

minesafe

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Government of Western Australia
Department of Mines and Petroleum
Resources Safety

Measuring safety reform progress

BEWARE MOZZIE BITES

ADDRESSING MINING
SAFETY AND HEALTH
CULTURE ISSUES

ELECTRICAL SAFETY IN
WET WEATHER

Results of 2010 Baseline Perceptions Survey of Resources Safety Stakeholders

02

05

06



24



29



31

CONTENTS

DEPARTMENTAL NEWS

- 02 Measuring safety reform progress
- 03 Working on PHMPs
- 04 SRS progress

DIVISIONAL NEWS

- 05 Investigating new challenges
- 06 Industry priorities identified at workshop
- 08 Updates on the menu

SIMON SAYS

- 09 Focus is on operational planning

LEGISLATIVE AND BOARD NEWS

- 10 DMP legislative program as at 24 June 2011
- 11 Oral exams for mine surveyors
- 12 National harmonisation

DANGEROUS GOODS SAFETY

- 14 Warning on exploding jerry cans
- 16 Finetuning shottfiring licensing requirements

PETROLEUM AND GEOTHERMAL ENERGY SAFETY

- 17 Guides to assist operators

SAFETY AND HEALTH CULTURE

- 18 Addressing mining safety and health culture issues
- 20 Australian Centre for Rural & Remote Mental Health

OCCUPATIONAL HEALTH

- 24 Beware mozzie bites
- 25 Goals set for DPM underground

SAFETY ALERTS AND GUIDANCE

- 28 Recent releases
- 29 Electrical safety in wet weather
- 30 On guard at all times

INDUSTRY ACTIVITIES

- 31 Tap into MiningFM
- 32 Emergency response comes to Perth in December
- 33 Stepping up for safety success
- 34 Chamber recognises safety innovation
- 36 Local quarry receives gold hard hat

2011 SURFACE MINE EMERGENCY RESPONSE COMPETITION

- 38 Competition celebrates a century

SAFETY AND HEALTH REPRESENTATIVES

- 44 Representatives gather in Fremantle
- 45 Add this survival guide to your family bookshelf

INDUSTRY PERFORMANCE

- 46 Geotech shake-up

CRUNCHING THE NUMBERS

- 47 Monthly mining workforce
- 48 Monthly exploration workforce
- 49 Distribution of safety and health representatives as at 30 March 2011

SIGNIFICANT INCIDENT REPORTS AND SAFETY BULLETINS

- 50 *Mines Safety SIR 168*
Pressure release blows blanking plate off dozer tilt cylinder



- 51 *Mines Safety SIR 169*
Suspension component ejected under high pressure during maintenance – fatal accident
- 53 *Mines Safety SIR 170*
Gold room explosion – integrated pressure strip electrowinning (IPSE) circuit failure
- 55 *Mines Safety SIR 171*
Fatality after fall from cantilevered scaffold platform
- 56 *Mines Safety Bulletin 95*
Ventilation standards in underground mines
- 58 *Medical Bulletin 6*
Mosquito-borne diseases
- 60 *Petroleum Safety SIR 01/2011*
Hand injury sustained during tong jaw change-out
- 61 *Petroleum Safety SIR 02/2011*
Worker permanently disabled after being struck by falling handrail

- 64 RESOURCES SAFETY CONTACTS

Welcome to the first issue of *MineSafe* for 2011. It has been a while since the last issue, but I am sure it was worth the wait. Much of Resources Safety's attention over the past six months has focused on implementing the operational improvements planned under the RADARS strategy, as well as maintaining a flow of information and guidance material responding to industry needs. The safety regulator has committed to supporting industry to recognise and make the cultural changes necessary for improved safety performance.

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The mining community has also been active, and this issue features emergency response competitions, industry awards, and a website to help mining families. Resources Safety is proud to support and recognise these important industry activities.

Your attention is drawn to warnings about the dangers of jerry cans, mosquito-borne diseases and underground diesel exhaust emissions; a reminder about electrical safety in wet weather; and the safety alerts reproduced at the back of each *MineSafe*.

As always, enjoy your reading.

Malcolm Russell
Executive Director, Resources Safety



MEASURING SAFETY REFORM PROGRESS

To establish a robust baseline against which to measure safety reform progress, the Department of Mines and Petroleum commissioned an independent survey of stakeholders in the mining and petroleum sectors, and major hazard facility operators.

The baseline survey specifically addressed:

- the importance of the roles of a safety regulator and how well Resources Safety performed those roles;
- the perceptions of Resources Safety's performance when working with industry to reduce the likelihood and consequences of serious incidents; and
- the perceptions of the value that various initiatives from Resources Safety would add to clients' safety outcomes.

The survey also sought industry's view of its own performance in achieving "a proactive, consultative safety culture" and how advanced it is in having the attributes of a resilient safety culture.

The research results have been reviewed by Resources Safety and were presented to the Ministerial Advisory Panel at its 27 April 2011 meeting.

Action plans have been developed to address concerns raised in the survey that are not already being addressed as part of the safety reform process.

The industry survey will be conducted biennially to provide ongoing evaluation of safety reform progress. Perceptions should become more positive if Resources Safety's strategies are working.

The baseline survey report is available at www.dmp.wa.gov.au/SafetyReform



WORKING ON PHMPS

On 27 April 2011, the Ministerial Advisory Panel set up as part of the safety reform process approved the formation of a new Principal Hazard Management Plans Working Group.

Safety Reform Consultant, Bob Hirte, leads the group. Mr Hirte was General Manager Health and Safety – Iron Ore at Rio Tinto but is currently on a 12-month secondment with Resources Safety to support the reform process. The other members are occupational health and safety (OHS) professionals from small, medium and large companies within industry, as well as representatives from unions and the safety regulator.

Principal hazard management plans (PHMPs) are a key component of the national OHS harmonisation process, and the aim of the Working Group is to support their implementation in the mining sector. PHMPs are developed for any hazard that has the potential to cause multiple fatalities or recurrent single-fatality accidents. The plans identify the risks and control measures, and assess the adequacy of those controls. Under national OHS harmonisation, some principal hazards will be prescribed but there will also be a duty to identify site-specific hazards, assess their risks and, where necessary, develop PHMPs.

The PHMP Working Group held its first meeting on 15 June 2011. The group plans to:

- identify and review the top-ranked principal hazards for mining in Western Australia;
- review the national guidance material;
- determine whether additional resources are required; and
- run a workshop showing how the guidance material can assist operations to implement PHMPs.

SRS PROGRESS

The Department of Mines and Petroleum's Safety Regulation System (SRS) is building steadily on early functionality comprising:

- online submission, workflow and tracking of injury, occurrence and monthly status notifications;
- online submission, workflow and tracking of project management plans; and
- Mines Safety and Inspection Levy notices of assessment.

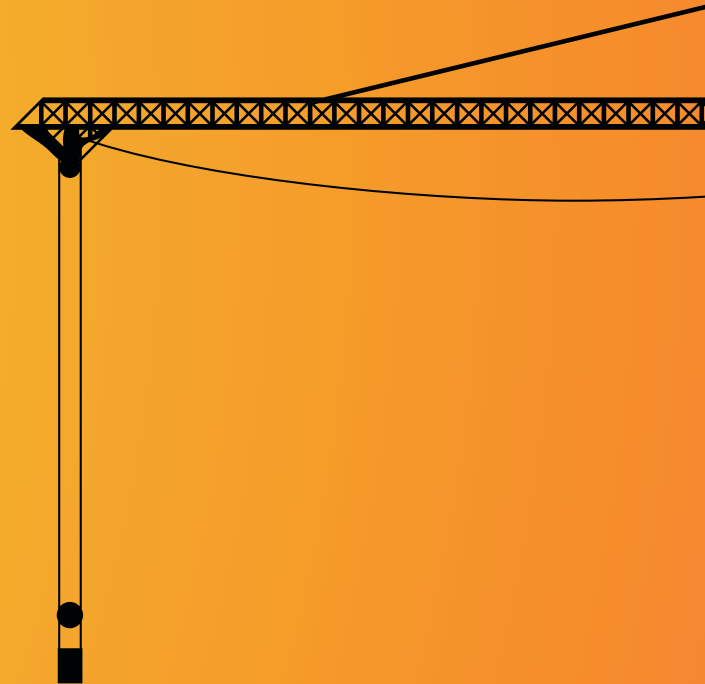
SRS Release 3 went live in May 2011 with the key deliverables being the online submission, workflow and tracking of:

- seismic event and underground fall of ground occurrence notifications; and
- radiation management plans.

The key deliverables in the next SRS release in July 2011 focus on the Department's operational needs.

Plans for increased and improved functionality in 2011-12 include the online submission, workflow and tracking of:

- notifications under the *Dangerous Goods Safety Act 2004* and regulations; and
- occurrence notifications for tailings storage failure and surface fall of ground.



Safety Regulation System





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“MANY OF THESE INVESTIGATIONS SOUGHT TO IDENTIFY THE ROOT CAUSES OF MACHINERY FAILURES AND INCIDENTS RELATED TO HEALTH AND SAFETY. THE FORENSIC EXAMINATION OF SAFETY FAILURES IS A CRITICAL FACTOR IN IMPROVING SAFETY OUTCOMES ACROSS THE INDUSTRY.

COLIN BOOTHROYD

”

INVESTIGATING NEW CHALLENGES

The recent recruitment campaign to build capacity at Resources Safety has been successful in attracting Dr Colin Boothroyd to accept the role as head of the new Investigations Branch.

Colin is a metallurgical engineer and has worked in a variety of technical and production management roles across a range of industries. Before joining the Department of Mines and Petroleum in March, he provided a forensic engineering and failure investigation service through a specialist engineering consultancy for clients in the Western Australian mining, oil and gas and related industries. Part of this work involved failure investigations and being called as an “expert witness” for legal cases.

“Many of these investigations sought to identify the root causes of machinery failures and incidents related to health and safety. The forensic examination of safety failures is a critical factor in improving safety outcomes across the industry,” he said.

In his newly created role as General Manager Investigations, Colin's initial focus is on the mining industry. He is reviewing practices and procedures under the State's current safety laws and identifying changes likely to flow from the harmonisation of occupational health and safety laws across Australia. Another important task will be training and mentoring for inspectors to ensure a consistent, high-quality outcome for all investigations conducted by Resources Safety.

Colin said that he was enjoying the challenge of developing a leading practice investigation team by putting in place the right processes, protocols and resources, and recruiting the right people.

OPERATION OF THE INVESTIGATION BRANCH

The Investigations Branch will coordinate the Division's investigative and enforcement functions in close liaison with the three operational Branches (Mines Safety, Petroleum Safety and Dangerous Goods) but will not necessarily conduct all investigations. However, the investigations team will review all reports prepared by, or on behalf of, operators and determine what further action is required by the safety regulator.

Technical staff within the Investigations Branch will be appointed as inspectors under all statutes administered by Resources Safety so they can investigate complex incidents and accidents across the safety regulator's jurisdiction. Such investigations will usually be done in conjunction with inspectors or officers from the relevant operational branch.

The investigation of serious and potentially serious incidents and accidents will be based on competent examination of systems of work and detailed engineering analysis. This is consistent with the approach adopted by the world's leading safety regulators. The primary objective is not about finding fault, but to ascertain the root cause of failure and, in the case of fatalities, to provide expert technical advice to the Coroner. The secondary objective is to determine the effective actions required to prevent a recurrence and improve industry safety outcomes.



INDUSTRY PRIORITIES IDENTIFIED AT WORKSHOP

The inaugural industry workshop to discuss the safety reform process and safety initiatives for mines safety was held on 8 April 2011 at Mineral House.

The workshop, hosted by Resources Safety, was organised to obtain industry input regarding priority safety initiatives for the regulator. The workshop recommendations were considered by the mines inspectorate when developing its 2011-12 operational plan.

Workshop participants included representatives from small to large companies and industry associations, safety and health representatives, executive officers, and senior mine inspectorate staff.

The workshop was opened by the Director General Richard Sellers. After several short presentations to set the scene so participants could better understand the safety regulator's role, the majority of time was spent in structured discussions with a professional facilitator. The outcomes are summarised below.

WHAT IS GOING WELL?

- There is a commitment across the board to better safety outcomes.
- Many operators are adopting a risk management approach.
- There is cooperation and information sharing across industry, including contractors.
- The "blame culture" is diminishing.
- There is an improved commitment and contribution from the mines inspectorate.
- There is increased accountability within organisations.

- There is an investment in people.
- There is support from Government and the Minister for Mines and Petroleum.
- Awareness of importance of occupational health and safety (OHS) is increasing in senior management.
- The perception of safety is moving from it being considered a burden to being viewed as an opportunity.
- Safety has become a primary focus for the industry.

WHAT NEEDS OUR ATTENTION?

- Clarity about what the "road map" for mines safety looks like, and the need for face-to-face information sessions on what is on the horizon (particularly with the approach to national OHS harmonisation)
- Clarification of the relationship between Resources Safety and WorkSafe and other safety regulators, and the application of responsibilities.
- Issues related to mobility of the workforce across State boundaries and differences in jurisdictions.
- Issues related to the multiplicity of jurisdictional responsibilities for single sites (e.g. ports).
- Empowerment and support of safety and health representatives.
- Development of safety awareness culture throughout industry.
- Dealing with the short timeframe for implementation of the national OHS legislation.
- Clarity regarding safety requirements over the life cycle of operation.
- Issues related to the variability of workplace culture across industry and State (one size doesn't fit all).



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- Career opportunities for safety and health representatives to join inspectorate.
- Adequacy and consistency of industry induction and training processes.
- Over-use of acronyms leading to difficulty for mobile and new workforce, and loss of meaning.
- Consistency of safety requirements for contractors who work for number of companies or sites.
- Operations' knowledge (at all levels) of risk management tools.
- Consistency of inspectorate approach, technical knowledge required, and need to focus on outcome.
- Operations' knowledge (at all levels) of legislation and responsibilities.
- Inspectorate to focus on safety systems.
- Use of risk management to address the plateau in industry safety performance.

SPECIFIC QUESTIONS

The attendees were divided into five groups to consider specific questions:

- How should the regulator respond to serious (non-fatal) incidents?
- How can the regulator help you address risks at the worksite?
- Do audits by the safety regulator work? What would strengthen the effectiveness of the safety regulator?
- How can safety and health representatives operate to best effect? Is the worksite role of the safety and health representative adequately supported and recognised?
- What capabilities and capacities are required for the future?

OUTCOMES

The outcomes from the workshop were summarised by the facilitator, George McCullagh.

