry Registered Training Organisations	Resources RTO Association 2nd Annual Conference - Keynote Address: Would training have prevented the Pike River Mine disaster?	Paul Harrison	Coolum
22-25 October 2013	Mining Industry Registered Training Organisations	Resources RTO Association 2nd Annual Conference – Right Answer Wrong Question	Trevor Brown	Coolum
29-30 October 2013	ERZ Controllers Carborough Downs Mine	Stonedust Sampling	Neil Randolph	Moranbah
05-07 November 2013	Mining Industry Electrical Personnel	NSW Mining Electrical Safety Seminar	Lionel Smith	Sydney
19 November 2013	Site Personnel Maryborough Quarry	Electrical Awareness	Lionel Smith	Maryborough
20-21 November 2013	Hanson Quarry Managers & Supervisors	Electrical Awareness for Managers and Supervisors	Lionel Smith	Brisbane
27 November 2013	SSEs, Mine Supervisors and Safety Personnel	Small Mines Refresher	Wayne Scott & Deon Esterhuizen	Warwick

Date	Audience	Topic	Presenter/s	Location
18-19 December 2013	ERZ Controllers Broadmeadow Mine	Stonedust Sampling	Neil Randolph	Moranbah
21 January 2014	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Toowoomba
28 January 2014	SSEs, Mine Supervisors and Safety Personnel	Small Mines Refresher	Wayne Scott	Rockhampton
12-14 February 2014	Mining Industry	2014 Coal Operators' Conference - Pike river royal commission outcomes	Paul Harrison	Wollongong
18 February 2014	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Orange
20 February 2014	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Canberra
24 February 2014	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Shellharbour
26 February 2014	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Maitland
04 March 2014	South Region Petroleum & Gas Inspectors	Electrical Awareness	Lionel Smith	Brisbane
12 March 2014	SSEs, Mine Supervisors and Safety Personnel	Electrical Awareness for Managers and Supervisors	Lionel Smith	Ballina
10-11 April 2014	ERZ Controllers	Stonedust Sampling	Neil Randolph	Redbank Plains
23 April 2014	Small Mines and Quarry Operators	9 <sup>th</sup> Quarrying and Small Mines Safety and Health Seminar - 2013 Incidents	Hermann Fasching	Townsville
23 April 2014	Small Mines and Quarry Operators	9 <sup>th</sup> Quarrying and Small Mines Safety and Health Seminar - Realising Fact From Fantasy	Steve Firth	Townsville
20 May 2014	Hanson Quarry Maintenance Supervisors	Electrical Awareness	Lionel Smith	Surfers Paradise
26-27 May 2014	ERZ Controllers Moranbah North Mine	Stonedust Sampling	Neil Randolph	Moranbah
28-29 May 2014	ERZ Controllers North Goonyella Mine	Stonedust Sampling	Neil Randolph	Moranbah

<b>Date</b>	<b>Audience</b>	<b>Topic</b>	<b>Presenter/s</b>	<b>Location</b>
30 May 2014	Mining Industry	Risk 2014 Conference - Too close for comfort: the case for proximity detection and vehicle collision avoidance systems	Tilman Rasche	Brisbane
11 June 2014	Mining Industry	The AusIMM International Uranium Conference 2014 - The New Queensland Code and Guidance Documents on NORM Safety and Health Standards - A Simplified, Risk-based Approach to Control at Mine Sites	Ian Ellison	Perth
11 June 2014	Mining Industry	12th Annual Quarrying Safety and Health Seminar - Opening address	Paul Harrison	Brisbane Convention Centre
11 June 2014	Mining Industry	12th Annual Quarrying Safety and Health Seminar – Mines Inspectorate - Focus-	Phil Goode	Brisbane Convention Centre
11 June 2014	Mining Industry	12th Annual Quarrying Safety and Health Seminar - Contractor Management -	Lionel Smith	Brisbane Convention Centre
11 June 2014	Mining Industry	Annual Safety and Health Seminar Unauthorised site access	Wayne Scott	Brisbane Convention Centre
15 June 2014	Mining Industry	Diesel Particulate Matter - Queensland current status for DPM management	Bruce McKinnon	Western Australia




## Appendix 2: Training and professional development 2013-14

As a regulator, the Mines Inspectorate's role is to ensure acceptable safety and health standards are established and practised within the mining and quarrying industries and to enforce compliance. The Mines Inspectorate relies on its inspectors to carry out audits, investigations and inspections to monitor and enforce compliance. As such, inspectors need to be highly skilled and to have a thorough understanding of issues facing the industry. To this end, the Mines Inspectorate requires its inspectors to undergo continuing training and development to ensure their skills and knowledge are kept current and relevant. The courses and training programs undertaken by inspectors in 2013-14 are given in Table 5.

**Table 5: Courses undertaken by inspectors from the Mines Inspectorate 2013-14**

<b>Courses undertaken by mines inspectors in 2013-14</b>
Apply first aid
Apply spontaneous combustion management plan
Certificate IV training and assessment
Code of conduct and ethical decision making (QG)
Collect routine site samples in underground coal mines
Complaints management
Leadership in practice (QG)
Electrical awareness
Establish and maintain the risk management system
Establish effective workplace relationships
Evaluate workplace legislation compliance
Give evidence
Lead investigator training – Human Factors
Lead investigator training – ICAM
Investigate possible breaches of workplace legislation
Lead auditor OHS management systems
Manage conflict
Manage major incidents and emergencies
Operate and maintain a four wheel drive vehicle
Operate vehicles in the field
Outburst awareness
Participate in the investigations of incidents
Perform CPR
Principal investigations officer induction - conducting records of interviews



<b>Courses undertaken by mines inspectors in 2013-14</b>
Apply first aid
Principal investigations officer induction – electronic investigations manual
Principal investigations officer induction – evidence handling
Principal investigations officer induction – initial incident response
Principal investigations officer induction – official notebooks
Report writing skills
Safe and effective blasting
Sealing plans
Stone dust sampling in underground coal mines
Supervise and carry out complex inspections and monitoring
Tactical communication skills
Use complex workplace communication strategies
Work safely at heights
Workplace health and safety
Your ethical compass



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