The key messages from the situational assessment were:

- Dialogue is essential, with the first steps being taken at the workshop – opportunities to continue discussion and involvement in planning
- OHS harmonisation – stakeholders need information
- Critical role of safety and health representatives – how to strengthen role and impact on site
- Transparency required – information, audit program and best practice
- Competency and consistency of inspectorate activities is essential
- Visibility of operating plan – address strategic and operating issues (next 12 months and longer term).
- The key messages from the five working groups were:
- Principles of risk management are being implemented but may need support
- Build an effective regulatory organisation
- Agreed direction required
- Safety and health representatives – support their role and ensure accessibility to inspectorate
- Develop a resilient safety culture from boardroom to frontline, regulator to industry, employer to employer – and recognise champions.



UPDATES ON THE MENU

Want to know what is happening in occupational health and safety regulation of mining, onshore petroleum, geothermal energy and dangerous goods in Western Australia?

Rather than monitor multiple Resources Safety web pages, we have made it easy for you.

Sign up to Resources Safety's email alert service and you will receive the latest news about our publications, safety alerts, events and safety reform progress.

Just visit www.dmp.wa.gov.au/ResourcesSafety and look for the "news alert" invitation. Follow the instructions and you will receive a weekly email listing the changes on selected web pages.



WHAT ARE YOU BEING FED?

A web feed (or news feed) is a data format used to provide users with frequently updated content. Content distributors syndicate a web feed, allowing users to subscribe to it.

RSS (Rich Site Summary or Really Simple Syndication) is a mechanism for delivering and receiving changing web content. An RSS feed provides users with a list of current items in a summary format so you can scan the headlines and see which ones you want to follow up. You only go to the originating website when you click on the item, just like you would for a normal link.

The latest news from the Department of Mines and Petroleum is available as an RSS feed. Just go to www.dmp.wa.gov.au and click on the orange icon to subscribe.



FOCUS IS ON OPERATIONAL PLANNING

Using information from the industry workshop on 8 April 2011 and input from the mines inspectorate teams, a 25-point operational plan has been prepared for mines safety regulation over the next financial year.

The 2011-12 operational plan also includes the development of structured approaches to key industry issues through the work of focus groups and inspectorate teams using evidence-based risk management methodologies.

Eleven focus groups have been established covering:

The plan addresses:

- development, introduction and likely impact of nationally harmonised occupational health and safety (OHS) legislation;
- enhancements to the electronic interface between the inspectorate and its stakeholders;
- establishment of leading practice compliance programs;
- establishment of specific programs for safety and health representatives;
- consultation with stakeholders on engagement and intervention strategies;
- enhanced information and educational programs for stakeholders;
- understanding individual site's hazards and risk profile; and
- maintenance of the required skillset within the inspectorate.

- Safety and Health Representatives
- Mechanical Engineering
- Electrical Engineering
- Mining – Underground
- Mining – Open pit
- Mineral Processing
- Geotechnical
- Health and Hygiene
- General OHS (including construction)
- Automation
- Mining Safety and Health Culture.

Each focus group has identified key priorities and, over the first six months to December 2011, will formulate the inspectorate's safety compliance strategies using a project management approach. The aims are to establish a consistent framework for the inspectorate's work across the State, and achieve relevant and effective outcomes from operational activities.

DMP LEGISLATIVE PROGRAM AS AT 24 JUNE 2011

MINES SAFETY LEVY REGULATIONS

The Minister for Mines and Petroleum, Norman Moore, has endorsed recommendations made by the Ministerial Advisory Panel on Best Practice Safety Regulation to amend the Mines Safety and Inspection Levy Regulations 2010.

In response to issues raised through a series of industry briefing and feedback sessions held in July 2010, a working group comprising representatives from industry, unions and the regulator was established to review the regulations and recommend improvements. The amended regulations were gazetted on 21 June 2011.

An amendment has also been gazetted to increase the levy fee from \$0.125 per hour worked to \$0.18 per hour worked (i.e. increased fee from 12.5 to 18 cents per hour worked). The new fee will take effect from 1 July 2011.

DANGEROUS GOODS SAFETY

Resources Safety continues to progress a raft of amendments to reduce the regulatory burden and streamline administrative processes associated with the dangerous goods safety legislation. Amendments to the Storage and

Handling of Non-explosives, Explosives, and Security Risk Substances Regulations are in the final stages of drafting, with completion anticipated within the next few months.

The licensing structure for dangerous goods sites in Western Australia is also about to be overhauled, and amendments will include the introduction of a cost recovery regime for the regulation of dangerous goods safety. Three sets of regulations will be abolished and the remaining four will be significantly amended. There will also be a move from three-year terms to annual licensing, as allowed by recent amendments to the regulations, in preparation for the licensing changes.

PETROLEUM AND GEOTHERMAL ENERGY SAFETY LEVIES

The Department of Mines and Petroleum is developing legislation to enable the imposition of safety levies to pay for the cost of regulating occupational safety and health under the State's suite of petroleum legislation. Drafting has commenced on the Petroleum and Geothermal Energy (Safety Levies) Bill 2011, to be followed by drafting of a set of supporting regulations.

HIGH RISK WORK LICENCES – REMINDER

Surface workers at mining operations are reminded that a licence is now required for all high risk work such as scaffolding, rigging work, and operating cranes, hoists, forklifts and pressure equipment.

Those undertaking high risk work underground have until 20 July 2011 to obtain their licence.

For further information, visit the licensing section at www.dmp.wa.gov.au/ResourcesSafety

ORAL EXAMS FOR MINES SURVEYORS

To support national consistency in the certification of mine surveyors, Western Australia's Mines Survey Board has agreed to implement an Oral Examination for all applicants.

The new approach will enable those who have successfully completed an application for a Grade 1 or Grade 2 Mine Surveyor's Certificate of Competency in Western Australia to apply for mutual recognition in Queensland and New South Wales with ease.

The Oral Examination will comprise:

- submission of a set work portfolio;
- submission of a set of standard mine plans; and
- an interview conducted by a panel of peers.

The Oral Examination will be piloted over the next 12 months to allow candidates adequate preparation time and for any issues to be addressed.

SET WORK AND MINE PLANS

The Board has recommended the submission of a portfolio of work from the applicant.

Other material to be submitted will include standard mine plans showing the core components necessary to satisfy the regulatory requirements for a mine plan submitted to the Department of Mines and Petroleum. The submitted mine plans must be verified as the applicant's work by the Senior Surveyor for the mine at which the applicant completed the task.

INTERVIEW

The interview will be one hour, with the applicant examined orally on items such as the legislative requirements, standard surveying tasks that they have completed and everyday surveying scenarios for the grade of certificate they have applied for.

EXAMINATIONS

Initially, interviews will be conducted biannually over two days in Perth and Kalgoorlie. Once the process is established, other venues may be added.

The schedule for interview dates will be advertised on the Resources Safety website, and applicants will be given at least one month's notice of their Oral Examination date.

The mine plans and any other requested material will be submitted with the application in electronic form, and hard copies presented at the interview.

SECOND EDITION OF MINES SURVEY CODE OF PRACTICE NOW AVAILABLE

The second edition of the mines survey code of practice can be downloaded from the publications section of the Resources Safety website, or request a hard copy by emailing your postal details to RSDComms@dmp.wa.gov.au

The revisions include:

- updated information regarding the submission of mine plans to the State Mining Engineer and contact details;
- a reference to Australian Standard AS 4368:1996 *Mine plans – Preparation and symbols*;
- the addition of underground electrical isolation points to the list of items required for the emergency plan; and
- improved readability.



FORGED CERTIFICATE RESULTS IN FINE

A man who provided forged documents so he could work as a quarry manager in the Pilbara has been fined \$1,000. He pleaded guilty to acting as a quarry manager without holding the required certification, and was fined in Perth Magistrate's Court on 10 December 2010.

In early 2010, the man was employed as a quarry manager at a site in the Pilbara. The fraud was uncovered when the company notified the Department of Mines and Petroleum of the man's appointment, which is standard procedure. The notification included the forged documents.

A check of departmental records indicated such a certificate had never been issued to the man so an original of the certificate was requested. The man admitted he did not have the original and that he was not the holder of the necessary certification to be appointed as the quarry manager. He resigned and left the company.

State Mining Engineer Simon Ridge said that the competency of supervisors and managers was critical to the safety of employees.

"We require the highest standards for all managers to ensure sites are operating as safely as possible," he said. "This kind of deception cannot be taken lightly."

Mr Ridge said that the Department has a range of processes in place to ensure managers and supervisors have the qualifications legally required to perform their duties.

"Anyone attempting to forge documents required as a part of their employment in the resources industry will be caught out," he said.

"Individuals taking such actions can irreparably damage their chances of future employment in the industry and, in a worst-case scenario, endanger lives."

NATIONAL HARMONISATION

The following article overviews the current state-of-play for national harmonisation of occupational health and safety (OHS), and what is happening for mines OHS in Western Australia.

NATIONAL MODEL WORK HEALTH AND SAFETY LEGISLATION

In July 2008, the Council of Australian Governments (COAG) agreed to the harmonisation of work health and safety laws by signing an Intergovernmental Agreement for Regulatory and Operational Reform in OHS (IGA).

The IGA also provided for the establishment of Safe Work Australia, a body to progress the development and implementation of the model work health and safety laws. In April 2009, the Workplace Relations Ministers' Council (WRMC) endorsed the creation of Safe Work Australia.

The draft model Work Health and Safety Act (WHS Act) was released for public comment in September 2009. It was endorsed by WRMC in December 2009, and the final version of the model WHS Act was published by Safe Work Australia in November 2010.

The draft model WHS regulations and model codes of practice were released for public comment, which closed on 4 April 2011.

The model work health and safety laws consist of the model WHS Act, supported by model WHS regulations and model codes of practice. Each State and Territory is required to pass its own laws that mirror the model work health and safety laws and adopt them by December 2011.

NATIONAL MODEL MINES WORK HEALTH AND SAFETY LEGISLATION

The National Mine Safety Framework (NMSF) was an initiative of the Ministerial Council on Minerals and Petroleum Resources (MCMPR), whose aim was to achieve a nationally consistent occupational health and safety regime for the Australian mining industry.

The initiative was endorsed by the MCMPR in March 2002

and re-endorsed in November 2005 with the establishment of a tripartite Steering Group supported by the NMSF Secretariat.

INTERACTION BETWEEN THE NMSF AND NATIONAL OHS HARMONISATION

The goal for the NMSF is to achieve national consistency. This will be realised through ensuring consistency with the outcomes of the national review and the model OHS legislation being developed by Safe Work Australia.

The NMSF Steering Group is primarily focussed on areas specific to the mining industry and developing drafting instructions for legislation that is consistent with and complements the model OHS legislation.

The NMSF Secretariat works closely with Safe Work Australia regarding the implementation of the NMSF, to ensure consistency and a collaborative approach to OHS reform.

The NMSF Steering Group developed a set of drafting instructions for all jurisdictions to adopt either in the form of regulations under the model WHS Act or through stand-alone or complementary legislation and regulation.

In May 2010, the MCMPR agreed that the drafting instruction for mining OHS matters to be addressed in regulations under the model WHS Act would be transmitted to the MRMC to enable Safe Work Australia to incorporate the provisions into the model WHS regulations.

To provide a nationally consistent approach to mine safety, Ministers also endorsed a process for developing further provisions by the three major mining jurisdictions, Western Australia, Queensland and New South Wales, for mining-specific OHS issues not addressed under the model WHS Act. The MCMPR intends for the outcomes of this additional legislative process to come into force at the same time as the model WHS Act and regulations on 1 January 2012.

In terms of mines safety legislation, Western Australia, Queensland and New South Wales will continue to maintain separate legislative frameworks for mining operations and all other workplaces.



How national OHS harmonisation will work in Western Australia

WARNING ON EXPLODING JERRY CANS

This story serves as a sobering reminder to anyone contemplating keeping a jerry can of petrol in their car.

In late 2010, a woman sustained very serious burns when her station wagon blew up in a small outback town in Western Australia. There were some plastic jerry cans in the rear of the vehicle and petrol vapours had escaped in the heat of the day. Not realising this, she had climbed into the vehicle and lit a cigarette, igniting the vapours.

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This was the start of an extremely traumatic experience for the woman. For some unknown reason, the vehicle's central locking system activated. People ran to help but couldn't get her out of the burning car and she was still trapped inside when the jerry cans exploded.

The force of the explosion was so great that the front windscreen landed on the roof of a nearby building and the back windscreen landed on the other side of the highway. The bitumen under the car melted.

The heat forced back the would-be rescuers but they kept encouraging her to get out. Somehow she managed to escape from the vehicle, but not before suffering third degree burns to her legs. Her arms were burned as well and she sustained flash burns to her face. The car parked next to hers also caught alight and blew up.

That night, the Royal Flying Doctor Service flew her to the Burns Unit at Royal Perth Hospital. It took several weeks for her to recover sufficiently to be released from hospital. In the March 2011 issue of the local newspaper in her town, she said that her greatest wish was for others to not go through the same trauma. She and her family have experienced physical, emotional and financial stress as a result of the accident.



Photo courtesy Alison Fox

SIMPLE RULES FOR TRANSPORTING FUEL

- **Do not** carry petrol in the passenger compartment of a vehicle.
- If you cannot transport fuel externally and it must be carried in the car boot, reduce the risk of an explosion by using an **approved fuel container** with a **hermetically sealing lid** complying with Australian Standard AS/NZS 2906:2001 *Fuel containers – Portable – Plastics and metal*.

DID YOU KNOW?

The lower explosive limit (LEL) of petrol is a concentration in air of 1.4% (or 14,000 parts per million). An explosion will occur in the presence of an ignition source if the petrol vapour concentration exceeds 1.4% but is less than 7.6%. It might be expected that such high concentrations would smell very strongly but the Meekatharra incident shows that people are not always alert to the dangers of petrol vapours.

Diesel fuel is much safer and has a much higher flash point than petrol. It will not explode unless the ambient temperature exceeds 60°C.



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FINETUNING SHOTFIRING LICENSING REQUIREMENTS

From 1 November 2011, conditions will be placed on shotfiring licences specifying the types of activity that the licence authorises, such as:

- all surface operations outside of town boundaries;
- all surface operations inside and outside of town boundaries;
- all underground operations except underground coal operations; and
- all underground coal operations.

Also from 1 November 2011, all shotfirer course providers must be a registered training organisation (RTO) accredited to deliver the national units of competency for blasting (RIIBLA).

RENEWING SHOTFIRING LICENCES PRIOR TO 1 NOVEMBER 2011

The process for renewing a shotfiring licence prior to 1 November 2011 remains unchanged. Applicants receive a licence renewal application from the department within three months of the licence expiry date.

Note: Expired licences cannot be renewed.

RENEWING SHOTFIRING LICENCES FROM 1 NOVEMBER 2011

From 1 November 2011, applicants must demonstrate to the Chief Officer that they are competent in the type of

activity for which they want to be licensed. This is done by providing a statement of attainment for the relevant units of competency. For example, a shotfirer intending to perform surface blasting outside of town limits must provide a statement of attainment from an RTO for the surface blasting units of competency (RIIBLA205A, RIIBLA301A and RIIBLA305A).

It is not necessary to arrange refresher training until six months prior to a shotfiring licence expiring as the statement of attainment is only valid for this period of time. Applicants will need to demonstrate to the training provider, through both theoretical and practical assessments, that they are competent in the units of competency for the type of shotfiring they will be conducting. Recognition of prior learning will be part of the assessment.

For all subsequent renewals, shotfiring licence applicants must obtain a statement of attainment from an RTO (within six months of the expiry date of the licence) demonstrating that they have the relevant competencies.

Resources Safety's website contains a list of organisations that deliver shotfirer training. From 1 November 2011, the Department will only accept statements of attainment issued by appropriately accredited training providers.

NEED TO KNOW MORE?

Further information is available in the dangerous goods safety information sheet on requirements for renewal of shotfiring licence, available on the Resources Safety website.

GUIDES TO ASSIST OPERATORS

To assist industry in understanding and implementing the legislative requirements that apply to pipeline, petroleum and geothermal energy operations, a suite of information sheets on occupational safety and health (OSH) and the management of safety (MOS) has been produced.

The titles are:

- FAQs on OSH regulations and obligations
- FAQs on managing safety associated with geothermal energy
- FAQs on managing safety associated with petroleum
- Overview of amendments to the Western Australian petroleum legislation
- Overview of management of safety regulations for petroleum and geothermal energy resources
- Overview of management of safety regulations for petroleum pipelines
- Overview of occupational safety and health regulations for petroleum, geothermal energy and pipeline operations.

There is also a guideline on the submission of a petroleum pipeline safety case, describing the requirements for which the licensee is responsible.

These documents are available in the petroleum publications section of the Resources Safety website.



ADDRESSING MINING SAFETY AND HEALTH CULTURE ISSUES

As the State Mining Engineer said in his regular contribution, “Simon says”, one of the key messages from the 8 April 2011 industry workshop was the need to develop a resilient safety culture from boardroom to frontline, regulator to industry, employer to employer — and recognise the champions. This confirms the Government’s safety reform vision of a proactive safety regulator working with industry to create an environment in which “resilient” safety cultures are the norm, with companies, workers and the wider community confident that industry is operating as safely as possible.

Resources Safety is committed to supporting industry as it makes the necessary cultural changes, and has established a focus group to specifically address mining safety and health culture issues. Many factors influence workplace culture, but the group is targeting five main areas where the regulator can facilitate positive outcomes:

- gendered behaviours (i.e. toughness in mining);
- bullying;
- mental wellbeing;
- fatigue; and
- consultation and communication.

Safety and health representatives are also critical to the development of a resilient safety culture, but their particular needs are being addressed by another focus group.

Resources Safety will raise awareness of the issues across industry by:

- publicising leading practice (i.e. champions) in *MineSafe*;
- sourcing and developing practical guidance material and self-assessment (i.e. audit) tools; and
- providing opportunities to gain practical knowledge and share experiences through its annual roadshows.

Traditionally, mining occupational health and safety has centred on engineering and safety management systems, and the “people” part of the safety equation has been somewhat neglected. This is now being redressed and

Resources Safety, through the focus group, is doing its part. The three areas presently receiving attention are described below.

In 2010, Dr Dean Laplonge ran workshops for Resources Safety’s roadshow series, exploring toughness in the workplace. His report on the workshop and recommendations is available from the publications section of the website. With his assistance, the focus group is developing a series of information sheets on gendered behaviours and their effect on workplace culture.

Another project underway at Resources Safety aims to:

- improve the process for handling bullying complaints;
- ensure operators understand the obligation to deal with bullying allegations in the workplace; and
- ensure complainants are aware of what is involved in lodging a complaint and proving a bullying allegation.

Mental wellness is the third area of focus and has traditionally received little attention in the mining industry. However, as in the wider Australian community, mental health issues can significantly affect safety performance and productivity, both directly and indirectly. To paraphrase the World Health Organization’s definition of mental health, a resilient safety culture is best developed and maintained when individuals are able to:

- realise their own abilities;
- cope with the normal stresses of life;
- work productively and fruitfully; and
- make a contribution to their workplace.

To make positive cultural changes will require a serious examination of mental health and practical ways to enhance mental wellness, including where people do not have a diagnosable condition. The Australasian Centre for Rural and Remote Mental Health will be running a workshop session during the 2011 Mines Safety Roadshow series to raise awareness of this topic, and looking at how mental health can be addressed in occupational health and safety policies and practices.

GETTING ORGANISED

The Health and Safety Executive (HSE) is the British government public body with the mission of preventing death, injury and ill health to those at work and those affected by work activities. Its website at www.hse.gov.uk has a wealth of guidance resources that readily cross international boundaries and can be applied or adapted to Australian circumstances.

In particular, anyone wanting to make a difference to the safety culture at their workplace should check out the "human factors" topic, and particularly the organisational culture resources. There is general information as well as briefing sheets, extracts from an inspector's toolkit and other resources under the following headings:

- Managing human failures
- Procedures
- Training and competence
- Staffing
- Organisational change
- Safety critical communications
- Human factors in design
- Fatigue and shiftwork
- Organisational culture
- Maintenance, inspection and testing

If you want to make a difference to the safety culture at your workplace and haven't already checked out the HSE website then take a look, particularly at the organisational culture information. Don't duplicate effort – take what you need and use it!



After widespread consultation with academic, service, community, indigenous, consumer and carer groups and other interested parties, the Centre for Rural and Remote Health was created in 2006 in Cairns, Queensland, to address what still is a critical need – the identification and prevention of, and recovery from, mental health problems in rural and remote regions in Australia.

Although the Centre is based in Cairns, it has been clear to the Board and management for some years that its initiatives, projects and papers are relevant and applicable to rural and remote regions across the country. Interest in the Centre and its work has also been growing, particularly in the resource sector. The name Australasian Centre for Rural and Remote Mental Health (ACRRMH) was adopted to brand the Centre's work outside Queensland.

There are strong affiliations with participants and partners such as the Royal Flying Doctor Service and a number of universities as well as service providers, not-for-profit organisations, business and industry groups, and local, state and federal government agencies, specialists and researchers.

The Centre is currently working with the mining and resources sector and agricultural and indigenous communities, championing preventative and recovery initiatives to advance mental health in rural and remote Australia. As well as its academic and research capability, ACRRMH takes a practical approach, focusing on the delivery of integrated solutions and recovery mechanisms and delivering them in association with its partners and allies.

THE ACRRMH TEAM

Centre CEO Dr Bowers said that the ACRRMH team comprises fully qualified and experienced professionals across the entire range of disciplines required to build capacity and sustain mental health and wellbeing strategies for organisations.

“Our team includes organisational psychologists, clinicians, social psychiatrists, corporate strategists and creative communication specialists. In addition, ACRRMH has a wide range of associates and consultants whose expertise and experience can be drawn upon at very short notice.

“At the Centre, we're taking up the challenge of mental health in the mining resources sector,” she said, “and we'd love to hear from companies who want to stay ahead of the pack.”

Visit www.acrrmh.com.au for more information.



MEET THE CEO

Dr Jennifer Bowers is the Centre's Chief Executive Officer. Her achievements in health and care services, public and private, are widely respected in the mental health community in Australia and internationally.

Dr Bowers is a Fellow of the Australian Institute of Company Directors and was a finalist in the Telstra Business Women's Awards for Innovation in 2010.

She has a first class honours degree in Science and a PhD in Social Psychiatry from the Australian National University. Dr Bowers is also an adjunct Associate Professor at Griffith University and a Professorial Research Fellow at the Cairns Institute at James Cook University.

As CEO of ACRRMH, Dr Bowers is passionate about promoting, developing and implementing innovative responses to the mental health challenges facing Australians who live and work in rural and remote regions.



Photos courtesy Australasian Centre for Rural and Remote Health

EXPLORATION UNEARTHES A FEW FACTS

The Centre has convened two forums focused on mental health in the resources sector. Exploration 1 and Exploration 2 (in Coolom and Perth, respectively) were attended by senior mining executives, mental health professionals, indigenous representatives, government officials, communications experts and researchers from South Australia, New South Wales, Queensland and Western Australia.

“The presentations were fascinating, insightful, instructive and, in some cases, quite confronting. At the Perth forum, Dr David Cutts quoted the Australian Institute of Health and Wellbeing, highlighting that one in five of us in the general population will suffer a mental illness at some point this year,” said Dr Bowers.

“Right now there are 400,000 Australians who need mental health care of some sort,” said Dr Bowers, “and many of these people are out there in rural and remote regions – including in resources.”

“These are staggering figures, and when you consider the economic and social costs and the fact that mental health issues often lead to prison or homelessness or both, it’s clear we are facing a very significant social challenge here.”

MENTAL HEALTH IN THE RESOURCE SECTOR – AN OVERVIEW

Australia’s rural and remote environments, including mining and construction sites can be characterised by incessant and destabilising change, a paucity of services, extreme weather events and the sharp end of climate change.

“Often in rural and remote Australia, extreme weather events escalate into natural disasters. We’ve seen that this year. Regardless of your education and your socio-economic and social status, these natural disasters make existence out there even harder. The mental health impacts of lost lives, homes, crops and livelihoods are hard to imagine by those of us who live in suburban Australia,” Dr Bowers said

Alcohol, tobacco and drug abuse, depression, anxiety, social isolation and the risk of suicide often go unaddressed in favour of other, more mundane things like employment, decent housing and access to medical and education services.

Dr Bowers said that the mental health challenges facing rural and remote Australians are real and potentially more destructive than in metropolitan areas.

“Men, in particular, are at risk as they naturally tend to be stoic. The mining industry, where we’ve been doing work recently, is pretty blokey and macho, and mental health is not really something men talk about,” she said.

WORKING WITH RESOURCE COMPANIES ON MENTAL HEALTH

Following the success of the two “Exploration” forums, the Centre is now working with some far-sighted resource companies, helping them develop sustainable, integrated mental health strategies.

These companies are beginning to realise that incorporating mental health into occupational safety and health policies and practices pays off in terms of productivity and profit.

Dr Bowers said that the Centre’s early work shows that mining employees and their families confront a range of mental health challenges that are common to the sector. She added that it was interesting to note the different approaches companies have taken to the issue of mental health.

“Some mining companies don’t seem to have even given mental health a first thought,” she said.

“But, in contrast, there are companies that are really sitting up and taking notice. They are beginning to address the human and business aspects of mental health on their remote sites.”

MENTAL HEALTH IN AUSTRALIA

- Nearly one in two Australians will experience some form of mental illness at some stage during their life.
- One in five Australians will experience mental illness this year.
- Across Australia – the mining industry employs about 200,000 people directly – so 40,000 of these will experience mental illness this year.
- Mental illness is the largest cause of non-fatal disability of any disease in the country. It is also the biggest illness barrier to workforce participation in the country.
- The annual cost of mental illness in Australia has been estimated at \$20 billion, including lost productivity and labour force participation.
- About 400,000 Australians need some sort of mental health care at this very moment.

FIFO AND OTHER ISSUES

"The fly-in fly-out factor, or FIFO, is emerging as a real issue," Dr Bowers said.

"On one site we spoke with Andy who told us he'd been flying in and out for three years."

*"I've been on FIFO roster for three years now and I can tell you, FIFO stands for something else when you get home. Fit in or f*** off. Fact is, it's hard being at work and hard being home." (Andy)*

Dr Bowers said that long periods of separation from family and friends often lead to a loss of a sense of belonging and a corresponding sense of personal isolation. It is no wonder that family and personal relationships break down.

"I've missed my kids' birthdays three years running and every time I miss one my wife just gets madder with me. She likes the money though. We'll have a fight just before I fly out for my roster and I'll spend the next fortnight wondering if I have a marriage to go home to." (Andy again)

Harsh surroundings, climatic extremes and long periods of intense concentration when a lapse can result in serious injury or death can lead to alcohol and drug abuse – if not on site, then when the employee gets home.

Depression, anxiety, post-traumatic stress disorder, social phobias and substance abuse disorders are sometimes just the tip of the iceberg. And these conditions are as likely to be found in the stay-at-home partner as they are in the FIFO worker.

"We know there's a need for more information and research on mental health in these sectors. The research that currently exists is qualitative and is derived from very small sample sizes compared to the size of the workforce."

Anecdotally, though, the Centre is finding that mental health problems in the mining and resources sector are not confined to any particular age or socio-economic grouping. Professional, skilled and unskilled, everyone is at risk, although men with young families, like Andy, seem particularly vulnerable to the stresses of a FIFO lifestyle.

"Our senior consultant psychologist, Dr Jane Harte, tells us there are some factors that appear to put people at greater risk of developing mental health problems while living and working in remote mining sites," Dr Bowers said.

People with a history of mental illness and adverse reactions to isolation, and people with little or no experience of life outside a city are particularly at risk. Accommodation seems to play a part too. People who live in a caravan park or single men's quarters while on site are more predisposed to mental health disorders. Immigrants, too, seem to be at greater risk.

Dr Bowers said that health workers who work in communities supporting the resources sector need to be on the lookout for symptoms of mental health disorders in both employees and their families.

FIND 'EM, KEEP 'EM – RECRUITMENT AND RETENTION

The skills and labour shortage in the resources sector is well known. There is fierce competition for personnel and, once employees have been recruited, inducted and trained, a lot of time and money goes into retaining them. Unhealthy workplaces don't help.

An unhealthy work environment often arises from a combination of factors including poor leadership, ambiguous job roles, poor training opportunities, a lack of communication, poor problem solving, an unsupportive culture and unsafe working conditions. Clearly, these factors will lead to diminished staff morale, heightened stress and anxiety and staff churn. Also, in under these conditions, productivity and profitability will also be affected.

People will engage with and stay in a job for which they have been appropriately recruited and well trained, in which they have resources available to them when needed, and in which they feel supported by colleagues and management.

How much a worker gets paid is, of course, an important consideration but we also know that people are attracted to the organisations that look after their workforces. Being "looked after" is more than just about pay and conditions. It includes a focus on health and wellbeing and an organisational culture where people feel comfortable talking about things like work-life balance, stresses and mental health.

So how does a company attract and retain a good workforce? And how does the recognition of mental health play into recruitment and retention?

The Centre's senior consultant psychologist, Dr Jane Harte, says that it is not hard but does require understanding and commitment.

"At the outset, staff and management must be willing to engage with each other openly and honestly. Both sides of the equation need to identify company policies and practices that can be adapted to include a mental wellbeing component," said Dr Harte.

- In the recruitment phase, it is important to identify those people who might not be resilient enough to handle the work, the lifestyle and the remote environment.
- Following recruitment, a comprehensive orientation program is critical. It should address the mental health risks honestly and provide resources and pathways for employees who find that they're facing mental health challenges.
- Training, education and development programs on offer should include mental health awareness and mentor training so employees can help others who might be having problems.
- Mental health should be addressed in all standard health and safety policies and practices. It should also be part of an organisation's risk assessment and management framework.
- Employee and manager performance reviews should incorporate a mental health component, as should criteria for promotion – even at the senior level roles.
- Finally, a question or questions should be included in all exit interviews to determine if mental health was a factor in the employee's departure.



**REDUCED
ABSENTEEISM**

**IMPROVED
MORALE**

**HIGHER
PRODUCTIVITY**

THE RIO TINTO DAMPIER SALT LIMITED PILOT PROJECT

Currently, ACRRMH is working with Rio Tinto's Dampier Salt Limited to frame a mental health strategy to pilot over a three-year period from 2011.

Other mental health organisations offer one-off, short-term, generic mental health training and awareness-building programs. These programs are useful but ACRRMH is working with Dampier Salt to build a tailored, comprehensive and fully integrated mental health strategy.

To be successful and productive, a mental health strategy must

- be well-planned;
- have the genuine commitment of the executive management team;
- truly confront all the organisational issues that might contribute to mental health issues; and
- be well communicated across the whole organisation.

In her introduction to the Exploration workshop in September 2010, Dampier Salt's Managing Director, Denise Goldsworthy, confirmed her commitment to the mental health strategy and reminded everyone that the initiatives developed must be incorporated into the organisation and become a robust part of its culture.

The Dampier Salt project aims to bring a more holistic approach to mental health care, to ensure its inclusion in induction and training programs and to integrate mental health into OH&S policies and practices. Expected outcomes are:

- the Dampier Salt workplace will be much more "mental health friendly"

- Dampier Salt employees will be better able to recognise mental health problems in themselves and each other
- Dampier Salt employees will have better access to mental health support when needed.

The Dampier Salt project comprises four phases – Commitment, Consultation, Engagement and Maintenance – followed by a well-defined evaluation and review process.

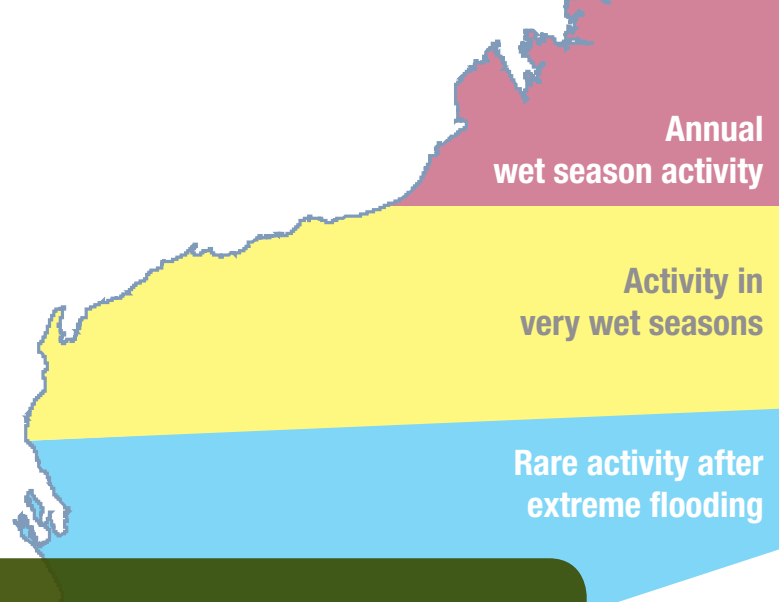
"This pilot project presents a unique opportunity to look at mental health in the mining and resource workforce, and to identify and address organisational issues which might contribute to mental health issues," said Dr Bowers.

"Theoretical knowledge, hard evidence and practical, down-to-earth experiences will be drawn together and the Dampier Salt leadership team and staff are to be commended for their willingness to confront the ramifications of mental health in their workforce and for their strategic approach."

"Equally, there must be a focus on the positive outcomes for all stakeholders. Only then will the understanding, prevention and treatment of mental health issues be seen as integral features on the OH&S landscape," she said.

Companies like Dampier Salt that introduce integrated, sustainable mental health strategies can expect:

- improved morale;
- increased workforce stability with higher retention rates;
- reduced absenteeism;
- increased Indigenous participation and retention;
- improved status as a preferred employer;
- improved risk identification and management;
- better integration of OH&S policies and procedures; and
- improved production and profitability.



BEWARE MOZZIE BITES

The Department of Health has advised people working at Western Australian mine sites, including fly-in, fly-out workers, to take extra care against mosquito bites following new and ongoing detections of activity of Murray Valley encephalitis (MVE) virus and the closely related Kunjin virus.

To late May, six Western Australians had been diagnosed with encephalitis (a serious inflammation of the brain) due to MVE virus infections contracted in northern and central Western Australia this season. One person died.

Department of Health Medical Entomologist Sue Harrington said that the Department's surveillance program (undertaken by The University of Western Australia) had detected activity of the rare, but potentially fatal, MVE and Kunjin viruses in the Kimberley, Pilbara, Gascoyne, Goldfields, Midwest and central Wheatbelt regions, indicating that virus activity was likely to be widespread.

"Murray Valley encephalitis virus and Kunjin virus are carried by mosquitoes. While the risk of being infected and becoming unwell is low, the illnesses can be severe and people should take sensible precautions to avoid mosquito bites," Ms Harrington said.

"In some locations, mosquito numbers are quite low, but it is still important to take precautions," she said.

"Initial symptoms of MVE include fever, drowsiness, headache, stiff neck, nausea and dizziness and people experiencing these symptoms should seek medical advice quickly. In severe cases, people may experience fits, lapse into a coma, and may be left with permanent brain damage or die.

"In young children, fever might be the only early sign, so parents should see their doctor if concerned, particularly if their child experiences drowsiness, floppiness, irritability, poor feeding, or general distress.



Culex mosquito ©1999 Richard C. Russell

"Kunjin virus usually causes milder illness than MVE virus but, in rare cases, it also causes severe symptoms, including headache, neck stiffness, fever, delirium and coma."

Ms Harrington said that anyone experiencing these symptoms should seek medical advice quickly.

In addition, cases of Ross River and Barmah Forest virus diseases continue to be notified in people from across much of the State.

"The illnesses caused by Ross River and Barmah Forest viruses are similar, with symptoms including painful joints, aching muscles, lethargy, fever, headache and skin rashes, and symptoms may last from days to months.

"There are no specific cures or vaccines for any of these mosquito-borne diseases so it is very important that people take care to prevent being bitten by mosquitoes."

With the assistance of the Department of Health, Resources Safety has released Medical Bulletin No. 6 *Mosquito-borne diseases*, which includes guidance on how to avoid mosquito bites.

GOALS SET FOR DPM UNDERGROUND

Industry data collected by Resources Safety over the last two years indicates that it is reasonably practicable for underground mines to achieve compliance with the recommended exposure standard for diesel particulate matter (DPM) in underground mines of 0.1 mg/m³. Unfortunately, many sites are not achieving this goal. In response, Resources Safety is undertaking an awareness and compliance campaign.

Although the recommended exposure standard is relatively new, diesel engine emissions have been regulated for many years. Part 10, Division 4 (Diesel units) of the Mines Safety and Inspection Regulations (1995) outlines specific controls in relation to gaseous and smoke emissions from diesel engines. Technical innovations and developments in more recent years mean that compliance with the standards is achievable.

While there is no single strategy available to reduce DPM exposure, local, national and international experience indicates that successful DPM management programs take a holistic approach addressing a broad range of contributing factors. Successful strategies target diesel engine emissions and the transmission of DPM throughout the underground environment, and reduce personal exposure.

For example, emission control strategies consider:

- purchase of low-emission engines (i.e. computerised engine management systems);
- matching engine and transmission to the intended workload;
- emissions testing (including baseline monitoring);
- engine maintenance (including injector maintenance, valve clearances, air filters) and implementation of engine maintenance management systems;
- use of DPM filters (disposable or re-useable);
- use of low-sulphur fuel; and
- use of work practices that reduce emissions (e.g. choose appropriate gear to avoid operating engine at low revolutions in high load situations, non-aggressive driving, avoidance of excessive revving or idling).

DPM transmission throughout the mine can be reduced or diluted by effective ventilation, which requires:

- correct air flows and velocities (bearing in mind that DPM emissions from one area of the underground mine may flow to other workspaces);
- adequate maintenance and inspection of ventilation systems; and
- sufficient secondary ventilation to development headings.

Mines Safety Bulletin No. 95, released on 14 February 2011, reminds underground operators to review current ventilation practices to ensure their adequacy.

Controls aimed at reducing personal exposure to DPM include:

- application of positive pressure to operator cabs following high efficiency particulate air (HEPA) filtration; and
- use of respiratory protective devices.

An effective DPM control strategy requires a systematic approach, with a significant commitment from senior management as well as awareness training to engage all levels of the workforce.

As part of Resources Safety's compliance campaign, mines inspectors visiting a site may request:

- evidence of a DPM management program;
- occupational hygiene monitoring results;
- current and planned controls (and timelines for their implementation); and
- defined goals for emission reductions.



CONTROLLING DPM IN UNDERGROUND MINES



This illustration is available as a poster on the Resources Safety website.

WHAT IS DPM AND WHY DOES IT MATTER?

Diesel fuel is used widely throughout the mining industry. Unfortunately, the exhaust from diesel engines contains particles that can pose a risk to health, ranging from headaches and nausea to respiratory disease and cancer. The exhaust particles comprise a complex mix of chemical components that are collectively called diesel particulate matter (DPM). Diesel engine exhaust is particularly a problem in environments such as underground mines and workshops where exhaust particles and gases can accumulate if ventilation is inadequate.

Safe Work Australia has yet to adopt an exposure standard for DPM. However, various regulatory agencies around the country, including Resources Safety, have adopted the Australian Institute of Occupational Hygienists (AIOH) recommendation for an exposure standard of 0.1 mg/m³ (measured as submicron elemental carbon; time weighted average over eight hours).

The standard was developed in view of the irritant health effects from exposure to diesel emissions. While not based on potential carcinogenic effects (as there is a lack of definitive data for the association to be made), the AIOH indicates that adhering to the recommended standard should result in reduced lung cancer outcomes.

Transmission controls

- Ventilation with sufficient air flow, and appropriately designed and maintained
- Sufficient secondary ventilation
- Area monitoring
- Employee information and training



Exposure controls

- In-cabin filtration
- Personal protective (respiratory) equipment
- Personal exposure monitoring
- Employee information and training



RECENT RELEASES

Over the past few months, there has been a flurry of publication activity at Resources Safety. All titles are available in the publications section of the website at www.dmp.wa.gov.au/ResourcesSafety or contact RSDComms@dmp.wa.gov.au to order hard copies, where available.

CODE OF PRACTICE

The second edition of the mines survey code of practice is now available online and in hard copy.

GUIDELINE

The guide to duty of care in Western Australian mines has been reviewed and the second edition is available online and in hard copy. The main changes are:

- expansion and revision of Chapter 3 content relating to risk management, reporting and monitoring (i.e. health surveillance), training and personal protective equipment;
- addition of post-2006 codes of practice and guidelines to Chapter 11;
- updated definitions for trainees, principal employer and manager in Appendix 1; and
- increased emphasis on risk management approach in Appendix 3.

SAFETY ALERTS

All safety alerts are reproduced in the back section of *MineSafe* or can be downloaded from the Resources Safety website.

Bulletins

Mines Safety Bulletin No. 95 addresses ventilation standards in underground mines.

Medical Bulletin No. 6 focuses on mosquito-borne diseases and how to address the risk.

Significant incident reports

Six significant incident reports have been published since the last issue of *MineSafe*. Four relate to mines safety, with numbers 169 and 171 reporting on fatal accidents and numbers 168 and 170 reporting on two near-misses. Petroleum safety has issued two significant incident reports where people were injured, one on the hand (number 01/2011) and the other very seriously when hit by a falling object (number 02/2011).

INDUSTRY SAFETY PERFORMANCE

The latest overview of dangerous goods incident reports describes dangerous goods and explosives incidents that occurred in 2010. The report also compares the 2010 incident data with comparable data collected since 1991, and provides some statistical analysis of incident data for that period.

AUDIT GUIDELINES AND TEMPLATES

Underground mine fill

This mine fill audit tool has been provided to ensure consistency and raise standards in the Western Australian mining industry with regard to the use of paste or hydraulic fill and barricades.

Mobile equipment on mines – Part 1 Traffic management

This audit addresses the safety standards associated with the management of road standards and the movement of mobile equipment and pedestrians at a surface mine. The audit sections cover:

- development of a traffic management plan;
- mine site access;
- road standards;
- intersections;
- parking;
- traffic control signage;
- pedestrians;
- buildings and structures;
- powerline and railway corridors;
- road construction and maintenance; and
- emergencies.

The audit does not cover mobile equipment operations and maintenance requirements as these standards will be included in separate audit documents (Parts 2 and 3) produced by Resources Safety.

Autonomous equipment operations are not covered in this audit.

INFORMATION SHEETS

The dangerous goods safety information sheet on transport of mineral concentrates of UN 3077 has been updated to clarify the requirements. A new information sheet has been prepared regarding the renewal of shotfiring licences.

PAMPHLETS

All 18 titles in the *Mines Safety Matters* pamphlet series have been reviewed and reissued, and are available online and as hard copies.

POSTERS

The four occupational health posters dealing with noise management and hearing, and fibrous mineral management have been reviewed and reissued.

To add to Resources Safety's collection, there is a new poster on controlling diesel particulate matter (DPM) in underground mines that can be used as the basis for a DPM control strategy.

All the posters are available online and as hard copies.



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ELECTRICAL SAFETY IN WET WEATHER

Resources Safety is concerned that electric shock reports increase significantly during and immediately after periods of wet weather. Some 400 electrical incidents were reported from mine sites in Western Australia between 1 June 2010 and 13 June 2011 (48 underground and 352 surface), many linked to wet weather.

It is timely to offer a reminder about electrical safety.

BEFORE WET WEATHER

- Ensure all portable electrical equipment testing and tagging is current.
- Ensure safety switches are installed to protect all power supplies, and they are regularly tested.
- Ensure a maintenance program is in place to regularly check the integrity and security of switchboards and electrical equipment enclosures. Ensure all covers and lids are in place and doors closed and secured.
- Ensure all electrical equipment installed outdoors has the correct weatherproof rating.
- Ensure all portable tools and equipment are appropriate for the conditions of service. Hydraulic, compressed air or battery power may be more appropriate than electricity, particularly in wet or damp areas.

- Do not use multiple plug adaptors (electrical portable outlet devices). These are designed for domestic use and have no place in the heavy operating environments found on mine sites.

DURING WET WEATHER

- Stop all activity outside that involves using electrical equipment. This includes welding and operating outdoor overhead gantry cranes.
- Collect all electrical equipment and remove it to dry storage.
- If a storm event includes local lightning, implement the lightning protection policy for outdoor staff.
- Ensure local control stations and outdoor gantry crane pendant controllers are protected and weather proof.

AFTER WET WEATHER

- Arrange for a licensed electrician to conduct a safety inspection of all electrical installations and equipment that may have been affected by wet weather.
- Do not resume work in rain-affected areas until they have been made safe.
- Drain any transformer oil retention bunds that have collected stormwater.

ON GUARD AT ALL TIMES

This media release from WorkSafe was issued on 3 June 2011. Although it refers to prosecutions under the Occupational Safety and Health Act 1984 and Occupational Safety and Health Regulations 1996, the same principles for risk management apply across industry sectors.

The owner-operator and employer at a Kalgoorlie materials recovery facility have been fined a total of \$50,000 over an incident in which a man's arm was injured in an unguarded machine.

Transpacific Industries Pty Ltd (the employer at the facility) pleaded guilty to failing to provide and maintain a safe working environment and was fined \$40,000 in the Kalgoorlie Magistrates Court.

In the same court, Transpacific Cleanaway Pty Ltd (the owner and operator having control of the facility) pleaded guilty to failing to ensure that every dangerous part of a fixed machine was guarded and was fined \$10,000.

The materials recovery facility sorts recyclable material, moving it to different areas of the workplace via conveyors. There are two balers at the facility that operate by using a hydraulic ram to compress the material into bales.

In February 2008, a leading hand was engaged in preparing the facility for operation in the morning before other staff arrived at work. He was working alone. The man started the multi-purpose baler and noticed aluminium cans caught between the conveyor belt and the roller.

With the conveyor still operating, he lifted the latch on the conveyor gate and reached in to remove an aluminium can. There was no lock or interlock device fitted to the bolt latch. The conveyor continued to operate and the man's glove was caught and his hand drawn in between the conveyor belt and the roller until his shoulder was up against the side of the baler.

There was no emergency stop button fitted to the baler, so the man was unable to stop the conveyor himself. Two workers who were outside the building, having arrived early for work, heard the man's calls for help and shut down the baler so he could remove his arm. He sustained a torn bicep and a fracture of the lower right arm.

Acting WorkSafe Commissioner Lex McCulloch said that the case illustrated the importance of guarding machinery to prevent injuries.

"Guarding of the moving parts of machinery is one of the easiest and most obvious means of minimising the risk of injury to machinery operators," Mr McCulloch said.

"In this case, both the employer and the company in control of the workplace were prosecuted because both had a responsibility to ensure the workplace was safe, firstly by guarding the dangerous moving parts of the machinery, and secondly by ensuring that workers observed safe work practices.

"Leaving a piece of machinery operational while clearing obstructions is never a safe way to work, but measures should be taken to ensure that this cannot be done.

"Many workers have been seriously injured or killed when equipment or machinery they were working on has been left energised or accidentally activated, so it is absolutely crucial that safe systems of work are in place.

"After this incident, an interlock device was fitted to the conveyor gate, along with an emergency stop button to the side of the baler. If these actions had been taken earlier, the incident would not have happened and the worker could have been saved the pain and suffering of his injury.

"It is crucial that safe work procedures and appropriate guarding be in place in any workplace containing hazardous machinery, especially when employees are adjusting, cleaning or maintaining machinery."





TAP INTO MININGFM

Spread the word – there is a website specifically designed for mining families that is full of practical advice and useful information, presented in a professional and welcoming format. Given the calibre of the content, it should become a favourite resource not only for mining families, particularly those working fly-in, fly-out (FIFO) rosters, but for any family.

Mining Family Matters is the brainchild of registered nurse, mining wife and mother-of-two Alicia Ranford, who knows that mining is a great industry, but also presents unique relationship challenges. In February 2010, she launched MiningFM to create a network of support across the country and ease the pressure on mining families.

Content includes personal testimonials on Australia's top mining towns and advice on how to get into the industry, health and wellness tips, and practical ideas and information on tackling parenting issues that face most families, but may be exacerbated for mining families by lengthy separations and fewer opportunities for effective communication.

What elevates MiningFM from being solely a repository of information is the access to regular contributors, who include a resident psychologist and social worker, and the friendly online chat forum. Also, it is not afraid to talk about the tough issues, such as helping children cope with FIFO, tackling mood swings in FIFO households, how to deal with feelings of loneliness when onsite, and even handling the trials and tribulations of being a FIFO bachelor.

The professional responses to questions are enhanced by the personal contributions of those working in the industry or involved as partners.

All information and professional support provided on MiningFM is free, so it relies on sponsorship and advertising to fund the site, as well as sales of *The survival guide for mining families*, an invaluable new resource tool available to mining companies for their employees and families.

Interested? Check out www.miningfm.com.au — you might gain a different perspective on solving a problem you are grappling with, or perhaps your experiences mean you can contribute to a discussion.

Photo courtesy Mining Family Matters





SH Shane Saltmarsh (left) and Tobias Byrne of PWR adjudicating at a recent emergency response competition



EMERGENCY RESPONSE COMES TO PERTH IN DECEMBER

Fourteen teams will participate in seven events at the 2011 Mining Emergency Response Competition (MERC) to be held 3 and 4 December at Burswood Park in Perth. The metropolitan location provides Perth-based industry representatives, mining families and the local community with an opportunity to view firsthand the skills of mining emergency response teams.

It has been a long term vision of MERC's premier sponsor, Paull & Warner RECEO (PWR), to see a competition start in Perth, having been extensively involved in the support, organisation and management of scenarios at various emergency response competitions and skills challenges throughout Western Australia.

Fortescue Metals Group and Pilbara Access Group have also come on board as major sponsors, ensuring this industry-wide competition will provide invaluable training, skill development, networking and community recognition to emergency response teams.

Teams will compete in:

- First Aid;
- Firefighting and Breathing Apparatus (BA) Skills;
- Vehicle Extrication;
- Hazchem and BA Skills;
- Confined Space and BA Skills;
- Rope Rescue; and
- Emergency Response Team (ERT) Readiness.

All proceeds raised during the course of the competition will be donated to Miners Promise, a charitable organisation providing assistance to families and individuals who are confronted with the death or permanent disability of a family member employed in the resources sector.

Contact Jen Pearce at jenpearce@redearthhealth.com.au for all enquiries. Opportunities still exist for sponsorship and team entries.

STEPPING UP FOR SAFETY SUCCESS

In March this year, the Chamber of Minerals and Energy of Western Australia presented its sixth Safety and Health Conference.

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The Chamber's 2010 conference highlighted the importance of leadership in setting the vision to create cultures and cooperative action at an operations level that lead to improved safety and health outcomes.

Building on this, the 2011 conference theme of "Engage, Empower, Entrust – Steps to Safety Success" focused on the premise that efficient and effective management should foster collaboration between employer and employee. This creates a real opportunity to transform the way health and safety programs are delivered.

Conference presentations are now available to download from the events section of the Chamber website at www.cmewa.com (see past events item dated 28 March 2011).



Photo courtesy Rio Tinto Argyle Diamonds

CHAMBER RECOGNISES SAFETY INNOVATION

Programs targeting the health of workers and the safety performance of contractors at the Rio Tinto-owned Argyle Diamond Mine were among the winners at the Chamber of Minerals and Energy of Western Australia's Safety and Health Innovation Awards 2011.

Argyle claimed two of the four awards on offer, as the mining industry came together to celebrate initiatives designed to improve on-the-ground safety at resource projects across Western Australia. Sinclair Knight Merz and Bortana Pty Ltd rounded out the winners' list.

Chamber Chief Executive Reg Howard-Smith congratulated all finalists.

"Innovative programs being developed by individual companies highlight the entire industry's commitment to continue to improve safety performance," Mr Howard-Smith said.

"Whether it's by engineering new solutions to minimise risk or promoting a site culture of safety first, the health and wellbeing of workers must be the number one priority of the sector."

Award winners were announced during the Chamber's 2011 Safety and Health Conference in March.

CME SAFETY AND HEALTH INNOVATION AWARDS 2011 WINNERS

People Category

Argyle Diamonds – Wellness Program

Argyle has introduced an effective onsite Wellness Program for employees and contractors. The initiative includes a "pitstop"-style assessment of an individual's major health indicators, combined with proactive support in developing goals for areas of elevated risk, along with an after-work sports schedule. The program has been expanded, in partnership with the Ord Valley Aboriginal Health Service, to test for chronic renal disease symptoms.

Systems Category

Argyle Diamonds – Contractor Management System

Argyle has improved upon its existing Contractor Management System, and in the process reduced its contractor all injury frequency rate to zero, for the first time in the company's history. Apart from a heavy focus on regular training, audits and meetings, contractors are now included in all health, safety and environment (HSE) initiatives, ranging from wellness assessments to HSE recognition awards.

Engineering Category

Sinclair Knight Merz – Innovation in the Replacement of Traverse Beams

Engineers at SKM, in conjunction with business partners Monadelphous and Rio Tinto, have achieved safety and health improvements at Cape Lambert by developing a safer means of replacing traverse beams, using a counterweight balance.

People's Choice Award

The People's Choice Award, voted by delegates during the conference, was presented to Bortana Pty Ltd (trading as Safescape) for the development of the Safescape Laddertube. The Laddertube is designed to be used in underground mines as a secondary means of egress.



Photo courtesy Hanson Byford Quarry

LOCAL QUARRY RECEIVES GOLD HARD HAT

The Institute of Quarrying Australia, together with industry supporters, has a number of awards available to recognise individuals and organisations that have distinguished themselves through their contribution to industry standards, or to support their efforts to further their knowledge and skills.

The annual Bradken Gold Hard Hat Award is a National Construction Materials Industry Award to recognise innovation, outstanding improvements or continued excellent performance in occupational health and safety management. The award includes a trophy (gold-plated hard hat) and a travel allowance for the winner to present their story at industry functions and safety seminars.

Hanson Byford Quarry received the 2010 Bradken Gold Hard Hat Award for its excellent safety performance over more than a decade, and outstanding commitment to occupational health and safety.

Located on the Darling Scarp near Perth, the Hanson Byford Quarry is somewhat unique in terms of its workforce. Many of the workers have been there for more than 15 years, with one exceeding 30 years of service. Byford Quarry Manager John Guthrie, who has just returned from speaking at two safety seminars in Queensland as part of the award, said that he had been there for only seven years and so was considered a “blow in”.

The Hanson Byford Quarry experienced a dark period in 1993 when a contractor tragically died in an incident on site. This was a traumatic time for all concerned and will never be forgotten by his workmates. It was a stark reminder of how dangerous the quarrying industry can be.

During the past five or so years, the quarry has undergone a range of changes to infrastructure, processes and systems of work. The fixed plant had a major upgrade, a mobile crushing plant was used to build up stockpiles to cover the period of the plant upgrade, and a night shift was introduced to meet the increased demand for aggregate arising from construction of the Perth to Bunbury highway. Each change had its own challenges.

There was increased activity during the plant upgrade, involving many different contractors in what was considered to be high risk work. A safe system of work and clear lines of supervision and management had to be established and understood by all personnel so that everyone on site was aware of what was going on and when it was happening.

During the whole upgrade process, there was one medically treated incident (MTI), when a contractor required a couple of stitches for a cut finger. Upon investigation, it transpired that the person had not signed on to the job safety analysis (JSA) and should not have been involved with the job.



Going from a fixed crushing and screening plant to mobile crushing was a huge change for the quarry personnel as the work was more labour intensive and there was a lot more noise and dust to manage. Mobile crushing plants are very sensitive and unforgiving when it comes to their efficient operation. It is critical for their safe operation that items such as skirts and chutes need to be constantly monitored and maintained. Active communication was enforced to ensure that all machine operators knew when vehicles were approaching the designated crushing area.

One MTI was recorded over the two-year period that the mobile crushing plant was on site. The leading hand received superficial burns after being sprayed with hot hydraulic oil when a hose came away from its crimp. The investigation found that both power screens were fitted with inferior hydraulic hoses. These were replaced with stronger high-pressure hydraulic hoses.

Strong competent supervision was a key factor in maintaining an injury-free record during the new night shift after the upgraded fixed plant was commissioned. The quarry had not previously worked at night, and the risks associated with crushing and screening needed to be carefully managed because half the crew was labour hire and unfamiliar with the processes.

Overall, Hanson Byford Quarry has made a concerted effort to support a positive cultural change, with safe systems of work, regular and open communication and hands-on supervision.

In his submission to the Institute of Quarrying Australia, the Quarry Manager indicated that he would never say that the site was totally safe as any break in the link can bring about an incident.

“This means that proactive supervision and positive, focused attitudes towards safety are always required,” Mr Guthrie said.

“Do we require an award for this? Personally, I don't think so. I believe that my reward is knowing that my personnel and I go home safely every night to our families. However, the Bradken Gold Hard Hat Award is well deserved recognition for a quarry team that puts in a lot of thoughtful, considered and constant effort to safety.

“I hope that this recognition will also be a catalyst for positive cultural change at other Hanson sites and within the quarrying industry. I believe that 'Zero Harm' can happen if the right attributes are applied — good supervision, good communication, good safety systems and good attitudes towards safety. These things all entwined to bring about an embedded safety culture on site.”

COMPETITION CELEBRATES A CENTURY

The Chamber of Minerals and Energy of Western Australia held the 2011 Surface Mine Emergency Response Competition from 12 to 15 May. The competition was particularly significant this year as it is the centenary of Goldfields Emergency Response Competitions.

Mine rescue started in the Goldfields in about 1903, with regular mine rescue competitions, known as the "Mine Ambulance and Rescue Corporation Challenge Cup", run from 1911. Four-man teams competed in first aid and breathing apparatus sections. The competitions were run each year until 1974, when they ceased due to the closure of several of the region's larger gold mines.

In time, local industry and the Chamber of Mines recognised that modern underground equipment presented hazards and mines needed to be prepared for emergencies and rescues. In 1981, the competitions were resurrected as mine rescue competitions and later as the mine emergency response competitions that we know today, with larger teams tackling a range of events, including rope rescue, first aid, fire fighting, search and rescue, and theory examinations. The aims are to attract mine workers to rescue work and provide the opportunity to train and improve their skills in simulated emergency situations, as well as promote public interest and awareness.

Two Mine Emergency Response Competitions are now held annually in the Goldfields. The Surface Competition is typically held in May and the Underground Competition in November. They are hosted by The Chamber of Minerals

and Energy's Eastern Regional Council (ERC) and organised by ERC's Mine Rescue Committee, comprising occupational health and safety and emergency response personnel.

The annual Surface Mine Emergency Response Competition is one of the ERC's major activities and is usually held at the Australian Prospectors and Miners Hall of Fame, where it attracts thousands of people to the open day to view the activities.

The competition has become the largest and most prestigious of its kind in the Southern Hemisphere. It is also a powerful demonstration to the general community of the resources sector's commitment to safety as its number one priority.

Nineteen mine emergency response teams from across Western Australia, including the Goldfields, Pilbara and South West, and one from New South Wales took part in this year's competition at the Miners Hall of Fame. AngloGold Ashanti Sunrise Dam took out overall honours for the fourth year in a row.

Mr Nick Nollas, who has more than 25 years of experience in mine rescue throughout Australia, was the recipient of the Harry Steinhauser Award, which acknowledges outstanding individual contributions to emergency response in Western Australia's mines.

The next issue of *MineSafe* will feature more stories about the competition, including a first-hand account from *MineSafe's* Beau Pearson about being a "casualty" in the team skills event!



COMPETITION TEAMS

- Barrick Kanowna – Barrick Gold of Australia
- Carouse Dam Emergency Response – Saracen Gold Mines
- COMET (Combined Operations Mine Emergency Training) – Minara, Sunrise Dam, Yilgarn
- Cowal Gold Mine – Barrick Gold of Australia
- Focus Ferals – Focus Minerals
- Fortescue Chichester Operations – Fortescue Metals Group
- Greenbushes Emergency Response – Talison Lithium
- Jundee / Wiluna Gold – Newmont and Apex Minerals
- KCGM – Kalgoorlie Consolidated Gold Mine
- La Mancha Mine Rescue – La Mancha Resources Australia
- Leinster Nickel – BHP Billiton Nickel West
- Minara – Minara Resources
- Macmahon Orebody 18 – Macmahon
- NKK Emergency Response – BHP Billiton Nickel West
- St Barbara Forresteria Mutual Aid Team – St Barbara and Western Areas
- St Ives Gold – Gold Fields Australia
- Sunrise Dam Gold Mine – AngloGold Ashanti Australia
- Yilgarn One – Barrick Gold of Australia
- Yilgarn Two – Barrick Gold of Australia

HONOUR BOARD

1st best team	Sunrise Dam Gold Mine
2nd best team	Yilgarn One
3rd best team	Cowal Gold Mine
Confined space rescue	KCGM
Fire fighting	Cowal Gold Mine
First aid	Yilgarn One
Hazchem rescue	NKK Emergency Response
Rope rescue	Sunrise Dam Gold Mine
Vehicle extrication	Sunrise Dam Gold Mine
Team skills	Yilgarn One

Theory	Yilgarn One
Individual theory	Jake Wilson (Yilgarn One)
Incident management scenario	Rob Buchanan (Yilgarn Two)
Overall first aid	Yilgarn One
Overall breathing apparatus skills	KCGM
Best new captain	Jess Kinnersly (KCGM)
Best new team	KCGM
Best captain	Justin Cowall (Yilgarn One)
Best scenario	First aid

2011 SURFACE MINE EMERGENCY RESPONSE COMPETITION

TYC Cowal Gold Mine



SH Yilgarn Two



TYC Leinster Nickel



SH Fortescue Chichester Operations



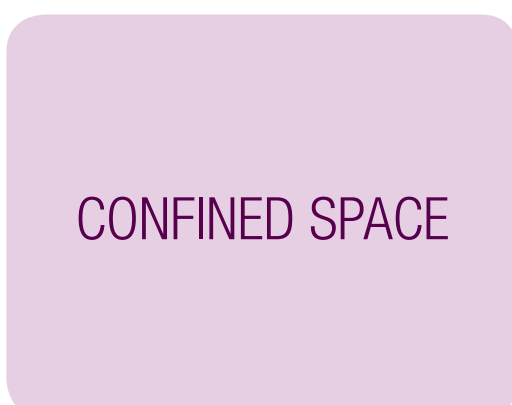
SH Macmahon Orebody 18



SH Minara Resources



SH Jundee / Wiluna Gold



CONFINED SPACE



TYC Cowal Gold Mine



TYC Fortescue Chichester Operations



SH Macmahon Orebody 18



TYC Confined space adjudicators

THEORY



FIRE FIGHTING



FIRST AID



HAZCHEM



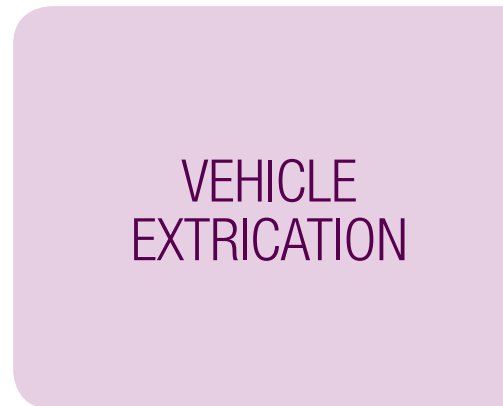
INCIDENT
MANAGEMENT



ROPE RESCUE



TEAM SKILLS





REPRESENTATIVES GATHER IN FREMANTLE

In March this year, dozens of safety and health representatives gathered in Fremantle for IFAP's 2011 Safety and Health Representatives Forum, which focused on workplace safety consultation.

As well hearing from six keynote speakers, the forum provided an opportunity to exchange ideas and raise concerns.

Simon Ridge, State Mining Engineer, spoke about the role of the regulator and how Resources Safety is tackling safety compliance. He gave an update on the Reform and Development at Resources Safety (RADARS) strategy and what is happening nationally in occupational health and safety harmonisation.

Simon reiterated that safety and health representatives have an important role in workplace safety and, with support and resources, they can make a difference. This required:

- consultation with the workforce;
- empowered safety and health representatives (in many cases they are an underutilised resource); and
- ensure adequate induction and training that recognises
 - evolution of the site culture and
 - the need for continuous improvement.

Simon said that companies can adopt a proactive approach to workforce safety representation by training a cohort of people from which safety and health representatives can be elected. He also indicated that there would be an increased inspectorate focus on the needs of safety and health representatives.

Consultation and genuine care for people in the organisation were common threads throughout the day.

Don Gordon, Freo Group's Executive General Manager Shared Services, saw these as being important as they complement other practices, such as robust management and recruiting, training and retaining competent staff, that are vital for a successful and safe

business. Don said that showing care in an organisation could have a positive influence on potential interpersonal issues such as bullying. He added that management should never underestimate the effect of bullying in an organisation, nor the damage done by bullying experienced earlier in a person's life.

Through their safety campaigns, safety professionals try to change the culture and mould behaviour in their workplaces. These efforts can fail to achieve their objectives if there is resistance. David Leith, now Community Engagement Program Manager with the Swan River Trust (previously with WorkCover WA), used his experience working at a resources company to take the audience on a journey of observation about safety and culture. He said that the most important outcome of any campaign is that there is meaningful discussion. Organisations should ensure that cultural change is not viewed as "flavour of the month" by a cynical workforce. "Top down" directives tend to be barriers to success, and the catalyst for change will come from the shopfloor and frontline supervisors.

Dean Laplonge, Director of Factive, overviewed the research his company has conducted into masculinity and safety in the mining industry. Some of the results were gathered on behalf of Resources Safety at roadshow workshops on toughness in mining. Dean discussed the tools available to deal with this highly complex but important issue.

The concepts of "zero harm" and "blame game" versus "no blame" were mulled over in various discussions and activities involving Tony Cooke, Managing Director of Metanoia Consulting, and Martin Ralph, IFAP Managing Director.

Tony Cooke said that the hardest risk to address is performance-enhancing risk — does safety really come first, ahead of production? The motivation for risk-taking may arise from an organisation's performance goals.

Martin Ralph spoke about a no-blame culture in which mistakes are tolerated as long as people learn from them, but added that with responsibility comes accountability.

ADD THIS SURVIVAL GUIDE TO YOUR FAMILY BOOKSHELF

Barry Healy is Resources Safety's Training and Education Officer. Here he continues the "Barry's bookshelf" series with a review of "The survival guide for mining families".

Many of those involved in fly-in, fly-out (FIFO) mining are in it for the money, but the cost of spending weeks away from loved ones should not outweigh the financial benefits. That is why FIFO is so notoriously rough on family life. Workers are away from the reason why they go to work, and families miss the one who is putting in the long hours onsite.

Problems faced include:

- children miss out on having both parents around;
- house rules get disrupted as the worker flies home;
- how to spend time together can be a major zone of conflict among FIFO couples; and
- achieving a satisfying sex life can become an issue.

The MiningFM website team, including Alicia Ranford and Angie Willcocks, have produced this short (32 pages), sharp (no article over two pages) and matter-of-fact guide that helps everyone involved to break down the barriers of isolation and ease the pressure of living away from family and friends.

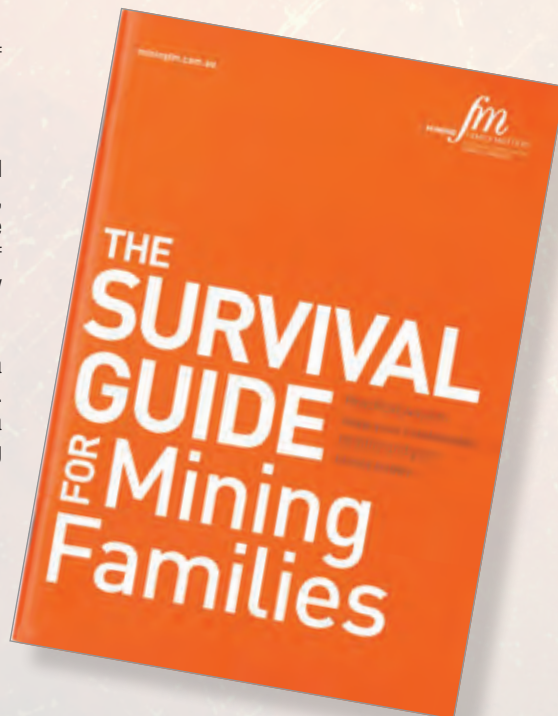
What does it contain? Useful things like the 15 tips for a happy home, including "Once a month book a date night. If you don't have family and on a budget, try coming to a reciprocal arrangement with friends to swap babysitting duties".

It also covers how to share time and avoid conflict, how to make every minute count when together, tackling loneliness, and the various traps associated with FIFO parenting — this little book has it all. It is straightforward, and nearly all condensed into just one or two sentences of useful thinking.

Couples experiencing the FIFO lifestyle should read this guide. And every mining company should ensure employees get a copy.

Also check out the brilliant kids t-shirts at www.miningfm.com.au. "My Dad Thinks I'm Ore-Some" says one; "FIFO For Incredible Families Only" says another.

FIFO shouldn't just be about getting the ore out of the ground. This publication is about making sure your home life works.



GEOTECH SHAKE-UP

The Department of Mines and Petroleum's online reporting system is known as the Safety Regulation System (SRS). Occurrence report forms for all reportable occurrences under the *Mines Safety and Inspection Act 1994* (sections 76, 77 and 78) are now submitted via the SRS. This includes reports covering seismic events and falls of ground (FOGs), which are submitted using the SRS's Seismic/FOG Wizard.

SEISMIC/FOG WIZARD

The Seismic/FOG Wizard is based on a form developed by Resources Safety in collaboration with industry experts and geotechnical engineers working at seismically active mine sites. Use of the SRS Wizard will:

- ensure the uniformity and reliability of data collected for the Resources Safety database;
- reduce the need to follow up incomplete reports;
- and streamline the reporting process for mine sites.

Within SRS, all records are stored in a central location, with supporting documentation linked to the original occurrence report. The consistent reporting of seismic events and falls of ground within the Resources Safety database will assist trend analysis, evidence-based risk management

and prioritisation of inspectorate activities. This will allow Resources Safety to work collaboratively with industry to efficiently and proactively address latent and emerging geotechnical risks in Western Australia's underground mines.

A guide to help those using the Sesimic/FOG Wizard for the first time, or collating data for the occurrence report is now available on the Resources Safety website.

TEMPLATES FOR ADDITIONAL REPORTING

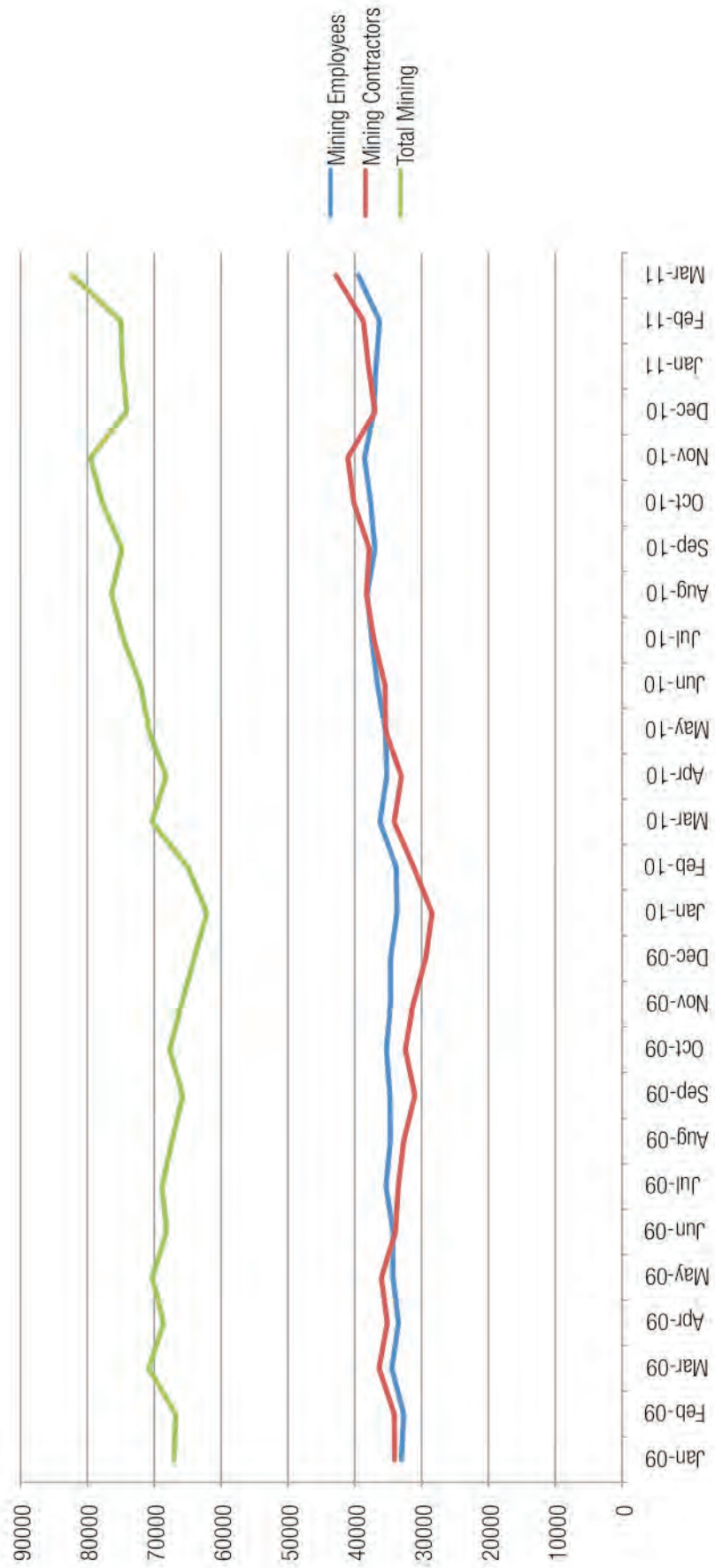
Operations submitting an occurrence report to SRS for a seismic event or fall of ground occurrence are routinely required to provide additional information following submission of the initial occurrence report. The additional information is gathered during the incident investigation and must be submitted (via SRS) within two weeks of the initial report. A template is now available on the Resources Safety website to assist with information collation before entering the data into SRS.

A template is also available for operations reporting hydraulic or paste fill incidents or barricade failures, for which additional information is also routinely required following the initial report. The additional information is gathered during the incident investigation and must be submitted to the District Inspector within two weeks of the initial report. SRS submission of this additional information is not yet available.

If you are using paste or hydraulic fill at your site, please make a point of using the Mine Fill HIF Audit template and guideline available from the Resources Safety website to ensure you have adequately managed your risks.

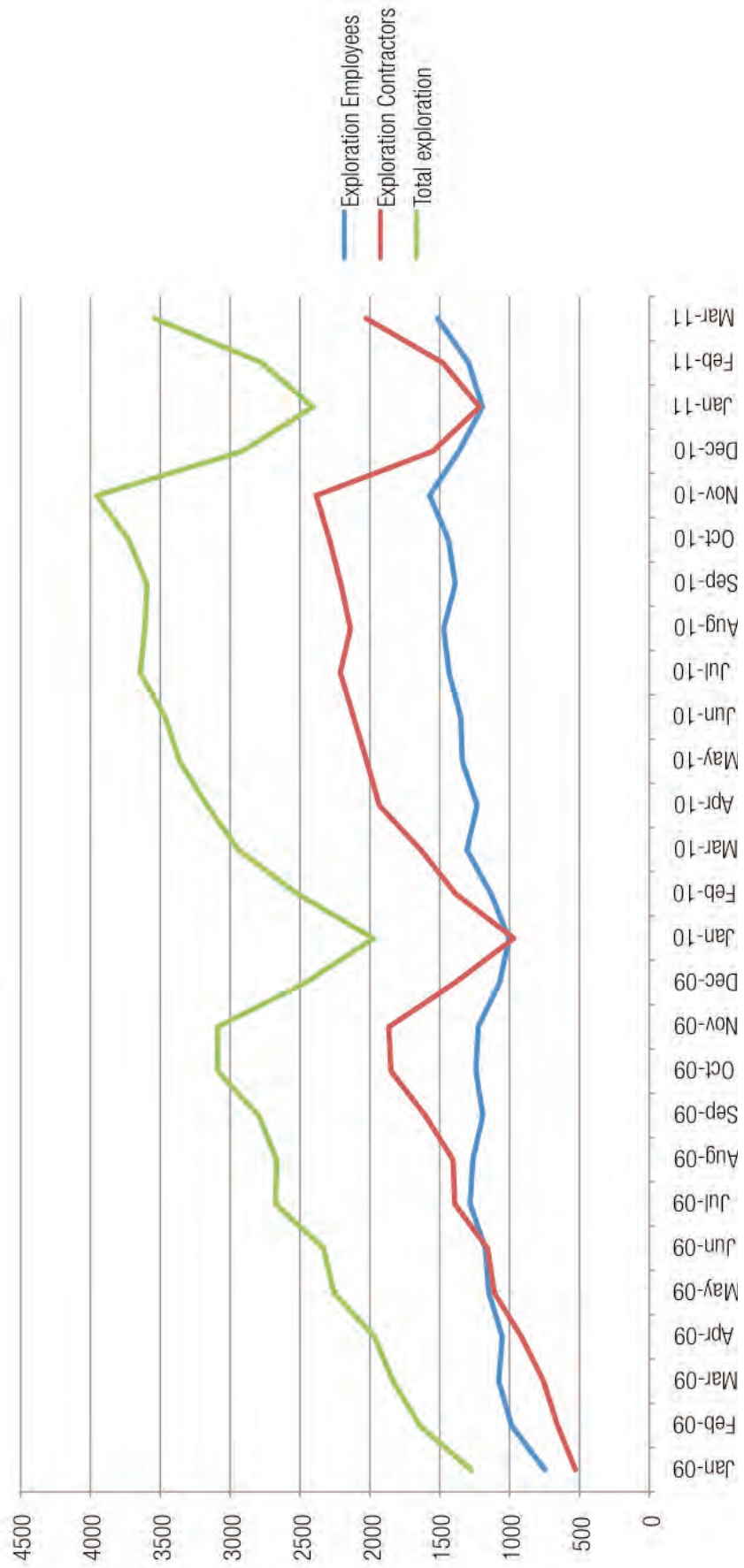
NOTE: From 1 July 2009, monthly mining workforce figures are plotted as full-time equivalent (FTE), where 1 FTE = 2,000 hours worked per year

MONTHLY MINING WORKFORCE



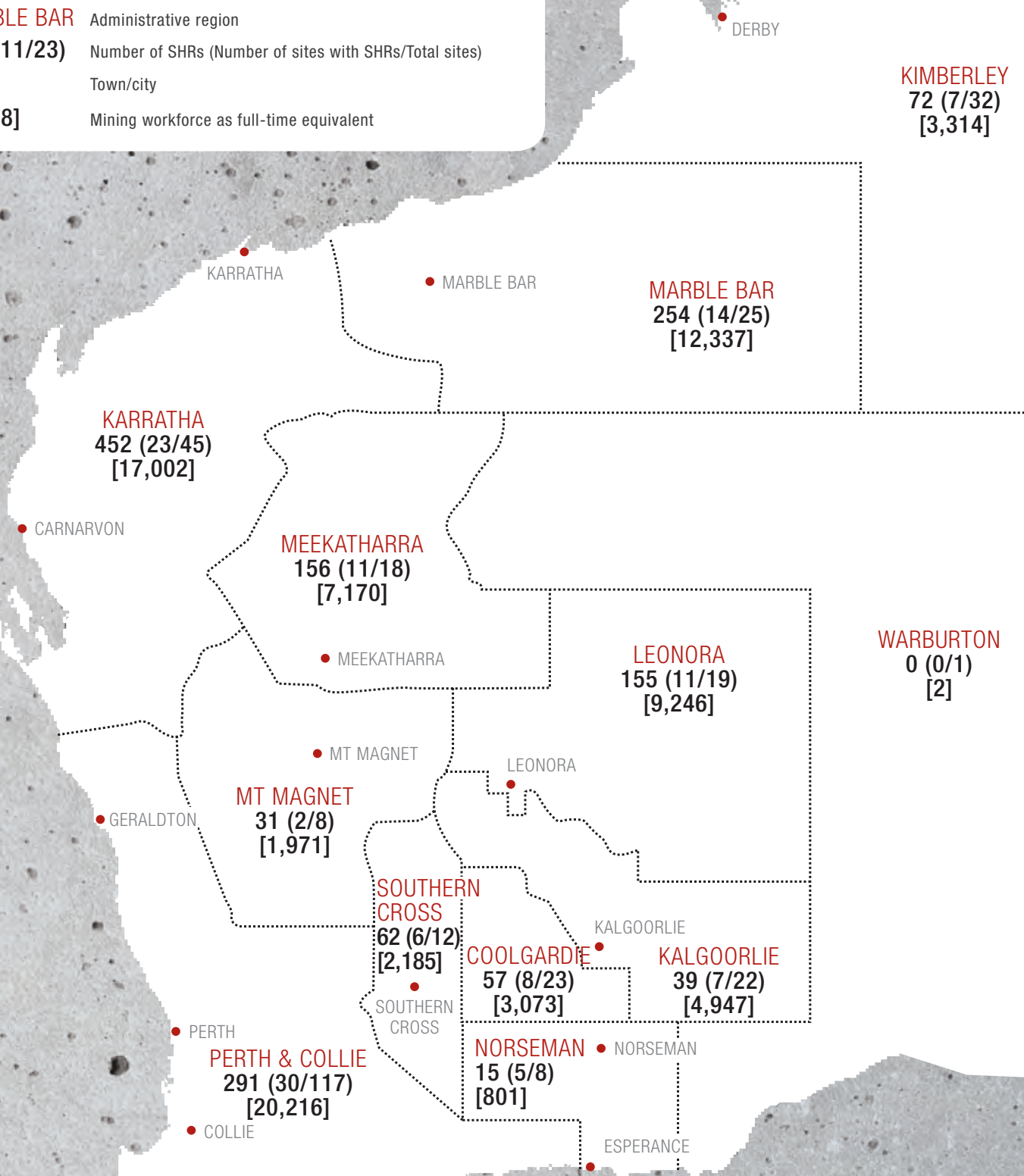
NOTE: From 1 July 2009, monthly mining workforce figures are plotted as full-time equivalent (FTE), where 1 FTE = 2,000 hours worked per year

MONTHLY EXPLORATION WORKFORCE



DISTRIBUTION OF SAFETY AND HEALTH REPRESENTATIVES AS AT 30 MARCH 2011

- Mining registrars administrative boundary
- MARBLE BAR** Administrative region
- 153 (11/23)** Number of SHRs (Number of sites with SHRs/Total sites)
- Town/city
- [9,578]** Mining workforce as full-time equivalent



Total active (incl. C&M) mine sites = 330
 Mine sites with SHRs = 124
 Total SHRs = 1,770
 SHRs attached to mine sites = 1,584
 Others (e.g. exploration) = 186

MINES SAFETY SIGNIFICANT INCIDENT REPORT NO. 168

PRESSURE RELEASE BLOWS BLANKING PLATE OFF DOZER TILT CYLINDER

ISSUED: 10 JANUARY 2011

Summary of incident

A blanking plate blew off a dozer tilt cylinder that was being replaced by a fitter. The fitter had removed the four bolts clamping the blanking plate without first releasing the cylinder's internal pressure. The blanking plate, bolts and retaining collar blew off under pressure, lacerating and abrading the fitter's hands, which required surgery.

Probable causes

The tilt cylinder involved in the incident has blanking plates fitted at each end to prevent the ingress of dirt before the cylinder is fitted to the dozer (Figure 1).

Contributory factors to the incident are listed below.

- The temperature within the supplier's factory is commonly much lower than that experienced onsite, where the cylinder may be placed in a holding yard and subject to the elements.
- Testing is undertaken at the supplier's factory and the cylinders, as supplied, contain residual fluids.
- Onsite, oil and air contained within the cylinder expand in the higher temperatures, increasing the internal pressure.



Figure 1 Location of blanking plates on tilt cylinder. Photograph courtesy of Liebherr

- The service manual provided by the original equipment manufacturer (OEM) warns of the possibility of a pressure increase within the cylinders and the need to loosen the blanking plate bolts before removing the blanking plate. In this incident, however, the warning was not heeded and the pressure was not vented before the blanking plate was removed.

Action required

The company involved with this incident has notified the OEM and other manufacturers of this danger, with many having already identified the hazard. Some have installed bleed screws as a standard fitting.

To avoid a recurrence of this type of incident for tilt and other sealed cylinders, management must ensure:

- maintenance personnel
 - follow the OEM service requirements and release any pressure build up within the cylinder in a controlled manner
 - are appropriately trained and competent to carry out the task
 - are supplied with and use appropriate personal protective equipment (PPE); and
- where possible, warning labels are fitted to cylinders advising of the potential hazard.

MINES SAFETY SIGNIFICANT INCIDENT REPORT NO. 169

SUSPENSION COMPONENT EJECTED UNDER HIGH PRESSURE DURING MAINTENANCE – FATAL ACCIDENT

ISSUED: 21 JANUARY 2011

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Summary of incident

In late 2010, an employee sustained fatal injuries after apparently being struck by a suspension component that was ejected under high pressure during a routine maintenance operation.

Probable causes

This incident is under investigation but it demonstrates the hazard posed to employees where:

- they are required to work with equipment subject to stored energy; and
- there is a potential for the release of stored energy in an uncontrolled manner.

Action required

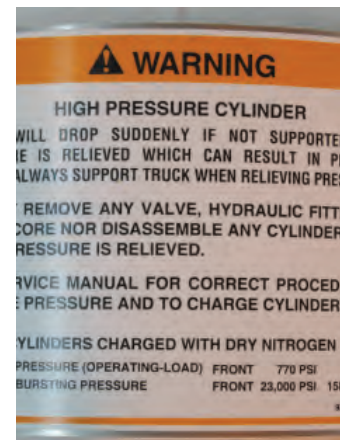
Regulation 6.24(1) of the Mines Safety and Inspection Regulations 1995 states:

- (1) Where plant is dismantled, an employer must ensure that —
 - (a) dismantling is carried out by a competent person; and
 - (b) where available, any relevant information provided by the designer and manufacturer is made available to the competent person.

To avoid a recurrence of this type of incident, managers and employers must establish and confirm safe work practices for employees working with stored energy. These include:

- ensuring maintenance personnel
- are appropriately trained and competent to carry out the task
- follow original equipment manufacturer (OEM) service requirements and ensure any stored pressure is released in a controlled manner or is effectively isolated;
- where possible, fitting and maintaining warning labels to plant advising of any serious hazard (Figure 1); and
- maintaining effective communication between work groups and shifts, including detailing the work performed and the status of incomplete procedures.

Mines Safety Significant Incident Report No. 169 continued



Decal warns of (a) crush hazard and (b) requirement to support vehicle and consult OEM manual before maintenance

Warning label specific to stored energy hazards. Decal warns of (a) high-pressure hazard and (b) requirement to release pressure and consult OEM manual before maintenance

Figure 1 Examples of warning labels. Photographs courtesy of WesTrac Pty Ltd and Caterpillar

MINES SAFETY SIGNIFICANT INCIDENT REPORT NO. 170

GOLD ROOM EXPLOSION – INTEGRATED PRESSURE STRIP ELECTROWINNING (IPSE) CIRCUIT FAILURE

ISSUED: 14 FEBRUARY 2011

Summary of incident

A pressure vessel containing one of the electrowinning cells of an integrated pressure strip electrowinning (IPSE) circuit catastrophically failed during a gold stripping process. The lid of one of the pressure vessels was blown off after the 24 holding bolts were broken or their threads stripped. The heavy lid, weighing about 500 kg, punched a hole in the gold room roof before falling to the floor.

There could have been a serious injury or fatality but fortunately the gold room was empty at the time of incident. The IPSE circuit was subsequently taken out of service.

Probable causes

An independent investigation by a gold processing specialist advised that there had been a sudden and explosive release of energy due to hydrogen and oxygen build up in the electrowinning cell. These are normal gaseous by-products of electrowinning but the mixture is explosive if the gas space above the electrowinning cell is not

continuously purged by the passage of compressed air. The most likely cause of gas build up inside the vessel was the blockage of the electrowinning cell purge air vent valve, which would normally allow gases to be continuously bled from the system.

The root cause analysis concluded that an incorrect valve had been installed for the pressure relief system. The purge air vent valve is a 25 mm ball valve that has no indication, alarm or system interlock to warn of purge flow restriction. The installed valve was the wrong design and did not comply with Australian Standard AS 1210:2010 *Pressure vessels* — it should have automatically discharged fluid to the atmosphere, but did not.



Figure 1 Damage caused when the 500 kg IPSE lid punched through the gold room roof

Mines Safety Significant Incident Report No. 170 continued

A contributing factor was the poor condition and maintenance of the IPSE plant and equipment, as shown by an independent mechanical report. The plant was purchased secondhand and installed in 1999. Since installation, the level of automation for the circuit had been allowed to diminish as the programmable logic control (PLC) system, instrumentation and actuated valves were not adequately repaired or replaced as they failed, over at least several years. It was also later found that the IPSE circuit vent system did not meet the original design specification because a dedicated vent line to remove gaseous by-products during electrowinning was not installed as per the engineering design.

Action required

Regulation 6.26(1)(b) of the Mines Safety and Inspection Regulations 1995 requires compliance with Australian Standard AS/NZS 1200:2000 *Pressure equipment*. Under this standard, a pressure vessel should be protected with one or more pressure-relief devices to prevent the pressure from rising to more than 110 per cent of the vessel's design pressure (see Australian Standard AS 1210:2010 *Pressure vessels*).

To avoid a recurrence of this type of incident, mine site corrective actions include:

- undertaking an engineering review to identify alternative electrowinning systems that eliminate the need for a pressurised and purged system; and

- reviewing the design and process and instrumentation drawing (P & ID) of the elution circuit to determine its current design compliance.

Eliminating the requirement for a pressurised and purged system adopts the highest level of hazard control.

The engineering and design reviews need to consider all risks involving ignition sources and explosive or combustible materials during elution and electrowinning, and other hazards such as the production of toxic or asphyxiating gases.

The incident highlights the need to:

- seek specialist advice when designing or installing an elution and electrowinning circuit to ensure correct equipment and material selection;
- undertake appropriate risk assessment for the circuit, as required by regulation 7.27 for hazardous substance;
- implement a maintenance plan for classified plant and any connecting pipes and fittings; and
- provide operational training for all personnel who operate and maintain the circuit.

MINES SAFETY SIGNIFICANT INCIDENT REPORT NO. 171

FATALITY AFTER FALL FROM CANTILEVERED SCAFFOLD PLATFORM

ISSUED: 24 JUNE 2011

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Summary of incident

An employee was killed when the cantilevered scaffold platform he was dismantling collapsed into the water at a ship loading facility in the Pilbara region of Western Australia.

The preliminary investigation indicates the cantilevered platform and associated “drop” scaffold was constructed using a modular prefabricated scaffold system and was installed under the wharf immediately above the sea.

Probable causes

The investigation is at an early stage and probable causes are yet to be confirmed.

Action required

Although the investigation is at an early stage, the incident should send a warning to all persons who use or manage scaffold activities on site to follow well established safety rules.

Resources Safety expects that the following safety precautions are adopted as a minimum when erecting, altering or dismantling scaffold over water:

- Develop a documented risk assessment signed by a competent person describing the safety precautions to be adopted before erecting, altering and dismantling scaffold. Applicable Australian Standards and manufacturer’s specifications must be reviewed and relevant information included in the document.
- Ensure that people working over or adjacent to water, or any other liquid, wear approved personal flotation devices at all times where there is the potential to fall into the water or into liquid.
- Install a suitable fall injury prevention system and provide adequate training and supervision to ensure that the fall prevention systems are suitable and used correctly.

Further information

- Australian Standards AS/NZS 1576 series *Scaffolding* and AS/NZS 4576:1995 *Guidelines for scaffolding*.
- Commission for Occupational Safety and Health, 2008, Fall prevention for scaffolders – guidance note.
- Commission for Occupational Safety and Health, 2004, Prevention of falls at workplaces – code of practice.

MINES SAFETY BULLETIN NO. 95

VENTILATION STANDARDS IN UNDERGROUND MINES

ISSUED: 14 FEBRUARY 2011

Summary of hazard

Inspections of underground operations in the Goldfields have highlighted poor ventilation practices, particularly in the lower level workings of decline mines and in relation to the risks associated with excessive temperatures, the use of diesel equipment and dispersal of fumes after blasting.

The consequences of poor ventilation include:

- heat exhaustion where temperatures are excessive;
- exposure to blasting fumes, which can lead to unconsciousness and even death;
- exposure to excessive levels of diesel particulates, which can lead to occupational health issues such as lung damage; and
- increased exposure to risk when fatigue results from a poor working environment.

This safety bulletin addresses inadequate ventilation standards in underground mines, including the use of single fans to ventilate multiple headings.

Contributory factors

Observations indicate that the following can result in poor ventilation:

- inadequate planning and scheduling resulting in the main return shafts and airways being too far behind the decline and level development;
- electrical infrastructure not properly planned to provide an adequate power supply for multiple fans;
- fan characteristics not properly assessed for the diameter and length of ventilation ducting required;
- inadequate consideration of the regulatory requirements for ventilation standards at truck loading stockpiles in declines and on operating levels;
- shift supervisors not aware of ventilation standards with regard to velocities and quantities of air; and
- lack of appropriate equipment to monitor blasting fumes and noxious gases; and
- use of single fans to ventilate multiple headings.

Action required

Specific actions are necessary under the Mines Safety and Inspection Regulations 1995 to ensure the adequacy of ventilation practices in underground mines.

- Regulation 9.14 requires the manager of an underground mine to ensure that ventilating air is provided in sufficient volume, velocity and quantity to:
 - remove any atmospheric contaminants; and
 - maintain a healthy atmosphere in workplaces.
- Regulation 9.15 outlines the requirements to address the adverse effects of extremes of heat and cold. Where the wet bulb temperature exceeds 25°C, an air velocity of not less than 0.5 metres per second (m/s) must be provided.
- Regulation 10.52 outlines the ventilation standard when diesel equipment is used. Loaders and trucks used in the Goldfields for loading at stockpiles have power ratings that require ventilation quantities typically between 25 m³/s and 40 m³/s at loading locations. In many cases, this means that the velocity of air required at the stockpile is greater than 1 m/s.

This bulletin serves as a reminder to responsible persons at mines to review current ventilation practices to ensure their adequacy.

Consider the need to:

- strictly adhere to the planned intervals between ventilation surveys;
- include stockpile loading locations in ventilation surveys;
- monitor scheduling of return airway development to keep up with the general development of the mine;
- advance electrical infrastructure in a timely manner;
- discourage the practice of ventilating multiple ends from one fan — it may be practical to work two ore drives in opposite directions but multiple levels should not generally be ventilated with one fan;
- carefully assess fan characteristics against the duties required;
- make shift supervisors aware of the ventilation standards in their operating areas;
- provide employees engaged in re-entry examinations after blasting with monitors suitable for the range of gases likely to be encountered; and
- provide shift supervisors and operators with the ventilation quantities required for the operation of diesel equipment in their operating areas.

MEDICAL BULLETIN NO. 6

MOSQUITO-BORNE DISEASES

ISSUED: 17 JUNE 2011

Health warning

The mosquito-borne diseases that are of concern in Western Australia are:

- Ross River virus disease
- Barmah Forest virus disease
- Kunjin virus disease
- Murray Valley encephalitis (MVE).

These diseases are caused by viruses that are transmitted by the bite of an infected mosquito. They cannot be caught by direct contact with another person or animal.

Dengue fever and malaria are not currently transmitted in Western Australia.

The Department of Health advises people living, working and travelling north and east of Perth in Western Australia to take extra care against mosquito bites following the detection of the MVE virus and closely related Kunjin virus in the Midwest, Wheatbelt, Goldfields, Kimberley, Pilbara and Gascoyne regions.

In addition, cases of Ross River and Barmah Forest virus diseases continue to be notified in people from across much of Western Australia.

Symptoms

Symptoms of Ross River and Barmah Forest virus diseases can be debilitating and include:

- painful and/or swollen joints
- fever
- sore muscles
- tiredness
- aching tendons
- headaches
- skin rashes
- swollen lymph nodes.

Symptoms of MVE and Kunjin virus disease can be severe and include:

- fever
- nausea and vomiting
- drowsiness
- dizziness
- bad headache
- muscle tremors.
- stiff neck

Response

People experiencing these symptoms should seek medical advice quickly. In severe cases, people may experience fits, lapse into a coma, and could be left with permanent brain damage or die.

Reducing the risk

There are no specific cures or vaccines for any of these mosquito-borne diseases so it is very important that people take care to prevent being bitten by mosquitoes and avoid mosquito habitats where possible.

Mosquitoes are most prevalent:

- at dusk and night
- where there are large bodies of water
- where there is stagnant water
- during warm weather.

Some seasonal weather patterns promote mosquito activity and increase the risk.

Controlling mosquitoes in most rural and remote regions of Western Australia is generally not possible because of the large size and inaccessibility of the natural mosquito breeding habitat. However, the risk of contracting mosquito-borne viruses can be reduced by taking a few simple precautions.

- Avoid outdoor exposure during periods of greatest mosquito activity, which are generally one to three hours after sunset and again around dawn.
- Wear long, loose-fitting and light-coloured clothing to prevent mosquito bites.
- Apply a personal insect repellent to exposed skin or clothing, and read the manufacturer's instructions to determine the method and frequency of application. The most effective and long-lasting formulations are lotions or gels containing diethyl toluamide (DEET) at 5 to 20 per cent or Picaridin. Most natural or organic repellents are not as effective as DEET or Picaridin, and need to be reapplied more frequently.
- Ensure insect screens are installed and completely mosquito-proof. Mosquito bed nets provide additional protection. When camping, use mosquito-proof tents or cover swags with mosquito nets.
- Adult mosquitoes are susceptible to desiccation (drying out) and are less active in windy conditions so, where possible, locate camp sites or accommodation villages away from mosquito habitats, particularly locations that may be very sheltered and the air is likely to be still.
- Ensure the drainage system at camp sites or accommodation villages does not allow water to accumulate and stagnate.

For further information, visit www.public.health.wa.gov.au or contact the Department of Health's Mosquito-Borne Disease Control Branch.

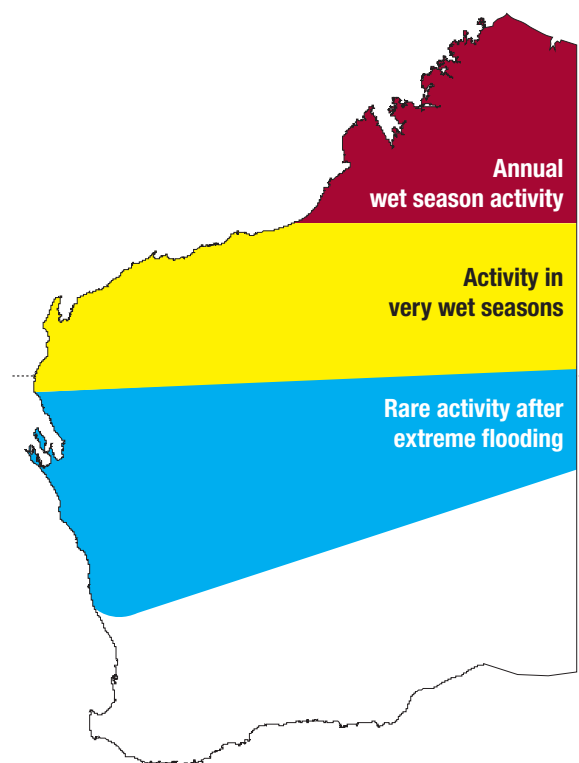


Figure 1 MVE risk areas

PETROLEUM SAFETY SIGNIFICANT INCIDENT REPORT NO. **01/2011**

HAND INJURY SUSTAINED DURING TONG JAW CHANGE-OUT

ISSUED: 27 MAY 2011

Incident

During a tong jaw change-out operation on a rig floor, a crew member tapped the tong jaw into position using a rubber mallet to insert the pin while two other crew members held the tong to stabilise it. He started with series of taps then swung with more force as one of the assisting workers adjusted the jaw but with his hand in the path of the mallet. The mallet struck the worker's right hand, fracturing his middle finger.

Contributory factors

- Unsafe and incorrect hand placement.
- Awkward manual handling of the task.
- Lack of communication between the crew members.
- The worker who was injured was on the first day of his shift.

Comments and preventative actions

Use a risk management approach and participative ergonomics (i.e. involve work crew) to review and revise the procedure for change-out operations.

Ensure that relevant staff are aware of the amended procedure and provide training if necessary.

Further information on addressing hazardous manual tasks is available at www.dmp.wa.gov.au/7221.aspx

PETROLEUM SAFETY SIGNIFICANT INCIDENT REPORT NO. **02/2011**

WORKER PERMANENTLY DISABLED AFTER BEING STRUCK BY FALLING HANDRAIL

ISSUED: 31 MAY 2011

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Incident

In late 2010 when a well site was being demobilised, a handrail fell from the sub-base walkway of a draw works skid being moved and struck a worker walking below at ground level. The initial contact was a glancing blow to the head, dislodging his hardhat. The handrail then pinned him to the ground. The injured worker is now a quadriplegic with limited hand movement.

Contributory factors

The root cause of the incident was that the handrails of the sub-base, either side of the draw works handrail, were left in position when the draw works were moved.

Contributing factors included the lack of suitable guidance documentation, hazard identification and risk analysis, and implementation of safe working practices.

It also appears that documentation capturing, identifying and mitigating the hazards was flawed or absent, and so the hazards and risks associated with the task were not identified in the risk assessment.

Preventative actions

- Review the adequacy of documentation relating to safe working practices and guidance material for standard operations.
- Review of adequacy of the material presented at pre-start, toolbox and safety meetings.
- Engineer the activity so that the draw works can be lifted without the need to skid the draw works, or use appropriate equipment such as a hydraulic ram jacking operation to perform the skidding operations.

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Resource Safety

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GETTING THE JOB DONE –
SAFELY

ON THE ROAD WITH SAFE
TOUGHNESS

SURFACE MINE
EMERGENCY RESPONSE
COMPETITION

IS YOUR WORKPLACE UP
TO SCRATCH?

GETTING REAL ABOUT
"REAL MEN"

STOPPING FOR SAFETY

MARK YOUR DIARY

Thin Lane Men

SHAM DESIGN CONTROL OPERATIONS

ona LOGISTICS TRANSPORT

LINDER technology

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OCTOBER 2011

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31					1	2
3	4 <i>Perth</i>	5	6	7	8	9
10	11 <i>Port Hedland</i>	12 <i>Karratha</i>	13 <i>Tom Price</i>	14 <i>Newman</i>	15	16
17	18 <i>Bunbury</i>	19	20 <i>Kalgoorlie</i>	21	22	23
24	25	26	27	28	29	30




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2010 Mines Safety Roadshow

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